

PPP Canada

# New Building Canada Fund: Procurement Options Analysis Guide



### **About PPP Canada**

PPP Canada is the government of Canada's centre of expertise on P3s. As a federal Crown corporation mandated to improve the delivery of public infrastructure by achieving better value, timeliness and accountability to taxpayers, through P3s. The Corporation was created to deliver more P3s by leveraging incentives, demonstrating success, providing expertise; and promoting best practices and capacity-building.

Increasing the visibility of P3s as a procurement solution for governments is one of the major accomplishments of PPP Canada. The Corporation's work and the strategies it employs on its three (3) business lines:

**P3 Knowledge Development and Sharing:** to serve as a source of expertise and advice on public-private partnership matters;

**Advancing Federal P3s:** as the lead on federal P3 matters with a mandate to assess federal P3 opportunities; and to advise on the execution of federal P3 projects; and

**Advancing Provincial, Territorial, Municipal and First Nations P3s:** to assess the suitability of P3 projects from provincial, territorial, municipal, and First Nations governments seeking funding from federal infrastructure programs, in particular the P3 Canada Fund.

[p3canada.ca](http://p3canada.ca)

# TABLE OF CONTENTS

Table of contents .....	1
Introduction .....	2
Section 1: Procurement Options .....	4
Section 2: Qualitative Analysis.....	9
Section 3: Market Sounding.....	15
Section 4: Quantitative Analysis .....	18
Section 5: Integrated Recommendation .....	46
Section 6: Procurement Strategy .....	49
Appendix A: Glossary.....	54

# INTRODUCTION

Public-private partnerships (P3s) have demonstrated their ability to produce value for taxpayers in the delivery of public infrastructure. By partnering with the private sector to manage many of the risks associated with the construction, financing and operation of infrastructure, governments can build public infrastructure faster and at a lower cost to taxpayers.

In Economic Action Plan 2013, the Government of Canada announced that a new P3 Screen for projects with eligible costs of over \$100 million submitted for federal funding under Infrastructure Canada's New Building Canada Fund (NBCF) to determine whether better Value for Money can be achieved through P3 procurement.

The P3 Screen is divided into two parts: the P3 Screen - Suitability Assessment (SA); and the Procurement Options Analysis (POA). Should the SA conclude that a project demonstrates P3 potential, Procuring Authorities will be required to develop a POA.

As the Government of Canada's centre of expertise on P3s, PPP Canada provides advice to jurisdictions in all levels of governments as they consider the P3 suitability of their specific projects.

## Purpose

This document is meant to assist Procuring Authorities in the planning and delivery of public infrastructure where a P3 has been identified as a potential implementation option through completion and analysis of the New Building Canada Fund (NBCF) P3 Screen – Suitability Assessment (SA).

This Guide is only for those Procuring Authorities who have completed their P3 Screen – SA and has been referred to PPP Canada by Infrastructure Canada to begin the development of their Procurement Options Analysis (POA). If you have not yet completed the P3 Screen – SA, please contact Infrastructure Canada for further information.

The POA presents qualitative and quantitative assessments of a range of infrastructure asset delivery models and recommends an optimal model on the basis of demonstrable public benefits, most notably Value for Money for the public sector.

It also presents the Procuring Authority's procurement plan, which identifies the roles and responsibilities of the various project stakeholders, procurement activities, key milestones and timelines. This upfront planning will help ensure successful procurement, effective project delivery and sustainability of the asset throughout its operational period.

## Procurement Options Analysis (POA)

The POA describes, examines and compares the traditional procurement delivery model and P3 delivery models for the delivery of infrastructure. A POA includes the following sections:

1. Procurement options;
2. Qualitative analysis;
3. Market Sounding;
4. Quantitative analysis;

5. Integrated recommendation; and
6. Procurement Strategy.

The optimal delivery option is selected by subjecting the shortlisted procurement options to qualitative and quantitative examinations and determining which option best meets the identified criteria. The qualitative analysis focuses on non-quantifiable factors that influence project delivery. Criteria that can be assessed and compared across delivery options are used to select the preferred delivery model from a qualitative perspective.

The quantitative analysis considers measurable benefits, costs and risks associated with different procurement options. It assesses the Value for Money generated by each delivery alternative and selects the option that maximizes value for taxpayers. PPP Canada has also developed a *Schematic Design Estimate Guide*, a guide to preparing cost estimates suitable for quantitative analysis when considering a P3 as an asset delivery option.

The integrated recommendation identifies the procurement option that best meets the needs identified by the Procuring Authority based on the qualitative and quantitative assessments.

## **Assistance in Preparing a Procurement Options Analysis**

The preparation of a POA is a significant undertaking as it presents the results of a significant body of analysis, consultation, and planning. Procuring Authorities are encouraged to retain professional advice with the expertise in the preparation of the POA and the analysis underpinning them.

The NBCF P3 Screen will rely, to the extent possible, on methodologies and practices already in place in some provinces. In particular, as these provinces have established Value for Money (VfM) methodologies, these methodologies will be accepted. Procuring Authorities therefore, should develop their POA in accordance with the established provincial methodology in its respective jurisdictions, if available. Other jurisdictions are encouraged to consult this guide for suggested methodology. Any departures from existing methodologies should be justified and explained.

PPP Canada can assist Procuring Authorities by providing expert advice as well as financial support the POA development. PPP Canada will cover up to 50% of costs incurred by provinces, territories and municipalities for their POA development (up to a limit of \$200,000 per project).

In addition, PPP Canada's highly qualified staff is available to support Procuring Authorities through the process of preparing a POA, including market research, qualitative, and quantitative analysis, and general P3 education and awareness. We can assist also Procuring Authorities to tap into the array of experts available in the Canadian P3 market.

## SECTION 1: PROCUREMENT OPTIONS

The purpose of this section is to:

- Articulate the Procuring Authority's procurement objectives, opportunities and constraints;
- Clearly describe the traditional delivery model to be considered in the Procurement Options Analysis (POA);
- Establish a realistic and market-acceptable range of delivery models for qualitative assessment by the Procuring Authority;
- Present the criteria upon which the delivery models will be shortlisted by the Procuring Authority; and
- Describe the Procuring Authority engagement with the P3 market and stakeholders, as well as present findings from this engagement.

*Procurement Options Analysis (POA) is a systematic and methodical approach to comparing different approaches to delivering a given asset or investment.*

This section is important because it:

- Discusses the alignment of the range of project delivery models with the Procuring Authority's investment and procurement objectives, opportunities and constraints;
- Develops and shortlists the criteria used to identify viable delivery options;
- Substantiates the market's interest in the project; and
- Presents qualitative criteria to substantiate the choice of the optimal delivery model.

Conducting a review of all possible delivery options and shortlisting those that are most viable for further analysis ensures human and financial resources are utilized efficiently. At a minimum, the POA compares a traditional procurement option (Public Sector Comparator or PSC) to a P3 procurement option. In most cases the shortlist of options can be determined by:

- Reviewing past experience on similar projects;
- Reviewing the Procuring Authority's needs;
- Examining the NBCF P3 Screen Matrix results to identify constraints and defining factors for procurement options;
- Examining current market conditions and precedent projects in other jurisdictions; and
- Confirming preferences on the length of Project Agreements, operational timeframes and the flow of funding for the initiative.

This section of the POA Guide will help Procuring Authorities to define the most viable procurement options to be compared on a qualitative and quantitative basis (discussed in Sections 2 and 4, respectively). Different options have different flow of payments, allocation of risks, opportunities for innovation, financing requirements, etc. It is critical that the scope and implications of each option are well understood and documented. The outcome of the shortlisting exercise is the identification and definition of the most viable procurement options. The remainder of the POA will identify the option that provides the greatest value to Canadian taxpayers.

Before developing the project's procurement options, Procuring Authorities must examine the results of the NBCF P3 Screen Matrix and determine the components of the project and any combinations of these components that may be undertaken by the government or the private sector, as these combinations define different procurement models. Typical infrastructure projects have five components:

1. Design
2. Build
3. Finance
4. Operate
5. Maintain

Different combinations of the foregoing infrastructure components create commonly found procurement models, such as Design-Bid-Build (DBB), Design-Build (DB), Design-Build-Finance (DBF), Design-Build-Finance-Maintain (DBFM) and Design-Build-Finance-Operate–Maintain (DBFOM).

The analysis which is undertaken in the POA must first acknowledge which combinations are being examined and then identify the responsibilities and risks associated with each component under the different procurement option. The POA examines the initial configurations and validates the hypotheses underlying the configurations.

## **Step 1: P3 Screening**

### **Objective**

In this section of the POA, the Procuring Authority should:

- Summarize the results of applying the NBCF P3 Screen Matrix to the proposed project and the nature of consultations with PPP Canada.
- Explain how the project, given its objectives and constraints, was determined to be a suitable P3 candidate.

### **Sources of Information**

- Sources of information include: completed NBCF P3 Screen Matrix, consultations with PPP Canada and other P3 agencies, PPP Canada's assessment of the screening results, policy papers, reports, case studies, feasibility studies, reviews of precedent transactions, and stakeholder consultations.

### **Completion Checklist**

- This section should answer the following questions:
  - ✓ What were the results of the NBCF P3 Screen Matrix?
  - ✓ Has the Procuring Authority explored a reasonable array of options?
  - ✓ Is the choice of viable options for further analysis supported?

## **Step 2: Traditional Public Sector Procurement Approach**

### **Objective**

In this section of the POA, the Procuring Authority should:

- Define the Public Sector Comparator (PSC) model; and
- Explain the roles, responsibilities and risk transfer under the PSC model.

The Public Sector Comparator (PSC) model is the procurement option that is traditionally used to procure assets of a class that is similar to or the same as the one being assessed. It represents the way the Procuring Authority would most likely procure the asset.

For the purposes of the POA, the PSC model is assumed to be a Design-Bid-Build (DBB). This model is widely used by Procuring Authorities to procure capital assets. Under the DBB, the Procuring Authority completes the specifications and the design of the asset. The completed design is tendered through a Request for Proposal (RFP) process to builders who bid to construct the project. As a result, competitive bids are provided on the basis of a final (or a very advanced) detailed design. The Procuring Authority, therefore, retains the risk of any design deficiencies or subsequent changes during the construction period. The Procuring Authority makes progress payments on work completed during the construction period as work progresses.

Once construction is complete, the Procuring Authority takes possession of the asset and assumes long-term responsibility, including the risk associated with an asset because the Procuring Authority owns, operates and maintains the asset. Greater emphasis is placed on low-cost and best value construction and less emphasis is placed on the life-cycle costs of the asset.

Occasionally, a variation of the DBB may be used, such as the Design-Build (DB) model. In this model, the Procuring Authority issues general requirements and output specifications for the asset. Then, the private sector is responsible for the design and construction of the asset. The capital investment is paid for by the Procuring Authority using progress payments or a series of milestone payments as the project is advanced. This model or other variations of the DBB are best used in situations where they have been successfully implemented for past projects of similar scope.

When defining the PSC model, it may be necessary to conduct reviews of previous asset procurements of similar scope. To the extent possible, it is recommended that consultations are done with other jurisdictions involved in previous procurements because of valuable insights into prior procurement and understanding of the challenges and keys success factors. Observations from the research can then be incorporated into the POA.

## Sources of Information

- Sources of information include, but are not limited to: reviews of past experience on similar projects, policy documents, procurement directives and guidelines, feasibility studies, risk analysis, technical studies, stakeholder consultations, and project staff; and
- When defining the PSC model, it is recommended that consultations are done with government officials involved in previous procurements to acquire insights of potential challenges and success factors.

## Completion Checklist

- This section should answer the following questions:
  - ✓ Is the traditional procurement approach clearly described with respect to the role of the Procuring Authority vis a vis the design, construction, operation and maintenance of the project?
  - ✓ Are past projects for which this traditional approach was used disclosed and clearly described?

## Step 3: Developing and Shortlisting the Procurement Options

### Objective

In this section of the POA, the Procuring Authority should:



- Identify, disclose and discuss any Procuring Authority's constraints that would preclude the use of a commercially acceptable and viable project delivery model;
- List precedent transactions that have been pursued as P3s based on inter-jurisdictional studies. Precedent transactions can be used to identify potential delivery options for projects by uncovering particular challenges or issues to be addressed in choosing the delivery option;
- Note that precedent transactions should be recent and relevant to the proposed project in terms of size, scope and objectives. Reviewing the alternatives and technologies already in use, information about project funding, and project opportunities and challenges will help solidify the viability of the proposed project. PPP Canada recommends presenting three case studies on precedent projects of similar size and scope to the proposed project;
- Narrow the range of commercially acceptable and viable P3 models by assessing: precedent projects; Procuring Authority's needs and priorities; project constraints; project risk profiles; and current market conditions. The Procuring Authority should start this analysis by considering the design-build-finance-operate-maintain (DBFOM) model since it has the potential to transfer the greatest amount of risk to the private partner; and
- Make comparisons between at least two options: the PSC model, a P3 model and, in some cases, a third alternative form of delivery, such as sale/leaseback. In the case of the P3 model, experience demonstrates that an early P3 screening assessment that clearly articulates project objectives and constraints typically identifies the one or two plausible options that merit further assessment.

## Developing the P3 Model

The P3 model represents an alternative procurement option and is based on the transfer of a significant amount of design, construction, operation and maintenance responsibility and related risk to the private sector. Procurement models that include operations and maintenance maximize private sector incentives to design and build high quality infrastructure and maintain it to meet lifecycle expectations.

Risk allocation between public and private parties can have a significant effect on the cost of the project. The definition of the responsibilities of the private partner and associated risk allocation is a critical step in a well conducted POA. It is important to validate responsibility and risk allocation with the private sector through market soundings, as discussed further in Section 5.

Two (2) common P3 models are design-build-finance-operate-maintain (DBFOM) and design-build-finance-maintain (DBFM) because of the extent of risk transfer to the private sector. In both models, the private sector is responsible for design, construction, financing and maintenance of the asset. The project is also paid for by the Procuring Authority in instalments over a long-term, fixed period (20+ years) under both models. Under the DBFOM model, the private sector additionally provides services to the public, such as collecting and administering the tolls on a road, whereas the Procuring Authority provides such services under the DBFM.

When determining the possible P3 option(s), the DBFOM model is the recommended starting point of the exercise since it transfers the greatest amount of risk to the private sector. A critical analysis of the feasibility of this option is conducted and the model adjusted incrementally until a preferred P3 option is identified. For example, if it is determined that the jurisdiction is legally required to operate an asset, a DBFM model would then be considered. This work will inform the analysis to determine which P3 model is most appropriate to be compared against the PSC model.

## Shortlisting Procurement Options

The objective of shortlisting the procurement options is to determine a manageable set of delivery options for the project that merit a deeper review using both quantitative and qualitative analysis. In order to shortlist the options, the Procuring Authority will examine past experiences on similar projects, departmental needs, P3 Screen Matrix results and current market conditions. Criteria are based on project and procurement objectives, project constraints,

policy direction, risk profile, stakeholder considerations, market sounding feedback and insights from precedent transactions.

Precedent transactions can be used to identify potential delivery options for projects. They can help uncover particular challenges or issues to be addressed in choosing the delivery option and clearly present the benefits and risks associated with similar projects. Collected case studies can also identify areas of improvement relative to past project completions. It is important to note that precedent transactions should be relevant to the proposed project in terms of size, scope and objectives, as well as be timely in nature. Reviewing the alternatives and technologies already in use, information about project funding, and project opportunities and challenges will help solidify the viability of the proposed project. PPP Canada recommends providing at least three case studies on precedent projects of similar size and scope to the proposed project.

