REGINA WASTEWATER TREATMENT PLANT UPGRADE PROJECT, SASKATCHEWAN

DELIVERING CLEAN AND SAFE WASTEWATER FOR A GROWING CITY

THE CANADIAN COUNCIL FOR PUBLIC-PRIVATE PARTNERSHIPS

2014 NATIONAL AWARD CASE STUDY

The Canadian Council for Public-Private Partnerships

Le Conseil Canadien pour les Partenariats Public-Privé

The Canadian Council For Public-Private Partnerships
2014 National Award Case Studies

Chuck Wills Award:
Regina Wastewater Treatment Plant Upgrade Project
Saskatchewan

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Introduction

Canadian governments are facing the dual pressures of deficit reduction and the urgent need for investment in public infrastructure. Federal, provincial and municipal governments recognized the critical importance of infrastructure renewal to Canada's economy and the well-being of Canadians through budgets and capital plans tabled in 2014 and early 2015. Public-private partnerships (P3s) featured prominently in many of these budgets as a way to leverage private sector expertise and financing. The result is over 220 P3s in procurement, under construction and in operation across the country. Those that have reached financial close are valued at over $71 billion.[1]

Canada's approach to public-private partnerships continues to garner international attention. Both established and emerging P3 markets such as the United States are looking to emulate Canada's model, which optimizes value for money to taxpayers and provides a highly competitive, professionally-procured market for international developers and investors. A study published by Service Works Global finds Canada to be "a global exemplar of good practice in P3," identifying standardized procurement processes, a steady pipeline, a collegiate approach among the provinces and a framework of mutual trust between the public and private sectors as key factors in Canada's P3 success.[2]

The list of sectors using the P3 model across Canada is expanding, with projects increasingly being undertaken in energy, water/wastewater, education and broadband delivery. These projects are benefiting from lessons learned in other sectors as well as growing professional experience on both sides of the P3 equation, and this growing expertise is helping to apply the model to new areas of infrastructure and service delivery. The 2014 National Award Case Studies reflect this breadth of activity, showcasing award winners from the energy, justice and wastewater sectors.

The Canadian Council for Public-Private Partnerships (CCPPP) established the National Awards for Innovation and Excellence in 1998 to recognize and learn from outstanding Canadian P3 projects. The awards reflect best practices in the P3 industry, made possible through the hard work of both government and private sector leaders. Gold, Silver and Awards of Merit are given in the areas of project financing, infrastructure, service delivery or other notable attributes to projects from across the country and at all levels of government.

Winning projects are chosen on the basis of the following criteria:

- Innovative features;
- Relevance or significance as a national and/or international model;
- Economic benefit (job creation, enhanced economic value, export potential, etc.);
- Measurable enhancement of quality and excellence of service or project;
- Appropriate allocation of risks, responsibilities and returns between partners; and
- Effective use of financing and/or use of non-traditional sources of revenue.

2014 Award Winners

Gold Award for Project Financing: John Hart Generating Station Replacement Project

Once completed in 2018, this $1.1 billion project to replace the 68-year-old John Hart Generating Station will increase the generating station's annual power output by almost 10 per cent, as well as improve earthquake preparedness and reliability and address environmental concerns; the innovative underground powerhouse will enhance public safety and improve the facility's environmental footprint in Vancouver Island's Elk Falls Provincial Park. Financing for this project is a unique combination of a sole equity provider and debt financing made up of a short-term loan, $299 million senior bonds, with an average life of 13 years, and payments from BC Hydro.

Gold Award for Infrastructure: Elgin County Courthouse

The new Elgin County Courthouse in St. Thomas, Ontario, which consolidates the Superior Court of Justice and the Ontario Court of Justice under one roof, includes eight courtrooms and three conference rooms. The new complex connects the historic courthouse and former Land Registry Office building with a modern addition that preserves and incorporates most exterior façades, the copper-roofed dome, stained glass and interior decoration features of the two heritage buildings, while including state-of-the-art technology, security, enhanced interpretation facilities and barrier-free accessibility, healthy indoor environments and energy efficiency to LEED Gold standards. The $249-million project, Ontario's first and only AFP heritage courthouse, saved an estimated $27.1 million compared to the cost of traditional procurement.

Silver Award for Infrastructure Sustainability: North Island Hospitals Project

Two aging hospitals on Vancouver Island's east coast, Courtenay's Comox Valley Hospital and the Campbell River Hospital, are being replaced with LEED Gold standard facilities to meet a growing demand for health services in the region and improve standards of patient care. The 32.3-year green bond, which raised $231.5 million and was oversubscribed by investors, was the first green bond used to fund a P3 project in North America and the first issued to finance public infrastructure in Canada, setting an impressive benchmark for future investments in green infrastructure in British Columbia.

[1] CCPPP Project Database: http://projects.pppcouncil.ca.

[2] Service Works Global, *"Public-Private Partnerships: What the World Can Learn from Canada,"* February 2015.

Silver Award for Infrastructure: South Fraser Perimeter Road

Extensive consultations with local residents and stakeholders ensured that this new 40-kilometre, four-lane highway south of the Fraser River reflects community, economic, agricultural and environmental values while providing an efficient transportation corridor as part of Metro Vancouver's Pacific Gateway Program. The innovatively designed and financed project created 4,000 jobs during construction and is projected to lead to 7,000 long-term jobs in the municipalities of Delta and Surrey through new commercial and industrial development opportunities. The total project cost was $1.26 billion, shared between the Province of B.C. and the Government of Canada, and is expected to achieve $34 million in value for taxpayers.

Award of Merit for Infrastructure: Evan-Thomas Water and Wastewater Facility Upgrade Project

Upgrades to the 30-year old Evan-Thomas Water and Wastewater Facility in Alberta's Kananaskis Country were necessary because of the growing population, increasing tourism, and more stringent environmental standards. Service had to be maintained for residents, businesses and tourists during the project, which includes two new reservoirs and new water treatment facilities that use newer, more effective technology. Alberta's first provincial P3 water and wastewater treatment project, the 12-year $59.6 million contract transfers key construction and operation risks to the private sector and saves a projected $2.4 million on the total cost of the project compared to a traditional procurement.

Chuck Wills Award: Regina Wastewater Plant Upgrade Project

After a rigorous evaluation process Regina's City Council unanimously approved a public-private partnership for its Wastewater Treatment Plant Upgrade project, which was then ratified in a public referendum, for an estimated savings of $138.1 million compared to traditional procurement. The upgrade project will meet the needs of the municipality's fast-growing economy and population by replacing aging core infrastructure, improving energy efficiency and reducing greenhouse gas emissions, as well as meeting higher wastewater effluent quality standards and improving the quality of the water flowing into Wascana Creek and the Qu'Appelle River and lake system.

P3 Champion: Hon. James M. Flaherty

The late Honourable James (Jim) Flaherty was posthumously named 2014's P3 Champion for his visionary contributions to Canadian infrastructure development and renewal and for his role in making Canada's public-private partnership model an undisputed success. As Ontario's Finance Minister, Mr. Flaherty laid the groundwork for the extensive use of P3s in the province; as Federal Finance Minister, he created PPP Canada, launched successive Building Canada Plans, and provided tools to other levels of government that enabled them to use P3s where it made sense to renew infrastructure and meet the demands of growing populations, propelling the industry to new heights.

2014 National Award Case Studies

Three projects were selected among this year's six winners to be developed into case studies, and local public engagement, innovative financing and creative design solutions were common themes. The case studies highlight the tangible benefits that these P3s are bringing to their respective communities. From the architectural beauty and improved justice facilities of the Elgin County courthouse in Ontario to the clean water and environmental benefits of the Regina Wastewater Treatment Plant in Saskatchewan to the increased energy output, reliability and capacity of the John Hart Generating Station in British Columbia, each of the projects will provide lasting legacies to thousands of people and for many years to come.

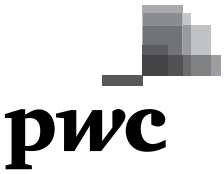
CCPPP has published 63 case studies of selected Award winners since 1998. The case studies can be used as learning tools for both P3 practitioners and those new to the sector. Each one highlights the essentials of a project's deliverables, its procurement process, contracts, financing and risk allocation, benefits and lessons learned, and other results that made the project so noteworthy. A complete list of case studies is included in the Appendix, and all are available from the CCPPP bookstore: www.pppcouncil.ca/bookstore.

Acknowledgements

An Awards selection panel of dedicated volunteers is responsible for reviewing the applications, selecting the winners and reviewing the case studies. Their diligence is key to selecting the slate of outstanding winners each year and ensuring that the case studies provide valuable learning resources to the P3 sector. The following panelists comprised the 2014 selection committee:

- Rupesh Amin, Managing Partner, Infrastructure Development, Forum Equity Partners
- Peter Hepburn, Head & Managing Director, Infrastructure Finance Group, National Bank Financial
- Cliff Inskip, President, Pole Star Advisory Services Inc. (Chair, CCPPP National Awards Committee)
- Johanne Mullen, Partner, PricewaterhouseCoopers LLP
- Alan Russell, Professor & Chair, Computer Integrated Design & Construction, Department of Civil Engineering, University of British Columbia
- Murray Totland, City Manager, City of Saskatoon

The Awards are made possible by the generous support of the following 2014 sponsors:



This year's researchers, Bruce McDougall and Deborah Reid, ensured that the case studies captured the essence of the projects in both an engaging and informative way. The project partners and procurement agencies spent significant resources on their applications and on the development and verification of the case studies. CCPPP thanks them for their contributions as well as PPP Canada for its research support for the case studies.

About CCPPP

Established in 1993, CCPPP is a national not-for-profit, non-partisan, member-based organization with broad representation from across the public and private sectors. Its mission is to promote innovative approaches to infrastructure development and service delivery through public-private partnerships with all levels of government. The Council is a proponent of evidence-based public policy in support of P3s, facilitates the adoption of international best practices, and educates stakeholders and the community on the economic and social benefits of public-private partnerships. The Council organizes an annual conference, which is recognized internationally as the premier gathering for P3 practitioners, and where Canada's leading P3s are celebrated through the National Awards for Innovation and Excellence.

