



City of Winnipeg
Southwest Rapid
Transitway (Stage 2)
and Pembina
Highway Underpass
Value for Money
Report

December 16, 2016

Table of Contents

1. Disclaimer	1
2. Executive Summary	2
3. Background.....	3
3.1 Project Need and Benefits	3
3.2 Project Overview	3
3.3 Strategic Context.....	4
4. Project Delivery Options	6
4.1 Methodology.....	6
4.2 Procurement Options	7
4.3 Design-Bid-Build Model.....	7
4.4 Design-Build-Finance-Maintain Model	7
5. Procurement Process	9
5.1 Procurement Timeline	9
5.2 Request for Qualifications	9
5.3 Request for Proposals.....	10
5.4 Fairness Monitor	10
6. Project Agreement Overview	12
6.1 Profile of the Preferred Proponent	12
6.2 Key Terms of the Project Agreement.....	13
6.3 Quality and Performance Monitoring	14
6.4 Payment Adjustments	14
7. Value for Money Assessment	15
7.1 Purpose of VFM	15
7.2 VFM Methodology	15
7.3 Project Costs	16
7.4 Risk Analysis and Quantification.....	17
7.5 Key Assumptions	19
7.6 VFM Results.....	19
7.7 Interpretation of Results	20
8. Appendix A – Glossary of Terms	21

1. Disclaimer

Deloitte LLP (“**Deloitte**”) has been retained by the City of Winnipeg (the “**City**”) to act as its financial and transaction advisor throughout the procurement process for the Southwest Rapid Transitway (Stage 2) and Pembina Highway Underpass Project (the “**Project**”), which includes the development of a Value for Money (“**VFM**”) analysis to assess the benefits of the selected public-private partnership (“**P3**”) delivery model for the Project: Design-Build-Finance-Maintain (“**DBFM**”).

Stage 2 of the Southwest Rapid Transitway (“**SWRT**”) includes a 7.6 km southerly extension of the existing infrastructure of Stage 1 of the Southwest Rapid Transitway from Pembina Highway and Jubilee Avenue to Markham Road and the University of Manitoba.

Deloitte has prepared this VFM Report (the “**Report**”) for the Project solely for the purposes of assisting the City with analyzing the potential VFM associated with the Project.

The information included in this report is meant for the exclusive use of the City. Deloitte will not assume any responsibility or liability for losses incurred by the City, its management, its directors or any other parties as a result of the circulation, publication, reproduction or use of this Report contrary to the provisions of this paragraph.

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The VFM assessment is based on estimations and forecasts about future conditions of the Project that are subject to change. The estimations and forecasts may change based on changes in underlying macroeconomic factors and other events at a later date. As such, actual results may vary from those presented in this Report.

2. Executive Summary

In June 2014, the City of Winnipeg Public Service received Council approval to proceed with procurement of Stage 2 of the Southwest Transitway and the widening of Pembina Highway using a DBFM delivery model.

On September 14, 2014, the Request for Qualifications (“**RFQ**”) was issued by the City to seek submissions from Proponents interested in the Project. RFQ submissions were received on November 21, 2014. The Request for Proposals (“**RFP**”) was issued on July 17, 2015 to each of the three teams shortlisted through the RFQ process:

1. Plenary Roads Winnipeg;
2. Red River Infrastructure Group; and
3. WinnCity Transportation Partners.

On May 13, 2016, the City announced Plenary Roads Winnipeg as the preferred Proponent (“**Preferred Proponent**” or “**Project Co**”). Plenary Roads Winnipeg comprises of companies from the following entities:

- Plenary Group;
- PCL Construction Group Inc.;
- Morrison Herschfield;
- Hatch Mott Macdonald; and
- Tetra Tech WEI Inc.

The City executed a Project Agreement with an approx. 3.5-year design & construction term (completion date of November 30, 2019) and 30-year maintenance and rehabilitation term with Plenary Roads Winnipeg on June 21, 2016.

The Project includes the widening and reconstruction of Pembina Highway and construction, maintenance, and rehabilitation (over a 30 year time frame) of 7.6 km of exclusive transitway runningway, structures, drainage pump stations, land drainage and utility relocation works, rapid transit stations, park and ride facilities and active transportation paths. The Project also includes operational maintenance of the existing Southwest Transitway Stage 1. The City will retain responsibility for periodic major and lifecycle maintenance for the Southwest Transitway Stage 1 works. The Project does not include any operations or maintenance of the Winnipeg Transit bus fleet.

Using the P3 approach, the total Project costs (comprising of the design, construction, maintenance, and major rehabilitation costs) based on the Preferred Proponent’s proposal were substantially lower than the cost estimates at the Business Case phase.

To ensure that the City is using the procurement and project delivery model which provides taxpayers and with best overall value solution, a VFM assessment was completed, which compared the DBFM procurement option to a traditional Design-Bid-Build (“**DBB**”) procurement. Using a P3 approach, the Net Present Value (“**NPV**”) of the risk-adjusted costs of the DBFM was \$440.8 million, as compared to \$533.2 million for a traditional DBB. This represents a \$92.4 million (17.3%) savings over the term of the Project Agreement.

3. Background

3.1 Project Need and Benefits

Since the 1970's, the City of Winnipeg has identified the need for a rapid transit infrastructure to support the City's long-term growth objectives. This need has been articulated most recently in *OurWinnipeg*, the City's strategic plan, and its Transportation Master Plan ("TMP"). The benefits delivered by the rapid transit system are becoming increasingly important as the City plans for the growth of its population to approximately one million residents by 2031. Based on this expected growth in population and corresponding congestion levels, the City's highest priority rapid transit project is the Southwest Corridor that connects the downtown with the rapidly growing southwest sector and the University of Manitoba.

Stage 1 of the Southwest Rapid Transit Corridor, the initial phase of Winnipeg's rapid transit network (3.6 kilometres in length, located between downtown and Pembina Highway and Jubilee Avenue) opened for service in April 2012 and is being used by a Bus Rapid Transit ("BRT") network of 13 routes, providing fast, frequent, reliable service throughout the day on all days of the week. Rapid transit routes access the Stage 1 transitway at four locations to provide trips without transfer for passengers travelling between the southwest part of the City and downtown.

