



# Value for Money State of the Practice

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## Value for Money Defined

Value for Money (VfM) is a process through which public agencies analyze the appropriate procurement approach for their major infrastructure projects usually with an estimated capital cost greater than \$100 million. VfM analysis seeks to identify the procurement approach that provides the maximum benefit for the public sector agency which may include benefits from private sector financing, efficiencies from business disciplines, risk allocation and/or innovation. VfM is a common tool for comparing the traditional public procurement option such as design-bid-build (DBB) with public-private partnership (P3) alternatives such as design, build, finance, operate and maintain (DBFOM) in developing a transportation facility. When comparing the procurement options, the procurement approach which has the lowest cost, after lifecycle cost, risks, and other items are considered, would have the best “value for money”.

## Purpose of This Report

The Value for Money State-of-the Practice Document was created to assist state practitioners in their P3 program efforts. In addition to the introductory chapter (Chapter 1), the report includes two separate sections:

### -Chapter 2 –International Methodology and Practice

This section of the report details the concepts and principles which underlie the VfM methodologies of three different countries: Australia, Canada and the United Kingdom (UK). In addition, the report provides insights into how VfM is practiced by the various agencies which procure infrastructure projects in these countries, all of which have more experience with transportation P3s than the United States. Accordingly, the report includes case studies from all countries. The case studies presented in this chapter were crafted to help the reader understand how VfM is used by public officials in real world scenarios including the decision making process.

### -Chapter 3 –Methodology and Practice in the United States

This section of the report details the concepts and principles which underlie the VfM methodologies of several states, including California, Florida, Georgia, Texas and Virginia.

The report is a state-of-the practice document. FHWA does not recommend any single approach to analyzing procurement options. FHWA does highly encourage that state practitioners consider some type of analysis when considering P3 procurement options. P3 procurements are highly complex and the P3 arena is ever changing. FHWA does promote state practitioners use of existing P3 resources such as lessons learned from other countries and states as well as engaging highly experienced P3 consultants to assist in their P3 endeavors.

## The Value for Money Process: Determining Whether a P3 is the Better Choice

Value for Money is a uniform process utilized on a case-by-case basis to compare the aggregate benefits and the aggregate costs of a P3 project against those of the traditional public alternative. For example, is it cheaper for a state DOT to build additional lanes on a commuter corridor and charge drivers a toll, or to allow a private company to take on the building costs in return for rights to the toll revenues? Is it worth paying a price premium to a private operator to take on risks in return for establishing a reliable fixed cost into the future?

The methodology for carrying out a VfM analysis varies, but its major elements are consistent across the three countries discussed in this primer. At a high level, they all involve:

- Creating a Public Sector Comparator which estimates the whole-life cost of carrying out the project through traditional approaches
- Estimating the whole-life cost of the P3 alternative (either as proposed by a private bidder or a hypothetical “shadow bid” at the pre-procurement stage)
- Completing an “apples-to-apples” comparison of the costs of the two approaches

Agencies differ in the timing of when these analyses are done and in how these estimates are completed. In the UK, some form of a VfM analysis is done at three different points. By contrast, Australian states often delay the first VfM analysis until much later, after a project has been defined and private-sector bids have been solicited and received. These project-level analyses, done with the benefit of actual proposals in hand, can be quantitative and detailed.

### **Public Sector Comparator (PSC) and Shadow Bid Model (SBM)**

A PSC is described as a whole-life, risk-adjusted cost estimate of a project that is efficiently delivered by the public sector. During the development of a PSC, several assumptions are made, including the assumption that the public sector can complete the project to the same quality and standards anticipated by private sector delivery. As the PSC presents a baseline cost of whole-life project delivery for the government, it can be a useful tool that assists governments in forecasting the costs associated with conventional procurements as well as being used in the VfM analysis for PPP projects. Developing a PSC requires a focus on government costs and risks associated with project delivery over the life of the project. A PSC or a baseline cost model that considers the whole-life project costs may assist federal agencies such as U.S. DOT in its oversight role of projects utilizing federal funds, as it demonstrates how agencies plan to maintain and manage the capital assets.

An SBM is described as the estimated cost to the public sector if the same project were to be delivered by the private sector as a PPP. A shadow bid is the public sector's estimate of the bid price that it may receive if the project is structured as a PPP.

A PSC and SBM can be developed during the inception of the project business case and feasibility study, prior to determining the procurement method and issuing the solicitation. After bids are received in response to an RFP, the PSC may be compared to the actual bids received to assess if VfM is still achieved prior to awarding the contract as a PPP.

The public sector typically uses financial and statistical modeling techniques to develop the PSC and the SBM for a project. For example, a Monte Carlo simulation, a commonly used mathematical modeling technique, uses statistical sampling to provide a range of estimates for the cost of risk for the quantitative assessment. These modeling techniques may assess a range of potential outcomes for the PSC and/or SBM.

In general, the quantitative VfM assessment seeks to make a like-for-like comparison between a conventional procurement option and a PPP option.

Costs that are common to both procurement options, for example, retained costs such as land acquisition and project management costs, which are incurred and may not vary regardless of the option selected, are not included in the VfM analysis. In instances where costs vary between the two options, they are included in the VfM assessment in order to assist the public sector in determining the total cost exposure under both a PSC and PPP.

For instance, in Australia and on some Canadian projects, a “competitive neutrality” adjustment is performed, to neutralize the effect of cost components which may give an unfair advantage to one delivery model. This adjustment may be taken into account in the U.S. in similar circumstances, for example if certain investment instruments or tax treatment would favor one delivery model.

A PPP offers better value for money if the total costs calculated by the SBM are less than the costs calculated by the PSC. If the project is not revenue positive, the net present value (NPV) of the contract represents the required government contribution for a private contractor to deliver the project.

It is important to note that for the quantitative assessment of the project to be valid, the same quality of delivery needs to be assumed in both the public and private sector solutions. Experience in the international jurisdictions indicates that procuring agencies have sometimes had difficulty in assuming the same quality of service, as they begin by pricing the service as they expect to deliver it in the PSC (i.e. to the existing quality threshold) rather than to the

quality threshold requested of the private sector providers through a PPP, such as higher service levels or more modernized facilities.

Although the development of the PSC and SBM are significant components of the quantitative VfM assessment, the results of these tools are usually considered in conjunction with additional qualitative considerations, such as the competitiveness in the market and the private sector's appetite for risk transfer. Together, the quantitative and qualitative assessments typically inform the overall VfM analysis and decision-making process

### **Strengths and Weaknesses of Value for Money Approach**

When developing P3 and VfM framework policies, it is important to consider the advantages and disadvantages VfM brings to the process of taking projects from planning through to commercial/financial close. Some strengths and weaknesses of VfM that should be considered are detailed below:

Strengths	Weaknesses
Can provide objective analysis, if performed systematically.	Based on the complexity of the analysis and assumptions, the analysis can be perceived as suspect. (Fear the analysis was “gamed” or showing a bias.)
Provide the public sector sponsor a better understanding of the costs and risks of a project.	Ensuring all aspects of the project are properly evaluated is a challenge.
Enhance public support for P3, if the analysis is released publicly, which fosters transparency and explains the value of the procurement approach.	The analysis is not immune to the appearance or actual influence of politics.

### **Capacity to Improve Public-Private Partnership Policy**

A rigorous VfM analysis process has the capacity to significantly improve a government’s ability to assess whether a P3 actually benefits the public. When correctly applied, a VfM analysis can improve understanding of the overall project costs, add transparency to P3 procurement, reduce the risk of using P3s solely as a “fallback” through which to make unwise or unaffordable procurements, and improve the actual benefit received per dollar of taxpayer money spent on transportation infrastructure. Especially with respect to projects where delivery relies naturally on public funding (such as social sector projects), applying VfM criteria makes sense from a taxpayer perspective. In this context, P3s are seen as a procurement option where VfM, i.e. delivery of services at lower costs or higher quality, should be the overriding basis upon which to apply or not to apply private finance and management in the delivery of public assets and services.

On the other hand, short-term fiscal limitations can give political decision makers a strong incentive to develop P3 projects for financing reasons. There have been many examples of poorly structured P3 and privately financed projects that were used to circumvent fiscal limitations while assuming high fiscal

risks. Many of these projects were determined to be expensive to taxpayers in hindsight, as they merely qualified as financial leases without equitable risk transfer to the private sector. Examples of such projects include the shadow toll roads in Europe (such as the first shadow tolling schemes in the UK and in Portugal, as well as toll road agreements in Poland and Hungary). Some early P3 projects in the Americas have also been shown to be bad choices over the long term (such as Mexico's toll road concessions). In these cases, governments either ended up becoming indebted at the higher interest rates of private finance without achieving substantial transfer of performance risks or were obligated to spend public funds bailing out private investors to prevent bankruptcy.

Embedding the VfM requirement when developing P3s can help to produce a better informed P3 practice, which is fiscally more sustainable and explainable. Applying the concept of valuation using net present value (NPV) for delivering and financing options better informs the public sector sponsor on the real life-cycle costs to taxpayers under alternative delivery and financing options. Without this valuation approach, even a poor P3 option may seem attractive, because it allows the public sector agency to initially avoid large cash outflows to be funded from the public sector budget as well as the need for the public sector to incur debt to finance the large upfront investments in infrastructure. But while these P3 projects seem cost-effective in the short run, they will lead to larger cash outflows after the initial investment period. However, if after extensive analysis, a P3 can deliver better VfM than the most efficient and appropriate public sector delivery approach then the P3 procurement method should be considered as the project delivery method.

## **Extent and Complexity of Resource Requirements**

While the purpose of VfM is primarily to ensure that the public sector is receiving the best possible value for its investment, the analysis itself can be both expensive and time-consuming. Planning and executing a P3 and conducting a VfM analysis requires significant resources of highly skilled professionals in a variety of professions, including finance, law, and engineering within the related public sector agency, as well as specialized external experts. Public sector agencies that do not execute P3s often find that engaging outside professionals is more cost-effective than hiring permanent in-house staff. Even public sector agencies that do execute many P3s use a mix of in-house and outside professionals to optimally manage resources and ensure that P3s can be executed in a timely and efficient manner.

The resources required for a P3 procurement extend beyond the initial VfM analysis, the procurement process, and commercial/financial close. Therefore, post-closing costs should not be underestimated. Because projects procured through P3 agreements should be monitored by the public sector agency, and since VfM analysis should be updated throughout the life of the project, there are long-term administrative costs and burdens for the public sector under the P3 option.

## **Conclusion**

As stated previously, FHWA does not endorse any single approach for analyzing procurement methods. FHWA does highly recommend that state practitioners engage in some type of analysis prior to

procuring a project as a P3. P3s are complex as well as costly to the public sector. P3s are not the solution to every project, but another option for states to consider and utilize if appropriate.



## Overview

Of the countries that employ some sort of Value for Money (VfM) analysis, this state of the practice will focus on three countries: Australia, Canada and the United Kingdom. These three countries have VfM practices that have developed for at least a decade. In some cases there are striking similarities in theory; in other cases, there are fundamental differences in practice. This section summarizes the experience in those countries, insight on the role of VfM in the Public-Private Partnership (P3) process, and of the development of VfM approaches over time. There are other countries which employ VfM analysis such as Netherlands, Russia and China; however, they have been left out of the scope of this report. The report is for illustration and is not all encompassing. Finally, there are countries which utilize P3s but do not employ VfM in their due diligence such as Spain and Portugal. The Spain and Portugal P3 experiences are showcased in other reports compiled by the Office of Innovative Program Delivery.

Each section will begin with an introduction to the history of P3s, and then proceed to discuss VfM methodology and practice in each country. The chapter will then detail fundamental methodology and the types of guidance that the public sector provides at the national and local level. Finally a case study will be presented to illustrate VfM in practice, outcomes and lessons learned.

The final section of this chapter will explain the VfM analysis or approaches utilized within the United States (e.g., Virginia, California and Florida) as well as present a case study (I-595 Express Corridor Improvements Project) from Florida.

## Australia

### *An Overview of P3 Utilization in Australia*

Over the past decade, Australia has been one of the countries engaged in considerable P3 activity. P3s have been used in Australia for delivering projects such as major toll roads, hospitals, prisons, schools, utilities, convention centers, and sporting facilities. The majority of P3s are located in New South Wales and Victoria, where about 60 percent of Australia's population lives. Transportation P3s which includes roads, tunnels, and rail and bus systems make up a minority of the P3 projects. Exhibit 1 shows a list of the contracted transportation P3s as of November 2010.

**Exhibit 1: Contracted Transportation P3s in Australia<sup>1</sup>**

State	P3
New South Wales	Chatswood Transport Interchange
	Cross City Tunnel
	Lane Cove Tunnel
	M2 Motorway Widening
	New Southern Railway Stations Agreement (Airport Link)
	Parramatta Transport Interchange
	RailCorp New Electric Suburban Rail Carriages
Queensland	Western Sydney Orbital
	Airport Link and Northern Busway
Victoria	North South Bypass Tunnel (Clem7)
	Eastlink
	Peninsula Link
	Southern Cross (formerly Spencer Street) Station

*Major Public and Private Sector Players*

There are several organizations that regulate and promote P3s in Australia, including the Council of Australian Governments, Infrastructure Australia, National P3 Forum, and Infrastructure Partnership Australia.

The Council of Australian Governments (COAG) is an organization consisting of the Australian Federal Government, the governments of the six states and two mainland territories and the Australian Local Government Association. COAG, established in May 1992, is the leading intergovernmental forum in Australia. It meets to debate and coordinate government activities between the federal and state or territorial governments and between the state and territorial governments themselves as well as issues affecting local government.

Infrastructure Australia is an Australian Federal Government body that plans, coordinates and funds infrastructure across Australia, particularly in cases where the proposed project transcends state boundaries. Established in 2008, Infrastructure Australia conducts regular audits to determine the adequacy, capacity and condition of nationally significant infrastructure. Infrastructure Australia takes into account forecasts of economic and transportation growth and the adequacy of the infrastructure to meet that growth. Based on this analysis, Infrastructure Australia develops a national infrastructure priority list for COAG to consider.

The National Public-Private Partnership (PPP) Forum was formed in 2004 and comprises members from all states, territories and the Federal Government. The forum is designed to deliver improved project and related service outcomes through harmonizing policies and processes, and encouraging better coordination and information sharing among Australian governments. The National PPP Forum members work to reduce bid costs, increase the level of consistency across jurisdictions, and share lessons learned to promote capacity building in the public sector. The Forum's National PPP Working Group is the key body in Australia, leading the development of policy and process improvement for

<sup>1</sup> Infrastructure Australia, [http://www.infrastructureaustralia.gov.au/public\\_private/contracted.aspx](http://www.infrastructureaustralia.gov.au/public_private/contracted.aspx).

governments. The Working Group was the driving force behind the development of the National PPP Policy & Guidelines endorsed by the Council of Australia Governments in November 2008.

Infrastructure Partnership Australia promotes best practices in the identification, design and delivery of nationally significant infrastructure assets and services. Infrastructure Partnerships Australia draws together more than 100 of the nation's most senior public and private sector chief executives to develop ideas and approaches to meeting Australia's infrastructure challenges.

### **P3 Policy Development**

Since the inception of P3s in the mid-1980s, there has been significant policy development related to P3 procurement at the federal, state, territory, and local level. P3s were first used in Australia in the mid-1980s with projects such as the Sydney Harbor Tunnel and the privatization of utilities in Victoria.

In the early 1990s, Australian governments began to enter into P3s to finance social infrastructure including prison services and health projects. In a similar period, the State of Victoria introduced a private infrastructure financing policy. In 2001, this policy was formalized as "Partnership Victoria" and applied to a wide range of infrastructure projects using a rigorous project selection and evaluation procedure.

By the early years of the millennium, all Australian jurisdictions had policy documents governing the identification, establishment, and operation of P3s. Many of these documents drew on the detailed set of manuals published by the State of Victoria. However, these jurisdictional guidance materials often included different approaches to the bidding process, procurement, project delivery and commercial risk allocation. Over time, these differences led to divergent P3 approaches that resulted in bidding process inefficiencies for bidders and higher bid costs.

In 2008, the Council of Australia Governments endorsed the "National Public-Private Partnership Policy and Guidelines," commonly referred to as the "National P3 Guidelines." The National P3 Guidelines typically apply to projects over AU\$50 million (US\$53.6 million)<sup>2</sup>. Currently, all state, territory and national government agencies apply the National P3 Guidelines and have replaced previously existing policy and guidelines in those jurisdictions.

The application of the National P3 Guidelines remains subject to an element of flexibility within each jurisdiction. On numerous key issues, the National P3 Guidelines leaves each jurisdiction to choose for itself from a menu of options or simply acknowledges that each jurisdiction may choose how best to address some issues. This flexibility effectively requires each jurisdiction to develop and set its own policies in areas for which the National P3 Guidelines do not specifically provide specific guidance.