CCPPP conducts research on topical P3 issues and sectors to help further the understanding and best practices of Canada's P3 market. Our reports, case studies, guides and surveys are available in CCPPP's online bookstore at: www.pppcouncil.ca/bookstore.

Quick Facts – Wastewater Treatment Plant (WWTP) Upgrade Project[3]

Project type

Design-Build-Finance-Operate-Maintain (DBFOM)

Asset/Service

30-year agreement to design, build, finance, operate and maintain the City of Regina's new sewage treatment plant

Design and construction period:

- 2 1/2 years

Operating & Maintenance period:

- 2 1/2 years existing infrastructure
- 27 1/2 years upgraded infrastructure

The project must meet revised environmental standards mandated by Saskatchewan's Water Security Agency, which take effect at the end of 2016.

Status

Construction in progress; on schedule for completion by December 2016

Partners

City of Regina

EPCOR Saskatchewan Water Partners (incorporated as EPCOR Water Prairies Inc.)

Other participants

Public Sector

- JD Campbell & Associates – Fairness Advisor
- Torys LLP – Legal Advisor
- Deloitte & Touche LLP – Financial Advisor
- AECOM Canada Ltd.– Technical Advisor

Private Sector

- EPCOR Water Services Inc. – Project Lead, Operations & Maintenance Lead, Financing Team
- EPCOR Utilities Inc. – Equity Provider
- Gracorp Capital Advisors – Financing Lead
- Lockerbie Stanley Inc. – Design & Construction Co-Lead
- Graham Infrastructure LLP – Design & Construction Co-Lead
- Stantec – Design, Construction Team
- Norton Rose Fulbright Canada LLP – Legal Advisors

Financing

Capital cost

- $180.8 million

Long-term operating costs

- $610.7 million

Debt

- $158.5 million from City of Regina

Public funding

- $48.2 million from Government of Canada's P3 Canada Fund

Mid-construction milestone payment

- $30 million

Payment upon substantial completion

- $49.7 million

Value for Money

- $138.1 million (29.3%)

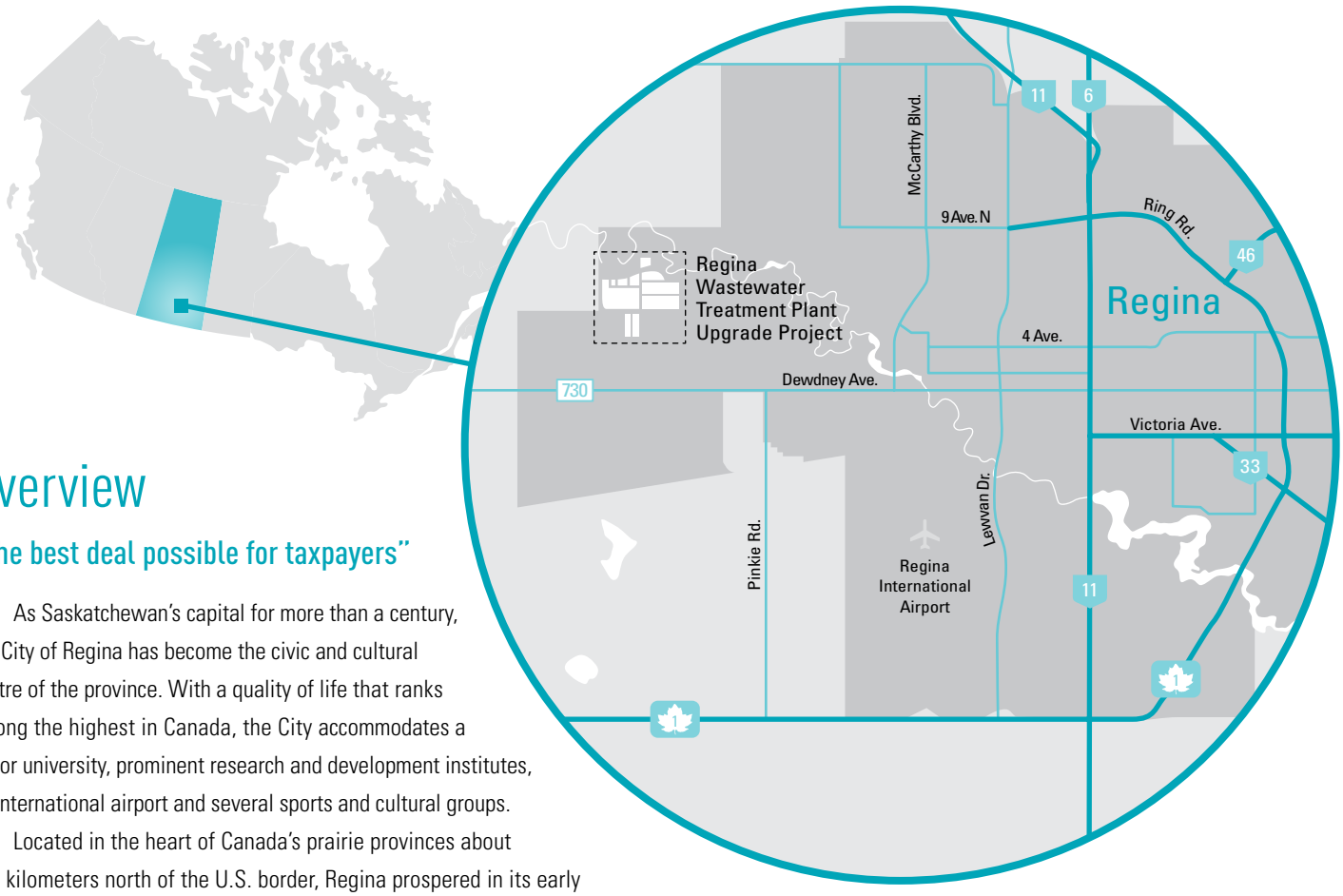
Other features

EPCOR will receive a monthly payment to operate and maintain the City's existing plant during the construction period. To meet the target date for substantial completion, work began on some elements of the project prior to financial close.

Project website

http://www.regina.ca/residents/water-sewer/wastewater-treatment-plant/

[3] Background and facts in this case study rely on the information contained in the award application submitted jointly by the project partners in September, 2014, to the Canadian Council for Public-Private Partnerships. Information from the submission has been supplemented and updated with information from the procurement documents, the project agreement, the value-for-money and project report, journals and personal interviews with project partner representatives.



Overview

"The best deal possible for taxpayers"

As Saskatchewan's capital for more than a century, the City of Regina has become the civic and cultural centre of the province. With a quality of life that ranks among the highest in Canada, the City accommodates a major university, prominent research and development institutes, an international airport and several sports and cultural groups.

Located in the heart of Canada's prairie provinces about 180 kilometers north of the U.S. border, Regina prospered in its early years as a hub for Saskatchewan's natural resource and agricultural industries. With the establishment and expansion of companies in the commercial, financial and technological sectors in the last quarter of the 20th century, the City's economy became more diversified.

The capital of one of Canada's fastest-growing provinces, Regina's rate of economic growth is expected to lead the nation over the next several years, with significant private investment in transportation, manufacturing and natural resources. With Saskatchewan recording several years of GDP growth, diminishing government debt and growing employment, its capital city now has one of the lowest unemployment rates in Canada and continues to attract more people as new jobs emerge. But like most municipalities in Canada, Regina must expand and upgrade its infrastructure to accommodate its expanding population. Among the most urgent requirements was a major upgrade to the City's wastewater treatment facilities.

"Core municipal services such as wastewater enable the City to function," says Regina's mayor, Michael Fougere, "supporting its continued role as a leader in the booming Saskatchewan economy."

Wastewater treatment is a vital service for the protection of human health and the environment. It also determines Regina's capacity to accommodate economic growth, and it enhances recreational opportunities and their benefits for residents by ensuring clean water in the Qu'Appelle River, Wascana Creek and other waterways throughout the area.

For more than 50 years Regina has treated its wastewater at a treatment plant west of the City. The process removes pathogens and reduces nitrogen and phosphorous from the wastewater to minimize its impact on people and on the environment. After treating the wastewater, the plant discharges liquid effluent downstream of the City into Wascana Creek and the Qu'Appelle River system.

This approach to wastewater treatment has functioned effectively since the City installed its first lagoons in 1956, when about 65,000 people lived in Regina. At that time, when a down payment of as little as $25 was all that was needed to buy a house in one of the new developments on the City's outskirts, the population was growing by about 4,500 annually. Since then, Regina has upgraded and improved its wastewater treatment facilities several times to service expanding residential, commercial and industrial developments and meet increasingly stringent environmental regulations.

By 2013, the City's population had reached about 200,000 and was still growing by about 6,500 people annually, the highest rate since 1956, when Statistics Canada had conducted its first mid-decade mini-census. The City approved an Official Community Plan that allowed for further increases in population and economic activity. Under such growth pressure, the City's wastewater treatment facilities were approaching the limits of their capacity, and further upgrades were no longer economically feasible.

Meanwhile, the Province revised the City's wastewater treatment plant operating permit and mandated new wastewater effluent standards to come into effect on January 1, 2017. The time had clearly arrived for Regina to overhaul its wastewater treatment plant (WWTP), raise its efficiency and expand its capacity to accommodate future demands.

Like most Canadian cities, Regina typically undertakes most of its major infrastructure projects under a conventional design-bid-build (DBB) procurement model, and it intended initially to follow the same arrangement to upgrade and expand the WWTP. But after extensive planning, analysis, discussion and debate, which included a local referendum, the City chose a more innovative design-build-finance-operate-maintain (DBFOM) approach. In accordance with this model, Regina negotiated a 30-year public-private partnership (P3) agreement with a consortium called EPCOR Water Prairies Inc.

The challenge

Regina's current wastewater treatment plant is dated and approaching capacity. To function smoothly while accommodating high economic and population growth and to meet more stringent regulatory requirements, the City has to upgrade and expand the facility. Anticipating this major infrastructure investment, the City began a series of utility-rate increases in 2008 and initiated a selection process for consulting services in 2009, selecting AECOM Canada Ltd. in 2011.

