Flushing money away

Why the Privatization of the Wastewater Treatment Plant is a bad idea

Financial Analysis of the City of Regina Waste Water Treatment Plant Expansion and Upgrade

by Hugh Mackenzie

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Executive Summary

At the end of February 2013, the City of Regina Council voted unanimously to proceed with a public-private partnership (P3) model for the new wastewater treatment plant. Under the P3 model, a private company or consortium would design, build, finance, operate and maintain the wastewater treatment plant over a 30-year contract.

The deciding factor for council was the possibility of receiving a grant of over $50 million from the federal government's PPP Canada Fund, funding that would be made available only if the City used a DBFOM (design build finance operate maintain) model.

As part of its application to PPP Canada, the City of Regina was required to submit a business case. The business case for the wastewater treatment plant was prepared by the consulting firm Deloitte and submitted to PPP Canada in March of 2013.

The City of Regina has released a number of documents related to the wastewater treatment plant decision. However, the material released does not include critical documents required for a full assessment of Council's decision, including the formal business case for the privatization decision and the formal funding application to PPP Canada.

The only information relevant to the business case prepared by Deloitte is a summary of the "Delivery Model Assessment" dated January 23, 2013 and made available to the public in February. The summary presents an outline of the logic of the Assessment and its conclusions, but does not include the economic assumptions and the economic and risk analysis detail that underlie those conclusions. A document which appears to be the full report, with the same date, was released in May 2013. However, every section of the version released in May which differs from the summary has been redacted. (A list of the redacted items is presented in Appendix II.) As a result, the people of Regina have no more information about Council's decision in May 2013 than they had in February.

The analysis in this report relies on the information on the project made public by the City of Regina, and on general sources related to the P3 industry. Because all of the relevant detail behind Deloitte's Delivery Model Assessment has been redacted from the material that has been disclosed, our analysis is based on inferences from the data and charts presented by Deloitte and employs standard economic assumptions for this kind of analysis.

The key results of our analysis are as follows:

- The Deloitte report concludes that the public model is overall more favourable than the P3 model until federal funding is considered. The financial advantage of the P3 model is entirely attributable to the fact that federal funding is available only for the P3 model, and not for the other funding options.
- Public sources of capital account for 60% of the project's capital cost while the project itself will be fully controlled by the private operator. The public is fully responsible for paying the project's operating costs. In other words, the public sector is providing substantial funding with no control rights.
- The Deloitte analysis supports the P3 option by assigning a substantial value to risks which it contends will be transferred from the City to the private operator. Its analysis assigns a value of over $25 million to the difference in risk cost between the P3 model and the public alternative. This difference in risk cost is critical to Deloitte's value for money conclusion. Without the assumed risk transfer, there is no value for money case. And the value assigned to the risk is entirely dependent on assumptions concerning the risks associated with each delivery model. The values assigned to those risks are, to put it diplomatically, implausible.
- If we dismiss the implausible risk transfer analysis, then the substantial financing cost disadvantage for the private finance model is fully exposed. Private sector entities have higher borrowing costs than the public sector. In addition, the overhead associated with obtaining P3 financing is substantially higher than that associated with public borrowing. Using industry-standard assumptions with respect to deal costs, financing structure and expected returns, we estimate that P3 financing adds $61 million to the cost of financing the wastewater treatment project—$13 million more than the entire value of the federal government contribution. The mandated P3 model makes no economic sense.
- From the City of Regina's perspective, the sole benefit from the federal government's P3 grant is to offset a portion of the substantial financial penalty that the City would pay for selecting the mandated P3 option. Even with the federal funding, the mandated P3 option is the more costly option.
- In addition to the higher financial costs, the City of Regina faces more difficult to quantify costs associated with transferring control of the facility to a private operator. It is unlikely that the arrangement will be a straightforward long term contract with a single private operator. The reality is that P3 proponents are not single entities. They are consortia, linked together through a complex set of contractual and financial arrangements, most of which are not transparent to the public and in some cases not even to the public "partner" (City) in the project. These arrangements generally change over the 30-year life of these projects. The complexity of these arrangements, and the instability of partners threaten the ability of the public "partner" to achieve its objectives in the arrangements.

Background

The City of Regina has submitted an application to Public Private Partnerships Canada for Federal Government funding for the expansion and upgrade of its waste water treatment plant. Although the business case has been released only with all of the relevant detail redacted and the PPP Canada application has not been disclosed at all, it appears that the required documentation was prepared by Deloitte under contract with the City of Regina and submitted to PPP Canada in March of 2013.