### **National Public Private Partnership Policy and Guidelines**

One of the primary objectives of the National P3 Guidelines is to "encourage private sector investment in public infrastructure and related services where value for money (VfM) for government can be clearly demonstrated."<sup>3</sup>

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<sup>2</sup> As of June 30, 2011, the conversion rate from AUD to USD was 1.0722 as shown in the Wall Street Journal Online.

<sup>3</sup> Infrastructure Australia, "National Public Private Partnership Policy and Guidelines, Vol. 2: Practitioner's Guide." [http://www.infrastructureaustralia.gov.au/public\\_private/files/Vol\\_2\\_Practitioners\\_Guide\\_Mar\\_2011.pdf](http://www.infrastructureaustralia.gov.au/public_private/files/Vol_2_Practitioners_Guide_Mar_2011.pdf)

The National P3 Guidelines define VfM as a combination of the service outcome delivered by the private sector, together with the degree of risk transfer and financial implications for government. Therefore, at that level, the National P3 Guidelines recommend that projects may be suitable for P3 delivery if they exhibit sufficient VfM drivers as follows:

- Sufficient scale and long-term nature;
- Complex risk profile and opportunity for risk transfer;
- Life-cycle costing;
- Innovation;
- Measurable outputs;
- Asset utilization;
- Better integration of design, construction and operational requirements; and
- Competitive process.

### **The Use of Value for Money and the Public Sector Comparator**

The National P3 Guidelines define the Public Sector Comparator (PSC) as an estimate of the hypothetical, life-cycle cost of a public sector project if delivered by government. The purpose of the PSC is to provide governments with a quantitative measurement it can utilize in evaluating a private sector proposal to deliver the output specification compared to public sector delivery. The PSC can provide an approximate measure of the range of costs that the government is likely to face in delivering a project under traditional methods. Under the P3 Guidelines, a robust PSC analysis should be:

- Accompanied by qualitative considerations in determining the potential value for money of a P3 arrangement;
- Subject to sensitivity testing and scenario analysis to determine the robustness of its underlying assumptions, and their impact on the PSC's results; and
- Sufficiently flexible to allow new information to be incorporated as it comes to light enhancing the integrity of the PSC as a benchmark while maintaining the trustworthiness of the project development and tender assessment processes.

#### *Steps in Value for Money Assessment and Final Selection of Procurement Option*

The National P3 Guidelines recommend the creation of a special steering committee for the process of considering and finally pursuing or rejecting a P3 approach to a project. The steering committee would be made up of staff from within the procuring agency.<sup>4</sup>

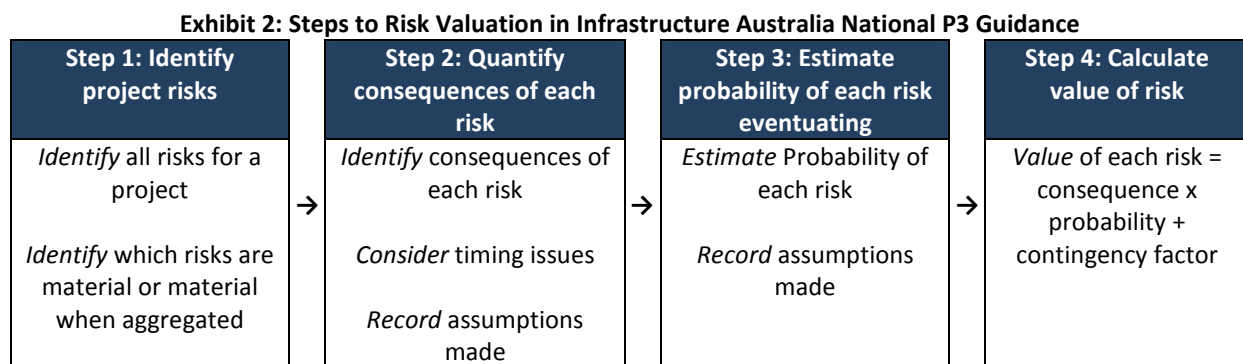
The National P3 Guidelines recommend that the VfM analysis take place shortly after the receipt of all proposals that comply with the specifications of the request for proposal (RFP). However, the development of the PSC is to be carried out prior to the RFP phase. The National P3 Guidelines treat the rigorous development of a PSC as a crucial and complicated step, and considers the VfM comparison to be a rather simple step in which the accuracy depends on the NPC (Net Present Costing or Net Present Value (NPV)) assessments of the PSC and the P3 bids.

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<sup>4</sup> Infrastructure Australia, "National Public Private Partnership Policy and Guidelines, Overview." Retrieved May 20, 2010 from [http://www.infrastructureaustralia.gov.au/public\\_private/files/National\\_PPP\\_Guidelines\\_Overview\\_Dec\\_08.pdf](http://www.infrastructureaustralia.gov.au/public_private/files/National_PPP_Guidelines_Overview_Dec_08.pdf).

The PSC is developed first as a “raw” PSC, which takes into account all direct costs (capital and operating) over the life of the project, as well as indirect costs such as overhead and staffing allocation costs. This “raw” PSC is then adjusted for competitive neutrality. This adjustment is intended to make the comparison of the PSC and the P3 bids more accurate, avoiding a misunderstanding of the true comparative costs of the two options.<sup>5</sup>

The process of quantifying risk according to the National P3 Guidelines involves four steps as shown in Exhibit 2 below, designed to identify risks, estimate their potential consequences, estimate their likelihood of occurrence, and finally place a value on each risk by multiplying projected cost of occurrence by the projected likelihood.



The risk quantification process is estimated for all risks, prior to the decision to retain certain risks by the public sector or to transfer specific risks to the private sector. As such, both the PSC and private sector bids can be adjusted for risk from the same analysis.

While some Australian states have set standard discount rates for the analysis of the costs of the PSC and P3 proposals as a matter of policy, the National P3 Guidelines hold that discount rates should be developed for each project.

*Jurisdictional Variation*

As mentioned earlier, the application of the National P3 Guidelines also remains subject to an element of jurisdictional flexibility. On numerous key issues the National P3 Guidelines leaves each jurisdiction to choose its VfM methodology. Accordingly, approaches to the process of deciding to engage in a P3 rather than using a traditional procurement vary across jurisdictions, though in relatively minor ways.

*Victoria*

In January 2010, Partnership Australia announced its “Partnership Victoria Framework” (the Framework). The Framework comprises the National P3 Guidelines and Partnership Australia’s “National P3 Guidelines - Partnership Victoria Requirements”, which detail the state’s exceptions and complements to the National P3 Guidelines.

<sup>5</sup> Infrastructure Australia, “National Public Private Partnership Policy and Guidelines, Vol. 4: Public Sector Comparator Guidance.” Retrieved May 20, 2010 from [http://www.infrastructureaustralia.gov.au/public\\_private/files/National\\_PPP\\_Guidelines-Vol\\_4\\_PSC\\_Guidance\\_Dec\\_08.pdf](http://www.infrastructureaustralia.gov.au/public_private/files/National_PPP_Guidelines-Vol_4_PSC_Guidance_Dec_08.pdf)

The Framework specifically focuses on life-cycle costing, full consideration of project risks and optimal risk allocation between the public sector authority and private sector party. The Framework requires a clear approach to VfM assessment. The public interest is protected by both a formal qualitative public interest test (PIT) and the retention of core public services with the public sector. The PIT is conducted before proceeding to the market and is updated frequently at three points: prior to the call (request) for bids, after finalizing the evaluation of bids, and prior to signing contract documents. The PIT is performed to assess whether the delivery of the P3 project is in the public interest and entails an assessment of the impact of the project on eight public interest elements<sup>6</sup>:

Elements	Considerations
Effectiveness	Is the project effective in meeting government objectives?
Accountability and transparency	Do the partnership arrangements ensure that the community can be well-informed about the obligations of government and the private sector partner, and that there will be sufficient auditing oversight?
Affected individuals and communities	Have all stakeholders been able to contribute effectively at the planning stages, and affected parties' rights protected through fair appeals processes and other conflict resolution mechanisms?
Equity	Are there adequate arrangements to <i>ensure</i> that disadvantaged groups can effectively use the infrastructure or access the related service?
Consumer Rights	Does the project provide sufficient safeguards for consumers, particularly those for whom government has a high level of duty of care, and/or those who are most vulnerable?
Public Access	Are there safeguards that ensure ongoing public access to essential infrastructure?
Security	Does the project provide assurance that community health and safety will be secured?
Privacy	Does the project provide adequate protection of users' rights to privacy?

### Queensland

The State of Queensland's VfM framework provides a comprehensive set of procedures to evaluate a range of project delivery options and identifies the best VfM outcome for the government and the community.

The Queensland framework applies to all infrastructure projects that have been identified under the "Project Assurance Framework" as a potential P3 where the expected life-cycle project cost will exceed

<sup>6</sup> Partnerships Victoria Requirements Annexure 7 (2010), available at: <http://www.partnerships.vic.gov.au/CA25708500035EB6/0/A987456B94096C71CA25755C0015F1C6?OpenDocument>

AU\$100 million (US\$106.7 million)<sup>7</sup> in Net Present Value during the term of the contractual relationship. The Queensland framework consists of a project analysis, focusing on project outputs, life-cycle costing, identification of risks, and allocating risks to the appropriate party.

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<sup>7</sup> As of June 30, 2011, the conversion rate from AUD to USD was 1.0722 as shown in the Wall Street Journal Online.

## Australian Case Study: The Peninsula Link Project

### Project Background

The Peninsula Link project is a planned 27km (16.7 mile) highway to be built through the communities immediately southeast of Melbourne, in Victoria, Australia. The total projected cost is approximately AU\$760 million (US\$814.8 million)<sup>8</sup> in nominal dollars<sup>9</sup>. The project is currently under construction and its completion is expected in 2013. The Southern Way consortium will design, build, finance, operate and maintain the road. Once built, it will provide expanded access for travelers between the arteries serving greater Melbourne (one of which is the Eastlink road, also procured through a P3 agreement) and the residential and tourist communities on the Mornington Peninsula. Currently, traffic between the peninsula and the city relies on the Frankston Freeway and the Moorooduc Highway, which also serve as local roads. Drivers encounter eight intersections and roundabouts along those two routes, and the combination of commuting, local and tourist traffic (particularly in summer months) produces heavy congestion. The new planned facility will bypass those intersections, and government officials hope that it will reduce travel times between its two endpoints by as much as 65 percent off the current duration, which can approach an hour per trip in heavy traffic.<sup>10</sup>

Peninsula Link was conceived as part of the “Victorian Transport Plan,” a long-term AU\$38 billion (US\$40.74 billion)<sup>11</sup> program to expand transportation infrastructure primarily throughout the Melbourne area and in the State of Victoria. The Plan envisions large-scale expansions of transit and freight capacity, as well as new road projects. Peninsula link is the first in the pipeline of several major Melbourne-area road projects envisioned by the Plan.



### Project Objectives

The primary goal of the Peninsula Link project is the improvement of capacity and traffic flow in the corridor southeast of downtown Melbourne. In its Victorian Transport Plan, the Victoria Department of Transport specifically cited as its rationale for building Peninsula Link the need to reduce congestion in the community of Frankston and to better connect the fast-growing Mornington Peninsula communities with the rest of greater Melbourne.<sup>12</sup>

<sup>8</sup> As of June 30, 2011, the conversion rate from AUD to USD was 1.0722 as shown in the Wall Street Journal Online.

<sup>9</sup> Often the terms “nominal” and “real” will be used when discussing project costs. The difference is that nominal costs are the costs incurred at a given point in the future and adjusted by an inflation factor.

<sup>10</sup> Partnerships Victoria Project Summary, “The Peninsula Link Project”. Prepared by Linking Melbourne Authority in Conjunction with the Department of Treasury and Finance, May 2010. pp. 1-2.

<sup>11</sup> As of June 30, 2011, the conversion rate from AUD to USD was 0.93284 as shown in the Wall Street Journal Online.

<sup>12</sup> Victoria Department of Transport, “The Victorian Transport Plan – Moving around Melbourne.” [http://www.transport.vic.gov.au/DOI/DOIElect.nsf/\\$UNIDS+for+Web+Display/5737F728ECB85DD1CA2577AB0083A8A1/\\$FILE/vtp-08-priority4.pdf](http://www.transport.vic.gov.au/DOI/DOIElect.nsf/$UNIDS+for+Web+Display/5737F728ECB85DD1CA2577AB0083A8A1/$FILE/vtp-08-priority4.pdf)



## Stakeholders

The public sector authority responsible for leading and administering delivery of this highway is the Linking Melbourne Authority (LMA or Authority). The State of Victoria created the LMA by special legislation passed in 2010 (the Transport Integration Act), which gave the LMA responsibility and authority to manage complex road projects.<sup>13</sup> The State of Victoria, through the Minister for Roads and Ports, is the signatory to all contracts.<sup>14</sup>

The private sector partner is the Southern Way consortium, a “special purpose vehicle”<sup>15</sup> created specifically for the purpose of bidding, signing and carrying out the requirements under the Peninsula Link P3 agreement. Southern Way consists of the Royal Bank of Scotland (RBS), Abigroup (an Australian engineering and construction firm), and Bilfinger Berger Services (an international multi-sector infrastructure and engineering firm). Each partner will take on different roles:

- RBS assembled a debt and equity package to provide funding for the project’s capital costs,
- Abigroup took responsibility for design and construction, and
- Bilfinger Berger Services served as the long-term concessionaire, operating and maintaining the facility for the duration of the agreement.<sup>16</sup>

Capital for the project was supplied by a group of lenders, including Australia and New Zealand Banking Group Limited (ANZ), National Australia Bank Limited (NAB), The Royal Bank of Scotland plc (RBS), Banco Bilbao Vizcaya Argentaria S.A. (BBVA), Banco Santander S.A., Bank of Ireland Group, Sumitomo Mitsui Banking Corporation (SMBC), The Bank of Tokyo-Mitsubishi UFJ Ltd (BoTM) and WestLB AG (WestLB).

## Partnership Structure

The Peninsula Link project agreement is a 25-year DBFOM contract. The P3 agreement between LMA and Southern Way is the first availability payment P3 in Australia.<sup>17</sup> In earlier projects, Australian governments utilized toll concessions, where the private entity was paid by direct collection of tolls, or shadow toll payments<sup>18</sup>.

The Peninsula Link agreement, however, provides for fixed quarterly payments to be made by the Victoria government to Southern Way regardless of actual traffic volume, provided that the road’s condition meets established availability criteria or performance measures. Should the road’s availability to traffic or its level of maintenance fall below the standards set forth in the contract, the state is within

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<sup>13</sup> Victoria Department of Transport. <http://www.transport.vic.gov.au/about-us/legislation/transport-integration-act>

<sup>14</sup> Ibid

<sup>15</sup> “Special purpose vehicle,” sometimes called “special purpose entities” or “special purpose companies,” are created by one or more parent companies in order to carry out a single major project or to take on a particular financial burden. By creating such an entity, the parent companies limit the financial risk they face in undertaking a specific effort, because only those assets transferred to the special purpose vehicle are exposed to financial losses.

<sup>16</sup> Project Finance Magazine, “Southern Way Wins Peninsula Link.” January 19, 2010.

<sup>17</sup> An “availability payment” agreement guarantees the private sector partner periodic payments so long as the facility remains “available” – a term usually defined to mean that a set level of service was maintained throughout the period. Such agreements commonly allow public sector authorities to withhold or reduce payments when the level of service falls below the minimum standard. Unlike tolling P3s, the private sector partner is not dependent on traffic volumes for revenue under an availability payment.

<sup>18</sup> “Shadow toll payments” are payments made to the private sector based on facility usage or traffic on the facility.

its power to apply abatements or penalties<sup>19</sup> to its quarterly availability payments, or to demand a retroactive abatement of some percentage of the payment if the shortfall in performance is discovered after the payment is made.

