

Circle Drive West Functional Planning Study – Final Report

ISSUE

This report provides the results of a functional planning study for Circle Drive West between Clancy Drive and Laurier Drive.

RECOMMENDATION

That the Standing Policy Committee on Transportation recommend to City Council:

1. That the Recommended Plan of the Circle Drive West Functional Planning Study be added to the Saskatoon Transportation Master Plan (STMP) Infrastructure List for future prioritization;
2. That the Circle Drive West Functional Planning Study and 11th Street West Grade Separation Concept Plan be listed together as a common construction project on the STMP Infrastructure List;
3. That the Administration proceed with developing alternative neighbourhood access concepts for Montgomery Place, including stakeholder engagement, that does not include at-grade rail crossings and report back when complete; and
4. That the Administration engage with regional partners about alternative access between Highway 7 and Circle Drive South.

BACKGROUND

The 2016 Growth Plan indicated Circle Drive will require potential widening and improvements at and between existing interchanges and intersection locations to accommodate future traffic demands. Maintaining Circle Drive as a controlled access, high-speed expressway facility that provides mobility for people and goods in and around the City is a key component of an efficient transportation system. Congestion on Circle Drive would promote short-cutting of drivers bypassing congestion bottlenecks on the expressway in favour of neighbourhood streets. To plan for the improvement of transportation capacity, the Administration developed a systematic functional planning program of Circle Drive.

The Standing Policy Committee on Transportation, at its meeting held on January 15, 2018, received a report providing an outline of functional planning studies for major transportation infrastructure as a component of the development of the Road Network Plan. The Road Network Plan was to meet the City's transportation needs at a 500,000-population horizon and identify significant future infrastructure needs including grade-separated interchanges and significant road widenings such as the widening of Circle Drive. Details on the functional planning process is provided in Appendix 1.

City Council, at its meeting held on March 22, 2021, received a report regarding the Saskatoon Transportation Master Plan, and resolved:

“That the Saskatoon Transportation Master Plan report be approved in principle.”

The Saskatoon Transportation Master Plan consolidated numerous plans (including The Road Network Plan) and policies and provided a list of prioritized transportation infrastructure projects. Near the top of the list was the widening of Circle Drive between Clancy Drive and Laurier Drive. This list, as of January 2021, is attached as Appendix 2.

DISCUSSION/ANALYSIS

Part 1 – Information from Technical Report

The technical report can be found at [Circle Drive West Functional Planning Study | Saskatoon.ca](https://www.saskatoon.ca/circle-drive-west-functional-planning-study).

Existing Technical Challenges

The technical report identified three key existing technical challenges:

1. Intersection/interchange spacing: Along Circle Drive West corridor, the spacing ranges from 600 to 900 metres. Transportation Association of Canada (TAC) has identified a preferred spacing of 1.5 to 2 kilometres. Appropriate spacing facilitates safe and efficient freeway operation. Insufficient spacing typically requires expensive infrastructure to provide the level of safety and operations expected along a high-speed facility.

The most basic approach is to remove the intersections at Clancy Drive and Laurier Drive. However, given the residential neighbourhoods that use these access points to Circle Drive West, the preferred solution is to retain the access points as interchanges. This results in expensive infrastructure as the configurations required to achieve free-flow on Circle Drive West, and access to Clancy Drive and Laurier Drive, become very complex in terms of design due to their close proximity.

2. Circle Drive North/22nd Street West interchange: The design emphasizes free-flow traffic movements between 22nd Street West and Circle Drive North, and results in a large footprint of land used. The subsequent addition of Circle Drive South altered the traffic patterns at this location.

The initial technical approach attempted to absorb or adopt the existing infrastructure in the preferred design, which was overly complex and restricted access. The preferred technical solution is to replace the interchange, which will be designed to provide the level of safety and operations expected along a high-speed facility.