The term "public-private partnership" is generally given a very broad definition, encompassing everything from traditional tendering arrangements for the construction of public infrastructure and the contracting out of specific services to the granting of long-dated concessions for the provision of public services and infrastructure. Thus, in the context of Regina's waste water treatment project, virtually any model—from private tendering to a City design right through to the granting of a waste water treatment concession—would fit the definition.

"... the availability of federal government funding for only one of the options is incorporated into the analysis and essentially pre-determines the result."

For PPP Canada in this context, however, the term has a very specific meaning, requiring that the project be based on private sources of financing and provide for private operation post-construction. In fact, the model referred to as the Design-Build-Finance-Operate-Maintain model (DBFOM) is the only partnership model for which Federal Government infrastructure funding is available. The availability of Federal funding is conditional on the City adopting the form of PPP referred to in the Deloitte report as the DBFOM model.

Deloitte was retained as a subcontractor to the City's initial project advisor and consultant, AECOM, specifically to develop and establish the financial rationale for a DBFOM structure and to prepare the business case and application material required by PPP Canada.[1]

In general, the PPP recommended by Deloitte to the City of Regina is typical of what has become the standard for these projects, using the same types of assumptions and relying on the same questionable risk transfer analysis as the foundation for its Value for Money proposition. Not surprisingly, a critical review reveals the same economic disadvantages relative to publicly-financed and operated alternatives.

There are four features of the recommended PPP that depart from the norm.

The first has to do with the context in which the project is being proposed. The Waste Water Treatment Plant is not the only major project currently on the books of the City of Regina. The other is the construction of a new stadium for the Saskatchewan Roughriders'

football team. And in what must be described as at least an ironic twist, the private project (the football stadium) is being developed in a traditional public sector infrastructure model, with the City financing the project through a bond issue, contracting directly for the construction of the facility and continuing to be responsible for its operations while the public project (the waste water treatment facility) is to be designed, built, financed, operated and maintained privately.

Second, unlike most public-private partnerships in which the private party is responsible for finance and operations, the model proposed provides for a mixture of public and private capital to be invested in the project, with no apparent corresponding sharing of control.

Third, unlike most public-private partnerships, the project encompasses pre-existing publicly-owned assets (from the existing wastewater treatment plant) that will be turned over to the private operator. Again, this contributed equity in the form of the existing assets is not reflected in any obvious way in the governance structure for the project.

Finally, in considering the strengths and weaknesses of various options for the delivery of public infrastructure projects, the financial analysis is generally based on a comparison of stand-alone business cases. In this instance, however, the options are not compared on a consistent basis. In the analysis presented by Deloitte for the City's consideration, the availability of Federal Government funding for only one of the options is incorporated into the analysis and essentially pre-determines the result.

"... from a societal perspective — borrowing the phrase that 'there is only one taxpayer' — there is no case for the mandated PPP model."

Our review is based on information made public by the City of Regina in connection with the project and on general sources related to the P3 industry. None of the details of the official business case for the proposal have been made public. The City has disclosed only the summary of Deloitte's Delivery Model Assessment and a version of the full Deloitte Assessment with all of the relevant additional detail redacted. The financial argument for the DBFOM model in the business case is based on a comparison of cash flow models for each of the options under consideration. However, none of the assumptions behind the analysis and conclusions have been disclosed. As a consequence, our analysis is based on inferences from data and charts presented by Deloitte in the only specific document that has been made public and employs economic assumptions that would generally be applied in this kind of analysis.

Analysis

Project Scope

The project is to modernize the City of Regina's waste water treatment facilities so as to reduce downstream pollution and to comply with revised, tougher federal and provincial waste water treatment regulations. It combines the renovation of an existing facility with the construction of a new facility.

Cost estimates have been somewhat of a moving target.

The project was initially scoped out in 2008, at an estimated construction cost of $153 million plus or minus 20%.[2] A consultant was retained (AECOM) to further develop and refine the estimates, with a revised figure of $167 million plus or minus 15% submitted in 2012.

In the January 2013 Deloitte report, the base construction cost (in the design-build option) was estimated at $197 million.

And in the City report to executive council dated February 13, 2013, the "high end" of capital costs was reported as $224.3 million.