Upgrades and additions to Regina's WWTP will encompass improvements to the existing grit removal system, new secondary treatment facilities including biological reactors and secondary clarifiers, sludge thickening, UV disinfection upgrades, wet-weather attenuation, odour control and improvements to the existing anaerobic digesters and biogas systems. In the meantime, much of the existing equipment at the WWTP is nearing the end of its service life and will have to be replaced or demolished.

Not only does the City have to upgrade and expand the plant without interrupting its operation, it also has to meet a deadline imposed under the WWTP operating permit, which will take effect at the end of 2016. Even before the city entered into a P3 agreement, it had fewer than 36 months to meet its regulatory deadline.

The challenge became more formidable when the City decided to hold a referendum to ensure that the citizens of Regina supported the project. The benefits of a P3 approach were apparent to the City's mayor and its management team, and City Council had approved the approach in early 2013. But objections continued. In the past, the City had followed a more conventional DBB approach to its infrastructure projects, and some people saw no need to take a different path in expanding and upgrading its wastewater treatment facilities. They were concerned, in particular, about jobs, costs and control; with profit-oriented, private-sector involvement in the construction and operation of the facility, they anticipated staff reductions, higher utility bills, increased financing costs and the public's loss of control of a privatized facility.

The City had not anticipated such a concerted challenge. "Entering into a P3 of this type and this scope was new territory for us," says Mayor Michael Fougere.

When a group known as Regina Water Watch obtained several thousand signatures on a petition opposing the P3 arrangement the City suspended the procurement process to conduct a public referendum, the first in more than 25 years. After several weeks of debate and discussion, on September 25, 2013, 57 per cent of Regina residents who participated in the referendum voted "no" to reverting the project to a conventional design-bid-build procurement model.

The City was now almost three months behind its original schedule. After issuing an RFP, Regina selected EPCOR Water Prairies Inc. in May 2014 as the winning proponent.

Under the agreement, EPCOR will design, build, finance, operate and maintain Regina's wastewater treatment plant for a term of 30 years, including the design and construction phases. At the end of that period, responsibility for operating the WWTP will revert to the City. In the meantime, the City will continue to own and control the facility and set utility rates.

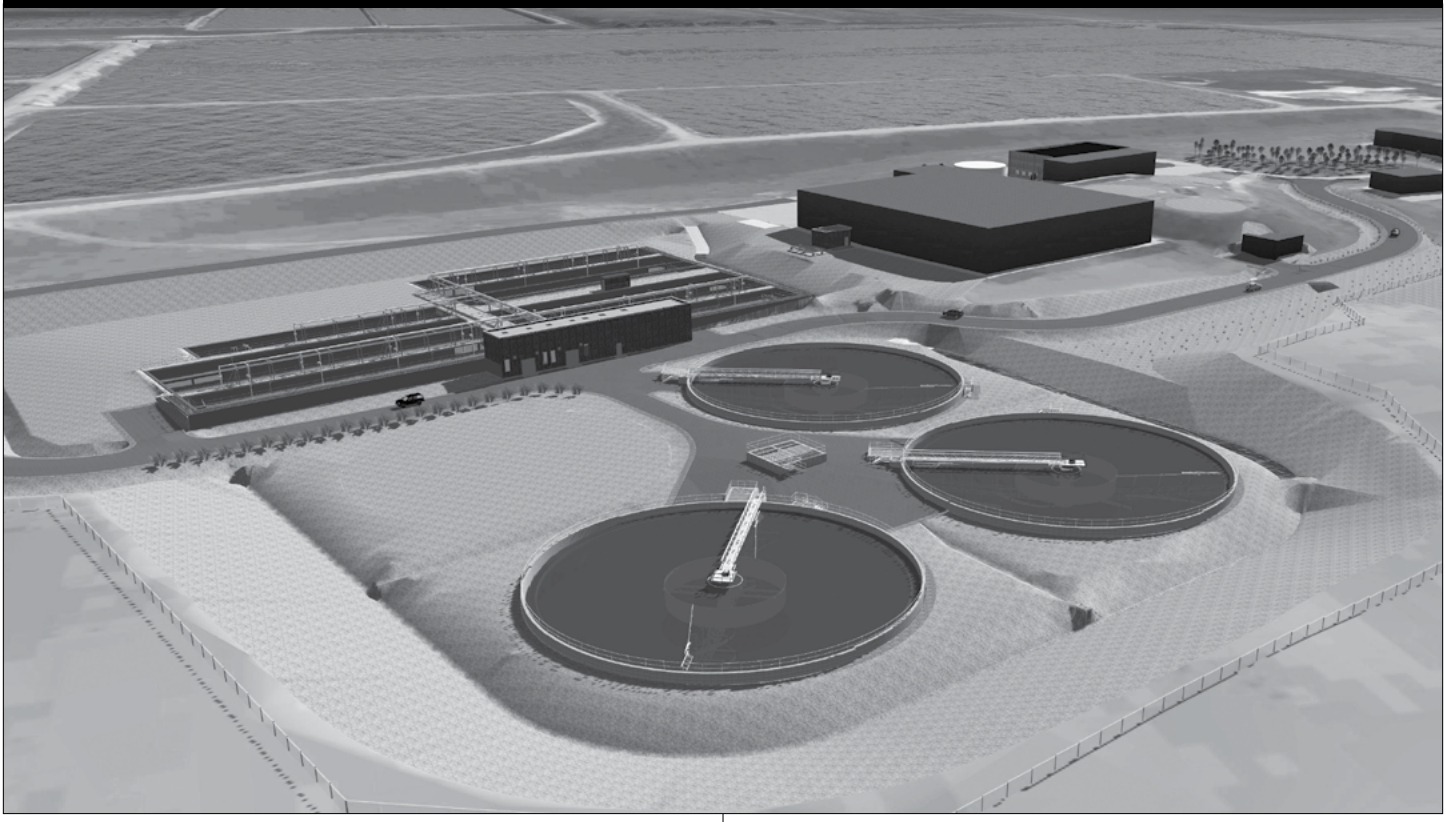
As part of the P3 arrangement, EPCOR currently receives monthly payments to operate Regina's existing WWTP while upgrading the facility to accommodate increased flows and higher effluent discharge standards. The new plant will allow for an average flow of wastewater through the main pump station of 92 million litres (megalitres) a day (ML/d), an increase of more than 25 per cent over current levels. This will meet the demands of 258,000 people, the anticipated population of Regina by the year 2035. It will also meet the higher wastewater effluent quality standards mandated by Saskatchewan's Water Security Agency, which will take effect at the end of 2016.

"The DBFOM procurement model was chosen for both its strategic benefits and anticipated cost advantages over the originally planned DBB procurement model," says Brent Sjoberg, Regina's Deputy City Manager and COO.

By transferring obligations to the private partner, the DBFOM model relieves the City of many of the uncertainties involved in managing a project of this size, scope and complexity. Instead of testing the limits of its capacity to provide human and intellectual resources, expertise and processes, for example, Regina can rely on EPCOR to provide these resources as they're needed. The partnership also addresses the plant's long-term maintenance needs, transfers operating risks and achieves cost certainty for the City.

Under the P3 arrangement, the City can manage the amount and timing of debt issuance while minimizing capital costs and maximizing external funding opportunities. "We also maximized the opportunity for innovation and competition," says Sjoberg. The City selected a P3 arrangement from

The complete treatment process, including existing facilities.



12 procurement options, for example, then chose EPCOR from 10 responses to its RFQ. The project also benefits from EPCOR's incorporation of innovative technologies into its design, drawn from the company's extensive experience in building and operating wastewater facilities.

During the procurement process, the City involved Saskatchewan's environmental regulator, enabling the successful proponent know that its design would meet permitting requirements. But even then, the City knew that to meet the province's regulatory deadline of December 31, 2016, the construction phase of the project was going to require every available day.

With this in mind, the City executed an early-works agreement with EPCOR's design and construction team to begin some elements of the work in June 2014, almost three weeks before financial close. "Early works agreements are often offered by owners," says Sjoberg, "but they are rarely executed."

In this case, the City and EPCOR had little choice. The subcontractors began immediately to construct roads, erect fencing, excavate sites for major process tanks and complete other preliminary tasks so that work could proceed smoothly once the final agreement was in place on July 3.

On August 1, 2014, less than a month after financial close, EPCOR became the City's wastewater treatment provider.

Innovation

"We recognized early on that a project of this scope was going to be different," says Mayor Fougere.

Not only did the City follow a new direction in financing and procuring its wastewater facility, it also had to incorporate several innovative elements into its P3 agreement with EPCOR. Under the arrangement, EPCOR will operate and maintain Regina's existing WWTP as it constructs new treatment facilities over the next two years. As the operator, this enables EPCOR to work closely with the design/construction team for plant process shutdowns and tie-ins during the two-year construction period and ensures the uninterrupted provision of services to the City's growing population. To allow for the continued operation of the existing wastewater treatment plant during this period and to accommodate certain union obligations, current staff of the wastewater treatment plant remained employees of the City, under EPCOR's management, supervision and direction. Over the initial months of the construction period, EPCOR became a participating employer under the City's pension and long-term disability plans. On January 1, 2015, the transfer was completed and the staff became employees of EPCOR Water Prairies Inc. An adjustment was subsequently made to the monthly operations and maintenance payment to account for changes in employee salaries, wages and benefits that occurred during the period between closing of the transaction and January 1, 2015.

Construction of the bioreactor in April 2015

Meanwhile, the P3 arrangement enables the partners to allocate risk according to their capacity and expertise in accommodating it. EPCOR assumes the majority of latent-defect risk related to the existing wastewater treatment plant, along with other risks involving new technology, automation and staff recruitment and retention, while the City retains certain risks to ensure the achievement of value for money. For example, during the construction period, the City retains risk with respect to latent structural defects or deficiencies in the large process tanks (grit tanks, primary sedimentation tanks, tertiary clarifiers and digesters forming part of the existing wastewater treatment plant).