In the absence of precedent projects, or as a complement to them, different delivery options can be considered against the needs and strategic objectives of the proposed project to see which options provide the best fit. The options available, as outlined at the beginning of this section, range from the traditional Design-Bid-Build model to the fully-inclusive Design-Build-Finance-Operate-Maintain model.

Elements for consideration in developing the assessment methodology include, among other things, the weighting of shortlisting criteria; the scoring or ranking mechanism and process; evaluation approach (e.g., use of a evaluative panel versus facilitated workshops); and standalone versus relative scoring. When shortlisting procurement options, it is important that evaluative criteria are clearly linked to project needs, objectives and constraints. A report should be developed to document the shortlisting of options, as well as the rationale for the approach. Options should be described in detail in order to fully justify the pursuit of a public-private partnership.

## Sources of Information

- Sources of information include, but are not limited to: domestic and international precedent transactions and the experience of knowledgeable and reputable transaction and financial advisors.
- Sources of information for the review of precedent transactions include, but are not limited to: articles from websites and magazines specializing in infrastructure (such as, for example, Infrastructure Journal, Project Finance and InfraAmericas) or in the project's particular industry.

## Completion Checklist:

- This section should answer the following questions:
  - ✓ Have the different roles, responsibilities and risk allocation underlying the options been clearly explained?
  - ✓ Are the P3 delivery models identified as commercially acceptable substantiated by precedent transactions, or the knowledge and experience of a reputable transaction and financial advisor?
  - ✓ Are precedent transactions that reflect particular challenges or issues studied?
  - ✓ What transaction structures and procurement strategies have other jurisdictions used when developing similar projects? How successful were they?

## SECTION 2: QUALITATIVE ANALYSIS

The purpose of this section is to:

- Discuss the Procuring Authority's, investment-specific, procurement objectives related to the proposed project;
- Present robust qualitative evaluation criteria to with which assess the range of project delivery models;
- Determine the relative importance of each criterion relative to meeting the overall strategic objectives of the proposed investment;
- Assess and compare the suitability of each option relative to the criteria; and
- Prepare a sensitivity analysis, mitigation strategies and interpret conclusions.

This section is important because it:

- Accounts for the non-quantifiable benefits and risks of the various delivery approaches under consideration;
- Considers the extent to which each procurement option aligns with the overall objectives of the proposed investment;
- Presents qualitative assessment factors that best reflect the objectives of the investment; and
- Requires industry experience and internal knowledge that provide sufficient insight into intangible factors surrounding the procurement option selection.

*The information provided in the following sections may be used by any Procuring Authority in the development of their POA. However, it is expected that Procuring Authorities will follow the established provincial methodology in their respective jurisdictions, if available.*

The qualitative analysis accounts for the benefits and risks of the proposed project that are not directly quantifiable. PPP Canada recommends taking both quantifiable and non-quantifiable factors into consideration when choosing the procurement option that best meets the objectives of the proposed project.

Specific to the proposed project, information from the project needs analysis (not discussed in this guide) is reviewed including the previously completed market soundings, infrastructure justification, and the results from other P3 initiatives. The list of factors may come from experts, senior leadership in the jurisdiction, various economic or engineering reports and stakeholder consultations. A workshop can also be used to finalize the list.

A thorough qualitative assessment includes the following steps: developing qualitative criteria and scoring methodology relevant to the proposed project; assessing and comparing the suitability of each option relative to the criteria; and preparing a sensitivity analysis, mitigation strategies and interpret conclusions.

## Step 1: Qualitative Criteria and Scoring Methodology

### Objective

In this section of the POA, the Procuring Authority should present:

- Robust criteria for assessing the delivery models under consideration;
- Criteria should be based on project-specific and procurement objectives, policy direction, risk profile, stakeholder considerations, market sounding feedback (explained further in Section 5), and insights from precedent transactions;
- Seven (7) to ten (10) criteria that will have the greatest potential for a positive or negative impact on the Project;
- A clear and defensible assessment methodology for evaluating the project delivery models against the developed evaluation criteria; and
- Elements for consideration in developing the assessment methodology include, among other things, the weighting of criteria, the scoring mechanism and process, evaluation approach (e.g., use of an evaluation panel versus judgment of experts), standalone versus relative scoring, etc.

A comprehensive qualitative analysis requires industry experience in order to provide sufficient insight into intangible factors surrounding the procurement method selection. There could potentially be a significant amount of initial criteria. Low impact, low importance and low probability of occurrence criteria should be removed in order to maintain a manageable list. A clear summary of why certain options were removed should be provided. Conversely, some criteria may be deemed mandatory. These criteria must be particularly well substantiated because of their importance in the selection of the best procurement model. Any must-have or mandatory requirements need to be applied as key qualitative criteria first in order to identify any of the procurement options that fail to meet basic requirements.

P3 specific criteria may be included in the list of qualitative factors, but should not inherently favour a P3 delivery approach. At a minimum, the qualitative analysis must consider the extent to which each procurement option aligns with the overall objectives of the project. The procurement option selection has the potential to affect the ability to meet objectives and may not be critically assessed elsewhere in the project, so it is imperative that a thorough consideration of the criteria is conducted. Considerations such as sustainable development, stakeholder management, social and economic objectives may also warrant inclusion in this list.

Table 1 provides a list of sample qualitative factors for consideration. It is recommended that the suitability of these factors is assessed relative to the specific project.

**Table 1: Sample Qualitative Factors**

Factor	Description
<b>Alignment with Project Objectives</b>	The extent to which each procurement option aligns with the objectives of the project.
<b>Time to Deliver Project</b>	The extent to which each procurement option is likely to achieve operations by a specified date.
<b>Private Sector Market Interest/Capacity</b>	The extent to which each procurement option generates market interest in the project amongst the appropriate players with the relevant skills, expertise and capacity to deliver the infrastructure, while promoting fair and transparent competition.

<b>Budget Certainty</b>	The extent to which each procurement option assists in providing earlier cost certainty to the Procuring Authority.
<b>Corporate Risk</b>	The extent to which each procurement option has the ability to meet the Procuring Authority's mandate.
<b>Operational Flexibility (Future Scope Changes)</b>	The extent to which each procurement option allows, over time, the Procuring Authority to manage and implement changes to the functional requirements of the planned investment (particularly in relation to any variation in the required capacity of the infrastructure) as compared to the forecasted need to make such changes.
<b>Stakeholder Management</b>	The extent to which each procurement option permits the Procuring Authority to address stakeholder issues and needs throughout the life of the asset.
<b>Political Constraints</b>	The extent to which each procurement option can address political issues and manage approvals.
<b>Economic Factors</b>	The extent to which each procurement option is able to handle factors such as financing availability, employment, and exchange rates.
<b>Social Factors</b>	The extent to which each procurement option addresses social and community needs.
<b>Sustainable Development Factors</b>	The extent to which each procurement option aligns with the economic, environmental and social initiatives.
<b>User Considerations</b>	The extent to which each procurement option addresses concerns and expectations of the user e.g., access, service satisfaction.
<b>Strategic Alignment</b>	The extent to which each procurement option aligns with the program delivery strategies of the Procuring Authority; for example those set out in the Project Authority's plans and priorities.
<b>Implementation and Capacity Considerations</b>	The extent to which each procurement option aligns with the Procuring Authority's capacity to oversee or manage the infrastructure investment.
<b>Regulatory and Legal Considerations</b>	The extent to which each procurement option addresses these considerations in terms of risk, cost, public policy, etc.
<b>Technological Factors</b>	The extent to which each procurement option offers an element of innovation.
<b>Public Acceptance Considerations</b>	The extent to which each procurement option is viewed positively amongst stakeholders (i.e. end users, the City, and the media).
<b>Security Factors</b>	The extent to which information, services and assets are reasonably protected, employees are not exposed to workplace violence, and governance structures are implemented to manage security.

As noted above, these factors are generic and must be altered based on the nature of the proposed project. It is important to avoid double counting of criteria in conjunction with the quantitative analysis that may skew the overall analysis of the different project delivery models. For example, if “time to deliver the project” can be quantified and included in the risk analysis from a quantitative perspective, it must be excluded from qualitative criteria. On average, business cases present nine criteria and PPP Canada recommends the presentation of seven (7) to ten (10) criteria that have the greatest potential positive or negative impact on the investment.

After developing the list of qualitative factors for consideration, the relative importance of each criterion relative to meeting the overall strategic objectives of the proposed project must be determined. Each criterion should be weighted based on its overall impact on the project, with the total weight of all criteria equal to 100%. Any options that do not meet the mandatory requirements may not be considered as viable procurement options.

The weights should be objectively developed based on the overall project objectives. Some of the known benefits of a P3 model may be included in the list, but should not dominate the overall criteria. A common approach is to organize a group from the leadership of the jurisdiction and to place percentages of importance on one criterion versus another, relying on industry experience. For example, weights can be based on the parameters related to optimal asset delivery, the relative contribution of the criterion to overall project delivery, or the functional importance of the criterion.

## Sources of Information

- Sources of information include, but are not limited to: reports from workshops, market soundings, cost-benefit analyses, economic impact studies, inter-jurisdictional studies, environmental assessment reports, stakeholder consultations, and members of the project team and external advisors.

## Completion Checklist:

- This section should answer the following questions:
  - ✓ Are the criteria clearly linked to relevant project considerations and factors? In particular, do the criteria consider the feedback received from the market soundings?
  - ✓ Is the assessment methodology clearly articulated?
  - ✓ Is the rationale for the components of the methodology justified?

## Step 2: Assessing and Comparing Models

### Objective

In this section of the POA, the Procuring Authority should:

- Present the results of applying its evaluation criteria and assessment methodology to assess the delivery models under consideration; and
- Clearly present the rationale for any and all scoring and/or ranking of delivery.

The next step is to assess how well each procurement option matches the criteria. A numerical scoring system is a useful way to distinguish among procurement options and to show the relative advantage of one option over another. This evaluation is best done independently by individuals who then come together to compare scores and the rationale behind their scoring. A group composite score could then be used.

PPP Canada recommends an evaluation scale of 1 to 4 (i.e. 1-disagree, 2-tend to disagree, 3-tend to agree, 4-agree) for evaluating alternatives in order to facilitate the development of relative scores. Once the scores have been developed for each criterion, it is important to examine what the impact would be if the weights were to change. Odd-numbered scales (i.e. 5 alternatives, 7 alternatives, etc.) allow respondents to choose a neutral position by selecting the middle alternative. From a data collection perspective, if the majority of respondents choose a neutral position, the viability and usefulness of the data collection is essentially void. Procuring Authorities are also more likely to choose a neutral position relative to committing to either a slightly positive or slightly negative position if they are unsure of a response. Alternatively, a scale with an even number of choices (i.e. 4 alternatives, 10 alternatives) forces Procuring Authorities to choose a position and therefore adds more value to the data collection process.

The number of possible choices for Procuring Authorities to select from also impacts the overall effectiveness of the scoring system. Given a larger scale (i.e. 1 to 20), there is less differentiation between alternatives and therefore the results will not be as significant. A lower scale range (i.e. 1 to 4) allows respondents to differentiate more effectively between alternatives.

The combination of the weighted importance of each criterion and the score for each option gives a weighted value of each option. Table 2 provides a sample scoring matrix for the qualitative analysis. The purpose of the scoring system is to create a tool that promotes discussion of issues and strategies related to the procurement of the asset resulting in a robust qualitative analysis of the procurement options.

**Table 2: Sample Scoring Matrix**

Criteria	Weighting	PSC Score	P3 Score	PSC Weighted Result	P3 Weighted Result
Alignment with Objectives	35%	2	4	0.7	1.4
Strategic Alignment	20%	1	4	0.2	0.8
User Considerations	20%	3	2	0.6	0.4
Market Interest	15%	2	4	0.3	0.6
Operational Flexibility	10%	4	2	0.4	0.2
<b>Total</b>	<b>100%</b>	<b>12</b>	<b>16</b>	<b>2.2</b>	<b>3.4</b>

Once the scores have been developed for each criterion, it is important to examine what the impact would be if the weights were to change.

## Sources of Information

- Sources of information include, but are not limited to: policy direction, planning documents, feasibility studies, project workshop notes, precedent transactions, stakeholder input including input from project and the Procuring Authority management, technical reports, legal opinions, and consultant reports.

## Completion Checklist:

- This section should answer the following questions:
  - ✓ Is the rationale for each rating/scoring clearly presented?
  - ✓ Is it apparent that each delivery model, including traditional delivery, was given fair consideration?

## Step 3: Sensitivity Analysis and Mitigation Strategies

### Objective

In this section of the POA, the Procuring Authority should:

- Test the overall impact of different input assumptions on estimates;
- Test for robustness when outcomes are uncertain;
- Detect errors in delivery model objectives at an early stage;
- Simplify the model delivery options by eliminating redundant or unnecessary data; and
- Consider and document potential mitigation measures, with a focus on the causes of particularly high or low scores, including the budgetary impact of any costs associated with the mitigation measures.

A sensitivity analysis is used to test the overall impact of different input assumptions on estimates, which provides insight into the degree to which a particular procurement option is superior. If the outcome of a particular criterion is different than what was initially assumed, the overall impact on project delivery can be better ascertained.

A final activity in the analysis is to consider potential mitigation measures, with a focus on the causes of particularly high or low scores. In some instances, a low score may be given because of concern that the option will not deliver against the criterion. The reviewers discuss what measures might be taken to mitigate this situation and potentially improve the competition. For example, contractual terms could be used to address operational flexibility concerns related to the P3 model or strengthened project management could address schedule issues associated with the Public Sector Comparator (PSC) model. In each instance, the intent is to try to leverage a situation for higher value to the Procuring Authority.

These types of mitigation measures and alternative considerations are documented and form part of the report on the Qualitative Analysis and ultimately incorporated as considerations in the Integrated Recommendation (discussed in Section 5). The budgetary impact of any costs associated with the mitigation measures is also considered. The end product is a description of the qualitative criteria, scores, underlying assumptions and the mitigation strategies for each procurement option. The rationale for each of the weighted outcomes is explained.

It is recommended that the analysis be well-documented to provide evidence of a well-thought out process and defensible results. The documentation includes support for why certain criteria were used, how the weights were determined and applied, how the scores were given and then used in the analysis, and what were the prime criteria and findings used to make the recommendation. This information will be extracted for the Integrated Recommendation, which considers the results of the quantitative and qualitative analyses together to justify the selection of the preferred procurement model.

### Sources of Information

- Sources of information include, but are not limited to: workshop notes, precedent transactions, technical reports and consultant reports.

### Completion Checklist:

- This section should answer the following questions
  - ✓ Is the analysis well-documented, with support for the underlying assumptions?
  - ✓ Does the analysis mitigate errors in the delivery model and eliminate redundant data?



## SECTION 3: MARKET SOUNDING

The purpose of this section is to:

- Ascertain the market's interest in different delivery models and to determine the extent to which specific delivery models will attract competition; and
- Gather information about the interest, opportunities and challenges associated with a proposed project.

This section is important because it:

- Provides an understanding of the project's marketability;
- Provides an understanding of potential market constraints;
- Provides an understanding of risk allocation;
- Prepare the market for the procurement and improve competitive tension during the process of the transaction; and
- Provides estimations or confirmations for the quantitative assessment.

A market sounding is the process by which information about the interest, opportunities and challenges associated with a proposed project are discussed with relevant participants, such as builders, facility management providers, operators, and financiers.