3. 22nd Street West intersection spacing: There is insufficient spacing between intersections along 22nd Street West, based on the TAC recommendation for a minimum of 400 metres to allow for smooth traffic signal progression. There is less than 100 metres between Confederation Drive and Circle Drive West, and the intersection with Confederation Drive combines local access with interchange operations. The existing spacing results in poor traffic operations and residents west

of Circle Drive West relying on the signalized intersections on Circle Drive West at Clancy Drive and Laurier Drive for access into and from their neighbourhoods.

These technical challenges result in complex and relatively expensive infrastructure.

Recommended Plan

The recommended plan is provided in Appendix 3, and includes the following features:

- The existing unconventional interchange configuration with 22nd Street West will be replaced with a more compact Single-Point Urban Interchange (SPUI) design that better accommodates all current movements on and off Circle Drive West and improves mainline (for north-south through traffic) efficiency.
- The Laurier Drive and Clancy Drive traffic signals are removed and replaced with grade separations that accommodate turning movements to and from Circle Drive West, to and from the north at Laurier Drive, and to and from both directions at Clancy Drive. In addition, traffic from Clancy Drive would be able to reach 22nd Street West (without using Circle Drive West), a movement not currently permitted. Access to Clancy Drive from 22nd Street West using Circle Drive West is not possible because of the short 800 metre distance along a freeway (a movement the traffic signals currently make possible).
- The existing southbound exit from Circle Drive West to Fairmont Drive is retained.
- Eastbound 22nd Street West includes a new right turn exit movement to Fairmont Drive (to the south mall area) and the existing right turn entrance movement from Fairmont Drive (to 22nd Street West eastbound) has been relocated south to Fairlight Crescent. This permits traffic to cross 22nd Street West from the south mall to the north mall via Confederation Drive, a movement not currently permitted.
- The southbound exit from Circle Drive West to 11th Street West is moved to the south side of 11th Street West, converting the interchange to an all-movement 'Parclo AB' type configuration (Parclo AB configured interchange includes loop ramps on the same side of the minor intersecting street, in this case 11th Street West). This change permits restoring all turning movements at the Clancy Drive interchange.
- The design speed along Circle Drive West is increased from 90 to 100 km/h by removing traffic signals and the low-speed curves through the existing interchange crossing at 22nd Street West.

Benefits of the Recommended Plan

1. Improved Circle Drive West performance and safety as a freeway facility.
2. Improved 22nd Street West roadway performance and safety.
3. Consistent facility design better meets driver expectations on Circle Drive West, and on 22nd Street West through the interchange.
4. Improved capacity and cross-city travel times.
5. Better support for Circle Drive's long-term role in both the Saskatoon and provincial roadway networks.

6. Expanded multi-use pathway network and improved pedestrian safety.
7. Improved visibility of the north mall area from 22nd Street West.
8. Clear direction for investments to support traffic growth on 22nd Street West.

Project Objectives

The recommended plan balances two objectives:

1. Free-flow conditions for Circle Drive West through traffic, and improved traffic safety and capacity. Removing the traffic signals results in design consistency and considerably reduces the risk of unsafe movements along Circle Drive West.
2. Eliminates the unusual left-hand merges occurring at both Clancy Drive and Laurier Drive, which are safety hazards. This results in improved access to and from Clancy Drive and retaining partial access to and from Laurier Drive in the very short spacing between the access points along Circle Drive West.

Stakeholder Concerns

Three common stakeholder concerns with the recommended plan are:

1. Revised traffic paths.
2. Pedestrian crossings under Circle Drive West and the Canadian National Railway (CN).
3. At-grade rail crossings on 11th Street West.

Additional Work Identified

The following steps were identified to finish consolidating the long-term plan for Circle Drive West and the affected section of 22nd Street West. An administrative status is provided in brackets for each step.