These figures do not include the value of the components of the mandated P3 option dealing with operations and maintenance. The February 13, 2013 City of Regina report estimates the present value (2013) of operations and maintenance costs at $378 million and that of major maintenance costs at $117.2 million. As noted earlier, since the options differ only with respect to financing costs and risk transfer, the analysis in this paper focuses on these key aspects of the proposal.[3]

The Deloitte Report[4]

In Deloitte's bottom-line assessment, two leading options for the waste water treatment project emerged. One was a hybrid public model. In this model, referred to in the Deloitte report as CMAR + DB (Construction Manager At Risk plus Design Build), the public sector would be responsible for financing and operations, with construction agreements incorporating various types of pricing guarantees. In this model, the upgrading part of the project would be performed on a Construction Manager at Risk model in which the City would retain a construction manager for the project who would then contract for completion. The new build part of the project would be constructed on a fixed-price Design-Build model.[5]

In the other model DBFOM (Design Build Finance Operate Maintain), the City would negotiate a contract with a private consortium for the provision of waste water treatment services. This model is the one mandated by PPP Canada, and is referred to in this paper as the "mandated P3 option".

Deloitte's analysis consisted of two components: a comparison of project lifetime cash flows for the various development options; and an analysis and valuation of project risks and risk transfers between P3 "partners". Neither the cash flow analysis nor the risk valuation can be verified based on the information that has been made public to date in the process. Although the process is described extensively, and the conclusions presented with great precision, no information is provided as to the assumptions used in the cash flow analysis or in the valuation of the risks considered in the Value For Money calculation.

Information provided in the Deloitte report, however, suggests that the components referred to as "major maintenance" and "operations and maintenance (post contract award)" are of essentially the same value in all of the options considered.[6] This means that the differences among the options relate to construction and financing costs and the value, if any, to be assigned to the transfer of risk.

It is important to note at the outset that the financing mix modeled by Deloitte for the mandated P3 option is extremely favourable to P3 financing. It assumes that the City of Regina will assume responsibility (directly or indirectly, through the grant from PPP Canada) for roughly half of the cost of the project. This means that higher P3 financing costs will apply to only half of the cost of the project, with the remainder financed publicly.

Even given this favourable base case, however, the Deloitte report, on its face, does not make the case for the mandated P3 option (DBFOM). Its summary Value For Money Estimates table[7] reports a value for money advantage over its base case of 7.0% for the public option (CMAR + DB) as compared with 6.9% for the mandated P3 option.

What allows Deloitte to come to its conclusion is that, if you take into account the PPP Canada grant from the Federal Government, which is only available to P3s that provide for private finance and operations, the mandated P3 option comes out on top, from the perspective of the City of Regina.

The same point comes through in Deloitte's summary of the Total Capital Liability associated with each model.[8] Deloitte's estimated total capital liability for the public option is $200.5 million; for the mandated PPP option, $167.2 million. But without the $51.2 million assumed Federal grant, the total capital liability in the mandated P3 option is $218.4 million.

In other words, the "benefit" to the City of Regina from the P3 option arises exclusively from the fact that the P3 option enables the City to extract a contribution from other Canadians, even on the extremely P3 favourable methodology used by Deloitte in its analysis. Furthermore, roughly one-third of the Federal grant is of no net benefit to Regina at all because it is required to offset the higher cost of the P3 option.

A Closer Look at P3 Economics

As was noted above, the term public private partnership could be applied to virtually any service delivery relationship between government and a private sector entity. The key in maximizing public benefit is to devise relationships that take full advantage of the strengths that each of the public and private sectors bring to the table.

It has long been recognized in public sector infrastructure development that private contractors have two distinct advantages. First, because a private contractor's operations are not limited by location the way a government entity's would be, a contractor is able to apply capabilities developed for individual contracts to a wide range of projects. Second, properly structured, a contractual relationship can provide for a profit incentive to motivate cost control that is likely more effective than internal public sector accounting controls. These two advantages explain why it is actually quite rare for public infrastructure in Canada to be designed and built by the government agencies that pay for and use them, and why

contracts that provide for fixed prices and penalties are increasingly common.

The public sector brings three key advantages to a project partnership. First, public sector entities in general, and certainly in Canada, can obtain financing at much more favourable interest rates and on much more straightforward terms than private sector entities. This is particularly true when financing costs for governments are compared with the financing costs for the single-purpose stand-alone corporate structure typically used in P3s.

Second, governments are much better placed to manage and pool risks than private sector entities, especially single-purpose private sector entities. Why? Because governments in general will have a broader base of activities and projects over which to pool risks than would any private sector entity. And basic insurance principles dictate that risks are less costly to manage, the broader the pool over which those risks are spread. That is why it costs more to buy dental insurance as an individual than it does as part of a group of employees.