### Step 1: Market Sounding Methodology

#### Objective

In this section, the Procuring Authority should:

- Outline the Procuring Authority's overall strategy for engaging with market sounding participants;
- Describe the process used to identify market sounding participants to ensure that selected participants are appropriate. A list of market sounding participants should be included;
- Describe the process used to conduct market soundings, including details about the project related information provided to participants in advance of the meeting, the role of the Procuring Authority during meetings; questions asked; and
- Provide information on the Procuring Authority's plan for follow-up consultations and refreshes.

A preliminary market sounding should be conducted to ascertain the market's interest in different delivery models and to determine the extent to which specific delivery models will attract competition. The participants in the market sounding should have experience with similar projects, as well as have the resources to service the project's objectives. On average, fifteen (15) participants' feedback is required for a sufficient market sounding. PPP Canada recommends between twelve (12) and eighteen (18) participants. The participants should be comprised of relevant builders, facility management providers, operators, and financiers. It is important to have a sufficient number of participants from each of these categories; it is recommended that there are at least four (4) participants from the each category of participants.

Confidentiality and accuracy are two significant concerns during this section of the market sounding process. In some cases, firms will request anonymity in order to provide more frank answers, but the reputation of firms is often considered during the business case review process. For example, a firm that discloses its name and has well-documented P3 experience will likely have a stronger influence on the decision making process. It is also important

to note that the participants should have significant interest in the proposed project in order to garner the most relevant responses possible.

The questions in the market sounding should involve areas such as market interest in the project, the potential for innovation and the ability to transfer risk where appropriate. In preparing for the market sounding, the Procuring Authority can look at findings from precedent transactions and publications from the industry to anticipate the range of issues that industry might have with the project. They might also wish to consult with financial or technical advisors, industry associations, and government P3 procurement agencies.

The number of market sounding questions varies based on project-specific criteria, but generally there should be questions geared towards builders, operators and financiers. Table 3 provides sample of market sounding questions and information that could be gathered during the market sounding process.

**Table 3: Sample Market Sounding Questions**

Question	Targeted Participant
Is the project considered an attractive opportunity from your perspective?	Builders, Operators, Financiers
Are there any factors that would influence your decision to participate in the proposed project?	Builders, Operators, Financiers
Are there opportunities or concerns surrounding your membership in a project consortium?	Builders, Operators, Financiers
What is a realistic time frame for the proposed project?	Builders, Operators, Financiers
Describe your company's role in similar (industry-specific) projects.	Builders, Operators, Financiers
What types of challenges and risks do you foresee during the construction period of this project?	Builders
What is your preference in terms of length of time for the operating term?	Builders
What is the minimum equity contribution that would make this project attractive?	Financiers
What equity structure would work best for this type of project in your experience?	Financiers
What is the likely financing approach for this project?	Financiers
What is the best method to reduce the costs of financing and their impact on overall project costs?	Financiers
What are some of the perceived risks associated with the procurement process?	Financiers
Are there lender or ratings agency concerns associated with the viability of the project?	Financiers

As noted above, the questions should be targeted towards the market participants that are best able to respond to the questions in an informed manner. It is important to note that these questions are generic and must be customized

and expanded based on the nature of the project and specific risks and concerns associated with the project. On average, market soundings present at least nine questions to participants. PPP Canada recommends both the presentation of questions, as well as the option for participants to comment on concerns and suggestions to improve the overall viability of the proposed project.

## Sources of Information

- Reputable market sounding participants including, but not limited to, bidders on precedent transactions, industry publications (e.g., Infrastructure Journal, InfraAmericas, etc.), financial and technical advisors, industry associations (e.g., Canadian Council for Public-Private Partnerships), and government P3 procurement agencies such as Infrastructure Ontario, Partnerships BC, Infrastructure Quebec, Alberta Infrastructure, and PPP Canada; and,
- Guidance on planning and conducting market sounding includes, but is not limited to: the Procuring Authority's transaction advisor, internal staff and government P3 agencies.

## Completion Checklist:

- This section should answer the following questions:
  - ✓ Have the market sounding process and participants been clearly presented?
  - ✓ Is the rationale for the selection of the participants disclosed?
  - ✓ Does the list of participants cover the range of market participants, i.e. builders, financiers and operators?
  - ✓ Are there between twelve (12) and eighteen (18) participants comprised of relevant stakeholders (i.e. builders, financiers and operators)?
  - ✓ Are the selected participants likely to bid on the project?
  - ✓ Is it clear that the market sounding was conducted without prejudice and in a manner that allowed participants to speak freely about project concerns?
  - ✓ Do the questions in the market sounding involve areas such as market interest in the project, the potential for innovation and the ability to transfer risk where appropriate?

## Step 2: Market Sounding Findings

### Objective

In this section of the POA, the Procuring Authority should:

- Clearly articulate how the findings of the market soundings impact the viability of the delivery model.

### Sources of Information

- Sources of information for this section will include information recorded during market sounding meetings.

## Completion Checklist:

- This section should answer the following questions:
  - ✓ Is the proposal of significant/clear interest to the market (domestic and international)?
  - ✓ Did market participants highlight any particular constraints or opportunities related to the transaction?
  - ✓ Are the key themes/messages from the market soundings reflected in the POA?

## SECTION 4: QUANTITATIVE ANALYSIS

The purpose of this section is to:

- Present robust financial models for the project based on the best available cost estimates and information from capital markets;
- Compare the risk-adjusted whole-of-life costs between the Public Sector Comparator (PSC) model and P3 model;
- Provide PPP Canada with an accessible, usable financial model available to support its analysis. Financial models should be designed to be highly flexible and allow for testing the overall impact of different inputs and assumptions;
- Present a focused quantitative risk assessment of the project; and
- Present the net present cost of both the PSC model and P3 model, adjusted to reflect how risks are allocated between the Procuring Authority and the private partner for each short-listed delivery model. The difference in the risk-adjusted net present cost between the two models is called Value for Money (VfM).

This section of the POA is important because it:

- Provides a clear description of the risk allocation model and the quantitative benefits brought to the Procuring Authority from the risk allocation model; and
- Demonstrates that the Procuring Authority understands the project risks and has thoroughly considered the risk transfer benefits and financial costs.

The substantive output of the quantitative analysis is the estimated VfM and, as a result, the quantitative analysis is often referred to as the VfM Analysis. Value for Money compares the risk adjusted cost of the PSC model to the risk adjusted cost of a P3 model and or other options being evaluated.

Value for Money identifies the option that provides the greatest value in quantitative terms over the design, construction and operation/maintenance phases of the project. Each procurement option is, therefore, evaluated using whole-of-life cost estimates over the analysis period. This allows for the comparison of the different procurement options over the useful life of the asset using comparable cost components, timeline and output specifications to provide a like-for-like comparison of the procurement options.

*The information provided in the following sections may be used by any Procuring Authority in the development of their POA. However, it is expected that Procuring Authorities will follow the established provincial methodology in their respective jurisdictions, if available.*

## Step 1: Value for Money (VfM) Methodology

### Objective

In this part of the POA, the Procuring Authority should:

- Clearly describe the VfM methodology to be applied to the project. In particular, the methodology should disclose: how risks were estimated and incorporated into the model; the rationale and basis for the choice of discount rates; the approach to innovation and efficiencies; and the approach to competitive neutrality;
- Present a VfM methodology that yields the highest degree of transparency and can withstand public scrutiny;
- Demonstrate that no bias has been introduced in the evaluation of procurement options, that baseline information is reliable and adjustments are transparent and that sensitivity analysis is performed to examine the impact of key assumptions and estimates; and
- Develop VfM analysis in accordance with the established provincial methodology in its respective jurisdictions, if available. This is the case for government bodies, agencies and departments in British Columbia, Alberta, Ontario, and Quebec. Other jurisdictions are encouraged to consult PPP Canada for suggested methodology. Any departures from existing methodologies should be justified and explained. It is expected that, where available, VfM methodologies that are local to the Procuring Authority will be used.

VfM analysis is a complex undertaking and a critical component of the POA. When implementing the methodology, it is important to ensure:

- No bias has been introduced in the evaluation of procurement options;
- Baseline information is reliable and adjustments are transparent; and
- Sensitivity analysis is performed to examine the impacts of estimates and key assumptions.

### Sources of Information

- Sources of information include, but are not limited to: Canadian and international P3 agencies and reputable and experienced financial advisors.

### Completion Checklist:

- This section should answer the following questions:
  - ✓ Is the selected VfM methodology consistent with Canadian best practices?
  - ✓ Have any deviations from the selected VfM methodology been clearly disclosed and justified?

## Step 2: Project Costs

### Objective

In this section of the POA, the Procuring Authority should:

- Provide a clear understanding of how the cost estimates are developed, how they compare across models and, ultimately, how VfM is estimated;
- Present base project costs for both the PSC model and the P3 model on a whole of life basis, which include the expected hard construction costs, soft construction costs, facilities management costs, operating and/or maintenance costs (O&M ) and lifecycle costs;

- Provide a detailed project cost report, which: discusses the design options that were explored; describes the basis of design; a schematic design cost estimate in elemental cost format; description of unit prices and other key model assumptions; an S-curve or timeline for project expenditures; analysis on the labor and resource requirements of the project; commentary on economic and market conditions; and commentary on exposure to inflation and risk;
- Outline and justify any efficiency gains and risk premiums applied to the PSC model and the P3 model. In certain cases, private sector efficiencies (or negative efficiencies) can be assumed exclusively for the P3 model. Any assumptions to this effect should be clearly disclosed and justified by the Procuring Authority;
- Outline the ancillary costs to be incurred by the public sector under both the P3 and traditional scenarios. Ancillary costs include costs borne by the public sector related to up-front procurement costs (including fees to any procurement agency); procurement costs for the O&M (in the case of the PSC model); legal, technical, and financial advisory fees; project management costs during construction; and contract management costs over the life of the project); and
- Identify and explain the timing of these costs.

### **Public Sector Comparator (PSC) Cost Estimates**

The PSC model is made up of different cost components, including construction costs, operation costs, maintenance costs (O&M) and lifecycle costs (often referred to as base costs). It is recommended that these costs be estimated by a certified Cost Consultant and be based on historical experience from the Procuring Authority or other jurisdictions that have procured assets of similar size.

Transaction costs are the costs to implement the project and include land acquisition costs, external advisory fees, costs to conduct studies, preliminary design costs and procurement costs. Other ancillary costs, such as bid development costs that accumulate to the Procuring Authority are also taken into account.

Competitive neutrality is an adjustment to the PSC model that reflects differences in the two models related to taxes and insurance to ensure a like-for-like comparison. Retained risk cost is an adjustment to account for the level of risk retained by the Procuring Authority under the traditional delivery model. These are not typical accounting costs, but are important considerations for decision making. All of the above items are discussed in greater detail in this section.

Note that for revenue generating projects, such as toll roads, revenues are also factored into the PSC model as a separate line item.

#### **1. Construction Costs**

Construction costs represent a significant portion of the total investment and must therefore be rigorously estimated. They typically include construction base costs, such as the costs to plan and design the asset, raw materials, labour and equipment, the costs associated with project management, permitting, insurance and bonding, as well as costs to obtain environmental and regulatory approvals.

Cost estimates are based on preliminary drawings, design parameters, outline specifications, updated user requirements, general description of the end built works, preliminary site information and existing conditions. The estimates also take into consideration market conditions, as well as basic implementation logistics. Costs are developed in real terms (i.e. no inflation adjustment) by a certified Cost Consultant and include in a cost report that follows industry standards. The Cost Consultant also provides a construction schedule and the spending profile over the construction period, known as the S-Curve (see Figure 1).

The quantitative analysis requires the same base construction cost estimates to be used for the PSC model and P3 model. Under the P3 option, the private sector proposes designs based on output specifications. The P3 is

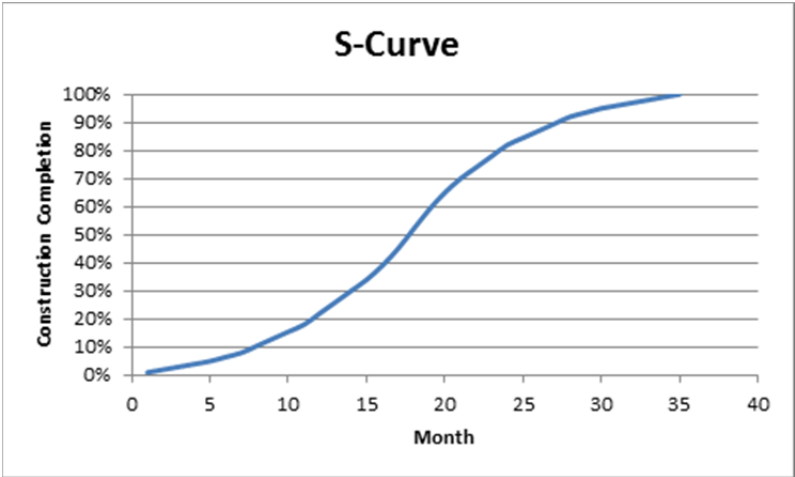
structured in this way to transfer design risk to the private sector, unlike a PSC model where design work is finalized by the department or agency and bid on by construction firms.

PPP Canada recommends that the design used to create construction cost estimates for the POA be completed to a level that allows for construction cost estimation with +/- 15% level of accuracy, usually based on a schematic design at 30% completion. This will ensure a reasonably accurate estimate of costs while avoiding duplication of design efforts and leaving sufficient flexibility for the private sector to finalize the design. If the PSC model is ultimately selected, the design can then be finalized and more accurate cost estimates can be developed before procurement. Cost estimates include contingencies to account for the level of design, which is further described below.

### 1.1 Construction S-Curve

An S-Curve is developed by Cost Consultants to estimate cumulative cash disbursements as a percentage of total construction costs over the construction schedule. It is used to distribute construction costs estimated in real terms through time. The shape of the curve is the result of costs being incurred at a lower rate for equipment mobilization and site preparation then ramping up for the major works and tapering off again as testing and commissioning takes place. A robust and substantiated S-Curve from a cost consultant indicates that costs are appropriately estimated and financed throughout the project. Figure 1 illustrates a typical expenditure curve for a construction project.

Figure 1: Construction S-Curve



### 1.2 Funding for Construction Costs

When developing the PSC model, it is assumed that funding comes from public sector general funds and any private financing costs related to construction loans need to be estimated and built into the construction cost estimate. It is important that the payment structure reflects traditionally how private sector contractors typically receive payments for construction, which is usually in the form of progress payments or milestone payments. Progress payments are monthly payments based on completed work, while milestone payments are lump sum payments paid when the contractor reaches predetermined construction milestones. Once construction is completed the asset is fully paid for and owned by the Procuring Authority.

When estimating the costs of a PSC model, the government typically allocates funding for the construction of the asset on a cash basis, which does not consider the implied costs of financing or involve the private sector in the financing of the project. The construction payments will be modelled as progress payments or milestone payments, as applicable and private sector working capital financing requirements will be built into the PSC financial model.

## **2. Operation, Maintenance and Lifecycle Costs**

The VfM analysis is based on the whole-of-life of the asset; thus, we examine the costs of operating, maintaining and rehabilitation of the asset in the long-term (i.e. 20-30 years). Operating services are necessary for the functioning of the asset, but are not related to maintenance of the structure or equipment (e.g., security services, porter services, janitorial services, tolling). Maintenance services help prevent the deterioration of infrastructure and ensure it operates as required. Lifecycle services are associated with planned replacement, renovation and/or refurbishment of building systems, equipment and fixtures that have reached the end of their useful life. The operation, maintenance and lifecycle services are either provided by Procuring Authority's staff, a third-party service provider on a short-term basis or a combination of the two, depending on the model being used as the PSC model.