The arrangement works to the advantage of both partners. EPCOR traces its origins to Edmonton Electric Lighting and Power Company, founded in 1891, and is owned by the City of Edmonton. The company currently provides water, wastewater, and distribution services to more than one million people in over 85 Western Canadian communities and industrial sites. It also provides water to 22 communities and seven counties in Arizona and New Mexico. While Regina's public works department has only limited experience in managing the complexities of such a project, EPCOR has a proven track record in all aspects of designing, building, financing and operating utility plants.

The agreement between the City and EPCOR also addresses the concerns of current employees of Regina's WWTP. The facility's unionized employees were invited to become employees of EPCOR without jeopardizing their rights, salaries, seniority levels or vacation time specified under the terms of their current collective agreement. The 13 employees who transferred to EPCOR received equal or better benefits through EPCOR's benefit package while forming a separate bargaining unit of CUPE Local 21.

While shareholders in a P3 project company typically provide equity financing, EPCOR is self-financing the debt and equity requirements of Regina's WWTP project entirely from its own balance sheet. "This helped EPCOR deliver efficient financing with low transaction costs, and arguably demonstrates the strongest possible alignment of lender, project company and O&M subcontractor possible," says Sjoberg.

EPCOR's self-financing is a significant innovation for a large-scale DBFOM in Canada, Sjoberg continues. In addition, EPCOR is self-delivering the operations and maintenance, among the company's core competencies.

"This approach required the use of a parent company guarantee, which is not typical in a DBFOM," says Stephen Stanley, Senior Vice President of EPCOR Utilities Inc., EPCOR's parent company. "In a typical project company organization, the operations and maintenance subcontractor would provide security to the project company in the form of a relatively small liquid security supplemented with a parent company guarantee. In such a situation, this protects the project company (and thus the public sector partner) should the subcontractor not meet all of its obligations. With EPCOR self-delivering the operations and maintenance on the Regina project, no such operations and maintenance security is present in the project company structure. Therefore, to provide the City with a measure of protection similar to that of a typical P3, EPCOR provided a parent company guarantee directly to the City for the operations and maintenance obligations of the project company."

Incentives

The project's total capital cost is $180.8 million. As the private-sector partner, EPCOR is responsible for arranging project financing, including equity.

The City's $30-million milestone and $49.7-million substantial completion payments amount to approximately 50 per cent of EPCOR Prairie Water Inc.'s cost to design, build, and commission the wastewater treatment plant upgrade.

There are two significant holdback provisions to ensure that the plant is fully renewed, functioning and maintained to meet handback requirements at the end of the 30-year period. First is a $25-million holdback from the substantial completion payment if the full performance of the upgraded plant is not confirmed by testing prescribed in the project agreement. Beginning five years before the expiry of the 30-year agreement, the City may also hold back amounts from the monthly payments if the plant's final handback condition appears to be in question.

During the construction period, the City will provide EPCOR with a monthly payment for the operations and maintenance of the existing plant. After substantial completion, the City will make a monthly payment to EPCOR for the operation and maintenance of the upgraded plant and renewal of the plant to meet handback requirements and to repay the privately financed capital.

If performance does not meet the technical requirements, the City may adjust its monthly payments. As an example, the City may adjust its monthly payment to EPCOR if the plant fails to meet effluent standards, fails to receive wastewater flow from the City, violates the permit to operate or violates noise and odour requirements.

The results

On August 1, 2014, EPCOR became the City's wastewater treatment provider, operating the existing WWTP until the new plant is completed in December 2016.

"Since then, considerable progress has been made in the design and construction of the Wastewater Treatment Plant, which will improve water quality for Regina and our neighbours and ensure that we meet the needs of our growing community," said Mayor Fougere.

Before Fall 2014, EPCOR had excavated approximately 260,000 of the 310,000 cubic metres of soil required to be displaced for the site. When completed, the total size of the excavation will be as great in volume as 124 Olympic-size swimming pools.

In total, over one thousand metric tons of reinforcing steel will be used in the bioreactors and 650,000 kilograms of reinforcing steel will be required for secondary clarifiers.

The new sewage plant will have significantly more capacity than the current plant, accommodating 156 megalitres per day (ML/d) under full treatment and 197 ML/d for short-duration processing compared to the current maximum of about 100 ML/d.

The new facility will also include a wet-weather flow treatment system that will allow the City to store large extreme storm flows and return them for treatment when the storm subsides.

As an ISO 14001 accredited facility, the new plant will meet Saskatchewan's stringent environmental regulations while accommodating Regina's population growth. It will reduce the amount and cost of chemicals and subsequent potential pollutants by utilizing biological treatment processes and generate a higher-quality effluent that will improve the Wascana Creek, Qu'Appelle River and downstream watershed ecosystems.

Ultimately, says Mayor Fougere, Regina's new wastewater treatment plant will support and encourage further industrial and commercial activity in the City. It will enable the City to accommodate denser housing developments for its expanding population and enhance the City's reputation as an attractive and sustainable community. The project will also improve the condition of the local and regional aquatic environment.

"While P3s won't be an option for every project we take on," he says, "in this case it gave us a clear path towards the best possible deal for taxpayers."

The City may still have to raise water rates in the future since these rates cover not just the cost of wastewater treatment but also fund drinking water treatment and distribution, storm water management and wastewater collection. But the combination of a DBFOM arrangement and a grant from PPP Canada reduces the pressure to increase water rates, which will benefit taxpayers. And by reducing costs by almost $300 million over the 30-year WWTP project, the City will have more flexibility to

undertake additional utility projects while allowing for predictable financial management of this business line.

Finally, says Mayor Fougere, as the first large water/wastewater DBFOM project in Canada, Regina's P3 arrangement with EPCOR will serve as a model for future P3 projects not only in Regina but in other jurisdictions as well, throughout Canada and the world.

Project objectives

Wastewater treatment is a vital service for the protection of human health and the environment. It also determines Regina's capacity to accommodate economic growth, and it enhances recreational opportunities and their benefits for residents by ensuring clean water in the Qu'Appelle River, Wascana Creek and other waterways throughout the area.

Regina's approach to wastewater treatment has functioned effectively since the City installed its first lagoons in 1956. But the City's population now exceeds 200,000 and is growing by about 6,500 people a year. Regina needed to overhaul its wastewater treatment plant (WWTP), raise its efficiency and expand its capacity to accommodate future demands. Specifically, the City needed to better protect public health and the environment, improve water quality for downstream residents and businesses and meet the needs of a growing population.

By upgrading and constructing new facilities at its WWTP, the City of Regina aims to:

- meet new wastewater effluent quality standards prior to the end of 2016 as mandated by the Saskatchewan Water Security Agency;
- rectify deficiencies in the existing wastewater treatment plant by replacing/refurbishing infrastructure, some of which was well beyond its normal service life;
- improve energy efficiency of the wastewater treatment plant in order to reduce energy consumption and GHG emissions; and
- improve water quality in Wascana Creek and the Qu'Appelle River and lake system.

In the process, the City also wants to ensure appropriate risk transfer and achieve good value for money.

Construction of the clarifier in April 2015

Description of the Project

Upgrades to Regina's WWTP will encompass replacement of the existing grit removal system and new secondary treatment facilities including biological reactors and secondary clarifiers. It will also include sludge thickening, UV disinfection upgrades, wet-weather attenuation, odour control and improvements to the existing anaerobic digesters and biogas systems. In the meantime, much of the existing equipment at the WWTP is nearing the end of its service life and will have to be replaced.

Under the P3 agreement between the City and EPCOR, the private partner will design, build, finance, operate and maintain Regina's wastewater treatment plant for a term of 30 years, including the design and construction phases. At the end of that period, responsibility for operating the WWTP will revert to the City. In the meantime, the City will continue to own and control the facility and set utility rates.

Procurement Process

Selecting the P3 model

For most small and mid-sized projects, the City traditionally uses a design-bid-build (DBB) approach. But because of its size and scope, the WWTP project might have over-taxed the City's engineering and purchasing resources, which might lead to significant delays and possibly affect other, more routine projects.

In 2011 and 2012 City staff analyzed the WWTP upgrade. With technical advice from AECOM Canada Ltd., they prepared 21 technical reports, as well as a Preliminary Concepts Plan Report and a Pre-Design Report. Staff also analyzed a short list of liquid treatment, biosolids management and wet-weather technologies and processes, assessing their financial, social and environmental impact.

Starting in March, 2012, the City assessed 12 potential delivery models for the project and selected five for more detailed analysis, including:

- Traditional Design-Bid-Build (DBB)
- Construction Manager at Risk (CMAR)
- CMAR (brownfield) + DB (greenfield)
- Design-Build-Operate-Maintain (DBOM)
- Design-Build-Finance-Operate-Maintain (DBFOM)

Of these five models, DBOM and DBFOM were regarded as P3 arrangements. After considering the five models in detail, the City chose the design-build-finance-operate-maintain (DBFOM) procurement model. The decision was based on the strategic benefits of the DBFOM model, including a reduction in project risk, and for its anticipated cost advantages. DBFOM also provided the highest value for money and lowest debt capacity impact of all models, as long as it attracted a grant from PPP Canada, which will provide up to 25 per cent of eligible costs for P3 projects. (See Figure 1).

Key considerations for selecting DBFOM over other models included:

- maximizing the potential to meet the regulator's deadline to meet the new effluent limits;
- ensuring the long-term maintenance needs of the plant are addressed throughout its lifecycle;
- transferring operating risks such as new technology, more automation, staff recruitment and retention to the private sector;
- addressing internal capacity constraints (human resource availability, expertise and processes) to effectively manage the delivery of a project of this size, scope and complexity;
- ensuring cost certainty, both capital and operating;
- the amount of debt the City would need to issue (related to minimizing capital costs and maximizing external funding opportunities) in addition to the timing of City debt issuance; and
- maximizing the opportunity for innovation and competition.