Third, governments, by definition, are better able to reflect the public interest and, in particular, to respond to changes in what is viewed as the public interest.

The financing cost issues raised by P3s have been acknowledged by the P3 industry. P3 proponents no longer seriously advance the claim that it is cheaper to finance infrastructure projects through P3s than through direct government borrowing. Once it became clear that the direct borrowing cost argument was ineffective, however, the industry shifted the grounds for the debate. While acknowledging a financing cost disadvantage, the industry now argues that savings resulting from the transfer of risk from the government to a P3 more than offset the financing cost disadvantage.

On the surface, the suggestion that governments could save money by paying a private sector entity to absorb risk on its behalf is implausible, since it flies in the face of the basic insurance principle that the larger the pool over which a risk can be shared, the lower the cost of bearing that risk. However implausible that proposition may seem on the surface, it is even less so on closer inspection, as the analysis and valuation of risk in the Deloitte study of Regina's waste water treatment project demonstrates.

The Regina P3 Financing Cost Disadvantage

The DBFOM model presented by Deloitte provides for contractor-provided funding with a present value of $103.5 million. Comparing financing costs for private P3 borrowing that are typical in the industry with the City of Regina's borrowing cost shows that the present value of financing costs over the life of the project would be $53 million higher for the P3 than for the City and that, once the difference in underwriting costs—the costs for arranging the financing deal—are taken into account, the present value differential is $61 million.[9] This compares with Deloitte's estimate of $48 million for the present value of the Government of Canada's contribution to the project.

Looking only at financing costs, it would be more costly for the City of Regina to accept the Federal financing and the P3 delivery model that is tied to it than to decline the Federal funding and proceed with a model that does not provide for private financing and operations.

Risk Analysis and the Regina Waste Water P3

In its summary of the finances of the CMAR + DB and DBFOM models, Deloitte presents the following table:[10]

	CMAR-DB (public)	DBFOM (P3)
Total Project Base Cost	434,059	460,173
Retained Risk	43,087	12,686
Risk Premium	1,198	6,369
Total Risk-Adjusted Cost	478,344	479,228

It is evident from the table that the public model had a cost advantage over the P3 model until Deloitte added in risk transfer. The application of Deloitte's risk analysis system to the project changed those figures from an estimated total project base cost disadvantage for the DBFOM option of just over $26 million to a cost disadvantage of under $1 million after adding the values assigned to risk to each of the leading options.

For the cost before risk transfer of the mandated P3 option to be within $25 million of the public option (as it would have to be for the assumed risk transfer to result in a net cost disadvantage of under $1 million), mandated P3 option financing costs for the project would have to be within $25 million of public option financing costs—a result that would be possible only by making highly-unusual and unreasonable assumptions concerning the mandated P3's financing costs.[11]

Our more reasonable base case assumptions would imply a mandated P3 cost disadvantage of $61 million, $36 million of which would remain even after the attribution of the hypothetical and arbitrary "risk transfer" value.

This suggests that a combination of unreasonably generous financing assumptions and the analysis and valuation of risk in the Deloitte report are critical to its favourable conclusion for the mandated P3 option. Again, the financial assumptions would be outlined in the business case which has not been publicly disclosed.

Although a substantial proportion of Deloitte's summary report is devoted to description of process and reporting of numerical results (keeping the actual calculations used hidden in a proprietary black box) the essence of the analysis is revealed in its list of the "Ten Largest Quantified Project Risks".[12]

"In every case, the risk identified is either fully under the control of the City, effectively identical in the two leading options or subject to contractual mitigation on the same basis in either option."

Ten Largest Quantified Project Risks

Deloitte table is reproduced here, as follows:

Risk	Description
Resource capacity	City is not able to adequately support the procurement
Facility design	Design contains errors or omissions that are not discovered until the construction period, i.e. contractor-initiated change order risk
Major maintenance / rehabilitation	Major maintenance is deferred
Staffing	Unable to recruiting (sic) and retain qualified WWTP operating staff
Delay by owner (City)	Facility not constructed on time due to City-induced delays
Unknown condition of existing assets	There are unknown defects in the existing WWTP components that are intended to be re-used
Construction — operation coordination	Risk associated with operating the WWTP during the construction of the upgrade/expansion
Early expansion	WWTP capacity needs to be expanded earlier than anticipated
Scope changes during construction	Changes to the design are demanded by the operator during construction
Construction delay	Facility not constructed on time for all reasons other than City-induced delay

SOURCE: Deloitte

While most observers would agree that this is a reasonable list of the major risks that might be faced by a major infrastructure project during its construction period and operating life, it is simply not credible to suggest that differences in costs associated with the management of these risks between the two leading options for procurement amount to enough to overcome a substantial financing cost differential. In every case, the risk identified is either fully under the control of the City, effectively identical in the two leading options or subject to contractual mitigation on the same basis in either option.