Operation, maintenance and lifecycle costs can represent a significant portion of the project costs due to the long time horizon of the analysis. These cost estimates are produced by a certified Cost Consultants and can be based on historic costs, the functional program, regulatory requirements, industry data and output specifications.

The operation, maintenance and lifecycle period of the analysis matches the Project Agreement term. It will depend on the timing of major lifecycle costs and can vary across asset types. The optimal period includes one major lifecycle replacement and considers elements of the financing and affordability of the project. The same period of analysis is used for the PSC model and P3 model. Operations, maintenance and lifecycle costs are funded as they are incurred and this is reflected in the PSC financial model.

The operation and maintenance (O&M) costs are typically the same from month to month except for a slight increase due to inflation. Lifecycle costs, on the other hand, have a "lumpy" or non-uniform cost profile due to the periodic nature of lifecycle replacement and refurbishment requirements for assets. The Procuring Authority will be required to make capital injections for these lifecycle requirements, as reflected in the PSC model.

## **3. Contingencies**

Contingencies are typically added to base cost estimates. A contingency can be defined as a financial provision to absorb the costs of a project-related event that is likely to occur, but which cost cannot be estimated with a high degree of certainty when preparing the capital investment budget. Contingencies are typically related to the imprecision of quantities depending on the advancement of the detailed design; and the variation of quantities and/or unitary prices mainly for known events that may be difficult to quantify with a high degree of certitude (e.g., volume of soil to be decontaminated).

PPP Canada recommends that cost estimates are developed to a level of accuracy such that a 15% contingency allowance is appropriate to reflect the extent of documentation at this stage of design. In the case of construction costs, estimates will be based on preliminary drawings, design parameters and outline specifications, updated user requirements, general description of the end built works, preliminary site information and existing conditions. It takes into consideration construction experience and market conditions as well as basic implementation logistics. It includes costs for design, documentation, and construction supervision. It is based on a full description of the schematic design preferred option, construction/design experience, and market conditions.

When developing the cost estimates for the asset, the Cost Consultant separately identifies the contingency from base costs and risk quantification. Contingencies are expected to be identical for the PSC model and the P3 model. The logic supporting the estimate of contingencies must be well documented in order to ensure a clear delineation between uncertain future costs covered by the contingencies versus future costs that may or may not materialize that are covered by risk provisions.

To help ensure there is no double counting between cost contingencies and risk quantification, it is recommended that the scope of the Cost Consultant's engagement include participation in the risk workshop(s).

## **4. Cost Inflation**



Construction costs are presented in real dollars and are inflated based on industry accepted indices and reflect regional factors. General economic conditions will drive construction inflation, but regional factors, such as availability of labour, equipment and other resources, will also affect the inflation rate. Therefore, indices, such as the Consumer Price Index (CPI) may not reflect actual cost increases over time. Construction associations at a provincial level, for example, may need to be consulted to determine the appropriate inflation rate. As well, Cost Consultants might provide intelligence on inflation based on their surveys of local subcontractors and material providers, during the development of base estimates.

The cost estimates for O&M and lifecycle costs are in real dollars and inflated to nominal terms. Inflation rates are based on industry accepted indices such as the CPI. Inflation is often applied uniformly across all O&M and lifecycle costs, but if an individual cost category, such as energy or labour, represents a significant portion of the overall costs, a specific cost index is applied independently to that cost category. As is the case with construction inflation, future inflation estimates may require analysis of historical patterns or consultation with industry associations.

## ***5. Transaction Costs***

Public sector transaction costs are the soft costs of delivering a project from the Procuring Authority's perspective. These costs normally include land acquisition costs, costs to conduct preliminary studies, external advisor fees, internal project team and governance costs, project management costs and procurement costs.

Cash flows associated with these costs will be spread over the planning, design and construction phases in the PSC model. These costs are typically estimated by the Procuring Authority. They are based on information from past projects and internal data, which can include salary costs; procurement and project management costs for past projects of similar scope; market rates for external advisors or actual proposals for the delivery of services. It is important for Procuring Authority to develop a detailed implementation plan and schedule for the project on which cost estimates can be based.

## ***6. Competitive Neutrality***

When developing the PSC model, adjustments must be made to ensure that the comparison between the PSC model and the P3 model is made on a like-for-like basis; without this, the total PSC model cost may be artificially higher or lower than the P3 model. The competitive neutrality adjustment reflects differences between the two models that arise because of the different tax treatments for public and private sectors and/or the different approaches to insurance in the two sectors. For example, the private sector pays taxes and such taxes are factored into the bid and become a cost for that option. However, part of those taxes will be paid back to the government and must be accounted for in the comparison.

Two main competitive neutrality adjustments are usually made for taxes collected by the government and for insurance premiums payable by the private partner. Adjustments are shown in any financial analysis to the PSC model or P3 model analysis to make them comparable.

The competitive neutrality adjustment can only be made after the P3 model has been developed since it is dependent on the output of that portion of the analysis, as described below.

### ***6.1 Competitive Neutrality - Taxes***

The cost of the P3 model reflects all costs incurred by the private partner to deliver the asset and services for which the private partner will receive a periodic payment from the Procuring Authority. These costs usually include taxes paid by the project company, which will likely pay income taxes on its net earnings, depending on its legal/tax structure. In certain cases, it may also have a net GST/HST and PST cost (for example, GST/HST and PST collected on service charges and remitted to the government).

Since no project company is created under the PSC model, no project company income tax is payable to the government. The government will not receive the tax revenue or any of the secondary benefits.

Due to differences in tax treatment, the P3 model will appear more expensive than the PSC model in present value terms, all other costs considered equal. Yet, taxes payable to the government in the P3 model are not a true additional cost for the Procuring Authority since these taxes represent revenue for the government and provide secondary benefits. As a result, the net cost to the government of the portion of the payment made to the private partner for the services it provides and returned to the government as taxes is in fact nil. The competitive neutrality adjustment seeks to reflect this effect.

A tax adjustment must be correctly calculated in order to properly reflect the costs of each procurement model being analysed, and a consideration must be given to the differences between provincial and federal tax laws.

No specific adjustment is made for income taxes paid by individual design or construction companies acting as subcontractors to either the project company in the P3 model or to the Procuring Authority in the PSC model. Such taxes are included in construction costs and are deemed comparable across procurement models.

The VfM analysis includes revenues to the Procuring Authority arising from the financial structure of the procurement models. This method ensures consideration of the “net” cost of the P3 model and is a more accurate net cash flow comparison with the PSC model. If a tax is payable on taxable income (i.e. dividend stream) of the project company under the taxation regime applicable at the moment of preparing the VfM, such revenue is added to the PSC model. The total estimated revenues, based on applicable federal and provincial taxes, is then added to the PSC model as part of the competitive neutrality tax adjustment since the provincial and federal governments will realize the full benefit of these revenues under the P3 model.

## **6.2 Competitive Neutrality - Insurance**

Competitive neutrality adjustments for insurance premiums arise from the differences in insurance practices under traditional and alternative procurements. The P3 model cost usually includes insurance premiums for certain policies that are required to be taken by the project company as a result of the responsibilities it assumes. In the case of the PSC model, some of these risks tend to be self-insured by the Procuring Authority, yet there is an inherent cost to these risks that must be considered. If no insurance premium is included in the PSC model to account for the equivalent cost of obtaining insurance coverage in the market, a competitive neutrality adjustment is required. Self-insurance bears a financial cost equal to the market cost of relevant insurance premiums for the purpose of a fair Value for Money analysis. Although these market premiums will include a level of profit, it is too difficult to break out the cost of profit and the full premium represents a conservative estimate of the cost of self-insurance. So, it is recommended that the total cost of all relevant premiums be added to the PSC model.

## **7. Revenues**

Revenues are the cash flows generated from end users of an asset, such as with toll roads. This revenue component needs to be included in the analysis to off-set O&M and lifecycle costs. The revenue estimates are based on market studies and economic data. Depending on the type of asset, revenues can take different forms: toll revenues for a highway project, lease revenues for social infrastructure, sale of electricity produced, etc. It is recommended that studies produced to estimate revenues include inflation and the same index used in those studies be used in the POA.

## **8. Retained Risks**

All projects involve risks which are shared to some degree between the public and private sector regardless of the manner in which the infrastructure is procured and delivered. When performing the quantitative analysis, risks are identified, allocated to the private sector or Procuring Authority and then quantified. The quantification of risks estimates the value of the risks, which are added to project costs to allow for the comparison of the risk adjusted cost of the options being considered. The value of the risks is estimated by the Procuring Authority’s staff and external advisors through a robust process that involves historical research, risk workshops and statistical analysis. Below is a summary of the risk quantification methodology.

Once there is a clear understanding of the scope of the project the project team assembles in a workshop setting to identify all project risks and allocate those risks to the party best able to manage them. The allocation of risks will be different depending on the selected delivery model. Risks are retained by the Procuring Authority, shared by the public and private sector or completely transferred to the private sector. The typical allocation of risks by major risk category under traditional and P3 procurements is summarized in Table 4.

**Table 4: Summary of Risk Allocation**

Risk	Typical Allocation of Risk	
	PSC (Traditional)	P3 (DBFOM)
Planning, policy and strategic risks	Public Sector	Public Sector
Land acquisition cost risk	Public Sector	Public Sector
Procurement risk	Public Sector	Public Sector
Permitting and approvals risk	Public Sector	Private Sector
Environmental risk	Private partner (except existing soil contamination risk)	Private partner (except existing soil contamination risk)
Existing soil contamination risk	Public Sector	Public Sector
Design risk	Public Sector	Private Sector
Construction risk	Shared	Private Sector
Operations, maintenance and lifecycle risk	Public Sector	Private partner
Financing risk	N/A	Private partner
Revenue risk (if applicable)	Public Sector	Public Sector or Private partner, depending on the type of the infrastructure and contractual arrangement

Once the risks have been identified and allocated the workshop participants then work towards estimating the probability that a risk will occur and the cost impact of the risk if it were to occur. The outputs of the workshop are compiled into what is referred to as a risk matrix, a sample of which is illustrated in Table 8 later in this section. The Cost Base is the portion of the project cost that would be impacted if a risk were to occur. For example, the Cost Base for construction risks is the cost of design and construction. The Probability is the estimation of the potential that a risk will occur (expressed as a single percentage between 0% and 100%).

Retained risk refers to the estimated cost of the risks the Procuring Authority will be responsible for under the PSC model or P3 model, including a portion of any shared risks. The estimated value of the retained risks for the PSC model and P3 model is added to the respective costs. The value of transferred risks results in a cost to the Procuring Authority under the P3 model in the form of a risk premium. Since the value of retained risks allocated to the Procuring Authority can be different between the PSC model and P3 model and is a deciding factor in the procurement option decision, the estimation of the value of risks is a crucial component of the analysis.

More information on risk allocation, risk quantification and VfM analysis, can be found in Steps 5 and 6 of this section.

### ***P3 Model Cost Estimates***

Although there are various P3 models, we assume the use of a DBFM model throughout this section of the POA Guide. The P3 model is compared against the PSC model to determine which has the lowest risk adjusted net present cost. The comparison of the two models must be performed on a like-for-like basis and, therefore, many of

the elements of the two models are the same. The P3 model is built from the PSC model with some key adjustments and considerations, as outlined below.

One fundamental difference between the two models is the method by which payment is made for services. In general, payments are made under the PSC model as costs are incurred; for example, construction is paid for in full by the end of the construction period, while operations, maintenance and lifecycle payments are paid for when work is required and as it is performed.

Under the P3 model, only part of the construction costs are paid for by the end of the construction period through milestone payments, a payment at Substantial Completion or a combination of the two. Substantial Completion is defined as the completion level where the asset may be put in service, even though some minor work, such as landscaping may not be completed. The remainder of the construction costs are financed by the private sector over the long-term and repaid by the Procuring Authority. The payments made by the Procuring Authority to repay the long-term financing are referred to as the Capital Annual Service Payment (Capital ASP). This payment is typically broken out into regular monthly or quarterly payments.

In a P3, the operation, maintenance and lifecycle services are paid for by the Procuring Authority and the payments are referred to as the Non-Capital Annual Service Payment (Non-Capital ASP). Similar to the Capital ASP, the Non-Capital ASPs are made regularly on a monthly or quarterly basis. There is no financing element associated with the Non-Capital ASP.

The total of the Capital ASP and Non-Capital ASP is simply referred to as the Annual Service Payment (ASP). The calculation of the Capital ASP and Non-Capital ASP is described in greater detail below.

### ***1. Substantial Completion Payment and Milestone Payments***

The P3 model requires the private sector to use short-term construction financing for a portion of the construction costs that will be repaid by a Substantial Completion payment or milestone payments. A Substantial Completion payment is a single payment at the end of construction to repay the principal and interest for the short-term financing. Using a single payment at the end of construction anchors the allocation of construction risk with the private sector. In general, if the private sector does not deliver the asset as contractually required, they will not receive payment.

In some instances, milestone payments may be used during construction rather than a single Substantial Completion payment. Typically milestone payments will be used for projects that require the construction of distinct assets. For example, if a bundle of buildings are being constructed under a single Project Agreement and the completion of each building will occur at different times, milestone payments can be made for the Substantial Completion of each building rather than the completion of the entire bundle.

Milestone payments may also be used for large projects to reduce short-term financing costs or to increase the bankability of a project. It is important, however, to carefully consider and analyse the trade-offs of using milestone payments. If the private sector defaults during construction they may have already received some payments from the Procuring Authority. Milestone payments will, therefore, limit the transfer of risks to the private sector and can erode Value for Money, thus negating the benefits for increased affordability or bankability. Insight into the costs and benefits will be obtained from market soundings with potential lenders and the risk workshops conducted to quantify risks.

The value of the Substantial Completion payment or milestone payments will also impact risk transfer and affordability. Under the P3 model risks are anchored over the term of the Project Agreement by requiring the private sector company performing the project to be financially accountable to equity investors and lenders. Increasing the value of the Substantial Completion payment, for example, will improve affordability by reducing the long-term financing costs, but will also reduce the effectiveness of the risk transfer. It is, therefore, important to determine an optimal balance between affordability and the amount of private sector financing in a deal. As a rule of thumb, long-term financing is recommended to be at least 50% of capital costs.

## **2. Capital Annual Service Payment**

The Procuring Authority must make payments over the term of the Project Agreement to repay the principal amount of the long-term debt, interest, equity, dividends and taxes associated with the equity repayments. These payments make up the Capital ASP. This structure is necessary to transfer risks to the project company and ensures they have financial incentives or “skin in the game” to provide the proposed services for the duration of the long-term Project Agreement.

### **2.1 Construction Costs**

The same base construction costs provided by the Cost Consultant will be used for the P3 model. Some additions and adjustments must be made to the costs to reflect the true nature of the P3 model.

#### **2.1.1 Private Sector Ancillary Costs**

Due to the structure of the P3 model, there are ancillary costs to the private sector. Any such costs will be capitalized and charged back to the Procuring Authority. To reflect this in the P3 model, these costs are included with construction costs and are ultimately repaid in part by the milestone or Substantial Completion payments and as part of the Capital ASP.

##### **2.1.1.1 Legal Costs**

Lawyers play a significant role during the procurement phase of a P3 project. Agreements have to be prepared and reviewed to govern the relationships between multiple parties involved in the bidding process (engineering firms, construction companies, financiers, facility management companies, operators, etc.). Lawyers also must review the Project Agreement for the project, which is a lengthy document, often in the thousands of pages.