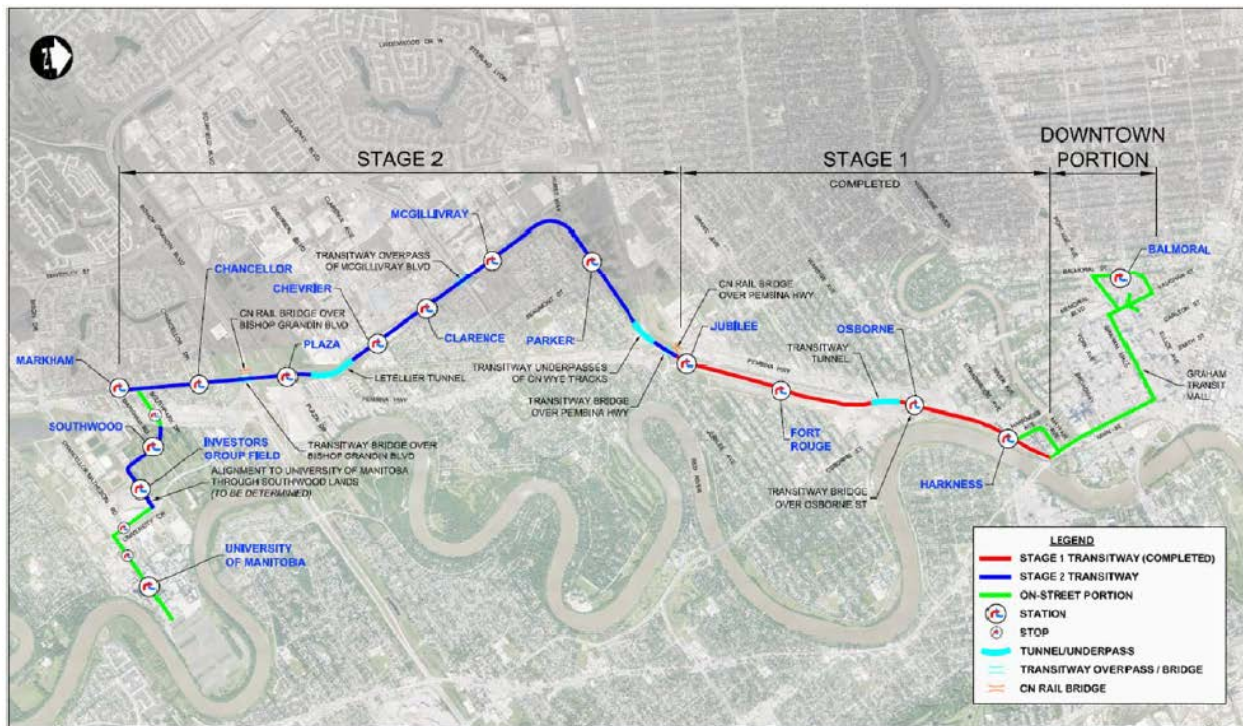
The Project includes a 7.6 kilometre southerly extension of the existing infrastructure of Stage 1 from Pembina Highway and Jubilee Avenue to the University of Manitoba on an exclusive transitway constructed within existing Manitoba Hydro and CN Rail rights-of-way.

3.2 Project Overview

The Stage 2 Project includes the following components, as illustrated in Figure 1:

- Widening and reconstruction of Pembina Highway and construction of 7.6 km of exclusive transitway runningway;
- 10 structures:
 - One CN rail bridge reconstruction over arterial roads;
 - Two transitway bridges over arterial roads;
 - Separate transitway underpasses of a pair of CN wye tracks;
 - A transitway overpass of an arterial road;
 - A transitway overpass of two rail spur lines and the CN Letellier subdivision;
 - A pedestrian bridge over an arterial road; and
 - A pedestrian overpass connection between Investors Group Field and IGF Station.
- Retaining wall structures;
- Two drainage pump stations;
- Land drainage and utility relocation works;
- Rapid transit stations;
- Park and ride facilities; and
- Active transportation paths.

Figure 1: Project Components



Following Substantial Completion, Project Co will provide the maintenance and rehabilitation of the Project over a 30-year term. This will include, but is not limited to:

- Operational maintenance and rehabilitation of the Southwest Transitway Stage 2 constructed works; and
- Operational maintenance of the existing Southwest Transitway Stage 1. The City will retain responsibility for the major lifecycle maintenance for the Southwest Transitway Stage 1 works.

The Project does not include any operations or maintenance of the Winnipeg Transit bus fleet. This Project includes work within CN right-of-way including CN rail structures, CN rail relocation, CN detours and connection to existing CN rail lines. All lands and rights in respect of lands required for the Project will be the City's responsibility to acquire and will be in place for the start of construction.

3.3 Strategic Context

The implementation of the capital investment associated with Stage 2 is expected to give rise to numerous benefits which meet the key strategic goals outlined within the City's Sustainable Transportation Strategy, as well as specific rapid transit-oriented strategic goals and objectives in the Transportation Master Plan. These benefits include the following:

- **Increased Transit Ridership** – Improvements in speed, reliability and convenience which can be achieved by a rapid transit system, combined with population growth, are expected to grow ridership for the existing rapid transit routes an additional 12% to 15% in the initial years following construction.
- **Reduction in Traffic Congestion and Travel Times** – The high levels of growth within the City are expected to contribute to an increase of 50% in vehicle-kilometres traveled in the morning peak hour, resulting in "choke points" where travel demand will significantly exceed capacity¹. By increasing

¹ "Winnipeg Transportation Master Plan." City of Winnipeg, 1 Nov. 2011. Web

ridership by “discretionary riders” who would otherwise use an automobile², as well as providing park-and-ride facilities, the number of vehicles along the route can be significantly reduced and travel times will improve. The Stage 1 section of the Southwest Transitway yielded travel time savings of 4-8 minutes on trips between the centre of Downtown and the University of Manitoba, with greater time savings being realized during peak periods. Given the greater length of Stage 2, it is expected that 5-8 minutes of time savings will result from the construction of Stage 2, depending on the time of day.