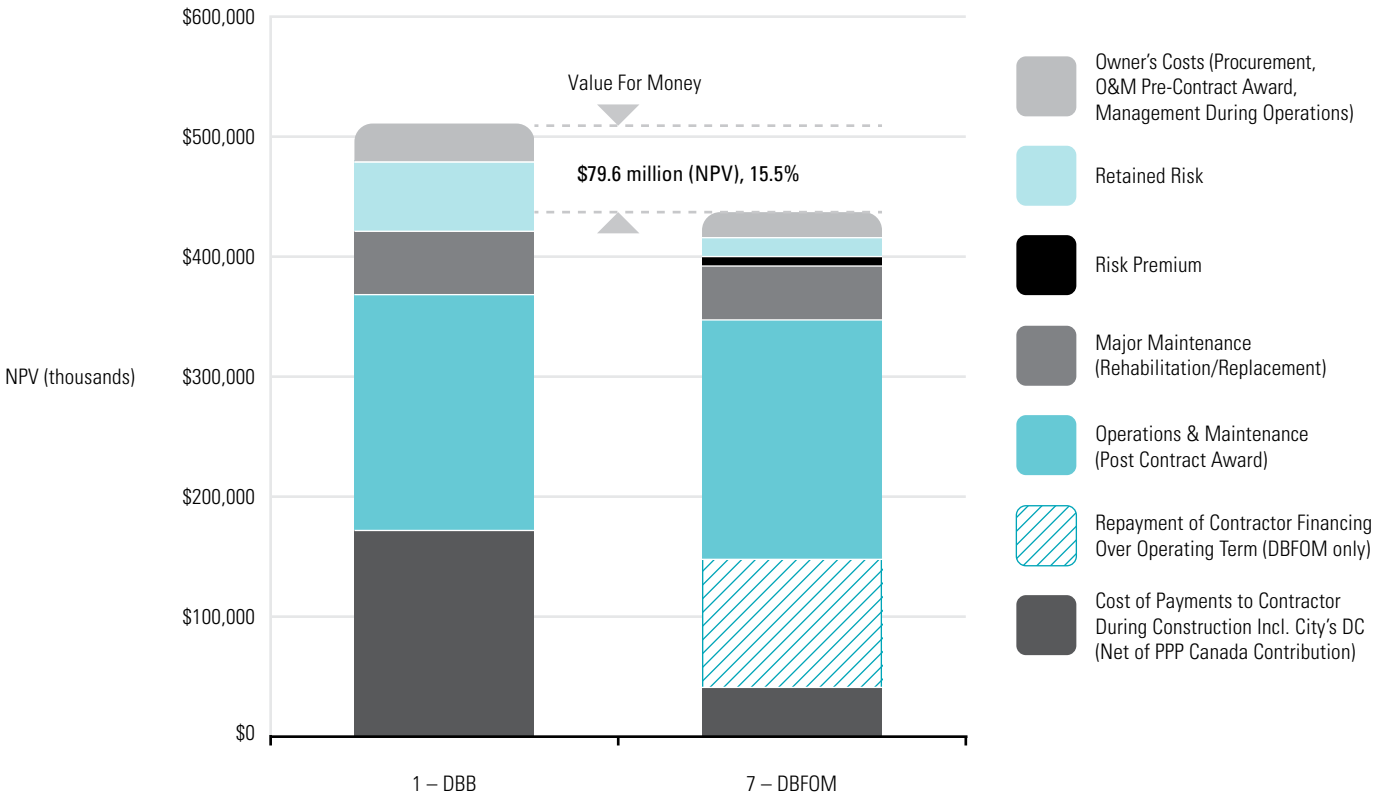
Table 1: Impact of PPP Canada Contribution on Final Value for Money

(NPV[4], $ thousands)

	DBB	DBFOM
Total project base cost	409,694	364,720
Retained risk	61,319	12,473
Transferred risk	794	Included in base cost
Total risk-adjusted project cost	471,807	377,192
PPP Canada grant		43,508
Total cost net of PPP Canada grant	471,807	333,684
VFM from City's perspective ($)		138,123
VFM from City's perspective (%)		29.3%

[4] The difference between the present value of cash inflows and the present value of cash outflows.

Figure 1: Value for Money for DBFOM Model (preliminary)[5]



Selecting a partner

Competitive process

The competitive process was based on the Alberta P3 Framework and Guideline, a 90-page document published in 2011 by the Alberta Treasury Board, and consisted of a Request for Qualifications (RFQ) followed by a Request for Proposals (RFP) from three shortlisted proponents. Subject to a compliant technical proposal, the preferred proponent was selected on the basis of offering the lowest net present value contract cost to the City.

Request for Qualifications

During the RFQ stage, respondents were asked to present their qualifications for the project. The City received 10 responses to the RFQ, which was shortlisted to the following three proponents:

EPCOR Saskatchewan Water Partners

(incorporated as EPCOR Water Prairies Inc.)

- Lockerbie Stanley Inc. – Design and Construction Lead
- Stantec – Design and Construction Team
- EPCOR Water Services Inc. – Project Lead, Operations and Maintenance Lead, Financing Team
- Gracorp Capital Advisors – Project Lead, Financing Lead
- Graham Infrastructure LP – Design and Construction Lead

Prairie Water Partners

- CH2M Hill Canada Ltd. – Project Lead, Design and Construction Lead, Operations and Maintenance Lead
- Maple Reinders Constructors Ltd. – Design and Construction Team
- Alliance Energy Ltd. – Design and Construction Team
- Westridge Construction Ltd. – Design and Construction Team
- GEC Architecture – Design and Construction Team
- Macquarie Capital Group Limited – Project Lead, Financing Lead

Wascana Environmental Partners

- Alberici Constructors, Inc. – Design and Construction Lead
- Burns and McDonnell Engineering Co. Inc. – Design and Construction Team
- Black and McDonald Limited – Design and Construction Team
- Allnorth Consultants Limited – Design and Construction Team
- Brookfield Financial Corp. – Project Lead, Financing Lead
- Fiera Axium Infrastructure Canada II LP – Project Lead, Financing Lead
- United Water Environmental Services Canada LP – Operations and Maintenance Lead

[5] Deloitte & Touche LLP, "City of Regina Wastewater Treatment Plant Expansion & Upgrade Project – Delivery Model Assessment," January 22, 2013, p. 9.

Request for Proposals (RFP)

Because the DBFOM scope included takeover and operation of the existing WWTP, and because the specifications permitted existing infrastructure to be incorporated into the new upgraded infrastructure, the RFP included eight multi-day site visit opportunities for each proponent. Three rounds of technical meetings and three rounds of agreement meetings were also held.

The City facilitated direct contact between proponents and the province's Water Security Agency, from which the preferred proponent would need to secure construction permits. The Agency was included in the initial technical meeting round, and the City facilitated a conference call between the Agency and each proponent later in the process as well. These opportunities allowed the Agency to become familiar with each proponent's intended design, with the intent of accelerating the eventual permit approval process. In addition, this approach allowed each proponent to receive input on the permitting process directly from the permitting agency to maintain the City's intended risk transfer vis-à-vis permitting. The Water Security Agency's participation during the procurement process was greatly appreciated by the City and the proponents.

The City reviewed each proponent's design and construction schedule, as well as 28 management plans, including plans for construction, operation, asset management, permitting, and safety. The three shortlisted proponents all submitted compliant technical proposals.

The preferred proponent's design and construction subcontractor entered into an early works agreement with the City within a week of being notified and commenced site work prior to financial close. Financial close was reached 36 days after notification of the preferred proponent.

Table 2: Procurement Process Overview

Stage	Key dates	Outcomes
Request for Qualifications (RFQ)	■ RFQ issued May 14, 2013 ■ Qualifications received on or before June 25, 2013 ■ City announced shortlist of proponent teams October 16, 2013	■ Ten responses received ■ Responses reviewed and shortlisted to three proponents ■ Independent fairness advisor attested that "appropriate procurement practice was used"
Request for Proposals (RFP)	■ RFP issued October 16, 2013, to three proponents ■ Final proposal submissions received May 22, 2014 ■ City announced preferred proponent May 29, 2014	■ Three compliant technical proposals received ■ Preferred proponent identified based on lowest net present value of costs to the City ■ Independent fairness advisor attested that "procurement process was fair for all proponents"
Closing	■ Project agreement signed ("financial close") July 3, 2014	■ Preferred proponent (at this point considered to be the "successful proponent") authorized and required to commence services defined in project agreement

Timeline

The procurement process was interrupted after submission of RFQ responses by a referendum on the procurement model to be used for the project, which introduced almost three months of delay to this time-sensitive schedule. The schedule for the RFP phase was revised accordingly, but without adjusting its end date, in an effort to protect the 2014 construction season for use by the preferred proponent. The procurement schedule published with the RFP was met, with financial close reached well prior to the RFP's deadline. Key dates in the project schedule are provided in Table 3.

Table 3: Key Dates in Project Schedule

- **2013 February 24**
  Council approves P3
- **2013 May 14**
  RFQ issued
- **2013 June 14**
  PPP Canada announces funding
- **2013 July 10**
  Originally-scheduled shortlisting
- **2013 September 25**
  Referendum result favours P3
- **2013 October 16**
  Shortlist announced
- **2013 October 16**
  RFP issued
- **2014 May 22**
  Final proposals received
- **2014 May 30**
  Preferred proponent announced
- **2014 June 23**
  Early works agreement signed

cont.

- **2014 June 23**
  Site works commence
- **2014 July 3**
  Financial close
- **2014 August 1**
  EPCOR Water Prairies Inc. takes over treatment plant operations
- **2015 January 1**
  City staff transfer to the employ of EPCOR Water Prairies Inc.
- **2016 December**
  Construction completion
- **2044 June**
  End of O&M period

Fairness of the process

The City of Regina retained an independent Fairness Advisor, JD Campbell & Associates, to monitor and review the City's procurement from the creation of the Request for Proposals (RFP) to the selection of the preferred proponent with a view to ensuring fairness, objectivity, transparency, and adequate documentation. The advisor assessed the appropriateness of the RFP document from a fairness perspective and monitored consistency in the City's treatment of each of the three successful proponents whose qualifications met the City's requirements.

The advisor ensured that proponents received consistent information and monitored proponent meetings with City staff. He made sure that proposals and evaluation documents were handled and stored securely. He assessed the qualifications of the review team and monitored adherence by City staff and external advisors to conflict-of-interest and confidentiality requirements. Finally, the Fairness Advisor made sure that submissions were reviewed and evaluated with objectivity and diligence.