### Value for Money Assessment

The LMA sought to measure the VfM of the Southern Way P3 by developing a PSC<sup>20</sup> against which to measure the P3 proposals. The Authority built the PSC around the estimated costs it would have incurred had the project been built as a standard design and construct public sector procurement. The Authority's assessment estimated the costs for the PSC equivalent to that proposed by the Southern Way consortium to be about AU\$858 million (US\$920 million)<sup>21</sup>. The Authority estimated that an availability payment P3 had a NPV of AU\$849 million (US\$910 million)<sup>22</sup>. Exhibit 3 shows LMA's VfM estimate.<sup>23</sup>

**Exhibit 3: Cost Elements of Value for Money Analysis for Peninsula Link Project in AU\$ (US\$)**

Components of the Public Sector Comparator (PSC)	Net Present Cost (AU\$) <i>millions</i>	Net Present Cost (US\$) <sup>24</sup> <i>millions</i>
Capital Costs	\$ 680	\$729
Life-cycle Asset Replacement Costs (25 Years)	\$ 43	\$ 46
Operating Costs (25 Years)	\$ 80	\$ 86
<b>Raw PSC</b>	<b>\$ 803</b>	<b>\$861</b>
Transferred Risks (Capital and Operating)	\$ 47	\$ 50
Competitive Neutrality	\$ 8	\$ 9
<b>Total PSC (excluding retained risk)</b>	<b>\$ 858</b>	<b>\$920</b>
<b>Public Cost Under Southern Way Proposal</b>	<b>\$ 849</b>	<b>\$910</b>
<b>Savings (Value for Money Achieved)</b>	<b>\$ 9 or 1%</b>	<b>\$ 10</b>

<sup>19</sup> Abatements, or partial reductions from the quarterly payment, are calculated according to formulas which are in turn dependent on a points system used to categorize the severity of maintenance or availability shortfalls. The details are available in the Schedule 2 Annexure A portion of the concession contract. (<https://www.tenders.vic.gov.au/tenders/contract/view.do?id=13221&returnUrl=%252Fcontract%252Flist.do%253F%2524%257Brequest.queryString%257D>). The exact dollar values of possible abatements have been redacted from the public versions of the document.

<sup>20</sup> The Public Sector Comparator (PSC) is expressed in terms of the net present value to the public sector authority, calculated by a discounted cash flow analysis and takes full account of the costs and risks that would be encountered by following that style of procurement. The Peninsula Link PSC includes amounts to cover the design and construction costs, lifecycle asset replacement costs and the maintenance and facilities management costs during the 25 year operating phase of the Project.

<sup>21</sup> As of June 30, 2011, the conversion rate from AUD to USD was 1.0722 as shown in the Wall Street Journal Online.

<sup>22</sup> Ibid

<sup>23</sup> "Partnerships Victoria Project Summary, The Peninsula Link Project", ([http://www.partnerships.vic.gov.au/CA25708500035EB6/WebObj/ThePeninsulaLinkProject-ProjectSummary/\\$File/The%20Peninsula%20Link%20Project-%20Project%20Summary.pdf](http://www.partnerships.vic.gov.au/CA25708500035EB6/WebObj/ThePeninsulaLinkProject-ProjectSummary/$File/The%20Peninsula%20Link%20Project-%20Project%20Summary.pdf))

<sup>24</sup> As of June 30, 2011, the conversion rate from AUD to USD was 0.93284 as shown in the Wall Street Journal Online.

### *Discount Rates*

It is important to note that the PSC and P3 costs were discounted by two different discount rates, which is a standard VfM practice in the State of Victoria. The guidance provided by Infrastructure Australia recommends that the future costs of P3 scenarios be discounted at a higher rate than the future costs anticipated from a traditional public sector procurement approach. For the Peninsula Link Project, the P3 scenario was discounted at a rate of 8.69 percent while the PSC is discounted at 6.20 percent per year.<sup>25</sup> The rationale is that the higher discount rate incorporates risk transferred to the private sector.

### *Risk Allocation*

Following guidelines set by Infrastructure Australia, the agreement between the State of Victoria and Southern Way outlined with great specificity which risks would be retained by the state and which would be transferred to the private sector partner. Not all risks were transferred to Southern Way. Some risks were shared and some risks were retained, such as the obligation to absorb costs from new state requirements specifically relating to the project. The State of Victoria retained most risks related to legislative, regulatory or property-rights obstacles, such as the risks associated with any property-rights claims or risks of delays or adjustments due to challenges to the project under existing zoning or planning rules. With regard to construction, the parties share risk for *force majeure* events, but Southern Way bears risks associated with unexpected complications and weather delays. Most operating risks, other than those caused specifically by government actions, were transferred to Southern Way. The state does, however, retain traffic and revenue risk. The nature of any availability payment agreement leaves the public sector authority obligated even if the road fails to attract traffic or meet the region's transportation needs over the long term as the region's development evolves.

Of the 28 categories of risk identified in the VfM process, 12 were transferred completely to Southern Way, and five are shared. The government, in its VfM analysis, assessed the value of these transferred and partially transferred risks at approximately AU\$47 million (US\$50 million).<sup>26</sup>

### **Decision, Final Agreement and Competitive Selection Process**

In May of 2009, five teams of bidders submitted expressions of interest in serving as the DBFOM contractor for the Peninsula Link project. Only two short-listed firms were issued a detailed RFP. Southern Way was finally selected as the preferred bidder in January 2010, and completed financial close one month later.<sup>27</sup>

The decision to utilize an availability payment P3 was taken in part to improve competition. Toll revenue risks and a tight credit market at the time were the reasons why the state decided with the guidance of Partnerships Victoria to offer the Peninsula Link project as an availability payment rather than as a toll concession.

### **Lessons Learned**

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<sup>25</sup> Ibid

<sup>26</sup> Ibid and as of June 30, 2011, the conversion rate from AUD to USD was 1.0722 as shown in the Wall Street Journal Online.

<sup>27</sup> "Southern Way Reaches Financial Close on Peninsula Link PPP." Voxy News Engine, February 8, 2010. Retrieved May 13, 2010 from <http://www.voxy.co.nz/national/southern-way-reaches-financial-close-peninsula-link-ppp/5/37657>

The Peninsula Link case demonstrates that the form of P3 a public sector authority selects depends in part on its willingness to transfer control and on the private sector party's acceptance of long-term risks. The public sector authority can only transfer as much risk as the private sector partner is willing to absorb. A toll concession transfers the revenue and traffic risks to the private sector. However, this additional risk may represent too much uncertainty for lenders or may require returns that make the project too expensive to compete with traditional public sector procurement.

Additionally, risk allocation is not limited to those areas most often mentioned in the context of P3 projects. The subdivision of risks into 28 distinct categories as part of the VfM analysis demonstrates that risks are not constrained just to major risks like maintenance costs or uncertain time of project delivery. Other risks may occur such as possible changes in law, policy and tax rates, to the future prices and availability of energy, insurance and financing, which can be assessed with the VfM analysis.

# Canada

## An Overview of P3 Utilization in Canada

Canadian provinces and the Canadian federal government make extensive use of P3s in the procurement of capital assets, including roads, rail infrastructure, buildings such as hospital facilities and schools. Like the U.S., P3 procurement has fluctuated over time within the different provinces in Canada. Alberta, Quebec, Ontario and British Columbia (BC) have made significant use of P3 procurement, while other provinces such as New Brunswick and Saskatchewan have used it less.

Over the past seven years, the Canadian provinces have pursued a P3 as a project delivery method for major transportation projects. BC was the first province to create enabling legislation authorizing provincial agencies to contract with private entities for services. The passage of the Company Act in 2002 created Partnerships British Columbia and authorized it to enter into long-term P3 agreements.<sup>28</sup> On the federal level, the P3 Canada Fund (P3CF, an entity designed to support P3 projects serving particular national goals) established in late 2009 contributes money toward P3s.<sup>29</sup>

## National P3 Policy and Guidelines

In general, Canada's national transportation policy encourages P3s. The Canadian Strategic Infrastructure Fund Act, passed in 2002, supports the use of P3s in projects which it funds. More recently, the Government of Canada launched PPP Canada and established the national government's P3 Canada Fund (P3CF). The fund is a C\$1.2 billion (US\$1.25 billion)<sup>30</sup> account dedicated to identifying and implementing P3s of a national priority. The funds are available to government agencies at any level, although the project must pass an assessment established by PPP Canada, the fund's managing public company.<sup>31</sup>

The P3CF does not initiate infrastructure projects on its own, but instead pays a share of the public sector costs incurred in a P3 project. This is part of an initiative to encourage P3 procurement by provinces, municipalities or First Nations communities. The P3CF targets specific categories of infrastructure deemed to be most important, rather than simply judging proposed projects for P3 suitability.<sup>32</sup> In the transportation sector, the P3CF supports projects related to the core national highway system, local roads, short-line rail, short sea shipping, regional and local airports, and tourism infrastructure.

The most recent P3CF application has a multi-phase review process which includes screening, business case analysis and investment analysis.<sup>33</sup> The screening phase contains 11 different

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<sup>28</sup> Partnerships British Columbia, "2002 – 2003 PBC Annual Report." April 2003, <http://www.partnershipsbcc.ca/pdf/2002%20-%202003%20PBC%20Annual%20Report.pdf>.

<sup>29</sup> PPP Canada, "Summary Corporate Plan for the 2009-2014 Planning Period." 2009. [http://p3canada.ca/\\_files/file/P3C\\_Corporate\\_Plan\\_2009\\_2014.pdf](http://p3canada.ca/_files/file/P3C_Corporate_Plan_2009_2014.pdf).

<sup>30</sup> As of June 30, 2011, the conversion rate from CAD to USD was 1.0380 as shown in the Wall Street Journal Online.

<sup>31</sup> Public-Private Partnerships Canada, "PPP Fund." <http://www.p3canada.ca/p3-canada-fund-overview.php>

<sup>32</sup> PPP Canada, "Summary Amended Corporate Plan 2008 to 2012." [http://www.p3canada.ca/\\_files/file/P3C\\_Corporate\\_Plan.pdf](http://www.p3canada.ca/_files/file/P3C_Corporate_Plan.pdf).

<sup>33</sup> P3 Canada, "P3 Canada Fund, Application Guide & Application Form, Round Three, May – June 2011", [http://www.p3canada.ca/\\_files/file/Application\\_Guide\\_and\\_Form\\_20110517\\_FINAL\\_en.pdf](http://www.p3canada.ca/_files/file/Application_Guide_and_Form_20110517_FINAL_en.pdf)

elements which include mandatory and rated items such as: is the project eligible (mandatory) and is the P3 viable (rated). In the business case phase, applicants must provide evidence that their project has support of sponsoring governments and its funding partners.<sup>34</sup> Also, in this phase the applicant will need to show among other requirements a strong Value for Money report along with a financial model so sensitivity analysis can be conducted.<sup>35</sup> In the investment phase which includes four review items, Value for Money Assessment is included in the analysis.<sup>36</sup>

### **Types of Contracts**

Canada's P3 market in the transportation sector is relatively uniform with respect to contracting forms. According to the Canadian Council for Public-Private Partnerships, which tracks P3 projects, almost all transportation P3 agreements are design-build-finance with operations and/or maintenance contracts.<sup>37</sup> The availability payment model to the contractor varies across the projects. In the case of the South Fraser Perimeter Road project, the contract provides for the BC government to make milestone payments during construction, and availability payments (contingent upon the continued availability in sufficient condition of the road) throughout the life of the operations-and-maintenance concession.<sup>38</sup> By contrast, the Sierra Yoyo Desan project provides for availability payments based on road quality and access, with additional payments for operations and maintenance (comprised of three parts of which two are based on user access and satisfaction).<sup>39</sup> Payments for the Sierra Yoyo Desan come from a special fund which consists of rebates from the Province equal to 50 percent of fees and levies paid by industrial road users, most of whom are in the oil and gas sector.<sup>40</sup>

### **The Use of Value for Money and the Public Sector Comparator**

Approaches to the process of deciding to engage in a P3 of infrastructure procurement vary from province to province, though in relatively minor ways. This section compares approaches of two of the provinces (Ontario and British Columbia) with the majority of Canadian P3 projects, and summarizes the government of Canada's assessment methodology when considering projects for the P3CF.

#### *Ontario*

In Ontario, projects delivered under the alternative financing and procurement (AFP) model or P3 requires the project offer value for money.<sup>41</sup> The process involves the rigorous development of a PSC for comparison against the P3 (which is known as the Adjusted Shadow Bid or ASB).<sup>42</sup> The ASB is calculated by summing up the project construction, financing, operation and maintenance costs as outlined in the bids received from vendors. Added to that sum is a value assessed for all risks retained by the private sector. The PSC is assessed similarly: costs for all elements of the project are summed,

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<sup>34</sup> Ibid

<sup>35</sup> Ibid

<sup>36</sup> Ibid

<sup>37</sup> Canadian Council for Public-Private Partnerships, "PPP Project Tracker."

<http://projects.pppcouncil.ca/ccppp/src/public/search-project?pageid=3d067bedfe2f4677470dd6ccf64d05ed>

<sup>38</sup> Partnerships BC Project Report, "South Fraser Perimeter Road." June 2011

<http://www.partnershipsbc.ca/files/project-sfpr-schedules/SFPR-ProjectReportFINAL.pdf>

<sup>39</sup> Partnerships BC, "Project Report Achieving Value for Money for the Sierra Yoyo Desan Resource Road Upgrade Project." November 2004 [http://www.partnershipsbc.ca/pdf/SYD\\_VFM\\_Nov\\_4\\_04.pdf](http://www.partnershipsbc.ca/pdf/SYD_VFM_Nov_4_04.pdf)

<sup>40</sup> Ibid

<sup>41</sup> Infrastructure Ontario – Value for Money, <http://www1.infrastructureontario.ca/en/projects/vfm.asp>.

<sup>42</sup> Infrastructure Ontario, "Making Projects Happen – Assessing Value for Money: A Guide to Infrastructure Ontario's Methodology." 2007. Retrieved from <http://www1.infrastructureontario.ca/en/projects/files/VFM%20GUIDE%20WEB.pdf> on March 16, 2010

and the anticipated retained risks associated with the project are valued and added to the total. The government's guide to assessing value for money calls for a rigorous valuation of risk.<sup>43</sup> Value for money is achieved when the value of the ASB is lower than the PSC.

To provide the requisite level of expertise, Infrastructure Ontario, the province's procuring entity, hires external consultants to assist in the VfM analysis. Consultants are used to establish projections for the PSC's capital costs, life-cycle costs, financing costs and the value (if any) of the necessary competitive neutrality adjustment that should be applied to the adjusted shadow bid to allow for a fair comparison of the public and private procurement.<sup>44</sup>

In the risk assessment process, Infrastructure Ontario hosts a risk workshop, bringing together public agency officials and experts with external consultants and a risk matrix is normally developed to assist participants in the endeavor. This workshop carries out four tasks:

1. **Identify and Categorize Risks:** Grouping potential risks into categories such as financing risks, maintenance risks, life cycle risks, planning, or strategic risks.
2. **Allocating Risks:** Determining whether each risk would be transferred to the private sector, retained by the public agency, or shared between the two.
3. **Estimating Probability and Cost:** Considering expectations and experiences from similar past projects to determine, for each risk, both the percent likelihood of occurrence and a range of likely costs should that risk occur. The cost range is expressed as a range of percentages of the affected element's total cost (e.g. 1% to 7%).
4. **Quantifying Risk Value:** Each risk retained by the public sector, whether through traditional or P3 procurement, is valued by multiplying the projected base cost by a) the percent chance of risk occurrence and b) the cost associated with that occurrence. Parametric statistical models are used to select a "most likely" cost from the range established in step 3. The resulting values for all risks on each side are summed to create a dollar value for retained risk under both the P3 and traditional procurement approaches.<sup>45</sup>

Finally, ancillary costs, such as transaction costs, due diligence costs, project management costs, and the costs of Infrastructure Ontario's work in support of the analysis, are applied to the PSC and P3 bids. After costs are assessed for all elements and totaled, VfM is measured as the amount by which the P3 approach's cost falls below that of the PSC.<sup>46</sup>

Infrastructure Ontario developed different templates for assessing value for money of different contract types. DBFOM contracts have different risk-transfer characteristics from Build-Finance contracts (used for building construction agreements), and so the two are assessed in distinct ways. Furthermore, Infrastructure Ontario makes every VfM assessment publicly available on its website.<sup>47</sup>

### *British Columbia*

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<sup>43</sup> Ibid

<sup>44</sup> Ibid

<sup>45</sup> Ibid

<sup>46</sup> Ibid

<sup>47</sup> Infrastructure Ontario, Projects, <http://www1.infrastructureontario.ca/en/projects/index.asp>

British Columbia (BC) also possesses an extensive best practices approach to the quantification of costs for both the traditional and P3 procurement. The approach lays out in great detail how procuring agencies should assess risk, long-term maintenance and operating costs, financing costs, and adjustments for tax and insurance. According to the Provinces' Methodology for Quantitative Procurement Options Analysis Discussion Paper, risk should be extensively analyzed.<sup>48</sup>

BC also carries out a business case process, a large part of which is a quantitative process to compare procurement options. The first step in this process is to identify the objectives for the project. Public sector and P3 procurement options are then qualitatively assessed for their respective suitability to meet these objectives. Then a more rigorous quantitative analysis of both a PSC and P3 (a shadow bid) is performed. Costs of capital, ownership, operations and maintenance, financing, and inflation are estimated for both public and P3 procurement. The costs are then adjusted for competitive neutrality (to exclude the public-sector advantage in taxation and insurance from the analysis) and for transferred risks. In an approach similar to Ontario, BC convenes a risk workshop and works through a process of identification and estimation of risks, their probability and their potential cost if they occur. A risk matrix is compiled, which is used to assess the value of risks transferred and retained, as well as to aid in managing risk during project implementation. Risks are ranked by the combined measurement of their chance of occurrence and their potential cost – a minor threat that is unlikely to occur is ranked low, while a significant risk threatening large cost overruns is ranked high.<sup>49</sup>

In the process of valuing risk, BC utilizes insurance costs where available. If a risk is insurable, the project team identifies an estimate of the insurance cost to insure against that risk. It does this where possible to value both transferred and retained risks.<sup>50</sup>

Finally, in adjusting future costs to current values, BC determines discount rates individually for each project. Each project procurement is treated as an asset portfolio decision. The decision to treat the project as an asset portfolio decision leads to the adjustment of discount rates to reflect costs of capital as they stand at the time of procurement, rather than setting a fixed discount rate at the legislative or regulatory level.<sup>51</sup>

The reader should note two case studies are shown for Canada. An additional case study was added to illustrate a "neutral" VfM on a project (Port Mann).