- **Improved Transit Service and Schedule Reliability** – Despite speed, reliability, and frequency of service being identified as the most important transit service attributes to users³, high levels of congestion along Pembina Highway have impacted the ability of the City to maintain a reliable Transit service. A dedicated transitway would provide the greatest opportunity for transit vehicles to achieve faster travel times and meet posted schedules, resulting from the limitation/removal of interference by other traffic. This results in the highest degree of service reliability within these corridors, especially when coupled with automatic vehicle location and real-time passenger information at stations. Further, due to the high operating speeds on a fully built-out transitway, increased frequencies can be operated with only a modest increase in fleet size to carry the additional ridership that is expected after Stage 2 is completed.
- **Transit-Oriented Development (“TOD”)** – Development along the rapid transit corridor presents an opportunity for moderate to higher density compact mixed-use and pedestrian-oriented development located within proximity of major transit stops and in the adjacent designated TOD sites (Fort Rouge Yards, Southwood Golf Course lands, former Sugar Beet lands and Parker lands). By increasing transportation choice to and from these areas, the City would be able to accommodate a greater proportion of its future population growth within the existing built boundary⁴. Dillon’s 2012 Alignment Study identified a land area of 2.2 million m² for potential TOD within a 400 metre radius of the proposed stations⁵, which was estimated to provide opportunity for the potential development of more than 16,000 residential units which could accommodate close to 30,000 new residents, as well as approximately 73,000 m² of commercial development.
- **Local Economic Impacts** – Numerous favourable effects to the Winnipeg economy would result from local materials and equipment purchases, construction/contractor involvement, and other spin-off activity associated with the development of the Project. In addition, the Project presents a significant opportunity for job creation, both during construction and throughout the maintenance period.
- **Revitalization of Downtown Area** – Winnipeg’s downtown area has seen significant revitalization in recent years through developments including the Graham Transit Mall, MTS Centre, Manitoba Hydro Place, and Centrepoint, as well as the SHED district. These developments result in a reduction to the availability of parking spaces in the area. A reliable rapid transit service operating via the Graham Transit Mall into the heart of Winnipeg’s downtown area will provide a viable and less expensive alternative to commuters while enhancing citizens’ access to the revitalized downtown area.
- **Environmental Sustainability** – An improvement in modal split presents an opportunity for significant environmental benefits as users shift from high-fuel consumption private automobiles to public transit and active transportation travel modes. Through improved modal split, as well as operating efficiencies resulting from an ability to service more customers with fewer buses, a rapid transit system provides the opportunity for a significant reduction in fossil fuel consumption and greenhouse gas emissions from the City’s urban transportation system.

² Baker, Christopher. "Testing the Benefits of On-street and Off-street Rapid Transit Alignments: Implications for Winnipeg's Southwest Rapid Transit Corridor." University of Manitoba, 2010. Web. 6 Dec. 2013.

³ "Made in Winnipeg: Rapid Transit Solution." Rapid Transit Task Force, Sept. 2005. Web. 3 Dec. 2013.

⁴ "Winnipeg Transportation Master Plan." City of Winnipeg, 1 Nov. 2011. Web.

⁵ Krahn, Dave, P.Eng. "Southwest Rapid Transit Corridor Stage 2 Alignment Study." Dillon Consulting Limited, 3 Jan. 2013. Web.

4. Project Delivery Options

4.1 Methodology

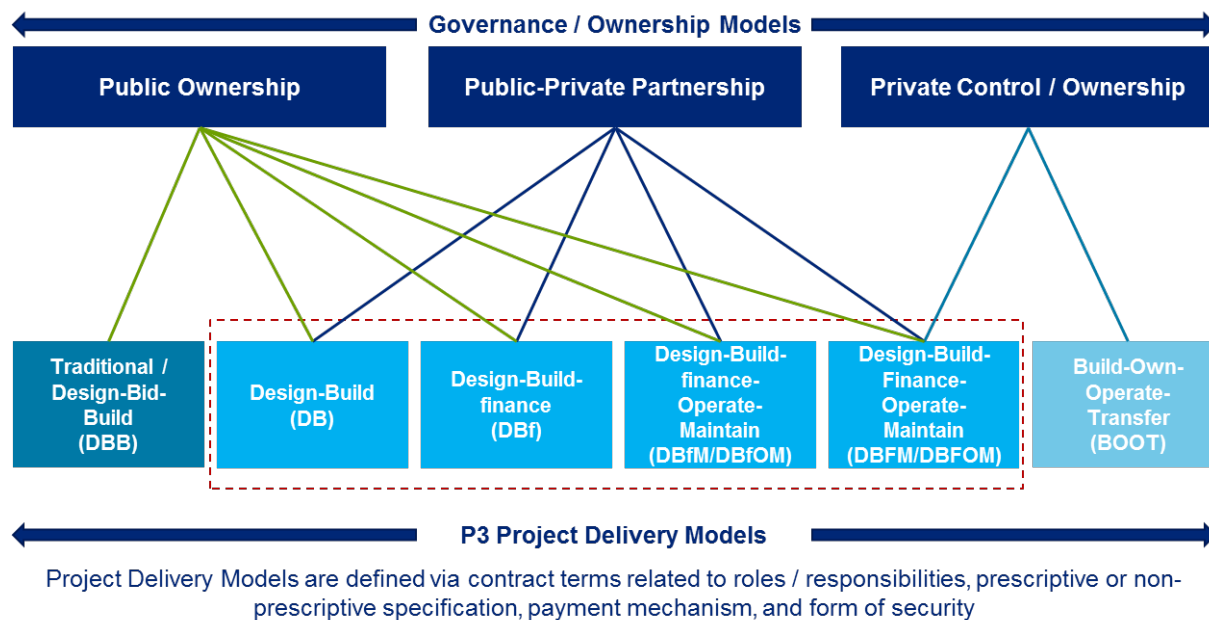
Through the P3 Canada Business Case (“**Business Case**”) in 2014, the City selected the preferred P3 delivery model that:

- Appropriately allocated the risks to the party best able to manage them;
- Was commercially viable; and
- Was expected to Provide VFM for the City as the Project sponsor.

A Qualitative Analysis was conducted to qualitatively assess a range of project delivery models, as provided in Figure 2, for alignment with the City primary procurement objectives, policy and strategic direction, past experience with similar P3 projects, as well as insights from market soundings and precedent transactions.

The Qualitative Analysis determined that the DBFM met all of the City’s procurement objectives and conformed to the City’s constraints from the Project.

Figure 2: Project Delivery Models



A VFM Analysis was then undertaken to determine whether the DBFM project delivery model would provide VFM to the City when compared against the DBB, which had been the most likely traditional project delivery model that the City would use to deliver the Project as an alternative to a P3 (also referred to as the Public Sector Comparator or “**PSC**”).

The VFM analysis was conducted by comparing the NPV of the risk-adjusted project costs of the DBFM against that of the PSC. The purpose of the VFM assessment was to determine which project delivery

model would provide the greatest value to the City through the design, construction, maintenance, and rehabilitation phases of the Project. The VFM assessment presented in this Report confirms the initial Business Case results. For more details on the VFM assessment, refer to Section 7.