The following table provides summary observations with respect to the 10 major risks identified in the Deloitte report.

Assessment of Risks in Both Public and P3 Models

Risk	Description
Resource capacity	Fully under the City of Regina's control; risk the same in both options
Facility design	Common to all options; potential contractual mitigation in all options; effectiveness of mitigation affected by overall contract complexity, advantage in mitigation costs to public option
Major maintenance / rehabilitation	Fully under the City of Regina's control in the case of the public option; subject to contractual requirements in the mandated P3 option
Staffing	Same risk for all options; mitigation more effective in City-operated options because of its ability to offer more secure employment
Delay by owner (City)	Fully under the City's control
Unknown condition of existing assets	Same risk in both options; less likely to occur where City retains operating responsibility throughout because risk of information loss is reduced
Construction—operation coordination	Will be challenging under any option given the fact that regulatory responsibility, operations and construction will involve more than one entity under all options
Early expansion	Risk is the same in both options; more easily mitigated in more flexible City operated option
Scope changes during construction	Fully under the control of the City or the P3 operator, as the case may be; no reason to assume any difference between the two
Construction delay	Construction delays other than those driven by the owner may or may not result in increased costs and/or penalties, depending on contractual provisions. No reason to assume any difference between the two options

SOURCE: Hugh Mackenzie

The role of risk transfer and pricing in the justification of P3 financing models for public infrastructure has been controversial for some time. In general, the results of these analyses cannot be replicated, both because the details of the financial models have not been disclosed and because the models used to generate the financial results are treated as proprietary to the consultants conducting the analysis.

While the use of risk analysis is relatively recent in P3 business cases in Canada, it has been a feature of business cases for PFI (equivalent to P3) projects in the UK for many years.

Risk transfer analysis was developed in Britain as a rationale to support that country's massive shift into privatized public services in the 1990s. It has been debunked in an extremely detailed and sophisticated analysis by the UK equivalent of the Institute of Chartered Accountants. (Pam Edwards, Jean Shaoul, Anne Stafford and Lorna Arblaster, "Evaluating the operation of PFI in roads and hospitals", Research Report No. 84, Association of Chartered Certified Accountants, Certified Accountants Educational Trust, 2004). Their conclusion was that: PFI risks were not lower than government procurement risks; there was relatively little risk actually transferred from government to PFI operators in the deals reviewed; and PFI deals introduce an entirely new risk—the risk that the PFI provider will walk away from the deal. This is an important issue because it highlights the essentially one-sided nature of the risk proposition. The PFI provider has a walk-away option; the government—because it has an overriding political obligation to provide the service—does not.

Their conclusion, from the text of the report, was as follows:

> [I]t is unclear that risk is transferred in the way anticipated at financial close. Some risks have been transferred to parties that are not best placed to manage them. Even more importantly, PFI has generated additional risks to the purchaser, the public sector as a whole, and service users that were not predicted and/or quantified when the VFM comparison was undertaken. This means first, that the VFM comparisons did not compare like with like and, secondly, the projects are unlikely to achieve the risk transfer that provided the original justification for the project and the policy.[13]
>
> …
>
> The net result of all of this is that although risk transfer is the central element in justifying VFM and thus PFI, our analysis shows that risk does not appear to have been transferred to the party best able to manage it. Furthermore, rather than transferring risk to the private sector, PFI has, first, created additional risks to the public agency and the public sector as a whole that must increase costs to the taxpayer and/or reduce service provision, a travesty of risk transfer.

Investment and Influence

In his early-stage review of the need for Regina to upgrade its waste water treatment system, the City Manager estimated a value of $50 million for the existing system assets that would be used in the new system, and which in a P3 option would constitute an in-kind portion of the City's capital commitment to the project.

"60% of the capital at risk in the project is the City's, and carries with it no governance rights, while the 40% of the capital at risk from the P3 operator carries with it full control."

In addition, the Deloitte model for the DBFOM model contemplates capital contributions from the City of Regina through various reserve funds, the annual capital budget and the City's grant from PPP Canada amounting to $100 million.