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<sup>48</sup> Partnerships British Columbia, "Methodology for Quantitative Procurement Options Analysis Discussion Paper" Updated January 2010. Retrieved from [http://www.partnershipsbcc.ca/files/documents/psc-methodology-quantitative-procurement-options-analysis-29jan10\\_000.pdf](http://www.partnershipsbcc.ca/files/documents/psc-methodology-quantitative-procurement-options-analysis-29jan10_000.pdf) on March 16, 2010.

<sup>49</sup> Ibid

<sup>50</sup> Ibid

<sup>51</sup> Ibid



## Canada Case Study: The Sea-to-Sky Highway Improvement Project

### Project Background

The Sea-to-Sky Highway (S2S Highway) in British Columbia (BC), Canada, forms part of Highway 99 and runs from West Vancouver to Whistler. The Ministry of Transportation of British Columbia (MoT) began a C\$600 million in 2002 dollars (US\$623 million)<sup>52</sup> Sea-to-Sky Highway Improvement Project (Project) in 2005 with the goal to upgrade the S2S Highway to improve safety, reliability and capacity for the future.

The Project involved upgrading 95km (59 miles) of the S2S Highway, which included 48 new bridges and interchanges, 219 mechanically stabilized earth retaining walls, 2.4 million cubic meters of earthwork and 450,000 metric tons of asphalt paving.<sup>53</sup> The project was managed in four distinct geographical sections as shown in the picture so that the project could proceed efficiently between two groups of contractors.

The project was complex and challenging because of:

- The tough terrain it traversed;
- The need to keep a large volume of traffic flowing (an average of 14,000 cars per day, with peaks of 16,000 cars per day) while working in a constricted environment;
- The need to address a number of municipal, First Nations<sup>54</sup> and environmental issues; and
- The unalterable schedule for completing the job.<sup>55</sup>

### Project Objectives

The Project's objective was to widen and straighten the road in order to eliminate blind bends and ensure more consistent driving speed. There were also 80km (49 miles) of new passing lanes between Horseshoe Bay and Whistler and new reflective markings along the entire route for better visibility. In addition, the road has been made safer by building median barriers where possible, improving intersections, adding rumble strips on centerlines wider shoulders, and stronger bridges constructed to withstand adverse weather and debris washed down by storm water. The road is now monitored using electronic weather equipment so that highway maintenance personnel can act quickly in case of ice and snow.

It was expected that VfM would be realized through additional highway improvements in excess of the baseline improvements to be provided by the private sector under the DBFOM<sup>56</sup> contract. Baseline and additional improvements are summarized in Exhibit 4<sup>57</sup>:



<sup>52</sup> As of June 30, 2011, the conversion rate from CAD to USD was 1.0380 as shown in the Wall Street Journal Online.

<sup>53</sup> Kiewit, Sea-to-Sky Highway, <http://www.kiewit.com/projects/transportation/sea-to-sky-highway-improvements.aspx>

<sup>54</sup> First Nations refers to native tribes.

<sup>55</sup> Sea-to-Sky Project, [http://www.seatoskyimprovements.ca/documents/2004/Capital\\_Project\\_Plan\\_011504.pdf](http://www.seatoskyimprovements.ca/documents/2004/Capital_Project_Plan_011504.pdf)

#### Exhibit 4: Sea-to-Sky Highway Pre-Proposal Requirements

Baseline Requirements (PSC)
<b>West Vancouver to Lions Bay</b>
<ul style="list-style-type: none"> <li>• 4-lane section with continuous median barrier, including straightening, widening and improved sightlines (eliminating several sharp curves).</li> </ul>
<b>North of Lions Bay to Murrin Park</b>
<ul style="list-style-type: none"> <li>• 2-, 3- and 4-lane sections; about half of this section includes improved 2 lanes; remaining sections include additional passing opportunities with 3 and 4 lanes. Those sections that are 4 lanes will include a median barrier to prevent crossover accidents. Sections adjacent to Murrin Park and within the community of Britannia will include improved 2-lane sections. In Furry Creek, there will be 3 lanes moving to 4 lanes with median barrier.</li> </ul>
<b>North of Murrin Park through Squamish</b>
<ul style="list-style-type: none"> <li>• 4-lane divided highway. This section will include median barriers throughout, including the addition of design features to the median within Squamish.</li> </ul>
<b>Squamish to Whistler</b>
<ul style="list-style-type: none"> <li>• 3 lanes throughout this section, including improved 2-lane sections and passing opportunities provided by alternating 3rd lane.</li> </ul>

Additional highway improvements, beyond baseline, provided in the DBFO:
<ul style="list-style-type: none"> <li>• 20 km (12 miles) additional passing lanes;</li> <li>• 16 km (9.9 miles) additional median barrier;</li> <li>• Additional highly reflective pavement markings to enhance safety;</li> <li>• 30 km (18.6 miles) additional shoulder and center-line rumble strips where most effective;</li> <li>• improved lighting and roadside reflectors for additional safety;</li> <li>• improved earthquake resistance and lighting on bridges;</li> <li>• 10 km (6.2 miles) additional wider shoulders for improved safety and accommodation of cyclists;</li> <li>• improved rock fall and debris catchment;</li> <li>• additional highway straightening and improved sightlines;</li> <li>• safer and more effective intersections, particularly in urban settings;</li> <li>• improved signage signifying community entrances and recreational and tourism features;</li> <li>• improved recreational trail facilities in Squamish; and</li> <li>• improved highway maintenance response to weather conditions (three road/weather information sites)</li> </ul>

Source: MoT British Columbia. Achieving Value for Money – Sea-to-Sky Highway Improvement Project. December 2005.

### Stakeholders

The contract was awarded in part in 2004 by the MoT (the public sector partner) to S2S Transportation Group (S2S Group). The S2S Transportation Group was a consortium of Macquarie North America Limited (financial advisor), Peter Kiewit Sons Co (design-builder), Hatch Mott MacDonald (HMM) (engineers and design lead), JJM Construction, ND Lea, McElhanney Engineering Services Ltd, Miller

<sup>56</sup> Such agreements are often referred to by the acronym “DBFOM”, which is short for “Design, Build, Finance, Operate and Maintain.” Such agreements can utilize an availability payments or toll payment structure.

<sup>57</sup> MoT British Columbia. Achieving Value for Money Sea-to-Sky Highway Improvement Project. December 2005. [http://www.th.gov.bc.ca/seatosky/reports/SeatoSkyFinal\\_VFM.pdf](http://www.th.gov.bc.ca/seatosky/reports/SeatoSkyFinal_VFM.pdf)

Paving and Capilano Highway Services.<sup>58</sup> The S2S Group provided C\$400 million (US\$415.6 million)<sup>59</sup> in capital to design, build, finance, operate and maintain the S2S Highway via a 25-year performance based contract. In addition, BC invested C\$200 million (US\$207.6 million)<sup>60</sup> into another section of the project.

### **Partnership Structure**

In June, 2005, S2S Group was selected by the MoT after a competitive selection process and a rigorous evaluation of proposals was performed. The agreement was structured to include availability payments as well as required the S2S Group to design, build, finance, operate and maintain the project. Also, the agreement ensured that the concessionaire had the appropriate incentives to meet or exceed the long term project objectives of safety, reliability and capacity. S2S Group would construct highway improvements and maintain the system while assuming most of the construction, maintenance and operation risks. The MoT will continue to own the road, rights-of-way, bridges and all other assets connected to the S2S Highway and oversee the project, ensuring that all contract specifications are appropriately met.<sup>61</sup>

### **Value for Money Assessment**

The MoT expected value for money to be achieved:

- Due to a strong, competitive selection process;
- Through the efficiencies gained by structuring the procurement as a design, build, finance, operate and maintain, resulted in more accountability; and
- By enabling the private sector to provide additional scope and improvements for a fixed price.

A summary of the comparison of the net present values of the PSC and P3 options is provided in Exhibit 5<sup>62</sup>:

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<sup>58</sup> MoT British Columbia. Achieving Value for Money Sea-to-Sky Highway Improvement Project. December 2005. [http://www.th.gov.bc.ca/seatosky/reports/SeatoSkyFinal\\_VFM.pdf](http://www.th.gov.bc.ca/seatosky/reports/SeatoSkyFinal_VFM.pdf)

<sup>59</sup> As of June 30, 2011, the conversion rate from CAD to USD was 1.0380 as shown in the Wall Street Journal Online.

<sup>60</sup> As of June 30, 2011, the conversion rate from CAD to USD was 1.0380 as shown in the Wall Street Journal Online.

<sup>61</sup> Sea-to-Sky Improvements Project, <http://www.seatoskyimprovements.ca/procurement.htm>. The entire paragraph is referenced from the website.

<sup>62</sup> MoT British Columbia. Achieving Value for Money Sea-to-Sky Highway Improvement Project. December 2005. [http://www.th.gov.bc.ca/seatosky/reports/SeatoSkyFinal\\_VFM.pdf](http://www.th.gov.bc.ca/seatosky/reports/SeatoSkyFinal_VFM.pdf)

**Exhibit 5: Comparisons of PSC and P3 Proposal<sup>63</sup>**

PSC	Analysis Completed December 2003		Analysis Completed December 2005	
	Can\$	US\$	Can\$	US\$
Capital Cost (MoT)	515.9	535.50	516.0	535.61
Operations and Maintenance Costs (MoT)	105.7	109.72	107.5	111.59
Rehabilitation Costs (MoT)	32.7	33.94	36.3	37.68
Risk Adjustment	38.9	40.38	42.9	44.53
Competitive Neutrality Adjustment	62.5	64.88	41.3	42.87
<b>Total Costs- Risk Adjusted</b>	<b>755.7</b>	<b>784.42</b>	<b>744.0</b>	<b>772.27</b>
P3 (DBFOM) Option	Analysis Completed December 2003		Analysis Completed December 2005	
	Can\$	US\$	Can\$	US\$
Capital Cost (MoT)	146.0	151.55	208.1	216.01
Operations and Maintenance Costs (MoT)	10.6	11.00	3.2	3.32
Rehabilitation Costs (MoT)	2.0	2.08	0.0	-
Payment to S2S	530.2	550.35	578.5	600.48
<b>Total Costs</b>	<b>688.8</b>	<b>714.97</b>	<b>789.8</b>	<b>819.81</b>

Source: MoT British Columbia. Achieving Value for Money – Sea-to-Sky Highway Improvement Project.

The NPV of the expected cost of the project to BC was estimated to be C\$789.8 million in 2005 (US\$819.81 million)<sup>64</sup> over the 25 year contract. This amount included the capital cost of MoT's DB contracts and the costs of annual availability payments to S2S Group for providing its portion of the baseline improvements, the additional improvements, and for operating, maintaining and rehabilitating the entire corridor.

By comparison, MoT estimated that the NPV of the risk adjusted PSC, which excludes the additional improvements, would have been C\$744 million (US\$772.27 million)<sup>65</sup> – clearly less than the DBFOM option; however, the PSC does not include the additional highway improvements described previously in this case study. While the cost of the P3 contract actually exceeded the expected costs had the MoT pursued a series of traditional design-build contracts, the MoT asserted the qualitative benefits would

<sup>63</sup> As of June 30, 2011, the conversion rate from CAD to USD was 1.0380 as shown in the Wall Street Journal Online.

<sup>64</sup> Ibid

<sup>65</sup> Ibid

demonstrate VfM through the additional highway improvements and safety elements. Within the project budget, the Concessionaire was able to provide significant added value to what could have been built by the MoT under a traditional procurement and the project's baseline requirements. Here are some examples of the added value<sup>66</sup>:

- 33 percent more passing lanes for a total of 80 kilometers (49.7 miles) of passing lanes along the 100 kilometer (62 miles) highway between Horseshoe Bay and Whistler;
- 80 percent more median barriers for a total of 36 kilometers (22.4. miles) of median barrier along the length of the highway;
- highly reflective pavement markings installed along the length of the highway; and
- a traffic management regime with 50 percent fewer delays and closures.

As part of the VfM analysis, the risks were also allocated between the public sector and private sector. The risk allocation for the S2S Highway is shown in Exhibit 6:

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<sup>66</sup> MoT British Columbia. Achieving Value for Money Sea-to-Sky Highway Improvement Project. December 2005. [http://www.th.gov.bc.ca/seatosky/reports/SeatoSkyFinal\\_VFM.pdf](http://www.th.gov.bc.ca/seatosky/reports/SeatoSkyFinal_VFM.pdf)

**Exhibit 6: Final Risk Allocation in Sea-to-Sky Highway P3 Agreement**

Risk Relating To:	Risk Allocation		
	Public (MoT)	Private (S2S and/or subcontractors)	Shared
<b>Design</b> of highway and structures		✓	
<b>Construction</b> of highway and structures (risk of time and cost overruns experienced by S2S)		✓	
Majority of the risks associated with <b>environmental factors</b> including changes to restrictions and permitting (with the exception of permits that are to be acquired by MoT)		✓	
A significant number of the <b>operations and maintenance risks</b> including the risk of latent defects in the upgraded sections which are undertaken by S2S		✓	
Increases in <b>operations and maintenance costs</b> as a result of changes in the composition of traffic (for example, if heavier use of highway by heavy trucks was to cause more damage to the highway)		✓	
<b>Protest or trespass actions</b> related to S2S construction activities (up to a predetermined limit)		✓	
<b>Geotechnical</b> (for example, soil below the highway surface) site conditions except for specified sections		✓	
<b>Acquisition of property</b> required for highway construction – including risks related to cost and timeliness to acquire such property	✓		
Responsibility for repairing any <b>latent defects</b> in work which was completed prior to the contract commencement date or for works undertaken by other MoT contractors (for example, the work on Sunset Beach to Lions Bay)	✓		
Bringing the highway back into agreed-upon condition after the occurrence of <b>significant natural events</b> (such as landslides)	✓		
<b>Changes in certain types of laws</b> (generally relates to those laws which are targeted at S2S or the contractor’s industry and can be characterized as discriminatory)	✓		
Requirement to undertake soils or other remediation as a result of the discovery of undisclosed <b>contaminated soils</b>	✓		
The <b>adequacy of geotechnical information</b> regarding matters such as conditions below the highway surface (MoT is responsible for the accuracy of some of the data that it provides and S2S is responsible for interpretation of all the data provided)			✓
<b>Unexpected site conditions</b> at locations where MoT has provided a benchmarking mechanism			✓
<b>Requirements for moving utilities</b> to construct the highway and structures and the risk that the utility companies will not move quickly enough to meet S2S’s schedule or that they will levy higher than expected charges for the relocation work			✓
Impact of delay in proceeding with construction schedule caused by the <b>discovery of archaeological findings</b> during construction			✓
Increases in the future of general <b>insurance premium cost</b> charged by the insurance industry for the insurance required by the contract (benchmarking for future insurance premium increases)			✓
<b>Changes in certain types of laws</b> that are not characterized as discriminatory or targeted at S2S or S2S’s industry			✓

Source: MoT British Columbia. Achieving Value for Money – Sea-to-Sky Highway Improvement Project.

### **Decision, Final Agreement and Competitive Selection Process**

The final agreement between MoT and S2S Group was a 25 year availability payment agreement designed to deliver safety, reliability and capacity improvements along the S2S Highway. Provisions in the contract included<sup>67</sup>:

- S2S Group was responsible for
  - the design, construction and financing portion of the baseline highway improvements;
  - additional highway improvements that are incremental to its portion of the baseline improvements;
  - operations, maintenance, and rehabilitation for the whole corridor;
- An allocation of risks between parties, each taking responsibility for the risks they can most effectively manage;
- A performance based contract designed to protect the public interest and provide incentives to S2S Group to achieve the project schedule, maintain traffic flow during construction and ensure reliable service;
- The annual maximum allowable performance payments to S2S Group;
- Formal dispute resolution provisions giving the MoT the ability to pursue a measured response for deficiencies, up to and including contract termination; and
- The MoT retaining ownership of the highway.