"The City showed flexibility throughout the RFP process, striking a balance between keeping the project on track while allowing consideration of proponent requests for appropriate time within which to meet requirements," the advisor said in his report. "The approach taken to the management of proponent meetings was consistent with that which had been defined in the RFP and ensured that no one proponent received an informational advantage."

The Fairness Advisor also found that the City treated all proponents equally during each phase of the RFP process. "Due diligence was done, for example, to ensure that no vendor had access to confidential information through past association with the City that might have represented an undue advantage."

The Fairness Advisor's report is publicly available at: http://www.regina.ca/opencms/export/sites/regina.ca/residents/open-government/open-information/.media/pdf/wwtp/ir14-10appendix-a.pdf

Overall Structure of the Agreement

In structuring the agreement, the City used as its initial template the project agreement for the Evan-Thomas Water and Wastewater Infrastructure Upgrades, a DBFOM project completed in 2014 to serve Kananaskis Village, west of Calgary, Alberta. Incorporating information from several other P3 agreements, project advisors and the City created a P3 agreement specific to Regina's wastewater treatment plant (Figure 2).

Public-Sector Owner:

- City of Regina

Private Partner:

- EPCOR Water Prairies Inc. (EPCOR, or the private partner)
  - Project Lead, Operations and Maintenance Lead, Financing Team: EPCOR Water Services Inc.g
  - Design and Construction Co-Lead: Graham Infrastructure LP
  - Design and Construction Co-Lead: Lockerbie Stanley Inc.
  - Design, Construction Team: Stantec
  - Project Lead, Financing Lead: Gracorp Capital Advisors

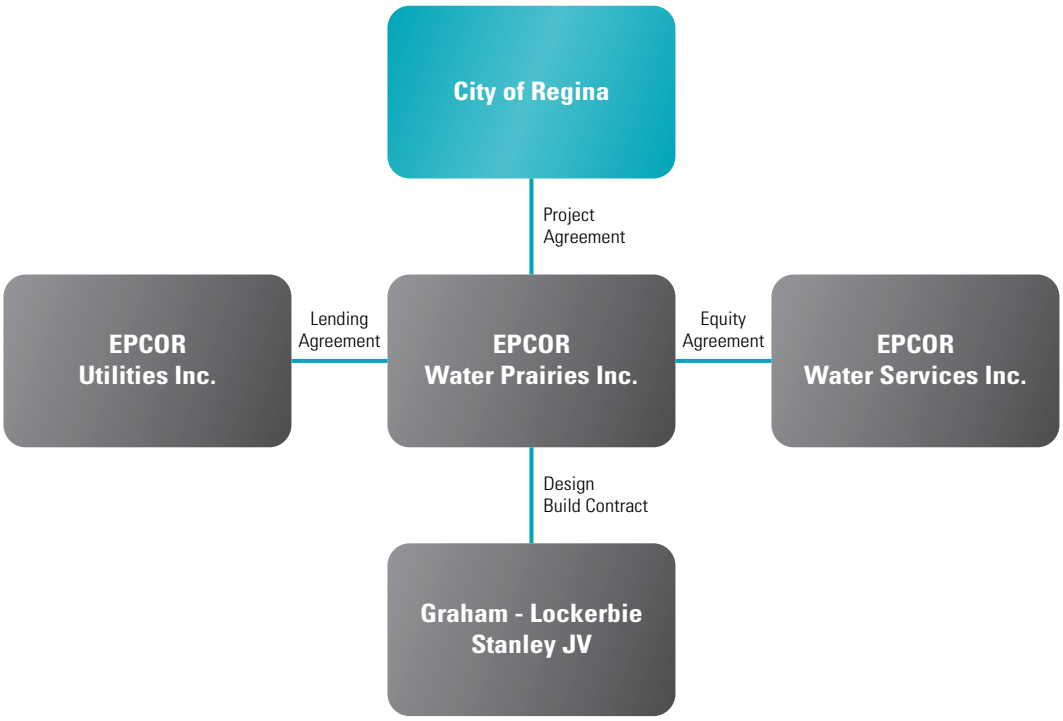
The City is responsible for providing EPCOR Water Prairies Inc. with the funding for the project in the form of:

- a milestone payment;
- a substantial completion payment;
- a monthly existing facilities operations and maintenance payment during construction; and
- following construction, a monthly capital, operations and maintenance payment.

In addition, the City is responsible for providing EPCOR Water Prairies Inc. with access to and use of the lands where the existing wastewater treatment plant is situated and the new WWTP will be constructed. EPCOR Water Prairies Inc. is responsible for the remainder of the project including the project financing, the design and construction of the new WWTP, the operation and maintenance of the existing WWTP during the construction period, the operation and maintenance of the new WWTP during the operation period and the rehabilitation of the new WWTP throughout the term of the project.

Over the term of the agreement, the City will continue to own and control the facility and set utility rates.

Figure 2: Partnership Structure



Financial Arrangements

Total capital cost of construction for the project is $180.8 million.

Financing

EPCOR is self-financing this project entirely from its own balance sheet: equity, short-term debt, and long-term debt. Construction obligations will be funded by a short-term senior debt. This will be repaid with a combination of long-term senior debt, equity, and the City's milestone and substantial completion payments.

The City's milestone and substantial completion payments amount to approximately 50 per cent of EPCOR Prairie Water Inc.'s cost to design, build, and commission the wastewater treatment plant upgrade. EPCOR will provide long-term debt to finance the balance.

Regina's City Council approved a borrowing bylaw in 2014 covering a total of $158.5 million relating to EPCOR's financing of certain portions of the project. This amount falls within Regina's debt limit of $450 million authorized by the Saskatchewan Municipal Board. Since borrowing for the project occurs over the course of its 30-year term, with certain payments being made concurrently with construction and certain portions of the debt not occurring until construction has been completed or certain milestones achieved, only certain portions of the total amount of the $158.5 million in proposed debt for the project will count against the City's debt limit of $450 million at any given time.

Based on the Project's planned construction progress and expected payments to be made by the City to EPCOR, the effect on the City's debt limit over the duration of the construction period will be as follows:

Budget Year	WWTP Project Debt for City of Regina
2014	$48 million
2015	$127 million
2016	$129 million
2017	$78 million

After completion of construction in 2017, the remaining debt of $78.7 million will be repaid to EPCOR over the 30-year term of the project agreement, plus effective financing and risk transfer cost at a rate of 6.462%, with the outstanding principal amounts of such debt being included in the City's debt limit calculations on a yearly basis until 2044. Based upon these calculations, the City will remain under its $450 million debt limit at all times during the 30-year term of the project agreement.

Payments

The payment structure is availability-based, with partial payment for completion of construction in the form of one milestone payment and a substantial completion payment, followed by monthly payments consisting of capital, operations and maintenance, and renewal components.

In addition, because EPCOR Water Prairies Inc. took over operation of the existing treatment plant upon financial close, monthly payments for operation and maintenance of the existing plant are made during the construction period.

Payments during both the construction period and operation period are subject to adjustments if EPCOR does not meet performance standards established in the project agreement.

Revenue sharing

The City retains all rights to any revenue opportunities, such as sale of access to treated effluent, so there is no revenue sharing. The project does, however, include savings-sharing. Should EPCOR Water Prairies Inc. achieve higher efficiency in its use of natural gas and electricity than estimated in its financial offer, the savings are shared fifty-fifty with the City.

Risk Allocation

Meeting the new wastewater effluent quality standards coming into effect at the end of 2016 is the most significant goal of the project. Through the project agreement, which includes the potential for significant payment adjustments, the risk for failure to meet the new effluent quality standards has been transferred to EPCOR Water Prairies Inc.

Subject to a few limited exceptions, EPCOR will also assume the risks associated with operating and maintaining the existing wastewater treatment plan during the construction period. EPCOR also assumes the risk of meeting the technical requirements throughout the entire 30-year term of the project.

The majority of latent defect risk related to the existing wastewater treatment plant will transfer to EPCOR. But to ensure that value for money is achieved, the City retained certain risks. During the construction period, for example, the City retains risk with respect to latent structural defects or deficiencies in the large process tanks (grit tanks, primary sedimentation tanks, tertiary clarifiers and digesters forming part of the existing wastewater treatment plant).

Permitting risk for the upgraded treatment plant is also transferred to EPCOR. During the procurement process, the City involved the permitting agency for the benefit of both the agency and the proponents, while avoiding taking on risk inadvertently by being a go-between.

Table 4: Risk Allocation

Risk	Risk Borne By	
	City	EPCOR Water Prairies Inc.
Failure to meet permitting requirements		■
Failure to meet technical requirements		■
Latent defects in existing plant	■	■
Access to land	■	
Design		■
Construction		■
Finance		■
Operate		■
Maintain		■
Commodity consumption efficiency		■
Commodity price	■	
Transfer of employees		■
Existing lagoons	■	
Pension/LTD	■	■

Benefits

Cost savings/value for money

Based on preliminary engineering and financial analysis, Regina's City Council approved a project capital cost of up to $224.3 million. The actual capital cost is $180.8 million, resulting in a $43.5 million savings compared to budget. In addition to the construction savings, there are also substantial savings in the long-term operating period. The projected costs over the entire term of the project were $858.2 million. The project agreement establishes these costs at $610.7 million, providing a $247.5 million savings compared to budget over 30 years.

The estimated total cost savings of the DBFOM as awarded to EPCOR Water Prairies Inc. over the City's DBB public-sector comparator is $94.6 million in NPV terms. Expressed as a percentage, the value for money is 20.1 per cent. This includes the City's costs (procurement, contract management, etc.), payments to EPCOR and the estimated cost of natural gas, electricity, and potable water. These figures do not take into account the benefit to the City of Regina of a PPP Canada Fund contribution estimated at $48.2 million ($43.5 million in NPV terms).

Community socio-economic benefits

Wastewater collection and treatment are fundamental to public health and, together with provision of safe drinking water, are credited with significant influence on modern western standards of wellness. Upon completion, the project will allow the City to continue to provide reliable and effective wastewater treatment while better protecting the natural environment, which in turn may enhance recreational opportunities and their benefits for residents.