4.2 Procurement Options

The VFM Analysis compared the DBFM delivery model to the DBB delivery model. The two project delivery models are discussed in the following sections.

4.3 Design-Bid-Build Model

The DBB model was considered to be the most appropriate project delivery model if the City were to procure similar capital projects through a public sector approach.

Under a DBB, the City leads the design and construction of the infrastructure. The City takes responsibility for the procurement of all design work through a consulting engineering firm, and tenders the construction works to one or more private sector general construction firms. The City assumes responsibility for the design and would play a strong construction management and coordination role. Payment for construction is made through progress or milestone payments to construction contractors during the construction period. The City would likely fund progress/milestone payment during construction through traditional long-term public debenture financing. Due to this method of payment, construction contractors do not have to obtain significant amounts of private financing in order to carry out construction. Performance is secured through less liquid methods including performance bonding and limited construction warranties. At completion, the City leads the testing and commissioning process.

Under the DBB, the private sector would be responsible for the overall construction of the bid design, however the City would have to complete all required approvals, such as the EA, Manitoba Hydro, and CN approvals, as required.

Following completion, the infrastructure is turned over to the City which then assumes full responsibility for maintenance of the Transitway. Although budgeting and payment for the maintenance period may be carried out in any manner chosen by the City, typically annual operating budgets are funded based on the annual budgeting process which results in a high risk of deferred maintenance which in turn causes accelerated depreciation (i.e., useful life does not meet expected design life). Under a DBB, the City typically owns the infrastructure at all times.

Under a “typical” DBB model (i.e. as defined for purposes of the VFM assessment), the City is assumed to be responsible for all maintenance risk, with the exception of a designated warranty period.

4.4 Design-Build-Finance-Maintain Model

Under the DBFM model, the final design, construction, and long-term maintenance responsibilities are integrated with a single private partner (Project Co). Project Co is typically not paid for construction until Substantial Completion (resulting in a requirement to source private sector financing) and generally assumes significant design and construction risks. In a DBFM, in comparison to a DBB, Project Co has strong incentives to complete construction on time and in accordance with performance specifications in order to receive payment and repay lenders.

Under this model, Project Co would be responsible for the overall construction of the bid design and the City would have to work with Project Co to complete all required approvals, such as the EA, Manitoba Hydro, and CN approvals, as required.

The City will fund the Substantial Completion Payment through a contribution from the Province of Manitoba and PPP Canada (through the P3 Canada Fund for up to 25% of eligible project capital costs).

At the end of construction and commissioning, Project Co will be responsible for annual routine maintenance and periodic major lifecycle renewal over the term of the contract (30-year maintenance period) and would be paid monthly based on their bid annual maintenance costs and periodic lifecycle costs, adjusted for inflation, plus a capital payment amortized over the term for recovery of capital (for the long-term financing). Project Co would be responsible for ensuring that the civil infrastructure and other assets that are constructed meet the performance specifications set out by the City.

The primary advantage of the DBFM approach is that the City only “pays for performance” and therefore Project Co. has debt and equity capital at risk over the length of the contract term⁶. This incentivizes Project Co to provide timely, on-budget performance over the long-term. Payments would be subject to a payment mechanism which would apply deductions for poor performance (payment adjustments), as measured against the output specifications. Since design, construction, operations and maintenance are bundled, a single counterparty, Project Co is held accountable to the City.

Project Co would have to comply with hand-back requirements at the end of the term, as stipulated in the Project Agreement. A series of condition assessments would be required prior to hand-back and the City will have the ability to hold back payments where deficiencies are identified and appropriate Project Co remedial plans are not put in place to the City’s satisfaction. As with the other project delivery models, the City would own the infrastructure at all times.

⁶ Project Co. invests a certain amount during construction before the Region makes any payments and this invested capital is repaid over the operating term only if the performance specifications set by the Region are met.

5. Procurement Process

A two-staged procurement process based on Canadian best-practice precedent was undertaken, entailing an RFQ phase and an RFP phase, ensuring a rigorous, competitive, open, transparent, and fair process. All proponent teams received access to the same level and detail of information throughout the procurement process. These phases are described further in the following sections.

5.1 Procurement Timeline

Table 1 provides a summary of the procurement timelines and key milestones for the Project.

Table 1: Project Procurement Timelines

Milestone	Date
Date of RFQ Issuance	September 14, 2014
RFQ Submissions Deadline	November 21, 2014
Notification of RFQ Proponents	February 25, 2015
Date of RFP Issuance	July 17, 2015
Date of Proponents Meeting	August 13, 2015
Technical Submission Deadline	March 4, 2016
Financial Submission Deadline	March 24, 2016
Preferred Proponent Notification	May 13 th , 2016
Commercial Close	June 21, 2016
Financial Close	June 24, 2016

5.2 Request for Qualifications

The RFQ process initiated the two-step procurement process by inviting proponents to indicate their interest in the Project through submission of an RFQ response. The RFQ was issued to quality proponent teams based on their experience in design, construction, and maintenance of similar projects in scope and size, as well as their financial strength and capacity to undertake the Project and obtain the required financing.

Five teams submitted compliant responses to the RFQ, which were evaluated by the City against a set of pre-established evaluation criteria and guidelines in an effort to shortlist the most qualified teams for the RFP stage. The City's evaluation resulted in three shortlisted Proponents being qualified and approved to participate in the RFP process, as summarized in Table 2.

Table 2: Shortlisted Proponent Teams

Proponent Team	Design	Construction	Financing (Equity / Debt)	Maintenance
Plenary Roads Winnipeg	<ul style="list-style-type: none"> Morrison Hershfield Limited Tetra Tech WEI Inc. Hatch Mott Macdonald 	<ul style="list-style-type: none"> PCL Constructors Canada Inc. 	<ul style="list-style-type: none"> Plenary Group (Canada) Ltd. PCL Investments TD Securities 	<ul style="list-style-type: none"> ColasCanada Inc. Plenary Group (Canada) Ltd.