### **Lessons Learned**

The VfM analysis on the project is important to note due to the decision made to continue with a P3 procurement instead of a traditional delivery method. The VfM analysis explains that the reason for going with the higher cost VfM delivery method is the additional highway improvements provided within the P3 delivery above the required baseline items in the project for the same cost. The value added to the project was not indicated in the report; however, the additional highway improvements are listed above in the case study. The project also shows how a P3 can bring additional efficiencies and innovation to a project with the inclusion of the improvements beyond the public sector's required base scope.

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<sup>67</sup> Ibid

## Canada Case Study: Port Mann Project

### Project Background

The Port Mann/Highway 1 Improvement Project located in British Columbia (BC), Canada, begins at the McGill Street Interchange in Vancouver and ends at 216<sup>th</sup> Street in Langley and is approximately 37 kilometers (22.9 miles). The project includes construction of a new 10-lane Port Mann Bridge over the



Fraser River, widening the highway, upgrading interchanges and improving access and safety on Highway 1. The project increases the bridge crossing capacity from 5 to 10 lanes.<sup>68</sup>

The total design and construction cost of the project is C\$2.46 billion (US\$2.55 billion)<sup>69</sup> and includes a fixed cost, design-build agreement.

The construction phase of the project began in August 2009 and it is expected that 8 lanes of the new bridge will be open for traffic in December 2012 with substantial completion expected in December 2013 and final completion December 2014 which includes removal of existing bridge.<sup>70</sup> The revenue source is user fees in the form of tolls.

The project was originally built in the 1960s when the population was approximately 800,000 and now serves as the only major east-west corridor for the existing population of 2.5 million.<sup>71</sup>

Originally the project was to be delivered under a design, build, finance, operate and maintain (DBFOM) P3 procurement structure; however, due to the economic conditions and financial markets at the time of the procurement only a design-build (DB) agreement was entered into with the preferred bidders' design-builder.<sup>72</sup>

### Project Objectives

The Project's objectives or goals include the following:

- Reduce travel times for trips along the corridor and increase their predictability;
- Reduce congestion at entry and exit points to Highway 1;
- Reduce travel times for trips across the corridor and improve connections within and between communities;

<sup>68</sup> Port Mann/Highway 1 Project website (July 2011) - <http://www.pmh1project.com/the-project/project-description.aspx>

<sup>69</sup> As of June 30, 2011, the conversion rate from CAD to USD was 1.0380 as shown in the Wall Street Journal Online.

<sup>70</sup> Project Report: Achieving Value for Money – Port Mann/Highway 1 Improvement Project (March 2011) - <http://www.pmh1project.com/the-project/documents/PMH1FinalProjectReport14March2011.pdf>

<sup>71</sup> Ibid

<sup>72</sup> Ibid



- Improve access to and egress from the corridor for goods movement;
- Facilitate the introduction of transit service along the corridor and the improvement of transit service across the corridor;
- Expand HOV, cycling and pedestrian networks along or in the vicinity of the corridor; and,
- Improve safety for vehicle operators and passengers, cyclists, and pedestrians.<sup>73</sup>

Originally built in the 1960s, the project was unable to continue carrying the existing users without serious delays – currently and in the future. The project is expected to also reduce greenhouse gases, create an additional 8,000 jobs and improve competitiveness by ensuring a more reliable route for the movement of goods.

### **Stakeholders**

The stakeholders include the Province of British Columbia (public sector), BC Transportation Financing Authority (public sector), Ministry of Transportation and Infrastructure (public sector), Transportation Investment Corporation (TI Corp) (public sector corporation) and the design-builder, the Kiewit/Flatiron General Partnership (private sector).

The TI Group is a corporation created by the Province of British Columbia and was originally created to oversee and manage the P3 arrangement in connection with the preferred bidder, Connect BC Development Group. However, TI Group now oversees the entire implementation of the project. A concession agreement has been signed between TI Group and the Province of British Columbia and has a concession period of 40 years.

### **Value for Money Assessment**

During the original procurement process, it is assumed the VfM analysis showed that a DBFOM model was the prudent delivery approach for the project. However, the original analysis is not accessible. So in this section, the discussion will be based on the updated VfM analysis from March 2011 which explains the decision to change P3 models from DBFOM to a DB structure.

In 2003, the Province's Ministry of Transportation created the Gateway Program which was designed to complement regional efforts already underway. The program focused on three specific corridors and identified Port Mann/Highway 1 as one of the corridors.<sup>74</sup> Highway 1 was one under consideration due to the growing congestion and the fact the corridor carries most of the goods through the area.<sup>75</sup> The Port Mann bridge was considered due to high volumes of traffic which had exceeded capacity. The Port Mann/Highway 1 Project is the largest portion of the Gateway Program as well.<sup>76</sup>

The original procurement strategy called for a DBFOM structure as well as requiring the selected private sector partner to fully finance the project without a public sector contribution and in return the private

<sup>73</sup> Mann/Highway 1 Project website (July 2011) - <http://www.pmh1project.com/the-project/project-description.aspx>

<sup>74</sup> BC Ministry of Transportation and Infrastructure, Gateway Program Definition Report, 2006, [http://www.th.gov.bc.ca/gateway/reports/Gateway\\_PDR\\_013106.pdf](http://www.th.gov.bc.ca/gateway/reports/Gateway_PDR_013106.pdf).

<sup>75</sup> Ibid

<sup>76</sup> Ibid

sector partner would receive the toll revenue. Also, a revenue sharing clause was included to protect against super profits.<sup>77</sup>

While the public and private sector partners reached an agreement-in-principle in January 2009 which required a substantial investment of the public sector (1/3 of the financing), by mutual agreement of the Province and Connect BC Development Group negotiations ended in February 2009. Due to the necessity of the project, the Province decided to finance the project and pursue the project as a DB P3 procurement while utilizing the original design-builder included in the preferred bidder.<sup>78</sup>

By utilizing the existing design-builder, the Province was able to start the construction process quickly (March 2009 – a month after negotiations ended). The financing costs will be based on the same interest rates provided to the Province.<sup>79</sup>

### **Decision, Final Agreement and Competitive Selection Process**

In August 2008, the Province of British Columbia (the Province) selected a preferred bidder, Connect BC Development Group. The Connect BC Development Group (Connect BC) was comprised of The Macquarie Group and Transtoll, Inc. and included the design-builder, the Kiewit/Flatiron Group. In January 2009, the Province and Connect BC entered into a preliminary agreement. The agreement specified broad terms to be used as a guide when developing the DBFOM concession agreement and included Province's commitment to provide one-third of the financing to the project as well as the Connect BC's commitment of equity and debt.<sup>80</sup>

In February 2009, after weeks of negotiations and given the existing market conditions, the partners were unable to reach final agreement and they mutually agreed to end the procurement process.<sup>81</sup>

Based on the competitive selection process used, the Province could chose to work with individual group(s) within the proposal teams and chose the Kiewit/Flatiron Group as the design-builder for the project. In March 2009, the TI Group and the Kiewit/Flatiron Group reached an agreement.<sup>82</sup>

The Kiewit/Flatiron Group consists of Peter Kiewit Sons Co, Flatiron, H5M and T.Y. Lin International.

In March 2010, the TI Group, which was created to first oversee the public sector interests in the DBFOM P3 model and subsequently the "concessionaire", signed a concession agreement with the

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<sup>77</sup> Project Report: Achieving Value for Money – Port Mann/Highway 1 Improvement Project (March 2011) - <http://www.pmh1project.com/the-project/documents/PMH1FinalProjectReport14March2011.pdf>

<sup>78</sup> Ibid

<sup>79</sup> Ibid

<sup>80</sup> Ibid

<sup>81</sup> Ibid

<sup>82</sup> Ibid

Province of British Columbia and the BC Transportation Financing Authority for a period of 40 years and the agreement sets toll limits as well.<sup>83</sup>

### **Lessons Learned**

Several lessons were learned in the Port Mann/Highway 1 Project procurement. One of the lessons is the public sector and private sector partners were willing to end negotiations. Both parties understood continuing to negotiate under the current market conditions would not have closed the deal any time in the near future. The Province was still able to procure the project under a different approach.

Another lesson was the ability for the Province to have the flexibility to use the existing design-builder within the current procurement which saved time and money. No additional solicitation was necessary.

The VfM analysis performed on a project can change depending on the current environment (financial crisis, natural disasters, etc). As the project evolves the analysis should be updated to check the appropriateness of the procurement strategy during the project lifecycle (initial development, procurement and commercial/financial close). The lifecycle approach allows the public sector procuring authority to review the strategy up until commercial/financial close to decide whether the P3 structure is still valid and after commercial/financial close to review any additional cost savings/losses as well as lessons learned.

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<sup>83</sup> Ibid

# The United Kingdom

## Overview of P3 Utilization in the UK

Since 1992, the Private Finance Initiative (PFI) is the British government's P3 framework for supporting and procuring infrastructure and other related services projects. P3 projects are routinely referred to as PFI projects in the context of British public spending, although it is possible for a P3 project to be procured outside of the PFI framework.<sup>84</sup>

P3 procurement through the PFI framework is used in both central and local UK governments. In the case of projects procured by a local government, the capital funding, which enables the local authority to pay the private sector for the projects, is provided by the central government in the form of what are known as PFI credits.<sup>85</sup> The local authority then selects a private party to perform the work, and transfers detailed control of the project and risk to the party.

The assessment of VfM has developed as the UK P3 market has evolved since the early 1990s. In common with the program approach, which the UK Government has sought to implement, a key theme has been increasing standardization of appraisal methodologies across sectors, departments and government agencies.

VfM guidance, notably the HM Treasury Taskforce Technical Note 5 ("How to Construct a Public Sector Comparator"),<sup>86</sup> outlined the calculation basis for quantitative analysis and qualitative appraisal factors; however, the format and presentations of the analysis were usually determined by individual advisors to government on each project. This practice made objective comparison across projects and sectors often difficult.

For this reason, the publication of the "Value for Money Assessment Guidance" in 2004 began to formalize the VfM process in a more coherent manner, superseding Treasury Taskforce Technical Note 5. It retained the requirement to assess VfM at three stages in a project life cycle and to assess both qualitative and quantitative factors. However, it also introduced a more formulaic approach, specifying the types of qualitative assessment requirements in the style of questions and providing a template spreadsheet model, which it is now mandatory to use for the quantitative calculation. The guidance and model were subsequently refined in 2006 for policy updates but reflect the current, more prescriptive approach to VfM analysis.<sup>87</sup>

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<sup>84</sup> House of Commons, The Private Finance Initiative (PFI), October 2003, <http://www.parliament.uk/documents/commons/lib/research/rp2003/rp03-079.pdf>

<sup>85</sup> Communities and Local Governments, <http://www.communities.gov.uk/localgovernment/localgovernmentfinance/pupprivatepartnership/centralgovernment/>

<sup>86</sup> The Treasury Taskforce, Technical Note 5 – How to Construct a Public Sector Comparator, 1999, has been superseded an official link cannot be found.

<sup>87</sup> Value for Money Assessment Guidance, November 2006, [http://www.hm-treasury.gov.uk/d/vfm\\_assessmentguidance061006opt.pdf](http://www.hm-treasury.gov.uk/d/vfm_assessmentguidance061006opt.pdf). For other VfM tools see the following link: [http://www.hm-treasury.gov.uk/ppp\\_vfm\\_index.htm](http://www.hm-treasury.gov.uk/ppp_vfm_index.htm)

## Value for Money Policy Framework

Her Majesty's Treasury or the HM Treasury guidance clearly suggests that P3s should only be pursued where they represent VfM in procurement. It is important to note that VfM is a relative concept and therefore is required to be demonstrated in the context of alternative procurement routes, whether traditional or alternative.

The HM Treasury is the central source of policy documents relating to most stages of the project life cycle. The P3 Policy Team has been incorporated into Infrastructure UK which is housed in the HM Treasury. The HM Treasury publishes and collates guidance from various governmental sources including:

- Value for money guidance;
- Operational taskforce guidance;
- Finance guidance; and
- Treasury taskforce technical notes.

Following the publication of the policy document "PFI, Strengthening Long-term Partnerships" in March 2006,<sup>88</sup> the HM Treasury updated the VfM Assessment Guidance. This guidance provides a framework for procuring authorities to determine the most appropriate procurement route, P3 or otherwise, and is mandatory for all major capital projects. VfM analysis is therefore primarily undertaken by central government departments, local government and governmental agencies; although in practice it is usually devolved to their external advisors.

The VfM Assessment Guidance was accompanied by a quantitative evaluation tool and guidance, a simple model aimed at standardizing the numerical comparison of risk-adjusted costs for different procurement approaches. The use of this tool with any PFI VfM assessment is also mandatory.<sup>89</sup>

The standardized documentation for both project development and bid phases ensures the delivery of some generic principles, which drive the extent to which VfM can be achieved. These include:

- **Risk Allocation:** risks are allocated to the parties best able to manage and mitigate them;
- **Life-cycle Costs:** VfM calculations should cover the life-cycle costs of the asset and service, rather than only the upfront costs;
- **Integrated Planning and Design:** there should be early stage consideration of whether the integration of asset and non-asset services will deliver VfM services;
- **Outputs Based Specification:** the use of an output based specification will enable the development of innovative approaches to satisfying the service needs, which may provide better VfM;
- **Effective Risk Transfer:** risk ownership should be contractually binding, so that the allocation can be enforced and the costs of risk ownership are borne by the relevant parties as agreed;
- **Flexibility:** changes can be made at reasonable cost;
- **Appropriate Incentives:** should be included within the contract to enable assets and services to be developed and delivered on a timely basis and in an effective and efficient manner;

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<sup>88</sup> PFI: strengthening long-term partnerships, HM Treasury, March 2006, [http://webarchive.nationalarchives.gov.uk/+/http://www.hm-treasury.gov.uk/media/7/F/bud06\\_pfi\\_618.pdf](http://webarchive.nationalarchives.gov.uk/+/http://www.hm-treasury.gov.uk/media/7/F/bud06_pfi_618.pdf)

<sup>89</sup> To see the VfM quantitative assessment user guide and VfM quantitative evaluation spreadsheet see the following link: [http://www.hm-treasury.gov.uk/ppp\\_vfm\\_index.htm](http://www.hm-treasury.gov.uk/ppp_vfm_index.htm)

- **Contract Terms:** should be of a length where the services required can be predicted with reasonable certainty;
- **Skills and Expertise:** should be available from both the public and private sectors to ensure satisfactory delivery of the project; and
- **Scale and Complexity:** the procurement costs should not be disproportionate to the underlying project.

The VfM policy framework also takes account of other factors, which may impact the VfM of a particular procurement route, as follows:

- **Externalities:** External factors may impact the VfM decision's long term certainty - The tradeoff between long term certainty of costing and the flexibility of shorter term contracts must be considered;
- **Preparation:** Detailed planning and preparation will ensure that sufficient resources are allocated to projects in advance of market engagement. Excessive bid costs and delays in the procurement process will generate additional costs and reduce VfM;
- **Accounting Treatment:** UK policy is that accounting treatment (notably whether a project is recognized on or off the public sector balance sheet) does not form part of the evaluation of VfM; and
- **Affordability:** Affordability refers to what is within the current and future budget of the procuring authorities. UK policy is that the procurement cannot progress, or must be scaled back, if affordability is constrained - this does not; however, impact the extent to which a procurement represents good VfM. This calculation is undertaken separately.

### **Stages in the Value for Money Assessment Process**

Within the PFI framework, a PFI or P3 procurement option must demonstrate VfM and is required three times during the procurement process: program stage, project stage and procurement stage. The VfM assessment begins even before a project is defined, with a program level assessment of the likelihood that P3 project will produce VfM within a specific program. The first assessment of a specific project's potential to offer VfM through P3 procurement occurs within the Outline Business Case (OBC). OBC is an initial analysis of the proposed project's benefits and costs prior to commencement of a P3 procurement. A second, more detailed analysis is completed mid-process and the final VfM analysis is completed as part of the Full Business Case, which will be used to seek funding approval for the project. The ability to demonstrate VfM will underpin the business case approval. The final analysis reflects final contractual risk positions and pricing and is completed just prior to the final agreement. Proving VfM is therefore the central test, which must be met for a P3 project to proceed under the UK's PFI framework.

HM Treasury guidance issued in November 2006 outlines the following in respect of the three-stage VFM assessment:<sup>90</sup>

#### **Stage 1 - Program Level Assessment**

This assessment ensures that P3 is considered only for use in capital programs (as opposed to projects) where it is appropriate and likely to represent VfM.