Accordingly, out of a total project capital value of $250 million ($50 million in existing assets and $200 million in construction), the City will be investing $150 million and the P3 operator just over $100 million. In other words, 60% of the capital at risk in the project is the City's, and carries with it no governance rights, while the 40% of the capital at risk from the P3 operator carries with it full control.

Accountability

As the disclosure or lack thereof by the City in this process to date demonstrates clearly, accountability and transparency are early casualties in P3 projects. This is not by any means a characteristic unique to this project. In general, in Canada, the financial details of P3 projects have been disclosed to the public only as required in court actions or in formal public audits.[14] As a matter of routine, all parties hide the details behind a veil of commercial confidentiality.

Nor is this problem unique to Canada.

The Association of Chartered Certified Accountants also point to the challenges posed by P3 projects for public accountability in particular and for the public interest in general.

To quote again from the ACCA report's conclusions:

> [I]nformation is not easy to obtain, even in some cases where it is intended to be in the public domain. Much remains hidden behind the cloak of 'commercial confidentiality'. … This lack of transparency exists at the Treasury, departmental, purchaser and contractor level.[15]

The protestations of P3 advocates notwithstanding, democratic government is not a strictly financial exercise. The public's needs and expectations for public services change over time. The demand for public services is affected by changes in the economy and in population demographics that are difficult to forecast or predict. Governments' fiscal circumstances change from time to time.

Change may be identified in the Deloitte risk analysis as a negative, and looking at the situation strictly from a financial accounting perspective, it may be. Change may also be costly. But that does not mean that it is in the public interest to enter into contractual arrangements that make change either impossible or extremely expensive. From an accounting perspective, it may not make sense in a financial model to defer maintenance for financial reasons, or to accelerate maintenance or upgrades in order to meet more stringent regulatory standards. But when a government finds itself in a position of choosing between letting maintenance slide and closing recreation centres, it may make public policy sense to defer maintenance. It may not make sense in a financial model to decide to upgrade standards ahead of or in anticipation of enhanced regulatory requirements. But downstream water pollution becomes a significant issue, it may make public policy sense.

Politics is about choices. Long-term contractual commitments to P3s don't make those choices go away; they do make it more difficult and more expensive to make those choices.

If there were a substantial financial benefit associated with giving up the right to make those choices, that might be a trade-off worth discussing. However, that is not the case here. In considering using a DPFOM model for the construction and operation of its waste water treatment system, the City of Regina is effectively considering paying to give up that right.

Conclusion

In summary, the effect of a decision by the City to adopt the DBFOM model for renewal of its waste water treatment system would be to:

- Incur financing costs for the P3 option estimated to be $61 million higher than the financing costs for the leading public option;
- Impose substantial additional costs on the City over the life of the project, even if the contribution of the Federal Government through a PPP Canada grant is taken into account;
- Have the effect of using the approximately $50 million grant from PPP Canada for the benefit of the (higher cost) providers of financing to the project, and not for the benefit of the citizens of Regina;
- Provide cash and in-kind capital amounting to 60% of the capital cost, with no governance rights beyond those provided for in the commercial contract;
- Foreclose any potential option to vary or enhance the City of Regina's waste water treatment system for the 30-year life of the project;
- Create substantial agency and accountability problems associated with private operation of a public service that is vital to the health, safety and economic viability of the community;
- Validate a veil of secrecy that will prevent the public from knowledge of any of the essential financial and operational details of the waste water treatment project; and
- Expose the City to substantial additional risks inherent in the use of third party financial corporations to develop and operate essential public infrastructure.

Appendix I
The DBFOM Financing Model

Deloitte's model for a DBFOM project assumes that $103.5 million of the capital for the project will be provided privately, by the contractor. The project has an assumed start date of 31 March 2013 and an assumed termination date of 31 March 2044.

The borrowing cost comparison between contractor financing and City financing consists of two components: the direct cost of financing; and the indirect costs associated with the arrangements required for financing under each of the two financing regimes.

Several assumptions are common to all scenarios. The form of financing is assumed to be equivalent to a bond issued at the project start date and redeemed at the project termination date. The City's borrowing cost is assumed to be 3.82%, as cited in Deloitte's January 2013 summary document. The City's long-term borrowing cost is also used as the discount rate to express all costs in 2013 dollars.

With respect to public borrowing, the underwriting cost is assumed to be 50 basis points.

Key Assumptions in Scenario Development

The contractor financing assumption is for a contractor commitment of $103.5 million. The City of Regina has authorized private financing of up to $118.3 million. The base case assumption is $103.5 million, to be consistent with other aspects of the Deloitte analysis. Sensitivity analysis considers a $118.3 million reliance on private financing.

