



# CITY OF WINNIPEG SOUTHWEST RAPID TRANSITWAY: STAGE 2 AND PEMBINA HIGHWAY UNDERPASS PROJECT



Category G:  
Project  
Management

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# Project Summary

*The City of Winnipeg identified the need for rapid transit to support the City’s long-term growth, connecting the southwest quadrant with downtown. Dillon Consulting Limited provided consulting services to deliver the project under a Public-Private Partnership (P3) delivery model. To date this was the largest infrastructure project undertaken by the City. Riders can now travel on an exclusive, bus only right-of-way providing frequent, reliable and high speed service in this rapidly growing area of Winnipeg.*

rapidtransit  has arrived



# PROJECT HIGHLIGHTS

## Complexity

Dillon Consulting Limited's (Dillon) submission is for the Southwest Rapid Transitway – Stage 2 and Pembina Highway Underpass Project (SWT2) which serves the City of Winnipeg (City). The City retained Dillon as subject matter experts (SME) and representatives throughout three project stages:

- 1 Project planning including the functional design report, public-private partnership (P3) business case and value for money (VFM) assessment;
- 2 Contract development and procurement; and
- 3 Owner's advocate during design and construction.

The southwest transitway provides an exclusive transit right-of-way link between downtown and southwest Winnipeg. SWT2 includes 7.6 km of transitway, nine stations, nine bridges, an underpass of the CN Rail mainline, widening of a major arterial underpass (Pembina Highway Underpass), and active transportation throughout. With an initial budget of \$587M, SWT2 is the largest capital infrastructure project completed by the City.

A comprehensive VFM assessment by Dillon's sub-consultant, Deloitte TTL, compared the net present value of the risk adjusted costs of different procurement options, identifying a P3 delivery model would provide positive VFM achieved through appropriate risk transfer to a private partner. SWT2 bundled the \$90M Pembina Highway Underpass project to benefit from economies of scale and to attract larger international consortiums; this also mitigated many project risks had these two projects proceeded independently.



Developing and maintaining effective project management processes for a P3 project of this magnitude was a challenge but essential to protect the interests of the City and taxpayers. The processes were based on the City's Project Management Manual, which stem from the Project Management Body of Knowledge. The project management processes were embedded throughout the project delivery.

Some of the key project delivery challenges included:

- Extensive relocation of critical power and gas utility infrastructure;
- Construction of a new underpass and associated rail bridges while maintaining CN Rail mainline operations, also including extensive infrastructure immediately adjacent to the rail-lines;

- Widening a major arterial underpass without impacting traffic; and
- Accelerated completion of Stadium Station for use during the Canada Summer Games.

Extensive stakeholder management processes were required for the 300+ public and private entities and interest groups. A three-tiered approach for the management of stakeholders was established by Dillon's sub-consultant, Landmark Planning & Design, with a two-way communication approach to ensure stakeholder's interests were understood and addressed while effectively communicating the project objectives and limitations. Proactive engagement with stakeholders was critical in mitigating scope creep and the associated cost and schedule impacts.







# Meeting the City of Winnipeg's Needs

The City identified that rapid transit was required to support the City's long term growth, reduce street network congestion, and connect the rapidly growing southwest quadrant (including the University of Manitoba) with downtown, while providing direct access to intermediate neighbourhoods. While the project broadly accomplished these goals, maintaining the focus on the transit related outputs (i.e., improve transit service, ridership experience) was fundamental to project delivery. With transit specialists in leadership roles for both Transit and Dillon, supported by technical and project management SMEs, the focus on transit service and the rider was maintained, ultimately contributing to a better solution for everyone.

Scope, cost and schedule management were critical to project delivery, not only because of organizational and political oversight

requirements but also because the P3 funding agreements were subject to established schedule milestones; simply put, the City could not risk any funding losses as it would significantly impact the project and potentially transit operations. Through innovative project delivery and competitive procurement methods, the project realized VFM savings from the initial \$587M budget to \$467M, including further savings during construction for a total cost of \$418M at construction completion. The project team also met or exceeded schedule milestones including Stadium Station completion, turnover for training and commissioning, and in-service date. The magnitude of financial savings combined with schedule achievements is a rarity for projects of this scale, complexity and public scrutiny, and was achieved by employing the highest standard of project management practices by the project team.