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<sup>90</sup> Value for Money Assessment Guidance, HM Treasury, November 2006. From [http://www.hm-treasury.gov.uk/d/vfm\\_assessmentguidance061006opt.pdf](http://www.hm-treasury.gov.uk/d/vfm_assessmentguidance061006opt.pdf)

### **Stage 2 - Project Level Assessment**

This assessment requires an upfront procurement appraisal within the development of the project's OBC, which details the rationale and strategy for delivery of the project.

### **Stage 3 - Procurement Level Assessment**

The HM Treasury guidance requires an ongoing assessment during the procurement phase of a project to ensure that the desired project can be delivered in view of the competitive interest and market capacity.

## **Value for Money Methodology Overview**

As noted above, the UK's approach to VfM assessment is based upon two central appraisals: a quantitative and qualitative analysis.

### *Qualitative Assessment of VfM*

The VfM assessment will occur at each of the stages outlined above, with the qualitative assessment considering three aspects:

- **Viability:** the extent to which long term, flexible contracts can be constructed and whether strategic and regulatory issues have been fully considered;
- **Desirability:** the extent to which a P3 transaction will bring sufficient benefits that would outweigh the expected higher cost of capital (compared to public sector delivery); and
- **Achievability:** the extent to which a P3 structure can be achieved given the state of the market, market appetite and the resources available.

The HM Treasury guidance outlines a number of prompting questions within the aspects described above, which contribute towards the qualitative base during the creation of a VfM analysis and shown in Exhibit 21 of Chapter 3.

### *Quantitative Assessment of VfM*

At each VfM assessment stage, the expected risk-adjusted costs of P3 and conventional procurements are compared to determine the presence or absence of VfM.

The HM Treasury sought to simplify and standardize the calculation by requiring the use of a calculation tool entitled PFI VfM Quantitative Assessment User Guide and VfM Quantitative Evaluation spreadsheet. This tool is a relatively simple spreadsheet, which directs users by color-coding the values for which project-specific inputs are necessary<sup>91</sup>. Cost and revenue inputs for both P3 and conventional procurement routes are to be developed by following a method laid out in a companion user's guide, which supports the tool. As a result, there is limited manual calculation involved in determining VfM, allowing the procuring agency's staff to focus instead on selecting inputs to the spreadsheet.

Furthermore, by holding a number of values unchanged, the tool makes the analysis simpler and also seeks to improve the consistency of VfM analysis across projects and sectors.

With regard to risk transfer, the quantitative assessment spreadsheet seeks to use past project information from other P3 procurements to develop an estimate of the values of risks allocated to each

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<sup>91</sup> This VfM tools discussed are available at [http://www.hm-treasury.gov.uk/ppp\\_vfm\\_index.htm](http://www.hm-treasury.gov.uk/ppp_vfm_index.htm)

party under a P3 agreement. The tool uses capital and life-cycle cost inputs (including, primarily, maintenance and operating expenditure estimates throughout the years of a potential concession to a private operator) as well as financing assumptions to generate the comparative NPC or NPV of the P3 and conventional procurement options. The financing assumptions, including the estimated internal rate of return sought by the private sector, are used to reflect the private sector's cost of managing the risks transferred to them under a P3 contract.

To assist in understanding risk values, cost information for P3 and conventional procurement options should reflect actual differentials in costs for the alternate procurement options, as developed or provided by the project's technical advisors or the government's own experience from past procurements. It is important that cost information used is based upon actual projects of a similar nature, as these costs will include implicit pricing of risk transfer. The increasing standardization of contracts, and therefore of risk allocation, has served to reduce the variation in risk transfer from project to project, allowing increased understanding and better technical information upon which to base costs.

In addition to cost information and financing, the quantitative VfM assessment takes account of the impact of uncertainty by applying the concept of optimism bias within the calculation spreadsheet. Optimism bias is reflected by an adjustment for project appraisers' estimates to be optimistic in terms of both project delivery time and costs associated with capital procurement and long-term operations and maintenance. Like the cost estimates, the optimism bias figure is expected to be influenced by past experiences, and the scale of this bias adjustment should decrease as the project moves through the procurement process as uncertainties are removed. At present, the HM Treasury provides guidance<sup>92</sup> for optimism bias ranges (lower and upper bound percentage adjustments by which costs should be amended) across general project categories based upon empirical evidence from a number of projects.

Finally, an adjustment to the comparative cost of P3 and conventional procurements can be made to reflect the economic impact of different levels of scope flexibility under each. Such flexibility adjustments should be based upon the experience of the nature and frequency of similar scope changes, such as unanticipated mid-construction changes to design or materials, in estimating any premium for scope changes during a project's construction.

Finally, cash flows are discounted to a common date using a real discount rate of 3.5 percent based on social time preference, or 6.09 percent in nominal terms, in accordance with the HM Treasury guidance.<sup>93</sup>

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<sup>92</sup> Supplementary Green Book Guidance, Optimism Bias, HM Treasury. From [http://www.hm-treasury.gov.uk/d/5\(3\).pdf](http://www.hm-treasury.gov.uk/d/5(3).pdf)

<sup>93</sup> HM Treasury Green Book "Appraisal and Evaluation in Central Government". From [http://www.hm-treasury.gov.uk/d/green\\_book\\_complete.pdf](http://www.hm-treasury.gov.uk/d/green_book_complete.pdf)



# United Kingdom Case Study: Hounslow Highways Maintenance and Management Project

## Project Background

The London Borough of Hounslow Highways Maintenance and Management P3 Project (Project) consists of a fully-inclusive package of all London Borough of Hounslow (Authority) owned assets, based on removal of the maintenance backlog and providing an enhanced level of service, including a street cleaning function.<sup>94</sup>

A five year core investment period is expected to achieve a measurable change in the street environment and it will be followed by sustained levels of service for an additional 20 years. The project builds on the Authority's development of a Highways Asset Management Plan and is the first London P3 project for highway maintenance. Responsibility for service provision and most risks will be transferred to a private sector service provider.

The project requested early in their OBC £267 million in PFI credits<sup>95</sup> (US\$428.59 million)<sup>96</sup> to fund a highways management P3 scheme, with the Authority providing some of the funding in addition to a grant from the Department for Transport. The funding was provided to improve and upgrade 432km (268 miles) of roads, 762 km (473 miles) of pavements, street lights, cleaning, signage, street, structures and drains and ultimately will provide benefits to all residents, local businesses and those visiting the borough.

## Project Objectives

The project objectives reflect the results of consultation, corporate ambitions and the broad scope of the project. The objectives are to:

- Rehabilitate and maintain the highway network and associated assets so that it complies with statutory obligations and meets users' needs;
- Provide an improvement in the condition of Hounslow's streets within 5 years and sustain that higher level of service over the remainder of the contract (20 years);
- Achieve affordable and best value solutions;
- Achieve greater mobility and access to public transport;
- Promote a greater feeling of security, improve road safety, and reduce accidents and casualties;
- Reduce vehicle maintenance and fuel costs;
- Achieve sustainability for all highway activities, and promote a low carbon economy;
- Manage risks associated with highway operations more effectively; and
- Where possible, reclaim space from the highway for pedestrians and non-traffic activities and reduce the barrier effects of motor traffic on pedestrian movement.

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<sup>94</sup> Details in this case study have been provided by the London Borough of Hounslow, "Outline Business Case." April 2009 [http://www.hounslow.gov.uk/pfi\\_outline\\_business\\_case\\_28aug09.pdf](http://www.hounslow.gov.uk/pfi_outline_business_case_28aug09.pdf)

<sup>95</sup> PFI Credits are a measure of the private sector investment which will be supported by central government sponsoring departments. Issuing a PFI credit letter is a promise that PFI revenue grant can be claimed once the project is operational., <http://www.communities.gov.uk/localgovernment/localgovernmentfinance/pupprivatepartnership/centralgovernment/>

<sup>96</sup> As of June 30, 2011, the conversion rate from UK to USD was 1.6052 as shown in the Wall Street Journal Online.

## Stakeholders

The project had strong cross-party political support, which was confirmed both before and after the local elections. The importance and high profile of the project was recognized by all Authority members and the authorized Authority's representative who sits on the "Project Board", which is the entity established to carry out the P3 agreement and oversee its implementation. The Authority has consistently supported and endorsed the project board's recommendations. Regular consultation exercises have been used to measure the support of residents and local businesses. Other major players are Department of Transport and the selected concessionaire. No concessionaire has been selected at this time.

## Partnership Structure

The project is intended to be a fully inclusive package with the concessionaire taking full responsibility for the majority of Authority-owned highway assets and associated services, with another private party retained by the Authority to manage the interface with a small number of residual services. In the scope of the contract, services required of the concessionaire are grouped into four categories:

**1. Core Assets and Services:** The concessionaire has full responsibility for certain core services, in accordance with the contract's output-specification language, and the Authority's responsibility for all costs of delivery is covered by a fixed availability payment. Core services include reactive and planned maintenance, asset data collection, temporary traffic management, environmental enforcement and street cleaning of core assets. Under this requirement, core assets include roads, curbs, landscaping, drainage infrastructure, fences, barriers, pedestrian paths, street furniture, signs and street lighting.

**2. On-Call Services:** The concessionaire delivers additional services for which payment varies according to an agreed schedule of rates, provided that VfM in relation to market rates has been demonstrated. On-call services include design and build of highway expansions, new roads, additional installation of trees and works on housing streets.

**3. Other Services:** These would be delivered by third parties, either other contractors or other organizations, and which fall outside the scope of the contract (in particular traffic signals, other traffic control equipment and traffic management).

**4. Retained and Client Functions:** These are functions and tasks still to be carried out directly by the Authority and include activities related to the monitoring and operation of the contract. Retained client functions include contract management, traffic management, administration of parking lots and facilities, economic development, traffic and transport planning, conservation and urban design.

Waste management and parking enforcement service provisions were also considered as a possible component of the concession agreement, but rejected largely on operational grounds and because of likely future policy direction. However, street cleaning was identified as an important inclusion in the scope of the contract because of its impact on the quality of the whole street environment. The Authority undertook market research to assess the appetite of the private sector for taking on certain risks, or certain broad categories of risk. In the responses to this research, strong support was voiced for the approach to include all assets and all maintenance activities, including street cleaning, under the contract. This bundling would give the concessionaire the best opportunity to manage the interaction between activities, and provide better coordination. Bundling also minimizes the number of interfaces

between the concessionaire and other parties, each of which would otherwise carry a potential risk of unexpected costs, in terms both of time and of money.

### **Value for Money Assessment**

#### *Quantitative Value for Money Analysis*

Following HM Treasury guidelines, the HM Treasury template calculation was used to quantify the estimated VfM of using a P3 concession agreement compared to conventional procurement of the same bundle of services over the 25 years to be covered by the contract.

Under the P3 procurement, the capital cost of the project was estimated to be £71.8 million (US\$115.25 million)<sup>97</sup>, while under the conventional procurement capital costs were expected to be only £65.3 million (US\$104.82 million)<sup>98</sup>. This difference demonstrates that the incentive required for transferring construction cost and delay risk amounts to 10 percent premium. This premium contains profit for the concessionaire, but also contains the value of transferred risk as well. The higher cost of the P3 option was, however, offset by assumptions regarding operating costs. For example, it was assumed that the concessionaire would only require 15 employees to provide the service elements of the project, where the local authority would require 20 staff to do the same work under a conventional procurement approach. As a consequence, the long-term service costs under the P3 option would be less costly, and those savings would create VfM despite higher construction costs.

The quantitative analysis outputs demonstrate that the estimated risk-adjusted NPC of the P3 option over the 25 year contract period would be £453 million (US\$727.16 million)<sup>99</sup>, compared to the NPC of the PSC of £500 million (US\$802.60 million)<sup>100</sup>. The comparison of the two cost estimates presented a NPC differential of £47 million (US\$75.44 million)<sup>101</sup> in favor of the P3 procurement option. This difference equates to a VfM differential of 9.4 percent.

#### *Qualitative Value for Money Analysis*

The qualitative VfM assessment is split into the three categories of viability, desirability, and achievability. HM Treasury guidance requires that government entities completing a VfM analysis address these themes on a prescriptive basis by addressing a series of prompting questions under each category. The London Borough of Hounslow OBC<sup>102</sup> notes the assessment questions and the responses provided by Authority, demonstrating that the P3 option appeared to be the preferred procurement option in terms of viability, desirability and achievability considerations.

The quantitative analysis and the structured comparison of qualitative factors demonstrated to the Authority that a P3 approach offered both a VfM benefit of 9.4 percent of project costs and possessed favorable attributes as assessed in the qualitative analysis.

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<sup>97</sup> As of June 30, 2011, the conversion rate from UK to USD was 1.6052 as shown in the Wall Street Journal Online.

<sup>98</sup> Ibid

<sup>99</sup> Ibid

<sup>100</sup> Ibid

<sup>101</sup> Ibid

<sup>102</sup> The London Borough of Hounslow, "Outline Business Case." April 2009  
[http://www.hounslow.gov.uk/pfi\\_outline\\_business\\_case\\_28aug09.pdf](http://www.hounslow.gov.uk/pfi_outline_business_case_28aug09.pdf)

## **Decision, Final Agreement and Competitive Selection Process**

The project secured approval for £267 million (US\$428.59 million)<sup>103</sup> of PFI credits in November 2009, which allowed the bidding process for a private concessionaire to commence in the following month. The project is currently in the procurement process and three contractors have been requested to submit a bid for the project. Final selection of a contractor is expected in the summer of 2012.<sup>104</sup>

Prior to contract signature, the VfM analysis will be updated based upon the final commercial terms achieved through the competitive selection process, within the Final Business Case, a document required by the national government, which summarizes the VfM analysis and justification for the P3 procurement approach. The project is expected to continue to demonstrate value for money prior to commercial close.

The availability payment structure used in the procurement process was based upon the Local Partnerships template. The project agreement followed the principles of the government's standard P3 contract template, known as Standardization of PFI Contracts v4 (SOPC4), which takes into account the experience from previous highways maintenance projects, street lighting and other sectors. The Authority also amended the contract to meet its project specific requirements.

## **Lessons Learned**

The Hounslow Highway Maintenance P3 project is one of three pathfinder<sup>105</sup> projects identified by the UK Department for Transport, all of which have received funding support from the Department. As such, it is expected that the project will create precedents for future highway maintenance P3s procured by local authorities under the UK's PFI.

The project concept takes a lifecycle cost approach as a means of enhancing VfM. This approach seeks to avoid the problems and inefficiencies resulting from a reactive, ad hoc approach to addressing maintenance and improvement projects, and offers the opportunity to introduce good asset management principles. In addition, risks are allocated to the party best able to manage them. Contractual arrangements incentivize improvements and ensure that asset condition is preserved. Comprehensive asset and condition data helps to reduce risks for potential concessionaires, thereby attracting competitive pricing and affordable solutions.

Market research exercises, completed early in the procurement process, have helped to ensure market interest and support for the project's innovative features. The market feedback prior to and during the procurement has been strongly positive, with considerable interest from leading contractors, and even helped to determine the nature and extent of the P3 concession.

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<sup>103</sup> As of June 30, 2011, the conversion rate from UK to USD was 1.6052 as shown in the Wall Street Journal Online.

<sup>104</sup> London Borough of Hounslow, "Highways PFI." Retrieved March 2011 from [http://www.hounslow.gov.uk/index/transport\\_and\\_streets/highways\\_pfi.htm](http://www.hounslow.gov.uk/index/transport_and_streets/highways_pfi.htm)

<sup>105</sup> "Pathfinder" is the UK's Department of Transport pilot project to test alternative service arrangements and innovation in delivery of highway PFI projects to address the highway maintenance backlog.

## Key Commonalities and Differences in Value for Money Practice

The review of international practice indicates that VfM analysis and PSC methodology is applied broadly in several countries that have developed P3 practices over the past decades. It is also apparent that the concept of VfM and related instruments has been used at different stages of development of a country's P3 policy and program, and similarly across the stages of development of a P3 project, from origination up to implementation. The UK has been a pioneer in developing and using the VfM analysis and countries such as Australia and Canada have largely based their VfM frameworks on that of the UK's.

Current approaches to VfM assessment have many similarities across the Australia, Canada and the UK. In these countries, VfM evaluation is based on:

- A multiple stage approach that is sequentially applied at various program or project stages;
- Qualitative analysis, which usually focuses on the viability and sustainability of a project and whether the benefits outweigh the cost;
- Quantitative analysis, which involves the calculation of a project's costs and revenues over the project's life cycle, and the discounting of the project's cash flows to comparable NPV figures for the PSC and the P3 reference or bid(s);
- Risk analysis, allocation and valuation for each procurement option. The valuation of risks is one of the dominant elements in determining the (potential) value for money under P3s and public procurement. This includes corrections for distortions to achieve "competitive neutrality" between the public sector and P3 options; and
- Expert judgment to assess relevant differences in cost, revenue and risk inputs that are used in the calculations of the public sector and P3 procurement alternatives.