Proponent Team	Design	Construction	Financing (Equity / Debt)	Maintenance
Red River Infrastructure Group	<ul style="list-style-type: none"> • AECOM • McElhanney • KSG Group 	<ul style="list-style-type: none"> • Flatiron • Ledcor 	<ul style="list-style-type: none"> • Ledcor • Hochtief • CIBC 	<ul style="list-style-type: none"> • Ledcor • Hochtief • Hugh Monroe Construction Ltd.
WinnCity Transportation Partners	<ul style="list-style-type: none"> • MMM Group • Stantec • AMEC • Industrial Technology Centre • HTFC Planning and Design 	<ul style="list-style-type: none"> • Aecon Infrastructure • Graham 	<ul style="list-style-type: none"> • Aecon Concessions • BBGI • Gracorp • National Bank Financial 	<ul style="list-style-type: none"> • Maple Leaf • Aecon O&M • Graham • Project Co (Aecon Concessions, BBGI, Gracorp)

5.3 Request for Proposals

The RFP process was the final stage of the procurement process. The purpose of the RFP process was:

- To enable the shortlisted Proponents to develop and present their technical and financial proposals, demonstrating how they will deliver the Project to the performance specifications described in the procurement documents and with a proposed fixed price;
- To allow the shortlisted Proponents to review and comment on the draft Project Agreement that will be signed by the Preferred Proponent; and
- To select the Preferred Proponent.

During the RFP Open Period, Proponents were invited by the City to review and comment on drafts of the Project Agreement that has been executed between the City and the Preferred Proponent. The City also held three rounds of collaborative Commercially Confidential Meetings and one (1) ad-hoc design meeting during the RFP process, allowing Proponents the opportunity to discuss their preliminary designs for the Project as well as comments on specific commercial items related to the Project Agreement.

Evaluation of the proposals at the RFP stage were conducted in two stages: (1) technical submission evaluation; and (2) financial submission evaluation, with only proposals that had achieved a passing score in the technical submission evaluation having their financial submissions evaluated. Each Proponent also had to meet the Affordability Price set by the City.

The City received technically and financially compliant proposals from all three shortlisted Proponents. Through the RFP evaluation process, the City selected Plenary Roads Winnipeg (“**PRW**”) as the Preferred Proponent, having provided a technically compliant proposal (achieving a passing score on the technical submission) with the lowest total costs to the City on an NPV basis over the full term of the Project Agreement.

5.4 Fairness Monitor

A Fairness Monitor, P1 Consulting Inc., was engaged by the City to monitor the competitive selection process and offer an assessment of the procurement procedures and an opinion on whether or not the competitive selection process was carried out in a fair and reasonable manner. The Fairness Monitor was provided access to all documents, meetings, and information related to the evaluation processes throughout the RFQ and RFP stages.

The Fairness Monitor report was issued on October 28, 2016 following the conclusion of the RFP stage (“**FM Report**”). In the report issued at the end of the RFP stage of the process, the Fairness Monitor

concluded that the entire procurement process was undertaken by the City in a fair, open, and transparent manner.

The FM Report is available on the City's Transit website at:

<http://winnipegtransit.com/en/major-projects/rapid-transit/southwest-corridor/project-documents#fairnessmonitorfinalreport>

6. Project Agreement Overview

6.1 Profile of the Preferred Proponent

Plenary Roads Winnipeg was announced by the City as the Preferred Proponent on May 13th 2016, representing a consortium of the following parties:

Table 3: Preferred Proponent Profile

Consortium Leads
<ul style="list-style-type: none">• Plenary Group (Canada) Ltd. (“Plenary”)• PCL Investments (“PCL”)
Plenary and PCL serve as the integrated consortium leads and will oversee all aspects of the Project, including financing, planning, design, construction, maintenance and rehabilitation, and performance monitoring for the Project Agreement term.
Equity Providers
<ul style="list-style-type: none">• Plenary• PCL
Plenary will provide 80% of the required equity and PCL will provide the remaining 20% of the required equity.
Long-Term Lenders (Senior Notes)
<ul style="list-style-type: none">• TD Securities (“TD”) (Underwriter)• RBC Dominion Securities Inc. (“RBCDS”) (Underwriter)• TD Asset Management (“TDAM”) (Bondholder)• Canada Life (Bondholder)
The long-term financing for the Project will be provided through a fully underwritten (TD and RBC), pre-sold bond with TDAM and Canada Life identified as the bondholders.
Short-Term Lenders (Credit Facility)
<ul style="list-style-type: none">• TD Bank• ATB Financial (“ATB”)• Business Development Bank of Canada (“BDC”)
The short-term lenders will provide short-term financing during the construction period with interest only during construction and the principal fully repaid through the Substantial Completion Payment.
Design & Construction Team
<ul style="list-style-type: none">• <u>Design</u>:<ul style="list-style-type: none">○ Morrison Hershfield Limited (“MHL”)○ Tetra Tech WEI Inc. (“TTW”)○ Hatch Mott Macdonald (“HMM”)• <u>Construction</u>:<ul style="list-style-type: none">○ PCL Constructors Canada Inc. (“PCC”)
MHL, TTW, and HMM will be responsible for the design and PCC will be responsible for construction of the Project.
Maintenance Team
<ul style="list-style-type: none">• Plenary Roads Winnipeg
PRW will be self-performing the maintenance requirements for the Project.

At Commercial Close and Financial Close, the equity providers of PRW established a new legal partnership entity known as Plenary Roads Winnipeg Transitway LP (“**PRWTP**”), a special purpose vehicle entity for the Project, which for the purposes of the Project Agreement is Project Co. PRWTP has executed agreements with the parties listed in Table 2 for delivering its obligations under the Project Agreement.

6.2 Key Terms of the Project Agreement

The Project Agreement between the City and PRWTP involves an approx. 3.5-year (42 months) construction period and a 30-year maintenance and rehabilitation period. A summary of the key responsibilities of PRWTP, the City, and the Independent Certifier, under the terms of the Project Agreement are provided in the sections to follow.

6.2.1 Independent Certifier Responsibilities

WT Partnership was selected through a competitive procurement process, jointly funded by the City (50%) and PRWTP (50%), as an independent third party to provide independent oversight and monitoring of construction progress (“**Independent Certifier**”). The Independent Certifier will be responsible for various activities during the construction period, including:

- Conducting periodic visual inspections of the design and construction as necessary to monitor construction progress and quality; and
- At Substantial Completion, issuing a certificate for completion once PRWTP has met the design and construction requirements set out in the Project Agreement and the Project is ready to achieve commercial operations.