##### **2.1.1.2 Bid Preparation**

The scope of P3 projects increases the amount of work required to prepare bids when compared to PSC model. Private partners must respond to design, construction, financing and operations/maintenance requirements, ensuring that each element forms a single, cohesive proposal. This additional effort translates into significant additional costs to the private partner.

##### **2.1.1.3 Special Purpose Vehicle (SPV) Costs**

The selected private partner will form a SPV for the project that is usually structured as a limited partnership. There are administrative costs associated with these project companies that are not present in the PSC model. The SPV will also be required to have insurance as stipulated in the Project Agreement, which is also included in the SPV costs.

##### **2.1.1.4 Financing Fees and Financial Guarantees**

There are a variety of fees associated with the arrangement of financing, as well as costs to providing other financial instruments, such as letters of credit that are required as financial guarantees at different points during the procurement process. These fees can be significant and are included in the analysis.

##### **2.1.1.5 Insurance and Bonding**

The P3 model includes insurance premiums for certain policies that are required to be taken by the private partner under the P3 procurement model as a result of the responsibilities it assumes in a P3. The private partner will also be responsible for providing performance bonds during construction that carry costs which are ultimately passed on to the Procuring Authority.

### **2.1.1.6 Reserve Accounts**

The project company will be required to fund a debt service reserve account (DSRA) and may be required to fund a major maintenance reserve account (MMRA). The DSRA creates a cash buffer for periods of lower than expected cash flows. It covers the debt service obligations (principal and interest) for three, six, nine or twelve months. It can be funded completely on the last day of construction, in part on the last day of construction and built up over time or completely built-up over time.

A MMRA may be required if there is a significant capital expenditure related to the lifecycle of the asset, such as resurfacing of a road or runway, planned lane widening or planned expansion of a wastewater treatment plant. The MMRA is typically required by lenders and will accumulate funds to ensure sufficient cash is available to cover the required capital expenditures. The target balance may be a fixed amount or may be set at 6, 12, 18 or 24 months of major maintenance costs. The account is funded in the same three possible ways as the DSRA.

Assumptions related to the size of the DSRA and MMRA, as well as how they are funded are developed by the Financial Advisor for the project and built into the financial model.

### **2.1.2 Construction Efficiencies**

Efficiencies are cost reductions arising from the competition and innovation among private partners. Efficiencies and savings can be recognized through the innovation associated with the competitive process and the integration of project components (i.e. design, construction, finance, operations and maintenance) in a P3 model.

Although efficiencies are possible under a P3 model, they are not guaranteed. It is recommended that efficiencies only be included if they can be substantiated by relevant and reliable historical data, such as data from previous projects and that the estimates be conservative. If the presence or impact of efficiencies is uncertain, PPP Canada recommends removing them from the analysis. A conservative approach such as this helps prevent a situation where the private partner proposes a higher cost than expected, requiring approvals for additional funding. It is also recommended that sensitivity testing be performed on the efficiencies to ensure that Value for Money does not become negative if expected efficiencies are not produced.

## **2.2 Risk Premium**

A risk premium is an additional cost added to the P3 model to account for the costs associated with the risk transferred to the private sector. The value of transferred risk is estimated through a risk quantification process and the premium will be based on this estimation. The value of the premium, however, will not reflect the full value of transferred risk due mainly to the following two factors:

**Private Sector Risk Management** - Under the P3 model risks are allocated to the party best suited to manage them. The risks allocated to the private sector are those that they can control and have experience managing, such as construction delay risks. If this is done effectively, the value attributed to those risks by the private sector will be valued less than what was estimated by the Procuring Authority. The private sector adds premiums for risks they are unable to effectively control, such as changes to regulatory requirements.

**Competitive Procurement Process** - The competitive procurement process provides the necessary incentive for the private sector to provide innovative bids to minimize the risk to them and include the lowest possible premium.

Even though the project company will be able to manage and exert control over the risks allocated to them, a premium will still be charged. The value of the risk premium is calculated as a percentage of capital costs, but can vary based on the complexity of the project, market conditions and the quantum of transferred risks. A correctional facility, for example, that uses a DBFOM would allow for the effective transfer of a significant amount of risk to the private sector. The nature of those risks and their potential impact may result in a higher premium. Volatile prices for

specific materials, such as chemicals for wastewater treatment, may result in a higher premium. Due to these market and asset specific factors, it is preferred that the risk premium be estimated by an industry expert.

### **2.3 Inflation**

All costs estimated to this point are in real dollars and must be converted into nominal dollars. The same inflation rate used for the PSC model is used for the P3 model.

### **2.4 P3 Financing**

Differences in financing costs between the PSC model and P3 model are an important consideration when choosing the most effective procurement option. The main difference in costs between the PSC model and P3 model is the private sector financing costs. The trade-off is greater risk transfer to the private sector, resulting in fewer risks retained by the Procuring Authority. The main question of the analysis is, therefore, whether the difference in the value of retained risks outweighs the private sector financing costs. Below is an explanation of the elements and considerations in determining the financing structure and financing costs for the P3 model. Section 5 – The Integrated Recommendation describes how the outputs of the analysis are brought together to determine which model has the lowest risk adjusted cost and provides the greatest value to taxpayers.

Under the P3 model, the private sector finances the construction costs using a short-term construction loan, equity and long-term debt. Short-term debt will typically amount to the total of the Substantial Completion payment at the end of the project. The Procuring Authority will repay the short-term construction loan (principal and interest) with a single payment at Substantial Completion. As a result, the debt undergoes a simple compounding effect throughout the construction. For some projects with high construction costs or long construction schedules, it may be difficult or costly for the private sector to carry the short-term debt for the entire construction period. In this case, it may be necessary for the Procuring Authority to make milestone payments based on major construction milestones.

The remaining construction costs will be financed by the project company using long-term debt and equity. The debt and equity is repaid by the Procuring Authority through the Capital ASP over the term of the operation and maintenance period, also referred to as the concession period. Long-term debt may be in the form of a bond, in which case the rate would correspond to yield rates or bank debt, with a long-term interest rate. The bond yield or long-term interest rate is typically higher than the short-term loan rates.

In P3 models, the private consortia are expected to invest equity in the project to be financially tied to the project. In return, the private partner makes a return on its investment, as compensation for the extra risk they have taken on. In the PSC model, the private partner makes a margin on the transaction as a whole but no return on equity as none is invested. Therefore, equity is treated differently from debt because it represents the financial interest of the private sector. The required post-tax rate of return on equity will vary depending on the risk transferred to the private sector. The target rate of return on equity is driven by a number of variables including: the debt to equity ratio for the project, the amount of free cash flows over debt service required by lenders (debt service coverage ratio or DSCR) and the project-specific risks.

When developing the P3 model the Procuring Authority will need to make assumptions about how the project will be financed by the project company. The following are the main assumptions related to project financing:

- Type of long-term debt (bank debt vs. bond);
- Short-term interest rates;
- Long-term interest rates or bond yield rates;
- Financing fees (e.g. arrangement fees, commitment fees);
- Debt-to-equity ratio (also referred to as gearing);

- Debt Service Coverage Ratio (DSCR); and
- Target equity rate of return.

It is recommended that the assumptions be developed by an experienced financial advisor and tested through market soundings and precedent projects. PPP Canada maintains financial assumption benchmarks that can also be used to test assumptions.

The assumptions used in the P3 model will be subject to sensitivity analysis. The sensitivity analysis will analyse the financial impact and the impact on Value for Money when the assumptions are changed, holding all else equal.

## **2.5 Capital Annual Service Payment (ASP) Calculation**

When all the costs, assumptions and adjustments are built into the model, the Capital ASP can be calculated using the financial model. This calculation is done under constraint, meaning the Capital ASP is calculated to cover all the associated costs, but also to achieve the target return on equity and the DSCR, the main requirements of the equity providers and debt providers, respectively. This calculation is done using sophisticated financial modelling and is best performed by an experienced Financial Advisor.

## **3. Non-Capital Annual Service Payment (ASP)**

The Non-Capital ASP are the annual payments to the project company for costs incurred after construction and include operations, maintenance and lifecycle costs, described in more detail below.

### **3.1 Operations, Maintenance and Lifecycle Costs**

The non-capital ASP covers operations, maintenance and lifecycle costs, which are the same as those used for the PSC model. Some additional costs, however, will be incurred by the project company during this phase of the project related to the on-going administration and management of the Special Purpose Vehicle (SPV) which has been established for the project. These costs are also included in the Non-Capital ASP.

As noted earlier, operations and maintenance costs are constant over time whereas lifecycle costs are lumpy with cost peaks at points in time where capital injections are required for lifecycle work, such as major maintenance, asset refurbishment and equipment replacement. The requirements for operations, maintenance and lifecycle replacement is the same for the PSC model and P3 model, but the cash flows are different. The total of all the Non-Capital ASPs over the term of the Project Agreement are sufficient to cover all the operations, maintenance and lifecycle costs, but the ASPs are uniform escalating over time only due to inflation. The project company must, therefore, manage its funds and ensure sufficient cash is available to perform the required lifecycle work when required. This facilitates the budgeting process by the Procuring Authority since the payments are known from year-to-year.

### **3.2 Revenues**

There may be differences in the ability of the private sector and Procuring Authority to maximize revenue yield over the concession period. For example, public and private sectors are assumed to have different perceptions of their abilities to effectively collect and efficiently price lease charges for commercial space in a public building. It is recommended that any differences in revenue estimates between the PSC model and P3 model be documented with appropriate substantiation from market or economic studies. Intended incentives and contractual arrangements to be included in the Project Agreement, such as revenue sharing mechanisms are documented and support the assumptions used to build the P3 financial model.

The private partner will usually use the revenues to lower the requested availability payment required to amortize the upfront capital expenditure. In some cases, there may actually be enough revenues for the private partner to pay a fee to the Procuring Authority instead of charging an availability payment.



It is preferred that assumptions about revenue risk are documented; that is, assumptions about the private sector's willingness to incorporate future revenue streams in any proposal are noted. Because of uncertainty about revenues, private sector bids may include a premium. Alternatively, revenue concessions where there are few other options may encourage the private sector to provide a financial benefit to government in their bids.

### **3.3 Operating Efficiencies**

Similar to construction efficiencies, if operating efficiencies are included in the P3 model, it is recommended that the estimates be conservative and substantiated by relevant and reliable historical data, such as data from previous projects. Efficiencies are excluded if there is uncertainty related to expected efficiency rates. Sensitivity testing is also performed.

## **4. Transaction Costs**

Transaction costs incurred by a Procuring Authority are typically higher for a P3 model as compared to a PSC model. The incremental costs are for the increased level of planning work required to successfully implement a P3 and the higher level of complexity of P3 procurement. Most notable is the development of output and performance specifications by Technical Advisors, the financial analysis for the project and the development and review of the relatively voluminous contractual documents.

The procurement process includes both face-to-face and written interaction with the private partners. It is, therefore, important for a Fairness Advisor to be engaged throughout procurement to ensure the process is fair and transparent. Technical, financial and legal advisors need to remain engaged throughout procurement to respond to questions from the private partners and participate in the evaluation of proposals. Although the P3 has elevated transaction costs they result in more robust and thorough planning of the project and more diligent management of the procurement process, thus increasing the probability of success. The costs are also offset by the benefits of the P3 model when Value for Money is generated.

## **5. Honoraria**

The cost of preparing a bid for a P3 project is significantly higher than for a PSC model. Each private partner will spend in excess of a million dollars on design fees, legal fees and other specialist resources to develop a strong proposal. Honoraria are payments made to unsuccessful private partners to partially compensate for the cost of preparing a bid in response to a Request for Proposal (RFQ). The honoraria paid to unsuccessful private partners who submit a compliant bid typically compensates for only a fraction of the actual bid costs, but still provides incentive to private partners to develop sophisticated and innovative proposals. The size of the honoraria is dependent on the complexity of the project and design.

Honoraria are either paid by the Procuring Authority, or by the selected private partner following financial close. If paid by the selected private partner, the cost of the honoraria is included in the Capital ASP to be repaid by the Procuring Authority. Payment of the honorarium generally provide the jurisdiction with the intellectual property rights to all proposals received such that all or part of the unsuccessful proposals may be used for the current or future projects.

## **Sources of Information**

- Project costs provided by a qualified Quantity Surveyor (Cost Consultant) and O&M cost estimates provided by an experienced facilities management consultant. PPP Canada recommends that these costs are based on a functional program and 30% design completion for the project;
- Ancillary and private sector financing costs are best obtained from transaction and Financial Advisors experienced in advising on P3 projects; and
- The established provincial methodology of the jurisdiction, if available, as well as PPP Canada's *Schematic Design Estimate Guide*.

## Completion Checklist:

- This section should answer the following questions:
  - ✓ What base was used to derive costs? (e.g., schematic designs, output specifications, other).
  - ✓ Are cost information sources disclosed? Is the level of precision of the cost estimates and the associated impact on the financial models discussed?
  - ✓ Are all base and ancillary cost categories accounted for?
  - ✓ Is the timing of cash outflows typical for (where relevant) the PSC model and the P3 model?
  - ✓ Are deviations from expected differences between the PSC model and P3 model base and ancillary costs clearly explained?

## Step 3: Cash Flow Assumptions

### Objective

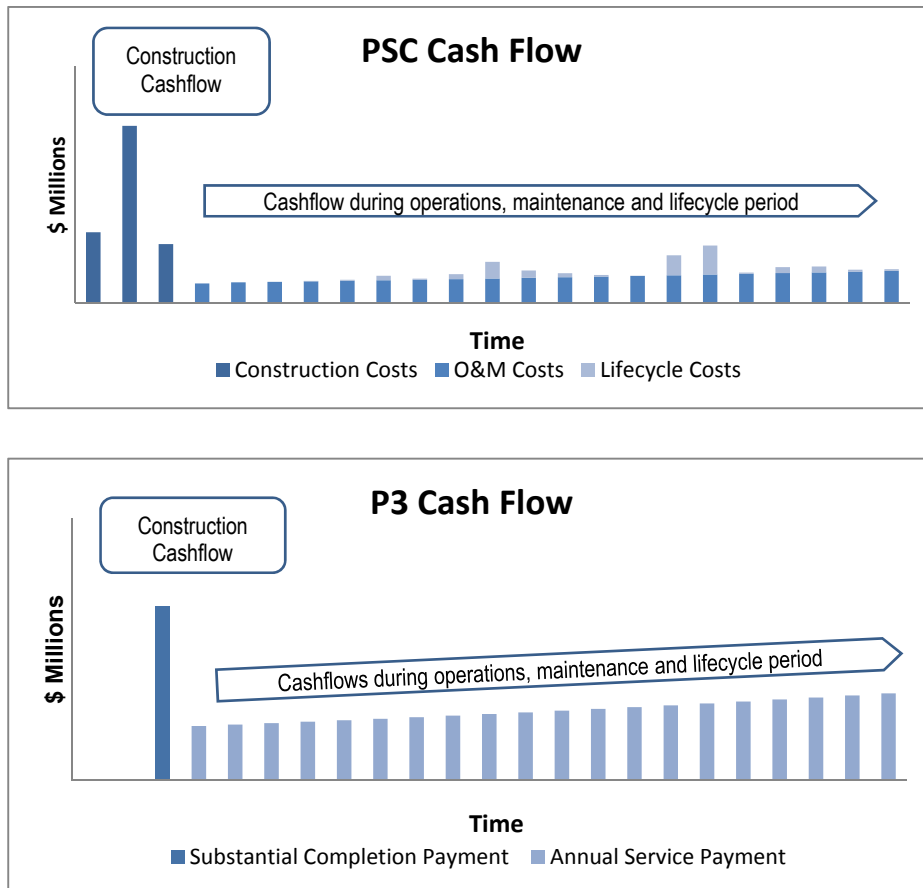
In this section of the POA, the Procuring Authority should:

- Use costing information described in Step 2 as the basis for the PSC model and P3 cash-flow models;
- Clearly articulate all key modeling assumptions that have been incorporated in to the models. Such assumptions include, but are not limited to: inflation, construction escalation, discount rates and timing of cash inflows and outflows; and
- Provide a rationale for the choice of assumptions.