At the same time, differences exist in the methodology applied between and sometimes within countries. These differences reflect the political character of the decision-making process, the underlying processes of investment planning and project development, as well as some highly technical elements of the methodology, such as determining the relevant discount rate.

While having the largest impact on VfM, the approaches for determining the discount rates have differed among the peer practices. The UK VfM methodology prescribes the use of a fixed pre-set discount rate to calculate the NPV of the projected cash flows under public and P3 procurement. This is a rather straightforward approach, which obviously sits well with the highly standardized framework for quantitative VfM assessment. However, applying the UK approach has some drawbacks as this methodology does not reflect the project's specific risk profile and it does not take into account the actual cost of capital to the government when it finances the project with government debt nor the private sector financing in the P3 option with a combination of debt and equity (weighted average cost of capital or WACC).

In Australia and Canada the discount rate is determined on a project-by-project basis in order to reflect the project specific risk profile, which surrounds the cash flows under public and P3 procurement. However, each country's approach and methodology for determining the relevant discount rates is different.

The Australian VfM guidance takes the theoretical approach through the application of the Capital Asset Pricing Model. The discount rate is based on the market-based risk-free rate of return and a risk mark-up to reflect the project's exposure to systematic market risks. The Australian VfM guidance provides the

assumed project beta's ( $\beta$ ) for different types of projects. It prescribes the use of different discount rates to reflect the allocation of systematic risks between the public sector and P3 contractor. If systematic risk is transferred to the P3 contractor, as determined from the contract's implied and provisioned risk allocation, the discount rate to calculate the NPV from the P3 bid should be higher to reflect the contractor's exposure to the systematic risks.

The Canadian guidance takes a benchmark approach in determining the relevant discount rate on the basis of the WACC for similar projects. With this approach the discount rate also reflects the project specific risks.

One other apparent difference in international VfM practice is the timing of VfM analysis. Even though each country's VfM practice showed that VfM assessment was performed at least twice, the timing and its role in the procurement differed across countries. Some countries use VfM analysis early in the process to decide on the procurement method. Other countries use it to evaluate private sector bids. In some countries, the VfM assessment takes place at various stages throughout the project procurement and after the contract is awarded, or even after the project reaches financial close.

The table below summarizes various aspects of the international VfM practices. Note that many times, the PSC is identified differently among countries as well.

**Exhibit 7: Comparison of VfM Policies and Approaches Across Reviewed Countries**

	<b>Australian VfM Model</b>	<b>Canadian VfM Model</b>	<b>UK VfM Model</b>
<b>Key VfM Review Criteria</b>	<ul style="list-style-type: none"> <li>• Affordability</li> <li>• Risk sharing</li> <li>• Competition</li> </ul>	<ul style="list-style-type: none"> <li>• Affordability</li> <li>• Risk sharing</li> <li>• competition</li> <li>• Appropriate sector (for national support)</li> </ul>	<ul style="list-style-type: none"> <li>• Affordability;</li> <li>• Risk sharing;</li> <li>• Competition</li> </ul>
<b>VfM Guidance</b>	National and State level	State level	National level (legislative/regulatory)
<b>VfM Tools</b>	<ul style="list-style-type: none"> <li>• PSC</li> <li>• PIT (Public interest test)</li> </ul>	<ul style="list-style-type: none"> <li>• PSC</li> <li>• Risk matrix</li> </ul>	<ul style="list-style-type: none"> <li>• PSC</li> </ul>
<b>VfM Appraisal</b>	Financial (NPV); qualitative	Financial (NPV); qualitative	Financial (NPV); qualitative
<b>Discount Rate</b>	Risk-free rate of 3% (in real terms) plus risk premium	Same for PSC and P3; WACC	Predetermined and fixed; Same for PSC and P3 Risk-free rate of 3.5%
<b>Timing</b>	PSC is developed before invitation to bid; full VfM conducted after bids are received.	PSC is developed before invitations to bid; Full VfM assessment takes place after bids are submitted and updated after winning bid selected.	VfM assessed during program (annual budgeting), project (prior to invitations to bid) and procurement (after bids received) stages; VfM is assessed continuously until contract close.

**Exhibit 7: Comparison of VfM Policies and Approaches Across Reviewed Countries (Continued)**

	<b>Australian VfM Model</b>	<b>Canadian VfM Model</b>	<b>UK VfM Model</b>
<b>VfM drivers</b>	Measurable service output; whole life costing; integration of design, operation and maintenance; innovation; risk transfer; greater asset utilization; market capability	Opportunity to bundle multiple services; Federal cost-sharing for P3s in selected sectors; Prior P3 experience in buildings sector; innovation; market capability; risk transfer; government support	Risk allocation; output specification; competition; contract duration; innovation; borrowing cost; management skills; performance measurement; contract flexibility
<b>Issues</b>	Inaccuracy; omitted risks; manipulation; high cost	Financial market capacity in recession; public sector union opposition; approach and enthusiasm varies by province; national support only for selected contract types and project categories	Subjective; simplistic

## Overview

In the U.S., governments have entered into P3s in a variety of sectors, including transportation, prisons, technology, water treatment, health and medical services, and schools.<sup>106</sup> However, the U.S. is still a relatively new participant in P3s and has yet to truly identify uniform VfM guidelines across the various states. Most U.S. P3s have been initiated by state governments and associated agencies, and the market can be considered fragmented. Beyond utilizing varying methodologies, state governments have pursued P3s without a thorough understanding of conducting cost analysis. Nonetheless, several states have acknowledged the importance of the VfM concept and successfully initiated its use by setting their own guidelines. States that reportedly conduct VfM or an equivalent analysis include: Virginia, California, Florida, Texas, Georgia and few other states. Those states that conduct VfM do so either based on state legislation or proactively.

As states and local governments continue to face fiscal challenges and the public demands expanding infrastructure services, P3s may become a more popular project delivery method. Such interest in P3s will invite more scrutiny of the selected VfM method, project costs and value to the taxpayer.

## Virginia Value for Money Practice

The Commonwealth of Virginia has adopted a VfM requirement for its Public Private Transportation Act (PPTA) project development process and has published its VfM guidelines.<sup>107</sup> Under the VfM guidelines, each project is required to be tested through VfM analysis to determine whether a project provides benefits to its users and to the Commonwealth when delivered through the PPTA process. This analysis tests the value of a project delivered through the PPTA in comparison to the most likely alternative delivery method. The initial VfM analysis also supports the PPTA steering committee's decision regarding the optimal procurement method. The PPTA office updates this initial VfM study with inputs that accompany the submission of proposals by private entities during the competitive procurement process to ensure that the project continues to provide VfM throughout the procurement process. The appropriate VfM methodology varies across modes and payment mechanisms (e.g., the analysis for tolled concessions versus availability payment concessions). As the last step in the VfM analysis, the PPTA office performs a final VfM analysis, taking into account any additional project information that has become available since the initial VfM analysis was performed and prior to recommending the selection of the preferred proposer to the PPTA Steering Committee. This updated VfM analysis compares the Virginia Department of Transportation's (VDOT) updated PSC and the preferred proposer's proposal. This comparison is taken into account in the PPTA steering committee evaluation. This updated VfM analysis ensures that the award of the project as a PPTA provides VfM to the Commonwealth.<sup>108</sup> While the new PPTA guidelines were established in 2010, no projects had been evaluated based on the current VfM guidance.

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<sup>106</sup> Grimsey D., Lewis, K. Are Public Private Partnerships VfM? Evaluating alternative approaches and comparing academic and practitioner views. *Accounting Forum* 29. 2005

<sup>107</sup> Commonwealth of Virginia's Office of Transportation Public-Private Partnerships, PPTA VfM Guidance, [http://www.vappta.org/resources/VDOT%20VfM%20guidance%20document\\_final\\_20110404.pdf](http://www.vappta.org/resources/VDOT%20VfM%20guidance%20document_final_20110404.pdf)

<sup>108</sup> The Commonwealth of Virginia PPTA Implementation Manual and Guidelines, Dec 2010, p 25, 29. From [http://www.transportation.virginia.gov/ppta/PPTA\\_implementation\\_manual.pdf](http://www.transportation.virginia.gov/ppta/PPTA_implementation_manual.pdf)



## California Value for Money Practice

Even though California has passed key P3 legislation, it does not have established VfM guidelines. However, the Caltrans and the San Francisco County Transportation Authority, the public sector project sponsors, commissioned a VfM analysis for the most current Presidio Parkway project. The Analysis of Delivery Options<sup>109</sup> of the Presidio Parkway is a quantitative and qualitative analysis of the full life cycle costs of the project that compares traditional Design-Bid-Build (PSC) with DBF (private financing milestone and availability payments for construction completed) and DBFOM (availability payments) methods. The quantitative assessment of the analysis compared the whole life cost of the project from the point of view of the project sponsors under the three delivery options. This comparison, using the shadow bid<sup>110</sup> method provided the basis for a quantitative evaluation of the three procurement methods. The analysis assessed all three delivery options based on the extent that each of them meets project objectives (VfM over project life, risk transfer, cost and schedule certainty at and after financial close, use of public funds, level of operations and maintenance service). Further, the analysis assessed risk transfer level for four risk categories: construction time, cost overruns, maintenance, and operations. Under both of these assessments, DBFOM offered the best value for money and optimal risk transfer.

One of the major components of the analysis was choosing a proper discount rate. The analysis examined various international practices for discount rates and sensitivity analyses were performed for each of them. The table below illustrates the discount rates analyzed and the range of the results.

Ultimately, the public sector project sponsors decided to utilize a pre-tax WACC rate of 8.5%. However under alternate discount rates, the analysis still concluded that the project demonstrates VfM if pursued under the DBFOM procurement option.

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<sup>109</sup> “Analysis of Project Delivery Options for the Presidio Parkway Project.” CTC Project Proposal Report Submission. February 2010. From [http://www.presidioparkway.org/project\\_docs/files/presidio\\_prkwy\\_prjct\\_bsns\\_case.pdf](http://www.presidioparkway.org/project_docs/files/presidio_prkwy_prjct_bsns_case.pdf)

<sup>110</sup> A bid model based on estimates of what the private sector is likely to deliver.

**Exhibit 8: Presidio Parkway VfM Analysis Discount Rate Range and Results**

Approach	Value	DBB	DBF	DBFOM	Reference	Comments
		<i>(NPV\$, Million)</i>				
Social preference rate or social discount rate	9.2%	619	614	469	U.K. HM Treasury approach; in the U.S. based on OMB Circular A-94 projects with social benefits	The OMB A-94 rate is 7% real, to which inflation, assumed at 2.2% in this report, is added.
Project pre-tax time-weighted WACC (base case)	8.5%	635	642	488	Partnerships BC approach using Project pre-tax, time-weighted WACC, which is calculated from the project's audited financial model	Approach in Australia is similar.
Risk free rate (government cost of capital rate) – taxable	7.5%	660	687	538	Based on California taxable 30-year bonds	Taxable bond does not include the implicit subsidy represented by the foregone tax revenues that are a cost to taxpayers
Risk free rate (government cost of capital rate) – tax exempt	5.5%	730	802	676	Based on California general obligation 30-year bonds	CA GO rate is a tax-exempt rate. See comments above.

Source: "Analysis of Delivery Options for the Presidio Parkway Project." CTC Project Proposal Report Submission. February 2010. [http://www.presidioparkway.org/project\\_docs/files/presidio\\_prkwy\\_prjct\\_bsns\\_case.pdf](http://www.presidioparkway.org/project_docs/files/presidio_prkwy_prjct_bsns_case.pdf)

### Florida Value for Money Practice

The State of Florida Statute 334.30(6) requires that Florida Department of Transportation (FDOT) determine the proposed project's cost-effectiveness and public benefit prior to moving ahead with the procurement, and before the issuance of the request for proposals (RFP). Then, if a positive finding is made, a RFP may be issued. FDOT will then evaluate the proposals and select the one that best serves FDOT's and the public's interests. However, before a contract is executed with the selected party, the analysis of cost-effectiveness and public benefit must be conducted again to reflect the terms of that proposed contract. This second analysis takes into account any differences between the financial conditions estimated prior to the issuance of the request for proposals and the contract terms.<sup>111</sup>

In the I-595 and Port of Miami Tunnel (POMT) projects, two P3 transactions that were undertaken by FDOT, a full VfM analysis was conducted at least twice as specified in the statute. Florida's VfM practice is similar to international practices.

### Texas Value for Money Practice

Texas performs a shadow bid analysis. Under this analysis, detailed estimates of design, construction costs and operating costs are compared to private sector proposals. However, the methodology applied varies by project. In Texas, there are no statutory or regulatory provisions defining the public interest in

<sup>111</sup> State of Florida Statutes, Section 334.30(6) (e).  
[http://www.flsenate.gov/Statutes/index.cfm?App\\_mode=Display\\_Statute&Search\\_String=&URL=Ch0334/SEC30.HTM&Title=->2007->Ch0334->Section%2030#0334.30](http://www.flsenate.gov/Statutes/index.cfm?App_mode=Display_Statute&Search_String=&URL=Ch0334/SEC30.HTM&Title=->2007->Ch0334->Section%2030#0334.30)

P3s, yet the Texas Department of Transportation (TxDOT) develops specific evaluation procedures and criteria for each specific procurement as well as contract provisions that are determined to be in the interests of the state. Actual P3 proposals are then evaluated against these criteria.

Another analysis undertaken by the public authority is market valuation. The market valuation estimates how much a public authority would receive in value under a P3. This value of the project is calculated by estimating the amount of up-front payments the private party would provide the public agency and subtract the costs associated with the P3, such as public subsidies to the project.<sup>112</sup> Project cash flows are based on the project's revenue and costs forecast. Just as in the VfM analysis, the valuation uses discounted cash flows to arrive at NPV. However, the market valuation extends beyond costs and assesses potential project revenue. The valuation also takes into consideration both quantitative and qualitative factors, with the latter being bidder's qualifications and price. If the market valuation results appear to be acceptable and the agency decides to pursue a P3, TxDOT and the procuring agency will draft a comprehensive development agreement (CDA) that will indicate the project terms and conditions.

## Georgia Value for Money Practice

Like Virginia and Florida DOTs, Georgia DOT (GDOT) also mandates a rigorous project assessment process under its P3 guidelines. Currently, GDOT does not have established VfM guidelines but has hired outside experts to conduct the analyses on several potential projects.

Every two years potential projects are compiled to establish an Initial Project Screening List screened and submitted to a Project Screening Committee. This Committee screens projects based on the P3 program objectives, the state P3 legislation and then develops a Final Project Screening List. In the next step, the Committee gathers required data on the projects and conducts a workshop to evaluate the selected projects. The projects on the final list are further screened based on detailed P3 project criteria. The criteria consist of six parts: potential for value added from private sector involvement, institutional and political support, project maturity, financial feasibility, project scope suitability, and market interest.<sup>113</sup> The goal is to identify those projects that promote GDOT's policies and have the potential to be successful P3s.

In addition to rating projects based on these criteria, the Committee provides recommendations for the appropriate project delivery methods which include DB, DBF, DBOM, and payment methods, including toll concessions and availability payments.<sup>114</sup> The selected project is then submitted to a Steering Committee, which upon its approval is then submitted to the GDOT board. Once a project has been identified as a P3 candidate, it moves to the studies stage, which involves a VfM analysis. This detailed screening process is a prerequisite to the studies stage, primarily to meet the state's transportation goals and P3 guidelines and secondarily to reduce the considerable costs associated with preparing numerous VfM analyses. The analyses are made public, but only after the procurement stage is finalized and the project reaches financial close.