Debt/Equity ratio. Privately financed infrastructure projects typically incorporate a mix of debt and equity. Prior to the 2008 financial crisis, low-risk infrastructure projects could be financed to debt/equity ratios as high as 90/10. Post-2008, 80/20 would be a typical ratio, with many projects financed at ratios as low as 70/30 or lower. The base case assumption is 80/20, with sensitivity analysis at ratios of 70/30 and 60/40.

Contractor borrowing rate spread compared with City of Regina costs. Typical borrowing cost spreads for P3 projects run in the 2% (200 basis point) range. That rate is used in the base case. For sensitivity analysis, we also consider spreads of 150 and 250 basis points.

Assumed return on equity. P3 consortia are not charitable institutions. Proponents will be seeking a return on their equity investment sufficient to justify the equity risk. Project proponents will typically plan for a return of 10% after tax, or 13.3% before tax. The base case makes the conservative assumption that the project will generate a 10% return on equity before tax, or 7.5% after tax. For sensitivity analysis, we also consider before-tax returns of 12% and 15%.

Because of the complexity of the financial arrangements involved, P3 projects inevitably involve significant deal costs. The base case is the general industry rule of thumb of 4% per party, and assumes that there are no costs incurred by third parties. Further, we assume that the percentage impact applies only to the private portion of the financing, and not to the full project cost. For sensitivity, we also

evaluate costs of 3% per party and 5% per party.

Base case results are summarized in table 1a below.

Base Case Model		
Contractor capital	103.5	million
% equity	20%	
Expected return on equity	10%	
Contractor borrowing risk premium (bp)	200	basis points
Contractor borrowing cost	5.82%	
Annual blended borrowing cost	6.89	million
NPV of principal	32.4	million
NPV of blended borrowing costs	123.9	million
Embedded PV of financing costs	156.3	million
PV of City alternative	103.5	
Difference	52.8	
Deal structuring costs		
P3 option (4% per party)	8.3	4%
Public borrowing (50 bp underwriting fee)	0.5	0.50%
Difference	7.8	.
Total difference (deal + financing)	60.6	million

Sensitivity analysis relative to base case—cost disadvantage relative to public borrowing.

P3 private financing
$118.3 million
$69 million disadvantage for P3 option

Debt/equity
70/30 $68.4 million
60/40 $76.2 million

Contractor borrowing cost spread
150 bp $53.1 million
250 bp $68.0 million

Return on equity
12% before tax $68.0 million
15% before tax $79.2 million

Deal costs per party
3% $58.9 million
5% $63.1 million

Low end of combined assumptions—all assumptions lowest cost 80/20 debt/equity; 150 bp borrowing cost spread; 10% before tax equity return; 3% per party deal cost—$51 million

High end of combined assumptions—all assumptions highest cost
$118.3 million total financed; 60/40 debt/equity; 250 bp borrowing cost spread; 15% before tax equity return; 5% per party deal cost—$138.4 million

Appendix II
Information Redacted from the Deloitte Delivery Model Assessment

Item	Description
p. 3 Introduction to strategic assessment	Summary table listing models considered in the analysis redacted
p.3 P3 Screening assessment	Material related to options other than P3 options redacted
pp.3-4 Market sounding	Material related to interviews with potential bidders redacted; refers to Appendix C, which is entirely redacted
p.4 Multi-criteria analysis	Concluding comments redacted
p.5 Conclusions of strategic assessment	Only one bullet point in the conclusion was not redacted; parts of the concluding paragraph redacted
p.6 Adjustment of baseline cost estimates for different delivery models	Table showing adjustment of baseline costs entirely redacted; other text related to cost estimates redacted
p.7 Risk estimates	All relevant detail redacted; refers to Appendix G, which is entirely redacted
p.8 Risk-Adjusted Project Cost Estimates	Table entirely redacted; footnote partially redacted
p.8 Preliminary VFM estimates	2 columns of a 5-column table redacted
p.9 Impact of PPP Canada contribution	2 columns of a 5-column table redacted
p.9 Conclusions of value for money assessment	All but introductory sentence redacted
p.10 Total capital liability	Text and 2 columns of a 5-column table redacted
p.11 Conclusions	3 of 5 conclusions redacted
Appendix A Overview of delivery models	Part of description and detailed review of fixed price design build model redacted
Appendix C Stage 2 market sounding findings	Entirely redacted
Appendix D Overview of Canadian waste/wastewater P3	Substantially redacted
Appendix E Multi-criteria analysis	Almost entirely redacted (Document dated 17 September 2012)
Appendix F Contract term for …	Title partially redacted Content entirely redacted
Appendix G Risk Analysis	Entirely redacted except for small sections included from summary
Appendix H Value of money assessment	Actual assessment entirely redacted; only material included in summary and repeated in main report not redacted (Document dated 22 January 2012)

Endnotes

1 In this paper, the Design-Build-Finance-Operate-Maintain model recommended by Deloitte and required by PPP Canada is referred to as the mandated P3 option.