The VfM analysis compares the Net Present Value (NPV) of the estimated future cash flows for the PSC model and P3 model. The NPV must be used since the timing of the accumulation of costs and payments differs across cash flows for different procurement models.

The two notable differences are the construction costs being entirely funded by construction completion for the PSC model, whereas a portion of the construction costs are financed over the long-term for the P3 model; and lifecycle costs being paid as they are incurred under the PSC model and uniform lifecycle payments being paid under the P3 model. Figure 2 illustrates the differences in cash flows between the PSC model and P3 model. These differences prevent a comparison of cash flows in nominal terms and necessitate the comparison using NPV.

**Figure 2: Cash Flow Profiles**



Net Present Value expresses dollar values at a single point in time, known as a base date, by the technique of discounting cash flows. The base date is typically the date of the POA report. Discounting enables nominal project cash flows that differ in terms of timing and amount to be discounted back to the base date. Discounting in this way allows procurement methods with different cash flow impacts to be compared on a like-for-like basis providing objective means of choosing the method that provides the best value in terms of cost.

Bringing cash flows forward or back in time follows the concept of time value of money – the premise that a dollar today is worth more than a dollar in the future. This reflects the opportunity cost of capital: funds available earlier can earn a return or be used for capital expenditures and therefore reduce the associated cost of borrowing.

**Net Present Value (NPV) Calculations**

Discounted Cash Flows (DCF) are calculated by summing the net cash flows of each future period. The formula for DCF is:

$$DCF = \sum_{n=1}^N \frac{FV}{(1 + r)^n}$$

Where:

FV = future value

r = the discount rate

N = the number of periods (e.g. annual, semi-annual, monthly)

## Discount Rate

Value for Money (VfM) is calculated using the NPV of cashflows and depends primarily on two variables: the composition of the estimated cash flow stream of the investment and the rate at which these cash flows are discounted (i.e. the discount rate) from future periods to a base date of the analysis, usually the date of the report. If an inappropriate discount rate is used, it is possible that an inappropriate procurement model will be selected.

The choice of the discount rate, as a result, may have a significant impact on the choice of the procurement model: the higher the discount rate, the lower the value attributable to future cash flows. Given the customary design of cash flows in P3 models where the amortization of initial capital expenditures is spread over a longer period of time as opposed to design-build and traditional models, a higher discount rate reduces the present value of cash flows for P3 procurement models. Table 5, Discount Rate Impact on Cash Flows, provides a sample cash flow in nominal terms (inflated at 2%) over 20 years and the NPV of the cash flow using a discount rate of 3.00% and 6.00% to illustrate the impact of the discount rate on NPV.

**Table 5: Discount Rate Impact on Cash Flows**

Discount Rate		<u>Year of Occurrence</u>									
		0	1	2	3	4	5	10	15	20	Total
3.00%	Nominal (\$M)	10.0	10.2	10.4	10.6	10.8	11.0	12.2	13.5	14.9	<b>257.8</b>
	NPV (\$M)	10.0	9.9	9.8	9.7	9.6	9.5	9.1	8.6	8.2	<b>190.8</b>
6.00%	Nominal (\$M)	10.0	10.2	10.4	10.6	10.8	11.0	12.2	13.5	14.9	<b>257.8</b>
	NPV (\$M)	10.0	9.6	9.3	8.9	8.6	8.3	6.8	5.6	4.6	<b>146.9</b>

## Concession Period

Cash flows are discounted to a base date as discussed above, but it is important to determine how far the cash flows go into the future. The end of the operations, maintenance and lifecycle period will determine this. The operations, maintenance and lifecycle costs are estimated over what is referred to as the concession period, which is the time between construction completion and the end of the Project Agreement. To ensure a like-for-like comparison between the PSC model and the P3 model, the concession period will be the same for both.

The length of the concession period is an important element of the analysis. The lifecycle work to be completed by the project company and associated risk is dictated by the length of the concession period. The handback of the asset to the Procuring Authority occurs at the end of the concession period and the asset must be in a condition that meets quality and performance standards set out in the Project Agreement. The project company, therefore, must perform lifecycle work to help mitigate lifecycle risks and risks related to asset performance during the concession period, as well as to mitigate the risk of not meeting the handback requirements at the end of the concession period.

It is recommended that the concession period be long enough to allow for one major lifecycle replacement of the asset. This responsibility will provide appropriate incentives for the project company to design, construct and maintain the asset effectively and ensure it meets lifecycle expectations. However, it is preferred that lifecycle replacement does not occur near the end of the concession period in order to provide certainty to the private partners on the lifecycle expectations when pricing bids. It is also best practice for handback to occur at least five years before any expected lifecycle replacements. This will ensure the Procuring Authority will not incur any significant

costs immediately after handback. In light of these timing considerations, it is important for an experienced technical expert to be involved in the determination of an appropriate concession period.

The length of the concession term will have an impact on financing costs, affordability and Value for Money. The concession period is approximately the same as the amortization period for the long-term debt or the maturity period of a bond and, therefore, will affect financing rates and repayment amounts. The value of the ASP will decrease as the concession period increases, but the financing costs will increase. A lower ASP will make the project more affordable, but increased financing costs will lower Value for Money. The Financial Advisor works with the Technical Advisor to find an appropriate balance between affordability and Value for Money that considers the technical and timing considerations described above.

## Sources of Information

- Sources of information include, but are not limited to: engineering and technical studies conducted for the project, financial market soundings, economic reports, Financial Advisors, and input from stakeholders and project managers.

## Completion Checklist:

- This section should answer the following questions:
  - ✓ Is the list of modeling assumptions comprehensive?
  - ✓ Are the assumptions justified and from credible sources?

## Step 4: Project Financing Assumptions

### Objective

In this section of the POA, the Procuring Authority should outline:

- The assumptions made with respect to the financing of the project under both the PSC model and the P3 model;
- Any assumptions with respect to the level and timing of public sector capital injections during the construction of the project (e.g., milestone payments) and at substantial completion (substantial completion payment); and
- The assumed financing plan under the P3 model, including the types, amounts and timing of different senior-debt, equity or mezzanine instruments, along with associated fees and pricing.

Table 6 provides a sample of the project financing assumptions to be considered.

**Table 6: Sample Project Financing Assumptions**

Private Sector Financing (Shadow Bid)	Public Sector Financing (PSC)
<ul style="list-style-type: none"> <li>• <b>Financing Structure</b> <ul style="list-style-type: none"> <li>– Bond or bank financing</li> <li>– Timing of debt draws</li> <li>– Debt to equity ratio</li> <li>– Timing of equity injection</li> <li>– Debt service coverage ratio</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>Financing Structure</b> <ul style="list-style-type: none"> <li>– Timing of borrowing</li> <li>– Tenor and repayment frequency</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>• <b>Financing Costs</b> <ul style="list-style-type: none"> <li>– Base interest rate</li> <li>– Credit spread</li> <li>– Required return on equity</li> <li>– Reserve account requirements</li> <li>– Upfront fees</li> <li>– Standby fees</li> <li>– Costs payable at financial close</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>Financing Costs</b> <ul style="list-style-type: none"> <li>– Base interest rate</li> <li>– Credit spread</li> <li>– Borrowing fees</li> <li>– Costs payable at financial close</li> </ul> </li> </ul>

## Sources of Information

- Sources of information include, but are not limited to: market sounding reports, data from financial models from proposals submitted for recent comparable projects (within last 6 months), input from the Procuring Authority's finance department, credit rating agency reports, industry publications, and Procuring Authority's transaction and financial advisors.

## Completion Checklist:

- This section should answer the following questions:
  - ✓ Are all key financial assumptions outlined?
  - ✓ Are the assumptions for the P3 model relevant to the chosen financing structure?
  - ✓ Are the inputs based on sound research and/or input? Are they reflective of current market conditions?

## Step 5: Risk Analysis and Quantification

### Objective

In this section of the POA, the Procuring Authority should identify:

- Project risks, quantitatively analyze the risks, and allocate these risks between the Procuring Authority and the private sector partner for the delivery models under consideration;
- The process and methodology used to identify, assess and allocate project risks.
- A robust description of the risk profile of the project and the allocation of key risks between the public sector and the private sector, the rationale underlying the allocation, and summary tables showing the value of the risks retained and transferred under both the PSC model and P3 model;
- The five (5) to ten (10) most important project risks and describe what characteristics of the project give rise to these specific risks. Where possible, describe the actions that can be taken to reduce or mitigate these risks;
- The type of statistical analysis used to arrive at the distribution of impacts for each risk. The Procuring Authority should disclose any adjustments made for optimism biases, competitive neutrality and other factors that may be relevant to the accuracy of the VfM; and
- Participants in any qualitative risk workshops, as well as describe the workshop methodology and highlight the main points of discussion.

*Value for Money analysis must be done in accordance with the established provincial methodology in its respective jurisdictions, if available. This is the case for government bodies, agencies and departments in British Columbia, Alberta, Ontario, and Quebec. Other jurisdictions are encouraged to follow PPP Canada's suggested methodology.*

A reasonable valuation of risks and risk premium as part of the POA is a vital factor for the effective evaluation of the procurement options being compared. Not only can it have an impact on the choice of the procurement model, but underestimation of project risks can potentially lead to inappropriate decisions being made with regard to the project itself or its affordability. Finally, subsequent revisions to the capital investment budget as unforeseen risks materialize may have a negative impact on public opinion.

The objective of Procuring Authority is not to maximize risk transfer to the private sector, but to assign risks to the party best able to manage each risk. The transfer of certain risks to the private sector may result in an unacceptably high cost charged back by the private partner. The Procuring Authority aims to optimize the risk allocation in order to maximize the Value for Money delivered by the procurement model and the capital investment.

The inputs needed for the risk analysis and quantification include, but are not limited to: engineering and technical studies conducted for the project, performance specifications, risk registers, risk benchmarks provided by provincial P3 agencies (where available) or PPP Canada, inputs from stakeholders and project managers.

To ensure risks are estimated accurately it is recommended that a systematic approach be used. The following describes an approach to risk quantification that is based on industry best practice.

### **Risk Workshops**

It is recommended that risks be identified, assessed, categorized and estimated through a series of risk workshops. The purpose of the risk workshops is to identify, describe, allocate, quantify and propose mitigation strategies for all relevant potential risks of a capital investment.

During the workshops, the participants review the allocation of risks between the public and the private sectors and develop the inputs required for the quantification of risks, namely, the probability of occurrence of each risk and

define a minimum, maximum and most likely (i.e. Mode) impact of each individual risk, in case they occur. These inputs are then used to quantify each risk based on a Monte Carlo Simulation.

### **Risk Identification**

The first part of this process is the identification of potential risks that may materialize during the time period of capital investment analysis. To estimate overall project costs, it is necessary to identify the project risks. This risk identification process results in the development of a list of risks, often known as a risk register, as well as their detailed definitions and descriptions. There is no minimum or maximum number of risks that must be included in the risk register. PPP Canada and some of the P3 provincial agencies have developed risk registers for different sectors that can be used to aid the risk identification process. Table 7 provides a list of sample risk categories.

**Table 7: Sample Risk Categories**

Sample Risk Categories	
• Policy and Strategic Risks	• Permitting and Approvals Risks
• Design and Tender Risks	• Completion and Commissioning Risks
• Procurement Risks	• Lifecycle and Residual Risk
• Site Conditions and Environmental Risks	• Operations and Maintenance Risks
• Construction Risks	• Contractual Risks
• Equipment Risks	• Financial Risks

### **Risk Allocation**

The objective of P3 procurements is the efficient allocation of risk and to assign risks to the party best able to manage each risk. While each capital investment has its own specificities, the allocation of risks is usually broadly similar from one P3 project to another. The associated allocations are assigned in one of three categories.

**Transferred risks** – risks that are fully transferred to the private partner (e.g., land contamination by the private partner during construction);

**Retained risks** – risks that are the full responsibility of the Procuring Authority (e.g., delay in gaining capital investment approvals); or

**Shared risks** – risks that are the responsibility of both the private sector and the Procuring Authority (e.g., construction and environmental permitting, force majeure, etc). The standard practice is to consider any risk sharing on a 50/50 basis.

Table 4 in the body of this Guide presented a summary of risk allocation according to the procurement option considered. Although it outlines the typical allocation of risk, all projects are different and the transfer of certain risks to the private sector may result in an unacceptably high cost charged back by the private partner, referred to as a risk premium. The Procuring Authority aims to optimize the risk allocation in order to minimize the risk premium and optimize Value for Money.

In a P3, the actual risk allocation occurs under the Project Agreement. It is recommended that the Procuring Authority consult the PPP Canada sample risk register when developing its tender or bid documents for insight into the risks intended to be transferred to the private sector partner.



## ***Risk Likelihood and Impact***

A monetary value must be given to each identified risk in order to correctly reflect the total risk-adjusted cost of an asset. This monetary value is probability-adjusted based on the evaluation of the probability that a risk event occurs.

Risk values and supporting calculations are usually determined during risk workshops and documented in a risk matrix. The risk matrix documents a description of each risk, the likelihood of the risk happening, the impact of risk event and then a calculation of value of that risk event.

It is recommended that a rigorous approach be used in the estimation of the probability that the risk will occur (expressed as a single percentage between 0% and 100%) and the impact of the risk if it occurs (three impact values (i.e. Min, Max, Mode) required to constitute a triangular distribution). Triangular distribution is the most common distribution used to quantify risks that are viewed as continuous random variables but that are not necessarily normally distributed. A triangular distribution uses the following three parameters to determine the expected value of the cost outcome for each risk:

- Minimum (10% certain that if the risk occurs, it will cost no more than the Minimum);
- Typical (usually defined as the Mode, i.e. the value that is the most likely to occur);and
- Maximum (90% certain that if the risk occurs, it will cost less than the Maximum).

Triangular distributions may be skewed, meaning that the values are not necessarily equally distributed around the mean, unlike symmetrical normal distributions. For example, a geotechnical risk may be a negative amount for the minimum data point (contingencies are deemed conservative and the actual decontamination required may be lower than the budgeted amount), \$0 at the Mode (contingencies are deemed adequate), and a positive amount for the maximum data point to account for the possible contamination in excess of standard capital investment budget plus contingencies. The minimum, modal and maximum values of the individual risk impacts can be calculated based on either:

- A cost value of each individual risk, should it occur, defined in dollars;
- A percentage of the project net present cost before risks; or
- A cost of delay on the project due to the occurrence of the risk.

Quantification of key risks considers the level of progress in the project planning, and considers only risks over and above contingencies that are already included in the asset costs. Risks are expressed in present value terms but can be quantified in nominal or real terms during the workshops and converted into present values for the purpose of the like-for-like comparison between procurement models. The outcome of this process is a completed risk matrix. Table 8 provides a sample risk matrix excerpt.