6.2.2 PRWTP Responsibilities

PRWTP will be responsible for various activities throughout the term of the Project Agreement, including:

- Financing a portion of the design and construction costs to be repaid by the City over the 30-year maintenance and rehabilitation period;
- Completing the design and construction of the Project elements and achieving Substantial Completion by November 30, 2019;
- Providing maintenance (Stage 1 and Stage 2 of the Transitway and Pembina Highway Underpass) and rehabilitation services (Stage 2 of Transitway only and Pembina Highway Underpass) as specified in the Project Agreement over the 30-year operating period;
- Developing and implementing a detailed asset management and renewal plan to ensure that PRWTP meets the performance requirements in the Project Agreement over the 30-year operational period; and
- Meeting the detailed handback requirements, as specified by the Project Agreement, at the end of the Project Agreement term in 2049 when PRWTP will transfer the maintenance and rehabilitation responsibilities of the Project back to the City.

6.2.3 City Responsibilities

As the owner of the Project and its assets, the City continues to have responsibilities as the Project Owner during the entire term of the Project Agreement, including:

- Making the Substantial Completion Payment due under the Project Agreement in a timely manner, subject to any deductions as set out in the Project Agreement;
- Monitoring the performance of PRWTP throughout the term of the Project Agreement;
- Continuing to undertake operations and maintenance of the Winnipeg Transit bus fleet;
- Providing major maintenance and rehabilitation of Stage 1 of the Transitway;
- Make monthly payments to PRWTP for capital, maintenance, and major rehabilitation costs; and

- Remaining publicly accountable for the Project.

6.3 Quality and Performance Monitoring

Performance of PRWTP will be continuously monitored through the term of the Project Agreement. A number of mechanisms have been established for quality and performance monitoring.

6.4 Payment Adjustments

The Project Agreement provides for adjustments to the payments by the City to PRWTP to reflect specific circumstances, including:

- Availability, Quality, and Service Failure Deductions: The Monthly Payments may be reduced if PRWTP causes the Project to become unavailable for a duration of time or does not meet the performance requirements outlined in the Project Agreement. The deductions will vary depending upon the failure events' severity and duration.
- Indexation: The monthly O&M Payments and MMR Payments to be paid over the 30-year OMR Period are linked to the Consumer Price Index (CPI) for the City of Winnipeg, with monthly adjustments to the payments being applied in accordance with a set formula.
- Change in Law: If there is a designated change in law coming into effect which impacts PRWTP's capacity to perform in accordance with its obligations under the Project Agreement, then the Monthly Payments shall be adjusted with compensation from the City to PRWTP as would place PRWTP in no better and no worse position than it would have been in had that designated change in law not occurred.

7. Value for Money Assessment

7.1 Purpose of VFM

A VFM assessment is a comparison of the costs of delivering an infrastructure project using a P3 approach (in this case as a DBFM) to a Public Sector Comparator based on a “traditional” procurement method such as a DBB. The objective of VFM analysis is to ensure that the City is using the procurement and project delivery method which provides taxpayers with the best overall value solution.

The VFM assessment⁷ compares the estimated total costs to the City of two potential methods of executing the Project:

1. **Public-Private Partnership (DBFM) / Shadow Bid:** These are the total costs to the City of delivering the Project based on the DBFM model. These costs are based on the City’s future payments to PRWTP, and also include an adjustment for risks retained by the City under this model.
2. **A Public Sector Comparator (“PSC”):** The PSC is an estimate of the total costs to the City of delivering the Project, based on the City’s traditional DBB method of delivering public infrastructure projects and also includes an adjustment for risks retained by the City under this model. Under this approach, the City is assumed to finance the Project’s capital costs.

7.2 VFM Methodology

The VFM assessment involves a comprehensive risk assessment process that quantifies the City’s risk based on a methodology which is considered as best practice in Canadian P3 transactions. Some key distinctions of the methodology are as follows:

- The risk assessment process is based on an estimate of the probability and cost impact of a range of risks associated with the Project, in consultation with technical experts and key stakeholders. Estimated risk probability and impact under both the PSC and the DBFM delivery models are quantified in terms of the applicable cost base, probability of occurrence, expected impact, and risk allocation between Project Co and the City.
- All design, construction, maintenance, and major rehabilitation costs (Stage II only) have been updated from the Business Case phase to the Preferred Proponent’s costs based upon the Preferred Proponent’s financial model at Financial Close.
- All design, construction, maintenance and major rehabilitation costs are equalized for the PSC and the DBFM models, such that no innovation factor has been applied to the PSC. This approach remains consistent with the approach applied at the Business Case phase.
- The discount rate for calculating the NPV in the VFM assessment is equal to the City’s long-term borrowing rate and includes no other risk factors – this prevents the discount rate from driving “value”.

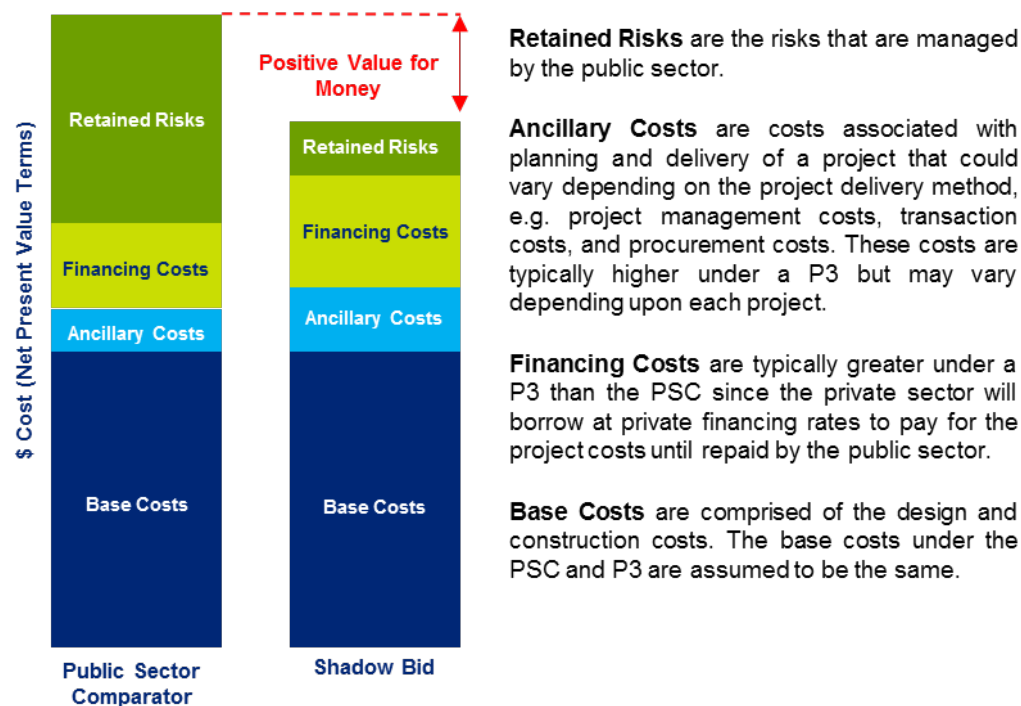
The VFM analysis is conducted by comparing the NPV of the risk-adjusted project costs of the DBFM against that of the PSC. The premise is that by including the cost of all risks to the City a fulsome risk-adjusted cost comparison of the DBFM and the PSC can be completed. It should be noted that a VFM is