Underlying the growth opportunity are core municipal services such as water and wastewater that enable the City to function. The new plant will support the City's recently approved Official Community Plan, allowing for increases in both population and economic activity within the community.

While the project itself is a very significant infrastructure investment and will generate significant construction activity over a multi-year period, more important is the project's role in supporting the City and the regional economy. The project's key economic benefits are its:

- support for current industrial/commercial activity;
- accommodation of additional industrial/commercial activity;
- capacity to accommodate future housing development and densification to support population expansion; and
- enhancement of the City's reputation and profile as an attractive and sustainable community.

Communications

The City and EPCOR have established a positive and collaborative relationship since entering into the project agreement, which defines many aspects of communications between the partners. Clear lines of communications were defined through a partnering workshop facilitated by EPCOR, which served to finalize communications protocols and define relationships. While the partnership is new, regular meetings and correspondence between the partners have been effective at ensuring the project progresses according to the technical requirements in the project agreement.

Extensive communications have also occurred with the public on the wastewater treatment plant project. A referendum communications campaign provided information to the public to support the City Council decision to pursue a P3 arrangement for the delivery of the plant upgrade. The campaign, conducted over two months, included information billboards, newspaper advertisements, radio and television advertisements, speaking engagements for elected officials and many media interviews. Almost 50,000 voters cast ballots on September 25, 2013, with 21,025 votes for a DBB delivery and 27,988 votes supporting the DBFOM delivery.

Dispute Resolution

A dispute resolution mechanism requires the parties to follow the processes and procedures set out in the project agreement. As the first step in the dispute resolution mechanism, representatives from both parties must meet and attempt to resolve the dispute amicably. In the event the dispute cannot be resolved by these representatives, senior executives from both parties are then required to meet to attempt to resolve the dispute.

If the senior executives still cannot resolve the dispute, and if the nature of the dispute so warrants, the parties may obtain a recommendation from an expert with respect to the outcome of the dispute. The expert will be appointed on a dispute-by-dispute basis depending on the nature of the dispute in question. With or without a recommendation by an expert, if a dispute has not been resolved, either party may refer the dispute to arbitration. If the dispute meets a certain financial threshold or if the dispute concerns matters related to public health and safety, then in lieu of arbitration the parties may elect to resolve the dispute by litigation in the Court of Queen's Bench for Saskatchewan.

Labour Impact

Subject to the collective agreement and certain rights permitting employees to elect to move to positions within the City, all wastewater treatment plant staff were invited to transfer to positions with EPCOR. Contrary to some arguments presented by opponents of the P3 arrangement, they not only kept their jobs, they also received equal or better benefits through EPCOR's benefits package and remained members of CUPE Local 21, but as a separate bargaining unit. The rights of any transferring employees are protected, and their salaries, seniority levels and vacation time will be maintained according to the terms of the current collective agreement.

The process for transferring unionized employees at the existing wastewater treatment plant from the City to EPCOR is an innovative feature of this project. To allow for the continued operation of the existing WWTP and to accommodate the requirements of existing collective bargaining agreements, staff not electing to take positions with the City remained City employees for the first five months of the contract, during which time the employees were assigned to EPCOR, with EPCOR assuming full responsibility for their management, supervision and direction.

The transfer was completed on January 1, 2015.

Monitoring

The project agreement with EPCOR includes specific and detailed provisions to ensure that project delivery, performance and quality standards are met. For example, an independent certifier, retained jointly by the partners, must inspect the project to ensure that EPCOR meets substantial completion criteria.

Over the 27 1/2-year operating period, EPCOR is solely responsible for doing all things of any nature whatsoever required to carry out the agreement, including complying with permits and approvals and applicable law. During the construction and operating periods, EPCOR is also required to submit monthly and annual reports to the City addressing the performance of the plant, its regulatory compliance and its finances, the performance of EPCOR and other issues.

No later than 66 months before the expiry of the agreement's term, an independent inspector will examine the WWTP and conduct all appropriate examinations and tests to determine the work, including renewal work, that will likely be required to meet the handback requirements when EPCOR returns the plant to the City.

Innovative Features

While it is typical for the shareholders in a P3 project company to provide equity financing, EPCOR is self-financing this project entirely from its own balance sheet with respect to both equity and debt. This helped EPCOR deliver efficient financing with low transaction costs and arguably demonstrates the strongest possible alignment of lender, project company, and O&M subcontractor.

Another innovative feature of this project is the sharing of risk with respect to certain latent defects in the existing facilities, most of which were constructed before 1980. While the majority of latent-defect risk related to the existing wastewater treatment plant will transfer to EPCOR, the City retained certain risks with respect to latent structural defects or deficiencies in the large process tanks (grit tanks, primary sedimentation tanks, tertiary clarifiers and digesters forming part of the existing wastewater treatment plant) in order to ensure value for money has been achieved.

While early works agreements are often offered by owners, they are rarely used. On this project, the preferred proponent's design and construction subcontractor did in fact enter into an early works agreement with the City, allowing site works to commence prior to financial close.

EPCOR's self-financing model is a significant innovation for a large-scale DBFOM in Canada. In addition, EPCOR is self-delivering the operations and maintenance, drawing on the company's core competency and expertise. Self-delivery requires a parent-company guarantee, which is also not typical in a DBFOM. In a typical project, the operations and maintenance subcontractor provides security to the project company in the form of a relatively small liquid security supplemented with a parent-company guarantee. In such a situation, this protects the project company (and thus, the public-sector partner) against the risk that the subcontractor cannot meet all of its obligations.

But since one of EPCOR's core competencies is the operation and maintenance of water and wastewater treatment facilities, the project company will operate and maintain Regina's WWTP project itself, under a guarantee from its parent company directly to the City. This gives the City a measure of protection similar to that of a typical P3.

Since wastewater treatment plants can be malodorous, the project agreement includes performance requirements for odour. But continual monitoring of the atmosphere for odour is expensive and labour-intensive. As an alternative, the agreement includes an innovative approach for odour control, requiring EPCOR to complete odour-dispersion modeling to demonstrate compliance with the performance requirements. EPCOR will then conduct short-term field-testing to demonstrate that the dispersion modeling is accurate and represents real conditions. The agreement also requires EPCOR to produce an odour-management plan. If nuisance odours occur and the management plan is not being followed, the City may adjust payments. Under this innovative approach, the City receives assurance that the design and operation of the facility will meet the odour performance requirements without imposing significant costs on EPCOR for continuous monitoring.

Under the agreement, EPCOR will also take an innovative approach to managing waste material produced by the plant. In other plants, operators usually take waste material off-site for disposal. In operating Regina's WWTP, EPCOR will re-use these biosolids on-site to reclaim some of the facility's existing lagoons that are no longer required for treatment of wastewater. Upon completion of this reclamation process, EPCOR will cover the biosolids with topsoil seeded with native prairie grass.

Finally, as mentioned in the previous section, the agreement takes an innovative approach to transferring unionized employees at the existing WWTP from the City to EPCOR.

Lessons Learned

As the first large water/wastewater project in Canada, this project may serve as a guiding model for all Canadian water/wastewater projects in the future. The model, based on the Alberta approach, is transferable to all Canadian jurisdictions.

Aspects of the process contributing to the project's success

A key aspect contributing to the success of this project was the high level of teamwork shown by all participants. As with any project of this size, public- and private-sector participants required large and diverse teams to ensure the availability of expert advice on all matters related to the project. Key staff members of the project team were seconded, allowing them to devote their full attention to the delivery of the project. The City's senior leadership endorsed the project as a priority and ensured appropriate resources were available.

As another factor in the project's success, the City administrators secured the support of City Council well in advance of the procurement process.

As with most P3 projects, Regina's WWTP upgrade could not have proceeded under a P3 arrangement without the support of the community. Not only did the City's elected councilors approve the arrangement, the City also held a referendum for the first time in 25 years to obtain the direct approval of its citizens, who reaffirmed their support for the P3 model. This community support contributed significantly to the project's success and is indispensable for municipal P3 projects of this scope and complexity.

Aspects of the process that could be improved

Defining the new relationship between the P3 DBFOM wastewater treatment plant and the City's other extensive wastewater assets has required additional attention as the project has progressed. Questions have been raised about the role of the new plant relative to the City's other wastewater responsibilities related to growth management, septage receiving, and major pump stations. The City and EPCOR are working successfully to manage this transition, but earlier clarity on these issues would have improved the process.

Concluding Comments

It was essential that the City upgrade Regina's WWTP capability to:

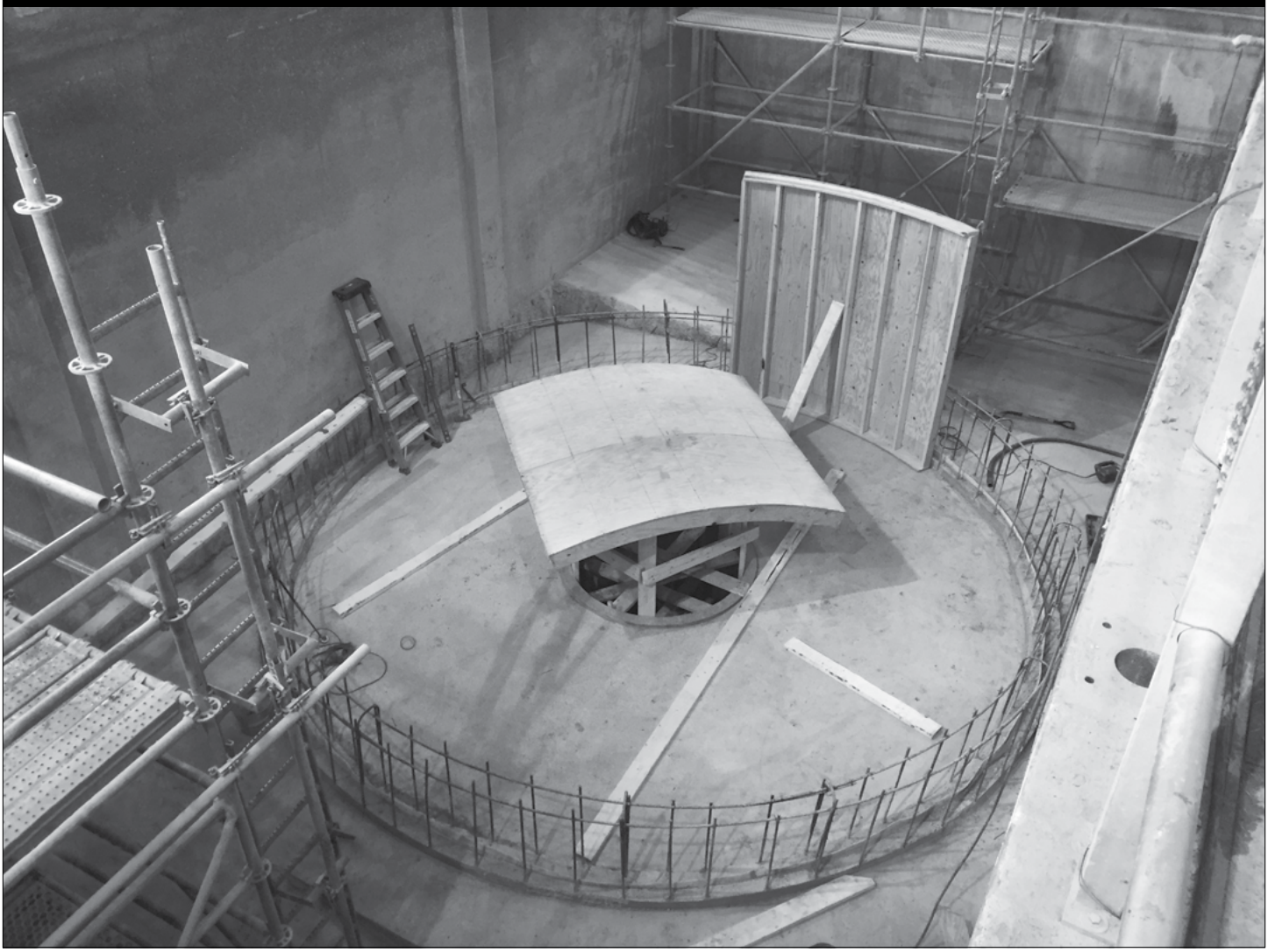
- better protect public health and the environment;
- improve water quality for downstream residents and businesses; and
- meet the needs of a growing population.

To deliver these outcomes, the City selected a DBFOM over a DBB model not only for strategic reasons but also because of significant cost savings available under the project's business case. The DBFOM approach also qualified the project for federal funding.

The DBFOM procurement was highly competitive and savings were even greater than anticipated. The City anticipated a capital cost of $224.3 million for the project. The actual capital cost is $180.8 million, including both EPCOR's and the City's costs for the capital portion of the project, a reduction of $43.5 million.

Compared to the DBB model used as a comparator by the City, the DBFOM as awarded to EPCOR will reduce total costs by $94.6 million in NPV terms. Expressed as a percentage, the value for money is 20.1 per cent. These figures do not take into account the benefit to the City of Regina that resulted from a PPP Canada Fund contribution of $43.5 million in net present value terms. When this amount is included, total cost reduction is $138.1 million, or 29.3 per cent.

Construction of the grit tank in April 2015



The P3 approach also provided the opportunity to transfer significant risks from the City, better ensuring that the project objectives will be delivered on time, on budget and subject to its technical requirements without exposing the City to delays or cost increases.

Testimonials

Public sector

Wastewater collection and treatment is fundamental to public health and, together with provision of safe drinking water, are credited with significant influence on modern western standards of wellness. Upon completion, the City of Regina Wastewater Treatment Plant Upgrade Project will enable the City to continue providing reliable and effective wastewater treatment while better protecting the environment, which in turn ensures clean water is available to support the growth and prosperity of our community.

Saskatchewan has been growing quickly, recording the largest population growth in any census period since Statistics Canada began administering the census every five years in 1956. Looking ahead, Saskatchewan is predicted to lead the nation in economic growth for the next several years, and the rich and diverse natural resources of Saskatchewan will continue to drive economic growth. The City of Regina is a key to the provincial economic picture. In April, 2012, the City had the lowest unemployment in the nation and in 2014 had the highest economic growth of any Canadian city. Significant private investment in transportation, manufacturing and natural resources is underway. Underlying the growth opportunity are core municipal services such as water and wastewater that enable the functioning of the City. The new plant will support the City's recently approved Official Community Plan, allowing for increases in both population and economic activity within the community, for many years to come.

The City of Regina is very pleased with the results of our P3 procurement and we expect the project will be very positive for our community.

Brent Sjoberg
Deputy City Manager & COO
City of Regina

Private sector

The City of Regina Wastewater Treatment Plant Upgrade Project is a priority for EPCOR and for the City of Regina. By drawing on our strengths as the private-sector partner in the WWTP project, EPCOR can deliver strategic benefits and cost advantages to maximize the social and economic impact of this vital infrastructure upgrade.

Delivery safeguards have been put in place in accordance with best Public-Private Partnership practices to ensure the upgrade is delivered at a high standard and that the plant is operated and maintained according to the agreed-upon schedule and budget over the life of the agreement.

By taking full advantage of the P3 model, the City and EPCOR can address the immediate regulatory requirements of the project while ensuring long-term operational and maintenance performance and maximizing the opportunity for innovation.

The project also draws on EPCOR's experience, depth and expertise in addressing internal capacity issues to effectively manage the delivery of a project of this size, scope and complexity.

The project demonstrates the benefits of the P3 model. It has provided a forum for the public and private sectors to work together to procure much-needed infrastructure assets while benefiting the local community.

As the first large water/wastewater DBFOM project in Canada, it will serve as a model for future P3 projects, and EPCOR is proud to participate in the project as the private-sector partner.

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Appendix: CCPPP's National Award Case Studies 1998 - 2014

Defence

Communications Security Establishment Canada Long-Term Accommodation Project (2011)

Education

Alberta School Alternative Procurement – Phase 1 (ASAP I), Alberta (2010)
O'Connell Drive Elementary School, Nova Scotia (1998)

Energy

John Hart Generating Station Replacement Project, B.C. (2014)
Britannia Landfill Gas to Electricity Project, Ontario (2005)
Vancouver Landfill Gas Cogeneration Project, B.C. (2003)
Bruce Nuclear Power Facility, Ontario (2000)
Waterloo Landfill Gas Power Project, Ontario (2000)

Government Services

Archives of Ontario – Offsite Archival Storage (2006)
Cook Chill Food Production Centre, Ontario (2005)
DriveTest: Ontario Driver Examination Services (2004)
Transforming the Delivery of Ontario's Social Assistance System (2003)
Emergency Service Mobile Communications in Ontario (2000)
Electronic Child Health Network, Toronto, Ontario (1999)
Teranet, Ontario (1998)

Health

BC Cancer Agency Centre for the North and Fort St. John Hospital & Residential Care Project, B.C. (2012)
Centre Hospitalier de l'Université de Montréal Project (2012)
Glen Campus – McGill University Health Centre, Quebec (2010)
Women's College Hospital Redevelopment Project, Ontario (2010)
Royal Jubilee Hospital Patient Care Centre, B.C. (2009)
VIHA Residential Care and Assisted Living Capacity Initiative, B.C. (2007)
Abbotsford Regional Hospital and Cancer Centre, B.C. (2008, 2005)
Facility Management for the Royal Ottawa Health Care Group, Ontario (2000)
Devonshire Care Centre, Alberta (2000)
Shaikh Khalifa Medical Centre, United Arab Emirates (2000)

IT Infrastructure

Connecting Small Schools in Newfoundland (2003)

Justice & Corrections

Elgin County Courthouse, Ontario (2014)
Ontario Provincial Police Modernization Project (2013)
Surrey Pretrial Services Centre Expansion, B.C. (2011)
Durham Consolidated Courthouse, Ontario (2007)
Central North Correctional Centre, Ontario (2002)
Five Corners Project, B.C. (2002)

Real Estate

Aurora College Family Student Housing, Northwest Territories (1999)
Legislative Chamber, Offices and Housing, Nunavut (1999)

Recreation & Culture

L'Adresse symphonique, Quebec (2011)
SHOAL Centre: Seniors Recreation Centre, B.C. (2004)
John Labatt Centre, London, Ontario (2002)
Skyreach Place, B.C. (2000)

Social Housing

Single Room Occupancy Renewal Initiative Project, B.C. (2013)

Transportation

Disraeli Freeway and Bridges Project, Winnipeg, Manitoba (2012)
Canada Line, B.C. (2009)
Confederation Bridge, PEI (2009)
Highway 407 ETR, Ontario (2008 & 1999)
Autoroute 30, Montreal, Quebec (2008)
Northwest Anthony Henday Drive, Alberta (2008)
William R. Bennett Bridge, B.C. (2008)
Autoroute 25, Montreal, Quebec (2007)
Kicking Horse Canyon Project –Phase 2, B.C. (2007)
Golden Ears Bridge, B.C. (2006)
Anthony Henday Drive Southeast Leg Ring Road, Alberta (2005)
Sea-to-Sky Highway Improvement Project, B.C. (2005)
Sierra Yoyo Desan Resource Road , B.C. (2004)
Fredericton-Moncton Highway Project, New Brunswick (2003)
Belledune Port Authority, New Brunswick (2000)
Retendering Alberta's Highway Maintenance Contracts (2000)
Cobequid Pass Toll Highway, Nova Scotia (1998)

Water, Wastewater & Biosolids

Regina Wastewater Treatment Plant Upgrade Project, Saskatchewan (2014)
Biosolids Management Facility, Sudbury, Ontario (2013)
Britannia Mine Water Treatment Plant, B.C. (2006)
Goderich Water and Sewer Services, Ontario (2000)
Port Hardy Treatment Project, B.C. (2000)

These case studies can be obtained through CCPPP's online bookstore at: www.pppcouncil.ca/bookstore

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