**Table 8: Sample Risk Matrix Excerpt**

Risk Category	Cost Base	Risk Allocation	PSC (Traditional) Model				DBFM (P3) Model			
			Probability %	Impact			Probability %	Impact		
				Min (10 <sup>th</sup> Percentile)	Typical	Max (90 <sup>th</sup> Percentile)		Min (10 <sup>th</sup> Percentile)	Typical	Max (90 <sup>th</sup> Percentile)
<b>Construction</b>										
Construction delays	Design & Const.	Pubic, Private or Shared	90.00%	1.00%	2.00%	5.00%	50.00%	0.00%	0.50%	1.00%
Force Majeure	Design & Const.	Pubic, Private or Shared	1.00%	2.00%	3.00%	5.00%	1.00%	2.00%	3.00%	5.00%
Latent defects	Design & Const.	Pubic, Private or Shared	5.00%	1.00%	2.00%	5.00%	5.00%	1.00%	2.00%	5.00%
Failure to build to design	Design & Const.	Pubic, Private or Shared	1.00%	1.00%	2.00%	5.00%	1.00%	1.00%	2.00%	5.00%
Resource availability	Design & Const.	Pubic, Private or Shared	2.00%	0.50%	0.75%	1.00%	2.00%	0.50%	0.75%	1.00%
Acceleration to maintain schedule	Design & Const.	Pubic, Private or Shared	75.00%	1.00%	1.50%	2.00%	50.00%	2.00%	3.00%	5.00%

### Risk Quantification

Once the probability and impact ranges have been established for each risk through the risk matrix development process, statistical analysis can be conducted to determine the risk distribution. The risk distribution is determined from the range of results for each individual risk based on the information included in the risk model (probability and range of impacts). Over ten thousand iterations of the risk results are performed using a Monte Carlo Simulation. The results of the iterations lead to the risk distribution of the risks retained, transferred and shared for each procurement option. The resulting distribution is normal.

The mean of the distribution can then be multiplied by the impacted value in net present value (NPV) to calculate the value of the risk. The impacted value is the project cost that can be directly impacted by a risk. Construction risks, therefore, are multiplied by the NPV of construction costs.

### Sources of Information

- Sources of information include, but are not limited to: input from the Procuring Authority's project team including technical, engineering, financial and transaction advisors, risk registers and project risk data held by procurement agencies or external advisors, discussion notes from risk workshops that may have been conducted.

### Completion Checklist:

- This section should answer the following questions:
  - ✓ Did the process used to identify, quantitatively assess, and allocate project risks reflect best practices and include the expertise necessary to conduct such an exercise effectively?
  - ✓ Is the rationale underlying the risk allocation clear? Is it linked to discussions that occurred during market soundings, jurisdictional analyses or the Procuring Authority's project and procurement objectives?

- ✓ Has appropriate professional expertise (technical, legal, financial) been consulted? (PPP Canada's expectation is that expertise will have been consulted and later involved in the project)
- ✓ Is the risk allocation appropriate for the project delivery model and commercially reasonable?
- ✓ Has the risk quantification been benchmarked against the risk profiles of similar projects?

## Step 6: Estimated Value for Money (VfM) Assessment

### Objective

In this section of the POA, the Procuring Authority should present:

- The quantitative risk analysis over the cash flow models to generate the risk adjusted net present costs of the PSC model and P3 model;
- The methodology used to calculate the discount rate for net present costs;
- A sensitivity analysis of the VfM results to assess how changes in certain variables affect the VfM achieved by the project. A high and low-end VfM assessment should be presented;
- The benchmark the VfM for its project to the VfM generated by similar projects using similar transaction structures; and
- The points during project execution when the VfM analysis will be updated.

Once the identified risks have been quantified, their value can be integrated into both the Public Sector Comparator (PSC) and P3 cash flow financial models, in order to compare procurement models on a risk-adjusted basis. The procedure for inclusion of quantified risks is as follows:

**PSC model:** Risks related to the PSC model are valued from the perspective of the Procuring Authority and includes the risks that would be retained, as well as half of the shared risks under the PSC model. The NPV of these risks is added directly to the NPV of the PSC cash flows.

**P3 model:** Risks related to the P3 model are valued from the perspective of the Procuring Authority and includes the risks that would be retained, half of the shared risks under the P3 model plus a risk premium. The NPV of these risks and the risk premium is added directly to the NPV of the P3 cash flows.

### *Risk Premium*

The risk premium is an additional cost added to the P3 to account for the costs associated with the risk transferred to the private sector. The value of transferred risk is estimated through a risk quantification process and the premium will be based on this estimation. The value of the premium, however, will not reflect the full value of transferred risk due mainly to the following two factors:

**Private Sector Risk Management** - Under the P3 model risks are allocated to the party best suited to manage them. The risks allocated to the private sector are those that they can control and have experience managing, such as construction delay risks. If this is done effectively, the result will be the most cost effective allocation of risks for the project.

**Competitive Procurement Process** – The competitive procurement process provides the necessary incentive for the private sector to provide innovative bids to minimize the risk to them and include the lowest possible premium.

Even though the project company will be able to manage and exert control over the risks allocated to them, a premium will still be charged. The value of the risk premium is calculated as a percentage of capital costs and can vary based on the complexity of the project, market conditions and the quantum of transferred risks. A wastewater

treatment plant, for example, that uses a Design-Build-Finance-Operate-Maintain (DBFOM) would allow for the effective transfer of a significant amount of risk to the private sector. The nature of those risks and their potential impact may result in a higher premium. Volatile prices for specific materials, such as chemicals for wastewater treatment, may result in a higher premium. Due to these market and asset specific factors, it is preferred practice that the risk premium be estimated by an industry expert.

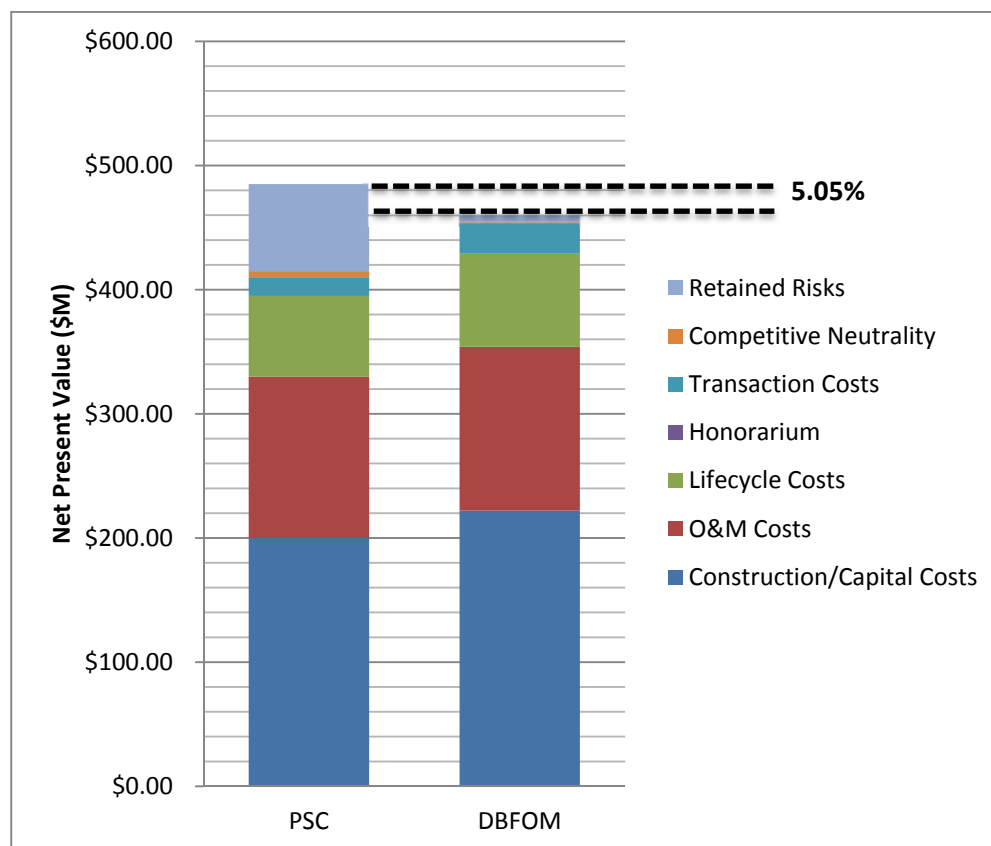
### Mitigation Strategies

The next step is to develop potential strategies or actions that could be taken to reduce or eliminate the risk. Such strategies are carried forward and used as considerations to change the risks. The cost effectiveness and reasonableness of the proposed mitigation measures can be confirmed and challenged by examining circumstances in previous procurement approaches. It also will be useful information for managers during the tendering process or the construction/implementation process.

### Value for Money (VfM) Analysis Results

Value for Money results provides a comparison between the risk adjusted cost of Public Sector Comparator (PSC) model and the risk adjusted cost of a P3 model and or other options being evaluated. Figure 3 and Table 9 provide the sample results of a VfM analysis. It is important to note that charts have been presented for sample purposes only. The relative size of the individual components making up the chart can change significantly across different VfM methodologies.

Figure 3: Sample VfM Chart



**Table 9: Sample PSC Model and P3 Model Comparison**

<b>Net Present Value (\$M)</b>		<b>PPP (Shadow Bid)</b>		<b>Difference</b>	
<b>Public Sector Comparator (PSC)</b>					
<b>Project Costs</b>		<b>Project Costs</b>			
Construction Costs	200.0	Capital Costs	222.0		
O&M Costs	130.0	O&M Costs	132.0		
Lifecycle Costs	65.0	Lifecycle Costs	75.0		
<b>Subtotal</b>	<b>395.0</b>	<b>Subtotal</b>	<b>429.0</b>	-34.0	-8.61%
<b>Transaction Costs</b>		<b>Transaction Costs</b>			
Transaction Costs	15.0	Transaction Costs	24.5		
Competitive Neutrality	5.0	Honorarium	1.0		
Retained Risks	70.0	Retained Risks	6.0		
<b>Total</b>	<b>485.0</b>	<b>Total</b>	<b>460.5</b>	24.5	5.05%

Procuring Authorities must provide a clear understanding of how the cost estimates are developed, how they compare across models and, ultimately, how Value for Money is estimated.

### **Sensitivity Analysis**

At this point in the analysis, the Procuring Authority will be able to use the information completed to date to identify the preferred procurement option. However, this analysis is based on a static scenario and the related probable events and cash flows. It does not give as sense of the potential variability in the estimates, which can lead to extremely conservative or overly optimistic estimates. Therefore, a sensitivity analysis needs to be carried out to:

- ✓ Help identify the key variables which influence the capital investment total cost;
- ✓ Investigate the consequences of likely adverse changes in these key variables;
- ✓ Assess whether the capital investment procurement decision is likely to be affected by such changes; and
- ✓ Identify actions that could mitigate possible adverse effects.

In a sensitivity analysis, all variables are kept constant except one to evaluate how sensitive the estimate of the cost of the project is to changes in that particular variable. For example, efficiencies cannot be the sole source of Value for Money. As such, it is recommended that a sensitivity analysis be conducted to understand the sensitivity of the Value for Money if efficiencies are excluded from the calculation. It is also possible to conduct a scenario analysis that combines two or more variables which have been individually analysed. Some of the variables for consideration are described below.

### **Discount rate**

In order to evaluate the sensitivity of the models with respect to a change in discount rates, all the inputs in both models are left unchanged and the discount rate is modified by 25 or 50 basis points. The resulting net present costs are then compared to determine the revised VfM proposition.

The break-even discount rate is also determined. It corresponds to the discount rate that results in zero VfM.

### **Cost assumptions**

In the baseline cost work, assumptions are developed based on engineering studies, prior similar initiatives, historical costs, etc. It is recommended that a sensitivity analysis be applied to these cost for changing circumstances, order of magnitude, error in estimations, etc.

### ***Cost of debt***

The process to perform sensitivity analysis on the cost of debt is similar to the discount rate. It involves applying percentage changes around the base cost of debt to determine the impact of a change in the cost of debt on the cash flows.

### ***Revenue assumptions***

Revenue assumptions may vary significantly from one project to another. If the proposed investment includes commercial revenues, particular attention needs to be paid to analysing the sensitivity of the revenue model to changes in factors such as taxes, demand, segments of clientele, seasonality, etc. Revenue sensitivities are highly dependent on the structure of the revenue model and need to be performed by qualified financial specialists.

### ***Indexation assumptions***

In order to determine the impact of higher or lower inflation than expected on the ASP and on the net present costs of both the PSC model and P3 model, a percentage change is applied to construction and operation indexation assumptions over the whole period of analysis.

### ***Private sector efficiencies***

If private sector efficiencies have been included in the P3 model to adjust cost estimates, it is important to test the case of lower than anticipated efficiencies. In the P3 model, a sensitivity analysis is therefore applied on different levels of lower efficiencies, including the worst case scenario of zero private sector efficiencies.

### ***Risk valuation***

It is important to test the sensitivity of the quantitative analysis to the variation of the risk provisions for both public and private risks in the PSC model and P3 model. Risk estimation is an inherently subjective exercise, and the private partner may view the project being procured as more risky, therefore adding higher risk provisions to their bids. At the same time, sensitivity is run on the risks the Procuring Authority retains in the PSC model.

In addition to the above variables, special attention is paid to financing considerations. Financing includes the debt/equity ratios and return on investment as well as the cash flows.

The cash flow structure is the distribution between Substantial Completion payments and availability payments. Determining this structure may be an iterative process until the most efficient distribution is determined. Although this structure may not have much flexibility due to estimated availability of public funding, it is important to consider it on a project-by-project basis. It should be noted that there are trade-offs between smaller Substantial Completion and higher financing fees, and larger Substantial Completion and higher private partner risk.

Numerous simulations may be run which is the reason for a robust and flexible financial model that was developed earlier. The results of the simulations are documented, as shown Table 10.

**Table 10: Sample Sensitivity Analysis Results**

VfM Sensitivity	Low		Low/Medium		Base		Medium/High		High	
	Test	VfM	Test	VfM	Test	VfM	Test	VfM	Test	VfM
Debt to equity ratio	84.0%	2.5%	87.0%	3.9%	90.0%	5.2%	93.0%	6.7%	96.0%	8.1%
IRR	11.0%	6.6%	12.0%	6.0%	13.0%	5.2%	14.0%	4.6%	15.0%	4.0%
Discount Rate	5.5%	-0.4%	6.0%	2.5%	6.5%	5.2%	7.0%	7.9%	7.5%	10.4%
Short-Term Debt Spread	125 bps	6.0%	175 bps	5.7%	225 bps	5.2%	275 bps	4.9%	325 bps	4.6%
Long-Term Debt Spread	125 bps	9.6%	175 bps	7.5%	225 bps	5.2%	275 bps	3.1%	325 bps	0.9%
Efficiencies	0.0%	2.0%	3.5%	3.7%	7.0%	5.2%	10.5%	6.9%	14.0%	8.5%

At the completion of this step, there will be a good understanding of the sensitivity of the Value for Money results; that is, which components will impact the results. Best case or worst case scenarios will be understood. This information and insight is used to better inform the Integrated Recommendation as discussed in Section 5.

### Completion Checklist:

- This section should answer the following questions:
  - ✓ Is the methodology and rationale for the selection of the discount rate clearly presented? Is the relationship between the discount rate and the Sponsor’s cost of capital discussed?
  - ✓ Is the VfM model structurally and mathematically sound?
  - ✓ Is the VfM analysis conducted without bias? Is it consistent with the assumptions and inputs outlined above?
  - ✓ Are the sensitivity variables identified and the rationale for selection articulated?
  - ✓ Has a sufficiently robust sensitivity analysis been conducted? What do the results of the sensitivity analysis mean for the project’s ability to achieve meaningful VfM if pursued as a P3?
  - ✓ Is the VfM presented consistent with comparable projects that have been executed using similar transaction structures? Are variations clearly explained?