⁷ The VFM methodology applied by Deloitte uses a risk assessment tool that is proprietary to Deloitte, but follows industry best practices as defined by Infrastructure Ontario and other procurement agencies in Canada and worldwide.

a comparative assessment and, as such, any quantification of risk should only be viewed within this context and not interpreted on an absolute basis. The impact to the City of an actual risk event occurring may or may not be similar to the results generated through the VFM risk quantification assessment.

Figure 3 illustrates how the value is demonstrated through the VFM calculation. The cash cost in the DBFM before adjusting for risk is higher than the cash cost under PSC. However, after adjusting for risks transferred, the DBFM may present a lower risk adjusted cost. This is because the higher financing costs incurred by the private sector are potentially offset by the risk transfer and mitigation of public sector risks under a DBFM model.

Figure 3: VFM – Comparison between PSC and Shadow Bid (Illustration)



7.3 Project Costs

Project cost estimates used in the VFM assessment are being based on the design & construction, maintenance, and rehabilitation costs from the Preferred Proponent financial submission.

The estimation of project costs takes into consideration the activities and responsibilities of the City and the expected counter-party under the DBB and DBFM models. The cost estimates were then risk-adjusted, as discussed in Section 7.4.

The City will be making the payments described in Table 6 to Project Co for project costs during the construction and operating periods:

Table 4: Project Cost Payments

Project Cost Payments	Description
Construction Period Payments	<ul style="list-style-type: none"> Under the DBB model, the City would make progress payments (in advance of reaching substantial completion) during the construction period totaling 100% of the Project's capital costs. Under the DBFM Model, the City would make a single Substantial Completion Payment of 60% of the project's capital costs.

Project Cost Payments	Description
	<ul style="list-style-type: none"> The City would make monthly payments during the operating period of the Project under both the DBB (to the maintenance provider) and DBFM models (to Project Co). The monthly payments are intended to cover the remaining capital costs owed to Project Co (DBFM only), maintenance costs (DBB and DBFM), and major maintenance and rehabilitation costs (DBB and DBFM). <u>Capital Payment:</u> <ul style="list-style-type: none"> Under the DBFM model, as the City would have paid Project Co 60% of the project capital costs prior at Substantial Completion, Project Co would need to finance the remaining 40% of the project capital costs (long-term financing). Short-term financing by Project Co (during the construction period) would have been paid off through the Substantial Completion Payment by the City. Under the DBFM model, during the operating period, the City would make fixed (unindexed) monthly payments to Project Co to cover the costs associated with the long-term financing of the outstanding capital costs (debt repayment and equity return).
Operating Period Payments	<ul style="list-style-type: none"> <u>O&M Payments:</u> <ul style="list-style-type: none"> Under the DBFM model, the City would make monthly payments for the maintenance of the Transitway (Stage 1 and 2) and the Pembina Highway Underpass. The O&M Payments would be subject to deductions whenever Project Co does not meet its performance requirements / obligations as under the Project Agreement. Under the DBB model, the City would undertake the maintenance of the Project through its operating budget, as established by City Council in the ordinary course of the annual operating budget process. <u>MMR Payments:</u> <ul style="list-style-type: none"> Under the DBFM model, the City would make monthly payments to Project Co for major maintenance and rehabilitation of the Transitway (Stage 2 only) and the Pembina Highway Underpass. Under the DBB model, the City would allocate a major rehabilitation capital budget in accordance with its capital budget setting process and in accordance with its identification by the City of the Project rehabilitation needs during the term.
City Construction Period Costs	<ul style="list-style-type: none"> The City would be required to undertake a number of construction-related activities including project management and oversight under each of the DBB and DBFM models.
City Operating Period Costs	<ul style="list-style-type: none"> The City would be required to undertake a number of operations-related activities including project management and oversight under each of the DBB and DBFM models.

7.4 Risk Analysis and Quantification

An overview of the risk assessment process carried out for the Project is illustrated in Figure 4.

Figure 4: Overview of Risk Quantification Process

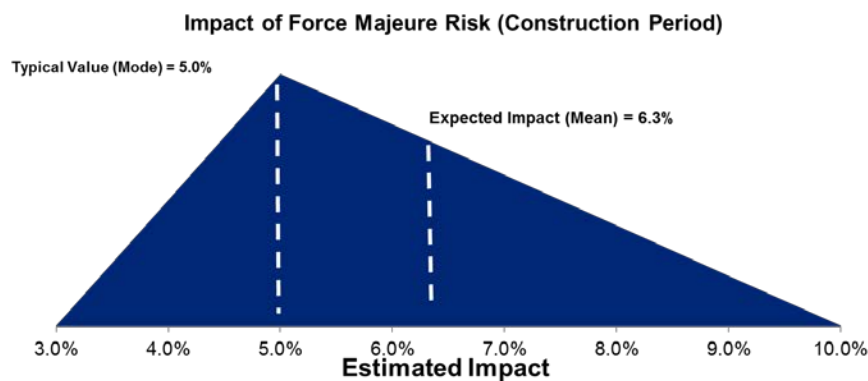


- Step 1 – Development of the Risk Matrix:** The draft risk matrix was prepared and was augmented by prior transaction experiences within the transportation sector for precedent projects, including the Chief

Peguis Trail and Disraeli Bridges projects. To capture all relevant risks, new risk definitions were created based on the particular requirements of the Project. The risk allocation was based on past experience, typical risk allocation in DBB and DBFM contracts, and risk allocation seen in transportation infrastructure projects.