2 Executive Committee Report CR12-167 December 17, 2012

3 Technically, the term "Present Value" applied to a series of future cash payments is the value today of that future flow of cash payments. Future payments are "discounted" to a present value using a rate of interest selected to reflect the time value of money to the project decision maker. Another way to put it is that the present value of a flow of payments (income or costs) in the future is the answer to the question: how much would I have to set aside today, at an assumed interest rate, to be able to make those future payments. In the case of the City of Regina as the decision maker, the rate of interest or discount rate would be the rate of interest the City itself pays for its long-term borrowing. For example, let's assume we have to make payments of $100 one, two and three years from now. At a discount rate of 4%, we would need slightly more than $96 today to make the first payment (because at 4% interest, the $96 will grow to $100 in a year); slightly more than $92 to make the second payment (adding two years of interest at 4% would give us the $100 we need); and roughly $89 to make the third payment (three years of interest at 4% would give us the $100 we need in three years). So the present value of our three $100 payments, at 4%, would be approximately $277 (exactly $277.51)

4 Deloitte, "City of Regina Wastewater Treatment Plant Expansion and Upgrade Project, Summary of Delivery Model Assessment", January 23, 2013, (referred to as "Deloitte")

5 This option is referred to in this paper as the "public option".

6 Deloitte, p.21

7 Deloitte, "City of Regina Wastewater Treatment Plant Expansion and Upgrade Project, Summary of Delivery Model Assessment", January 23, 2013, (referred to as "Deloitte") Deloitte, Table 9, p.20

8 Deloitte, Table 11, p.22

9 The analysis, including sensitivity tests of key assumptions, is reproduced in Appendix I. Key assumptions are: a spread of 200 basis points between P3 and City of Regina borrowing costs; a debt/equity ratio of 80/20; a target return on equity of 10%; discount rate equal to the City of Regina's long-term borrowing rate; underwriting costs of 4% per party for the P3 and 50 basis points for a City of Regina bond issue. These are extremely conservative assumptions. Debt/equity ratios as high as 80/20 are relatively rare in the post-2008 world of P3 infrastructure finance; 70/30 is more common. A spread of 200 basis points for financing costs is on the low end of the normal range. A spread of 250 to 300 basis points could be expected in a project of this size and type. The assumed 10% return on equity target is also quite low. Using a more-moderate set of assumptions—70/30 debt/equity; 250 bps borrowing spread; equity return target 12%—would yield an estimated present value borrowing cost differential of over $85 million.

10 Deloitte, Table 9, p.20

11 For the project base cost disadvantage to be as low as $26 million, the analysis would have had to adopt extremely favourable—to the P3 model—assumptions for its financing cost estimates. For example, to reduce the financing cost disadvantage to $26 million, a consistent set of assumptions yielding that result would: ignore the parties' deal costs; assume a 90/10 debt/equity ratio; assume a borrowing cost spread of only 1%, or 100 basis points; and assume a target return on equity of 10%

12 Deloitte, Table 8, p.18

13 Pam Edwards, Jean Shaoul, Anne Stafford and Lorna Arblaster, "Evaluating the operation of PFI in roads and hospitals", Research Report No. 84, Association of Chartered Certified Accountants, Certified Accountants Educational Trust, 2004, p. 215 and p. 222

14 Examples of cased in which details of P3s were brought to light in this manner include the Abbotsford Hospital in British Columbia, the Osler Hospital in Ontario and Highway 407 in Ontario. Recently, details of a P3 deal for a gas fired generation plant in Ontario were revealed only in the Provincial Auditor's report on the cost of the plant's cancellation and relocation. For example, the Auditor's report revealed that financing costs for the project were 14% (compared with the then-going rate for provincial borrowing in Ontario of approximately 3.5%. http://www.thestar.com/news/queenspark/2013/04/16/privatization_mania_and_nimby_myopia_behind_ontario_gas_plant_scandal_cohn.html

15 ACCA report, p.215

Notes

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