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<sup>112</sup> Morillos, Amekudzi et al. Value for Money Analysis in US Transportation Public-Private Partnerships. Journal of the Transportation Research Board. 2009, p34 from <http://people.ce.gatech.edu/~aa103/ValueforMoney.pdf>

<sup>113</sup> GDOT Public Private Partnership Guidelines. February 2, 2010, <http://www.dot.state.ga.us/informationcenter/p3/administration/Pages/Guidelines.aspx>

<sup>114</sup> Ibid

## Value for Money Practice in Other States and U.S. Territories

### *Puerto Rico*

With an establishment of Puerto Rico Public Private Partnerships Authority (PPPA) and P3 regulations in 2009, all projects in Puerto Rico are required to undergo a “desirability study” as part of the project screening process. The desirability study is a multi-part process that determines whether a project, and method of project delivery identified in the study, offers VfM for the government of Puerto Rico and its citizens.<sup>115</sup> The study consists of four parts:

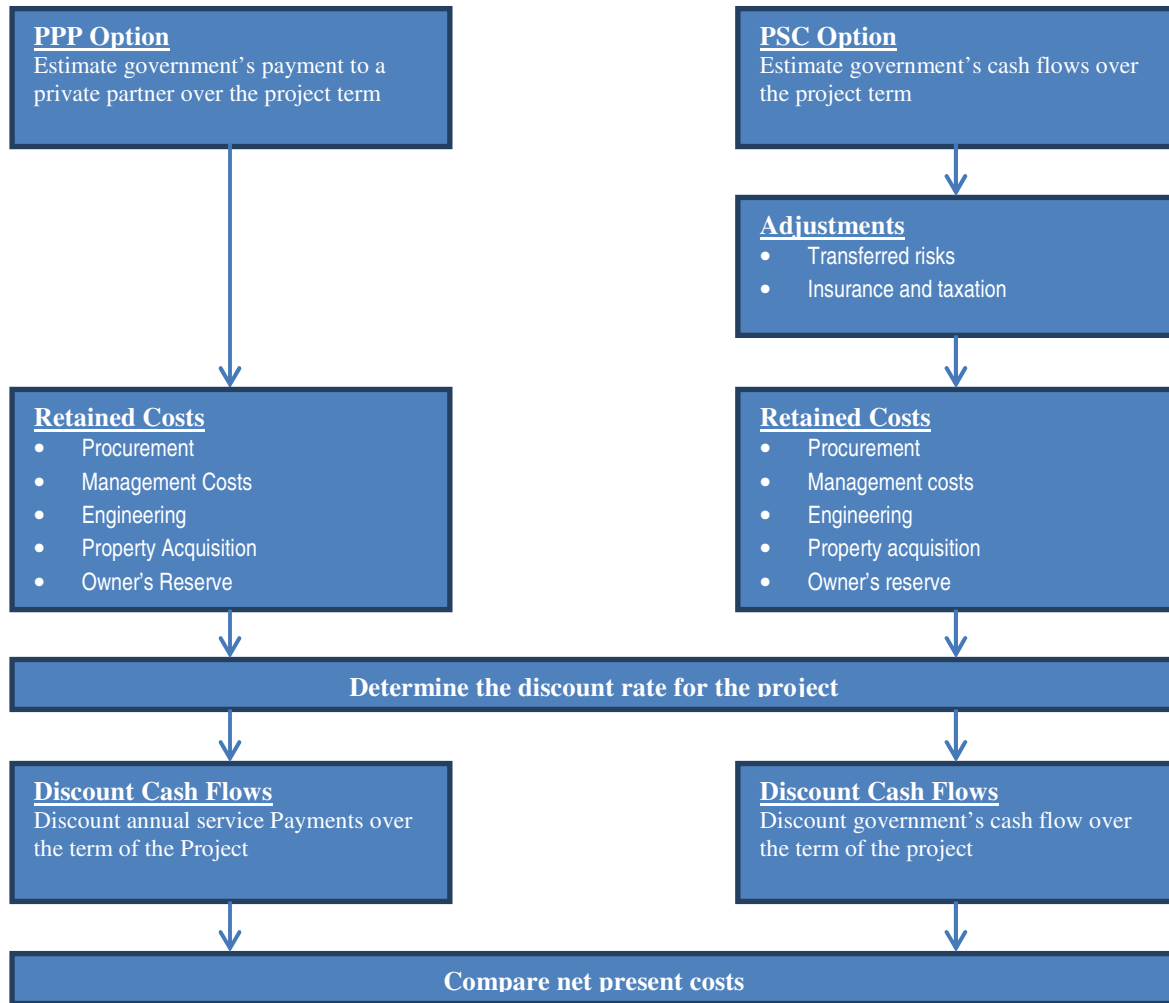
- Part A. - Identification of needs for the project;
- Part B. - Identification of risks and analyses of service delivery options;
- Part C. - Procurement options analyses; and
- Part D. - Affordability analysis.

A PSC is conducted as part of the procurement options analyses. The PSC is assessed against a shadow bid for the selected alternative procurement method. The NPV for both the PSC and the shadow bid are derived by discounting expected cash flows at the risk-adjusted rate of return for the Government agency and the private sector, respectively. The graph below depicts a process of cost comparison utilized by PPPA.

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<sup>115</sup> Puerto Rico Public Private Partnership Authority. Executive Summary of Desirability Study: Methodology Guidelines. November 2009, <http://www.app.gobierno.pr/wp-content/uploads/2010/07/Executive-Summary-of-Desirability-Study-Methodology-PR-P3-Authority-WEBSITE.pdf>.

**Exhibit 9: Cost Comparison Process of Alternative Procurement Approaches**



Source: Puerto Rico Public Private Partnership Authority. Executive Summary of Desirability Study: Methodology Guidelines. November 2009. <http://www.app.gobierno.pr/wp-content/uploads/2010/07/Executive-Summary-of-Desirability-Study-Methodology-PR-P3-Authority-WEBSITE.pdf>

**Oregon**

In Oregon, a VfM comparison was conducted for the Newburg-Dundee Bypass project that resulted in the project not moving forward as a P3 given the limited value of risk transfer in the project. However, Oregon DOT (ODOT) is taking a different approach in project assessment and developing a “Least Cost Planning” (LCP) tool for transportation decision-making. The tool is mandated under Oregon State Legislature House Bill 2001 and is expected to be launched in 2013. The LCP is a process of comparing direct and indirect costs of demand and supply options to meet transportation goals, policies or both, where the intent of the process is to identify the most cost-effective mix of options.<sup>116</sup> The LCP does not include an assessment of various procurement methods but rather analyzes which projects would be

<sup>116</sup> Oregon DOT. Least Cost Planning Progress Report to 2011 Oregon Legislature. January 2011, <http://www.oregon.gov/ODOT/TD/TP/docs/LCP/ExecSum.pdf?ga=t>

best to develop by ODOT while considering transportation budget limitations and transportation planning objectives. The LCP analyzes various transportation modes for developing transportation projects and achieving ODOT's objectives. The LCP had been used successfully in the utility industry and was recommended to be adapted in the transportation industry. Although it is not clear what specific technical approach the LCP tool will take, the LCP usually measures costs and benefits of a project and compares planning options, quantitative and qualitative evidence, impacts on the non-users, indirect effects, risk and uncertainty in forecasts and cost and benefit calculations.<sup>117</sup>

The state efforts discussed above are examples of the few states that have advanced in P3s and the use of VfM analysis or some type of analysis to evaluate procurement options. As more P3 project deals are closed and states gain additional experience with these procurements, the need for or use of analytical tools such as VfM will become more prevalent and second nature in P3 programs throughout the U.S.

## Case Study: I-595 Express Corridor Improvements Project

### Project Background, Stakeholders, Objectives and Partnership Structure

The Interstate 595 Corridor opened to traffic in 1989, however, traffic increased dramatically as a result of a natural disaster in the early 1990s, the recovery from the economic recession of the 1980s, and changes to local land use plans. In 2003, the Florida Department of Transportation (FDOT) responded to the increasing demand on both I-595 and I-95 Corridors and released the I-95/I-595 Master Plan. The Master Plan Study resulted in an approved Locally Preferred Alternative for I-595 with a focus on improvements between I-75 and I-95.<sup>118</sup>

The I-595 Express Corridor Improvements Project extends from the I-75/Sawgrass Expressway interchange at the western end to the I-595/I-95 interchange. The total project length along I-595 is approximately 10.5 miles and additional 2.5 miles on Florida's Turnpike system. The project consists of reconstruction, addition of auxiliary lanes and resurfacing of the I-595 mainline (including associated improvements to adjacent cross-roads, frontage roads and ramps), and a new reversible express lanes system in the I-595 median which will be operated as a managed lane system.

The project is the first DBFOM P3 in Florida and was initiated by FDOT with the goal of leveraging alternate financing and procurement methods to:

- Provide capacity improvements sooner than possible under a traditional pay-as-you-go approach;
- Maximize corridor throughput rather than toll revenue from express lanes;
- Minimize required FDOT outlays while transferring cost, performance and delay risks to a private concessionaire; and
- Enhance long-term, lifecycle cost efficiency and service quality.<sup>119</sup>

Based on the VfM analysis' quantitative and qualitative results and feedback from potential bidders, FDOT decided to pursue the design-build-finance-operate-maintain (DBFOM) procurement method.

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<sup>117</sup> Ibid

<sup>118</sup> I-595 Express Corridor Improvements Project website under History, <http://www.i-595.com/About-History.asp>

<sup>119</sup> FDOT. I-595 Corridor Roadway Improvements. Value for Money Analysis. [http://www.transportation-finance.org/pdf/funding\\_financing/financing/i595\\_vfm\\_0609.pdf](http://www.transportation-finance.org/pdf/funding_financing/financing/i595_vfm_0609.pdf)

Further, based on the above goals, FDOT chose to set, collect, and retain toll revenue<sup>120</sup> and use availability payments (AP) to compensate the concessionaire. FDOT and the selected concessionaire, I-595 Express LLC, a consortium created by ACS Infrastructure Development (ACSID), executed a 35-year concession agreement (including a 5-year construction period). The financing for the project was provided by a syndicate of 12 commercial banks and by the USDOT TIFIA credit program.

**Value for Money Assessment**

FDOT expected to procure the project with a traditional pay-as-you-go method for gradual I-595 capacity improvements, which would have taken the state over a decade to complete. Another option was to undertake such capital improvements as a single project under a concession and accelerate completion. FDOT decided to utilize the P3 structure since it would significantly preserve FDOT’s debt capacity needed for other projects and mitigate project delivery risks associated with the scale of the project.

FDOT considered two options: DBF and DBFOM. The analysis assumed the project scope to be the same under both options, yet cost estimates varied. A 35 year concession term was chosen for the analysis. The progress payments to be made by FDOT were estimated using two different cash flow schemes: \$875 million and of \$1.3 billion. The DBFOM method was assessed against DBF, which could be viewed as a PSC. Under the DBFOM method, an availability payment and shadow toll structure was analyzed. The analysis compared the net present costs of all of the cash flows assuming a discount rate of 5 percent, which was the state’s cost of financing and FDOT’s opportunity cost at the time.

The Exhibit 10 below demonstrates the base case VfM analysis results.<sup>121</sup>

**Exhibit 10: Base Case VfM Analysis for I-595**

	\$1,336 Million			\$874.5 Million		
(2007 \$ millions)	DBFOM Availability Payments	DBFOM Shadow Tolls	DBF	DBFOM Availability Payments	DBFOM Shadow Tolls	DBF
Net Present Cost	\$1,896	\$2,040	\$2,000	\$1,987	\$2,167	\$2,011
Value for Money	\$104	(\$40)		\$24	(\$156)	
Value for Money (as % of DBF)	5.2%	-2.0%		1.2%	-7.8%	

Source: FDOT. I-595 Corridor Roadway Improvements. Value for Money Analysis

**Decision and Competitive Selection Process**

FDOT managed a very quick procurement period, less than 13 months, a relatively short period of time, in order to speed up project delivery. A request for qualifications (RFQ) was issued in the fall of 2007 which generated wide interest in the industry. Six consortia submitted statements of qualifications (SOQ), out of which four were shortlisted a month later and provided with the request for proposals (RFP). Only two teams submitted proposals which were evaluated based on technical and price factors with some consideration of financial feasibility. The evaluation included an innovative scoring formula

<sup>120</sup> Florida Turnpike Enterprise will collect tolls on behalf of FDOT but is not party to the concession agreement. The toll revenue will be used as a portion of the revenue source for the availability payments which will be paid to the concessionaire.

<sup>121</sup> FDOT. I-595 Corridor Roadway Improvements. Value for Money Analysis.  
[http://www.transportation-finance.org/pdf/funding\\_financing/financing/i595\\_vfm\\_0609.pdf](http://www.transportation-finance.org/pdf/funding_financing/financing/i595_vfm_0609.pdf)

where FDOT was willing to pay up to \$10 million more in maximum annual availability payments (MAP) for a proposal with a perfect technical score.<sup>122</sup>

### Final Agreement

FDOT selected the ACSID as the best value proposer, which offered a \$64 million MAP. ACSID was responsible for designing, building, financing, operating and maintain the project, in exchange for a series of lump-sum payments (the Final Acceptance Payments<sup>123</sup>) and annual availability payments (the Availability Payments<sup>124</sup>) over the 35 years. Final Acceptance Payments were budgeted at \$686 million to be paid by FDOT to the concessionaire between 2013 and 2020, pending satisfactory completion of the project. The amount of the annual availability payments (AP) was not set by FDOT; rather the bidders determined the MAP as part of the proposal submission process.

An AP approach included a combination of final acceptance and availability payments as follows:

- Final Acceptance Payments — Approximately 28 percent of the total compensation (in present value terms) will be made as final acceptance payments, paid over a seven-year period in par during construction and shortly thereafter.
- Availability Payments — The annual payment is \$64 million, subject to annual escalation, which continues for 20 years. APs are intended to cover remaining capital, debt service, equity return and operating and maintenance (O&M) costs. If performance is not met for O&M or the facilities do not perform as expected (i.e. construction has defects) as contracted, then penalties can be assessed against the annual AP.

Exhibit 11 shows FDOT’s derived savings if comparing actual costs to the initial VfM analysis estimates.<sup>125</sup>

**Exhibit 11: Comparison of Winning Bid to Expected I-595 Costs (PSC)**

	FDOT Expected Project Costs	Bid of Winning Consortium	Savings
Construction Costs	\$1.9 billion	\$1.3 billion	\$600 million
Maximum Availability Payment	\$71.9 million	\$65.9 million	\$6 million
Final Acceptance Payments	\$1.079 billion	\$686 million	\$394 million

<sup>122</sup> FDOT. I-595 Corridor Roadway Improvements. Value for Money Analysis. [http://www.transportation-finance.org/pdf/funding\\_financing/financing/i595\\_vfm\\_0609.pdf](http://www.transportation-finance.org/pdf/funding_financing/financing/i595_vfm_0609.pdf)

<sup>123</sup> Final Acceptance Payments are a series of fixed payments tied to the completion of defined construction milestones. The schedule of these payments is set in the concession agreement.

<sup>124</sup> Under an availability payment structure, the compensation of the private partner is dependent on the availability of the road and its maintenance. In other words, as long as the road is open to traffic and maintained in a satisfactory condition, the private partner is compensated under a fixed price scheme (with pre-approved escalation of payments, generally based on inflation). As a result of the increased predictability, the financial return requirements are lower, and the delivery cost cheaper than under a traditional toll road. The counterpoint of the increased predictability for the private sector is the increased exposure to traffic risk for FDOT.

<sup>125</sup> FDOT. I-595 Corridor Roadway Improvements. Value for Money Analysis, [http://www.transportation-finance.org/pdf/funding\\_financing/financing/i595\\_vfm\\_0609.pdf](http://www.transportation-finance.org/pdf/funding_financing/financing/i595_vfm_0609.pdf)



## Lessons Learned

I-595 was hailed as a landmark deal for its use of availability payments and its successful close in difficult market conditions. Beyond financial considerations, I-595 is scheduled to open to traffic in 2014, greatly accelerating the delivery of the project compared to a public option.

I-595 shows the importance of the preparatory work conducted by the state DOT prior to the start of the bidding process. FDOT spent considerable resources on the preliminary design and permitting of the project as well as drafting of the concession agreement, which allowed for a clear identification and allocation of risks prior to the preparation of proposals. Also prior to the formal request for proposal, FDOT held numerous meetings with the bidders to ensure that the terms in the draft concession agreement were acceptable in the market and understandable. As a result, the allocation of risks among the key parties was clearly defined early in the development of the project. With the exception of the traffic and toll revenue risks, the risk allocation scheme followed traditional DBFOM structures, with the private sector taking on the entirety of the construction and operation risks. Despite the financial crisis, the allocation of the risks and the overall architecture of the concession agreement did not have to be significantly modified in order to reach financial close, which shows the fundamental strength of the structure and its adaptability.

## Achieving Value for Money

In keeping with best practices, an updated VfM analysis was undertaken post-transaction close on March 2009 and was based on the terms at financial close and the risk transfer recorded in the concession agreement. The updated analysis indicated greater VfM than the initial analysis such as:

- savings of \$78 million or 4.2 percent of the net present costs of FDOT payments under FDOT's base case in addition to such qualitative factors as improved cash flow management,
- long-term cost/budget certainty,
- incentives for schedule acceleration, and
- better alignment of interest on key performance goals.<sup>126</sup>

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<sup>126</sup> FDOT. I-595 Corridor Roadway Improvements. Value for Money Analysis, [http://www.transportation-finance.org/pdf/funding\\_financing/financing/i595\\_vfm\\_0609.pdf](http://www.transportation-finance.org/pdf/funding_financing/financing/i595_vfm_0609.pdf)