- **Step 2 – Risk Assessment:** The risk assessment process involved facilitation of a series of risk workshops (November 2013 and February 2014) with the City’s Project team (consisting of representatives from various City departments) and its advisors, all of whom contributed based on their respective technical expertise, professional experience and judgment. Through the risk workshops, participants ranked each relevant risk in terms of high, medium, or low probability and impact. The results were mapped onto the “quantitative” risk assessment to ensure directional consistency.
- **Step 3 – Risk Quantification:** On completion of the risk assessment, Deloitte ran a statistical simulation (a Monte Carlo simulation⁸) in order to calculate the value of risk retained by each party under the PSC and DBFM models. This simulation yields a distribution of impacts for each risk based on a range of inputs provided in the matrix. The resultant statistical mean is then used as the expected impact for each risk. Most risk impacts have a “triangular” distribution (as illustrated in Figure 5 below), meaning that the range of potential impacts is skewed toward the right. The mode (typical value) often fails to reflect the wider range of worse-than-typical outcomes. Therefore, the mean value is used as the expected impact.

Figure 5: Illustration of Risk Impact Quantification



The statistical simulation provides an expected value for the impact of each risk, under both the DBFOM and the PSC and is calculated as follows:

$$A \otimes B \otimes C \equiv D$$

where:

- **A** Each risk was assigned a potential cost value in dollars;
- **B** A probability of occurrence (as a percentage) for each risk was agreed upon through the workshops;
- **C** A “low” and “high” impact of each risk (as a percentage) was agreed upon through the workshops, with the average generated through the Monte Carlo simulation; and
- **D** The quantified value of the risk is the product of A, B, and C. This value is allocated between the Region and Project Co. based on an assumed risk allocation under the DBFM and PSC.

⁸ Monte Carlo simulation is an estimation method based on a broad class of computational algorithms that rely on repeated random sampling to obtain numerical results i.e. by running simulations many times over in order to calculate probabilities.

It should be noted that VFM is a comparative assessment and, as such, the quantification of risk as presented above should only be viewed within this context and not interpreted on an absolute basis. The impact to the City of an actual risk event occurring may or may not be similar to results generated through the VFM risk quantification assessment.

7.5 Key Assumptions

Table 7 provides a summary of other key assumptions, including those which have been revised based on the Preferred Proponent’s proposal.

Table 5: Key VFM Assumptions

Item	Assumption
Timing Assumptions	
Financial Close Date	June 24, 2016
Construction Start Date	June 24, 2016
Construction Period	41 months
Substantial Completion Date	October 31, 2019
Operations Start Date	November 1, 2019
OMR Period	30 years
NPV Base Date	March 24, 2016
Economic Assumptions	
CPI	2%
Discount Rate	3.65% (City’s long-term cost of borrowing at the time of assessment)

7.6 VFM Results

For both the DBB and the DBFM models, the total risk-adjusted Project costs are reported on an NPV basis as at March 24, 2016 at the City’s discount rate (as provided in Table 7).

The NPVs of the total risk adjusted costs of the Project delivered using the DBB (PSC) and DBFM) models are set out in Figure 6.

Figure 6: VFM Output

PSC Model - Traditional DBB		PPP Model - DBFM	
PV Terms, \$'s MM			
Base PSC (PV) ^[1]	\$317.0	Base Payments (PV) ^[2]	\$381.3
Competitive Neutrality	—		
Ancillary Costs		Ancillary Costs	
- City Procurement Costs	\$17.2	- City Procurement Costs	\$13.2
- PM Costs during Construction	\$12.1	- PM Costs during Construction	\$5.1
- PM Costs during Operations	\$3.5	- PM Costs during Operations	\$7.6
	\$32.9		\$26.0
Risks Retained by City	\$183.3	Risks Retained by City	\$33.5
PV of PSC	\$533.2	PV of DBFM	\$440.8
VFM Savings (\$)	\$92.4		
VFM Savings (%)	17.3%		

[1] Base PSC includes Base Costs (design, construction, and OMR costs) and the Financing Costs.

[2] Base Payments include Base Cost (design, construction, and OMR costs), Financing Costs, and other SPV costs.

7.7 Interpretation of Results

When reviewing these results, the following considerations should be noted:

- The results illustrate the difference between two different forms of contracts / project delivery models for an infrastructure project. The VFM result is not intended as a criticism of the City's typical DBB contracting approach, which is not suited for the Project for the following reasons:
 - The City's typical construction delivery model is a DBB model using a standard form of construction contract that has been tested and applied against numerous projects that are typically less than \$100 million and does not include a long-term operating and maintenance obligation in the scope of the contractor. Current P3 uses the best practice of bundling design-construction-operations and maintenance through the design-life of the infrastructure for new legacy, large scale projects such as the Project. The VFM illustrates this difference, with the main advantage of the DBFM being that the same contract counterparty is responsible for all components, thus eliminating any "finger pointing" if the Project does not perform.
 - The DBB form of contract is prescriptive as the contractor bids against a 100% level design prepared by the City, while the DBFM relies on a performance based set of output specifications that are not prescriptive. The VFM contrasts the difference in the form of compliance, as Project Co. has flexibility to maintain the Project and therefore must accept consequences if the requirements are not met.
 - The VFM captures the opportunities that exist under the P3 model to achieve cost synergies through innovations due to: (i) the use of non-prescriptive output-based specifications; and (ii) the integration of design, construction, maintenance, and rehabilitation enables Project Co to make cost trade-off decisions as it is responsible for long-term asset performance and therefore has incentive to design, construct, and plan based on a "full lifecycle" view of the infrastructure.

8. Appendix A – Glossary of Terms

Term	Definition
ATB	ATB Financial
BDC	Business Development Bank of Canada
BRT	Bus Rapid Transitway
Business Case	The P3 Canada Business Case
City	The City of Winnipeg
DBB	Design-Bid-Build
DBFM	Design-Build-Finance-Maintain
Deloitte	Deloitte LLP
Independent Certifier	WT Partnership
HMM	Hatch Mott Macdonald
MHL	Morrison Hershfield Limited
NPV	Net Present Value
P3	Public Private Partnership
PCC	PCL Constructors Canada Inc.
PCL	PCL Investments
Plenary	Plenary Group (Canada) Ltd.
Preferred Proponent or PRW or PRWTP	Plenary Roads Winnipeg
Project	Southwest Rapid Transitway (Stage 2) and Pembina Highway Underpass Project
PRWTP	Plenary Roads Winnipeg Transitway LP
PSC	Public Sector Comparator
RBCDS	RBC Dominion Securities
Report	The VFM Report
RFQ	Request for Qualifications
RFP	Request for Proposals
SWRT	Southwest Rapid Transitway
TD	TD Securities
TDAM	TD Asset Management
TMP	Transportation Master Plan
TOD	Transit-Oriented Development
TTW	Tetra Tech WEI Inc.
VFM	Value for Money