## Environmental Benefits

This transformative project was designed to move residents from the dependency on cars to alternative transportation options. The project supports sustainable options including an attractive mass rapid transit along the new rapid transit line (BLUE), active transportation and general mode shift from single occupancy vehicles to other more environmentally sustainable modes. Mode shift will decrease congestion on major routes between downtown and the southwest quadrant, such as on Pembina Highway, reducing Winnipeg's carbon footprint and greenhouse gas emissions, and dependency on road infrastructure making it a more sustainable city for future generations. A critical element to shifting resident's mode choice to transit is through frequent, reliable and high-speed service.

Ensuring access to amenities for riders was an essential part of planning and design. BLUE is designed with an easier,

more comfortable commute in mind, with amenities including conveniently located stations, real-time passenger information, heated shelters, public art, bike lockers, park-and-ride and kiss-and-ride opportunities. These amenities work to promote Transit as a preferred transportation mode and achieve a more environmentally sustainable city.

Strict environmental requirements were established for the project to protect and enhance the existing natural environment, including an environmental review of the project lands and Species at Risk survey. The project followed a rigorous methodology to protect and enhance the project lands including milkweed plants, cattails stands and vegetation. For example, an inventory of all vegetation (e.g., trees, shrubs, bushes and grasslands) was taken for the pre-construction lands and was used to identify the required protection, re-establishment and enhancement.

## Innovation

A strong culture of collaboration within the project team was fundamental to the successful project delivery. Dillon and Transit acted as project managers and effectively integrated the City's financial, technical, legal and communications staff; Dillon's internal technical SME and external procurement, financial and communication sub-consultants; and external SME for legal and fairness. Regular reporting to the broader project team, proactive engagement of external SME, embedded City departmental staff throughout, and consistency in the team members allowed the project team to achieve and maintain effective project delivery, drive alignment in decision making, and leveraged the expertise of those best suited for each project activity.

The Project Agreement (PA) was a critical document as it formed the contract between the City and the private partner responsible for design, construction and the 30 year

operation and maintenance period. Previous City contracts were supplemented by a nation-wide assessment of best practices resulting in a robust PA that not only accomplishes the technical objectives but also achieves the idealized risk transfer that was the basis for selecting a P3 project delivery model. Based on the success of the PA development, many of the documents and best practices have formed baseline templates for future City projects.

Rigorous risk and change management processes and tools were developed to ensure contractual requirements were being upheld, protect against scope creep, provide detailed issues tracking, and formalize approval authority and documentation. Lessons learned were a key component in these processes and workshops were held throughout the project to generate continuous improvement.

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## Social and Economic Benefits

Since the 1970's, the City of Winnipeg has identified the need for rapid transit to support the City's long-term growth objectives. The southwest quadrant is projected to grow over 40% in 20 years, including the continuously expanding University of Manitoba with over 40,000 students and staff. SWT2 will support this continued growth and link downtown with major destinations in the southwest on an exclusive, bus only right-of-way, while allowing direct access to intermediate neighbourhoods, and efficient service for those living, working and studying in the rapidly growing area.

Despite COVID-19 corresponding with the project in service date, key objectives have been met:

- Stadium Station increased safety and decreased the time to clear riders after events by 50-60%;
- University Station increased Transit ridership between 5-15%;

- BLUE provides frequent and reliable high-speed service reducing traffic congestion, improving travel times and schedule reliability; and
- Amenities along BLUE add to rider experience including real-time passenger information, heated shelters, unique public art installation from local artists, bike lockers and park-and-ride/kiss-and-ride opportunities.

The long range objectives included transit oriented development, local economic impacts, revitalization of downtown and environmental sustainability, of which the City is already seeing development proposals, demonstrating private sector endorsement.

Economic benefits were realized through combining projects, the competitive P3 procurement process, and management throughout design and construction, leading to a \$169M savings from the original budgeted adopted by Council of \$587M to \$418M at project completion.

## Acknowledgements

*Dillon would like to thank our project partners including Landmark Planning & Design and Deloitte TTL. We would also like to thank the City of Winnipeg, their various departments, and most importantly, the Transit department as project sponsor. This project would not have been possible without their tireless dedication.*







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