## SECTION 5: INTEGRATED RECOMMENDATION

The purpose of this section of the POA is to:

- Summarize the qualitative analysis conducted in Section 2 with the quantitative analysis conducted in Section 4 in order to identify the optimal delivery model.

This section of the POA is important because it:

- Summarizes the critical rationale underlying the Procuring Authority's selected project delivery model; and
- Presents the relative weight given by the Procuring Authority to various evaluation criteria.

The Integrated Recommendation summarizes the qualitative and quantitative rationale for the selection of a particular procurement option including the sensitivity analysis. The rationale provided is a rich and comprehensive discussion of the outcomes of the quantitative and qualitative analyses. Particular emphasis is placed on those costs or factors which most influence the decision.

The Qualitative Analysis and the Risk Assessment (part of the Quantitative Assessment) would have identified mitigation measures for various circumstance and risks. These mitigation measures are carried forward and reported in the Integrated Recommendation.

The qualitative and the quantitative reports may not come to the same conclusion about the preferred procurement option. The procurement model with the lowest risk adjusted net present cost may not be the most suitable qualitatively because, for example, it may not achieve objectives effectively in the long-term or may not be viable under the identified constraints. On the other hand, the procurement model that seems to be the most suitable qualitatively may have a net present cost too high to be considered affordable. It is therefore important to analyse the quantitative and qualitative results together to reach conclusions about the preferred procurement model.

In most instances the quantitative and qualitative results will both favour one option over the other(s) and the preferred procurement recommendation will be clear. For some cases the recommendation will not be as straightforward.

For some projects, the quantitative and qualitative results will be conflicting; for example, the quantitative results will be favourable and the qualitative results will be unfavourable. In these cases it will be necessary to re-examine the qualitative analysis results and determine what is driving the conclusions. If the qualitative factors are significant and may have a serious negative impact on the project if it is procured under a certain model, it may be necessary to place greater weight on the qualitative analysis results. Since the qualitative analysis is inherently subjective it is important to reconfirm the conclusions from the analysis prior to making a recommendation. This may require further consultation with stakeholders and an examination of the criteria and their ranking to ensure conclusions remain accurate.

For P3 projects to be successful, it is necessary for them to generate Value for Money (VfM). If VfM is negative, that is the P3 is not the preferred option from a quantitative standpoint, it is suggested that the project does not proceed as a P3 regardless of the outcomes of the qualitative analysis. If the qualitative and quantitative analyses favour the same option, but VfM is marginal (less than 3%) the sensitivity analysis is incorporated as a major consideration in the Integrated Recommendation. The variables that affect the VfM the most are examined carefully to determine the potential of VfM dropping below 0%. The qualitative analysis may also receive greater weight in the Integrated Recommendation, which may require additional substantiation for the conclusions of that analysis.



The Integrated Recommendation balances the results of the qualitative and quantitative analyses. Where the confidence in the conclusions of one of the analyses may be limited due to uncertainties around assumptions or variables, the results of the other supplements those limitations to result in robust conclusions regarding the recommended option. This will require in depth rationale and evidence for the conclusions reached, as well as an understanding of the sensitivities of both analyses.

The information in the Integrated Recommendation or the Procurement Options Analysis (POA) can be utilized in future phases as monitoring tools if any changes to documents and Project Agreements are contemplated in order to ensure that the risk transfer is not negatively impacted and that the VfM is maintained.

## Step 1: Recommended Procurement Option

### Objective

In this part of the POA, the Procuring Authority should:

- Review the results of qualitative and quantitative analysis. Procuring Authorities should pay particular attention to whether the results of the VfM analysis have had any impact on the assessment of the delivery models. There may be discrepancies between the qualitative and quantitative assessments. In these cases, the Procuring Authority should reassess the delivery models against the qualitative criteria;
- If the delivery models are reassessed from a qualitative perspective, disclose the process for doing so and the revised scoring along with the rationale for any and all adjustments;
- Clearly identify qualitative factors, such as early delivery and the associated beneficial outcomes, influence of private sector operating practices, improvements in public sector procurement; and
- Based on the revised qualitative analysis and the VfM assessment, provide a recommended procurement option (i.e., traditional procurement or a specific P3 procurement model). The Procuring Authority should: (i) make clear the relative importance that the qualitative and the quantitative analysis had in arriving at the recommended procurement option; and (ii) state the expected benefits of the recommended options.

The VfM analysis and financial model are not static. Assumptions and estimates underlying the VfM analysis may evolve throughout the planning and procurement process of the project. Contingencies, risk provisions and risk allocation are the variables most often subject to such changes. Changes in the risk profile of the project (i.e. retained vs. transferred) may change following market soundings. The VfM is updated to reflect such changes.

New information will also become available during the procurement process that will be used to update and refine the VfM estimate. The first VfM refresh is performed once the selected private partner has been identified at the end of the procurement process. The refresh is performed by integrating the costs proposed by the private partner into the P3 model.

The final VfM refresh is performed immediately after financial close based on the signed Project Agreement and finalized price. A public VfM report is also produced outlining the VfM savings based on this final VfM refresh to ensure transparency of the analysis and demonstrate value for taxpayers.

### Sources of Information

- Sources of information include, but are not limited to: policy direction, market sounding reports, planning documents, feasibility studies, project workshop notes, precedent transactions, stakeholder consultations, technical reports, legal opinions, and consultant reports.

### Completion Checklist:

- This section should answer the following questions:

- ✓ Is there a clear qualitative and quantitative result pointing to an optimal project delivery model? Where a result is not clear, is the rationale for the recommended procurement option/ justified?
- ✓ Is the process and information used to achieve this result defensible and repeatable?

It is important to note that the following section presumes that the Procuring Authority has selected a P3 as the preferred approach and the optimal structure for infrastructure asset delivery.

## SECTION 6: PROCUREMENT STRATEGY

The purpose of this section of the POA is to:

- Articulate the Procuring Authority's policy and process framework for establishing an accessible, fair and competitive environment to secure a private sector partner for the project;
- Define the human and financial resources to be dedicated to the execution of the procurement;
- Develop a governance framework to oversee the procurement; and
- Provide the project team with high-level guidance and overall direction on next steps.

This section of the POA is important because it demonstrates:

- The degree to which the Procuring Authority has planned ahead;
- That the Procuring Authority has laid an appropriate legal and policy framework for the procurement;
- Clarity on the project's future direction and anticipated key milestones; and
- That the project is going to be procured according to best P3 procurement practices.

### Step 1: Recommended Procurement Process

#### Objective

In this section of the POA, the Procuring Authority should:

- Outline and assess the procurement options considered for the P3 project and present a recommended procurement strategy (e.g., Request for Qualifications and Request for Proposals);
- Confirm procurement objectives and note any procurement constraints or limitations, along with how objectives and constraints are to be addressed through the procurement process;
- Describe the plan to pre-market the project to maximize competitive tension in the marketplace;
- Illustrate at a high-level the evaluation procedures (e.g., affordability thresholds, scope ladders, innovations) to be used to select the preferred private partner and how these factors may impact Value for Money (VfM);
- Note the timing of any VfM refreshes to take place through the procurement process; and
- Present a high-level timeline for the procurement of the project with major milestones and accountabilities identified.

#### Sources of Information

- Sources of information include, but are not limited to: laws, policies and resolutions passed by the Project Authorities's governing body, procurement by-laws, P3 policies, input from market soundings and reviews of precedent projects, input from Procuring Authority's financial and transaction advisors, and assessment of local and regional deal pipelines.

#### Completion Checklist:

- This section should answer the following questions:

- ✓ Is a clearly defined procurement process presented?
- ✓ Will the procurement be transparent, open and competitive?
- ✓ Is the procurement process consistent with Canadian P3 best practices?
- ✓ Where amendment to the Procuring Authority’s procurement policies is required, is the process to achieve the amendment set out?
- ✓ Is a reasonable timeframe presented for the execution of the preferred procurement process?

## Step 2: Procurement Governance

### Objective

In this section of the POA, the Procuring Authority should present:

- Legislative and policy authorities to undertake a procurement as well as any authorities to be delegated to the project team to enable the successful implementation of a P3 procurement;
- Governance structure for the procurement, including the hierarchy for project decision-making and the authorities vested at each level of the hierarchy;
- The five elements that help to develop a robust P3 procurement governance structure (Figure 4);
- Any key points where the project team will need to consult with oversight committees and/or receive formal authorities to proceed to further stages of procurement; and
- The process and timelines where legislative or policy authorities are required to enable procurement.

**Figure 4: Considerations for developing a P3 Governance Structure**



### Sources of Information

- Sources of information include, but are not limited to: legislative and policy statements made by the Sponsor’s governing body; statements or official documents from the Procuring Authority’s leadership

delegating sufficient authority to members of the project team; discussions with procurement and legal departments; and, discussions with project leaders, senior management and political leadership.

### **Completion Checklist:**

- This section should answer the following questions:
  - ✓ Are there any impediments to the implementation of an effective P3 process? What measures are being taken to address these impediments?
  - ✓ What is the mandate and structure of project governance?
  - ✓ Is it clear who is making the decisions for the project?
  - ✓ Who is to be involved with overseeing the project? How are the various committees organized?
  - ✓ Do the right individuals have sufficient authority to execute the requirements of a P3 transaction?
  - ✓ What are the key features of the governance structure that will help to ensure that it is an effective body to move the project forward?
  - ✓ Are sufficient accountability and feedback processes included to ensure accountability and smooth project implementation?

## **Step 3: Project Team**

### **Objective**

In this section of the POA, the Procuring Authority should present:

- The resourcing requirements and commitments necessary to properly execute the P3 procurement and any approvals acknowledging these requirements and commitments;
- The roles and responsibilities of individual members of the project team and outline the rationale for their inclusion. In particular, the Procuring Authority should define the roles and responsibilities of the project manager, internal and external advisors, communications director and Procuring Authority staff members. Where external advisors are to be used, the Procuring Authority should provide a high-level description of the procurement approach to be used to retain this expertise;
- Each member's qualifications and the authority delegated to them in order to undertake their role. For internal team members, full names, biographical information and anticipated time commitment to the project should be provided;
- The Procuring Authority's approach to ensuring appropriate contingency and transition planning. In particular, a description of the involvement on the project team of the eventual contract manager/operations manager should be provided; and
- Resourcing constraints and mitigation measures.

### **Completion Checklist:**

- This section should answer the following questions:
  - ✓ Is a well-structured and resourced project team presented? Are there dedicated resources assigned to the P3 project? Are these dedicated resources sufficiently qualified to undertake their role through the planning, procurement, design, construction and operating periods of the project?

- ✓ Are the members of the project team and their roles and responsibilities clearly defined?
- ✓ Has the Procuring Authority clearly articulated its understanding of the resourcing commitments associated with P3 procurement? Is there funding or other approvals in place to support the project team?
- ✓ Are resourcing constraints addressed in a manner that demonstrates foresight and adequate planning on behalf of the Procuring Authority?
- ✓ Are external advisors going to be used? If so, how will they be used? How will they be procured?

## Step 4: Project Resourcing and Budget

### Objective

In this section of the POA, the Procuring Authority should:

- Identify the person that developed the project budget and ongoing responsibilities with respect to ensuring that budgets are met and tracked;
- Describe what resourcing plan and budget have been approved for moving the project through the planning, procurement and post-procurement phases; and
- Ensure that the resourcing plan demonstrates the time commitment required of governance and project team members, the training required to assist team members in effectively executing their responsibilities, and the budget associated to fund time and training commitments.

### Completion Checklist:

- This section should answer the following questions:
  - ✓ Is a resourcing plan and budget available to support the P3 project? Has the resourcing plan and budget been approved by the appropriate approval authority?
  - ✓ Does the resourcing plan and budget fully consider the internal staff and external professional expertise that will be required to deliver the P3 project? Have the resourcing and budgetary requirements of project procurement and communications been fully considered and accounted for?
  - ✓ Are the resourcing schedules and budgets presented consistent with those used for the VfM analysis?

## Step 5: Procurement Documents

### Objective

In this section of the POA, the Procuring Authority should identify:

- The models or templates that will be used as the basis of the Request for Qualifications, Request for Proposals and Project Agreement, and disclose the process and expertise to be used to develop any and all project documentation;
- Critical project issues and features and describe how these will be reflected in the documentation to ensure that project objectives are met;

- Any approaches or key terms that will be included that depart from standard P3 practice along with an explanation of the rationale for these departures; and
- A high-level timeline for the development and approval of critical project documents.

## **Sources of Information**

- Sources of information include, but are not limited to: template documents available from procurement agencies or consultants and financial models developed by the Procuring Authority or its Financial Advisors.

## **Completion Checklist:**

- This section should answer the following questions:
  - ✓ Are all key required documents described? Is the rationale underlying their use clearly articulated?
  - ✓ Are the key features of the project, as described in previous sections, reflected in the documents provided?
  - ✓ Are a clear process, expertise and timelines provided for the development of key project documents?

## APPENDIX A: GLOSSARY

P3 terminologies can vary significantly across jurisdictions. The following glossary defines key terms as used within this Guide.

<b>Affordability threshold</b>	A specified bid value determined by the Procuring Authority above which the project becomes unsustainable from the Procuring Authority's financial perspective.
<b>Competitive neutrality</b>	Adjustments that remove any net advantages or disadvantages when comparing government and private bids.
<b>Discount rate</b>	In discounted cash flow analysis, the interest rate used to determine the present value of future cash flows.
<b>Feasibility study</b>	A study conducted as part of a traditional business case which assesses the degree to which the various features of a project are sustainable or achieve the Procuring Authority's stated objectives.
<b>Needs assessment</b>	A document assessing the community's need for the project and any constraints being placed on the project's development.
<b>P3 model</b>	The cash flows of a project developed on the basis that it is developed by the private sector using a P3 methodology.
<b>Public Sector Comparator (PSC) Model</b>	The cash flows of a project developed on the basis that it is developed and financed by the Procuring Authority using its usual project delivery approach.
<b>Procuring Authority</b>	The entity designated and authorized to procure the project.
<b>Request for Proposals (RFP)</b>	The final procurement document usually released to a limited set of bidders with the intention of receiving final bids for the project.
<b>Request for Qualifications (RFQ)</b>	A binding procurement document released with the intention of qualifying proponents to submit proposals for a forthcoming Request for Proposal (RFP). The RFQ usually describes the project at a high-level and requests interested parties to submit experience and qualifications with respect to specific project parameters.
<b>Risk Transfer</b>	Risks arise in all projects, irrespective of the approach adopted. In a P3, risks of a project are transferred to the party best able to manage them, thereby reducing financial consequences by leveraging private sector expertise.
<b>Scope ladder</b>	A tiered-pricing methodology in which bidders make more than one price submission based on varying scopes of the project.
<b>Traditional procurement</b>	The delivery methodology usually used by the Procuring Authority to procure the asset-type being analysed. For most jurisdictions, this is usually a design-bid-build or design-build methodology.
<b>Value for Money</b>	The difference in the risk adjusted net present cost of delivering the project using the Procuring Authority's traditional methodology for such projects and the anticipated cost of delivering it through the private sector, i.e. using a P3 methodology.



## PPP CANADA

630-100, rue Queen Street  
Ottawa, Ontario K1P 1J9  
Canada

Tel/Tél : 613.947.9480  
Fax/Télé : 613.947.2289  
Toll Free/sans frais :  
1.877.947.9480

Email/Courriel : [info@p3canada.ca](mailto:info@p3canada.ca)  
Web : [www.p3canada.ca](http://www.p3canada.ca)