1. Widen 22nd Street West eastbound, from Diefenbaker Drive to the Collector/Distributor (C/D) ramps, to provide a third (outside) lane. (Functional Planning work underway. Estimated completion 2023).
2. Construct an eastbound slotted left-turn bay at Confederation Drive, including crosswalks. (Engagement scheduled for 2023.)
3. Accommodate a future Bus Rapid Transit (BRT) station at Diefenbaker Drive. (Planning work is complete. Will be constructed as part of BRT project).
4. Widen 22nd Street West eastbound and westbound between Diefenbaker Drive and Neault Road. (Functional Planning work underway. Estimated completion 2023).
5. Begin engagement with CN to replace the three pedestrian underpasses. (Will be undertaken with future detailed design work for Circle Drive West).
6. Complete a functional planning study to grade separate the rail crossings at the 11th Street West interchange. (Concept completed. Further work proposed related to this issue).
7. Complete a functional planning study to upgrade the 22nd Street West/Diefenbaker Drive intersection. (Functional Planning work underway. Estimated completion 2023).

Public Engagement Summary

Three public open houses were held:

1. June 2019 to inform the public of the project and solicit feedback on existing conditions, supplementing the concerns and issues raised during the Neighbourhood Traffic Reviews.
2. January 2020 to present the proposed plan and invite feedback.
3. October 2021 to present the preferred plan and explain the changes made based on feedback received after the second open house and obtain further feedback on the preferred plan.

A detailed summary of each public open house is included in Appendix 4. A copy of the Frequently Asked Questions is included in Appendix 5.

Part 2 – Additional Information

11th Street West/Circle Drive West Grade-Separation

City Council, at its Regular Business Meeting held March 26, 2018, resolved:

- “1. That Phase 2 of the Rail Relocation versus Grade Separation Feasibility Study proceed with a modified scope as outlined in the report of the A/General Manager, Transportation & Utilities Department dated March 12, 2018; and
2. That the Administration report back for a further discussion of individual grade separation options following the completion of the Phase 2 study.”

The Administrative report included the grade separation assessment at 11th Street West. The exhibit illustrating the concept eliminating the at-grade rail crossings is attached as Appendix 6. Highlights of the proposed concept include:

- No at-grade rail crossings;
- All movements are maintained; and
- 11th Street is vertically aligned over the rail lines (11th Street is re-constructed up, over, and back down over the rail lines).

The Standing Policy Committee on Transportation, at its meeting held on June 1, 2020, received the final report for Phase 2 of the Rail Relocation versus Grade Separation Feasibility Study as information.

The Standing Policy Committee on Transportation, at its meeting held on January 11, 2021, received a report providing an update on the Rail Relocation versus Grade Separation Feasibility Study. This report fulfilled the City Council resolution to report back after completing Phase 2 on the specifics of grade separation options. One of the next steps identified in the report was:

“11th Street West – There are no major concerns with road connectivity or impacts on adjacent sites. The proposed reconfiguration of the interchange with Circle Drive would be coordinated with the long-term

recommendations of the Circle Drive and 22nd Street West functional planning study currently underway.”

Due to the proximity and complexity of the two ‘projects’, 11th Street West Grade Separation, and Circle Drive West between Clancy Drive and Laurier Drive, the two projects would be expected to be constructed at the same time. Therefore, construction of the two projects will be included on the prioritized STMP Infrastructure List together, as one project.

Alternate Access into Montgomery Place

Over the past several years, work has occurred examining improvements at the existing at-grade rail crossings on 11th Street West. The Administration is proposing that alternate accesses to and from Montgomery Place be explored. This was outside the scope of the Circle Drive West Functional Planning Study. The outcomes of this work would then inform a future decision to revisit the interchange configuration illustrated in Appendix 6 (including revisiting the premise of 11th Street being re-constructed up, over, and back down over the rail lines). In other words, if there is feasible alternate access unencumbered by rail, is an 11th Street re-alignment required?

Alternate Truck Access to Circle Drive West

The Administration is also proposing that alternate truck access between Highway 7 and Circle Drive South be examined. Alternate or improved access elsewhere may reduce truck traffic at the 22nd Street West/Circle Drive West interchange and may also reduce cut-through traffic on 11th Street West.

Construction Timing Comments

The complete Circle Drive West project is a long-term project. Considerations that will influence the timing of implementation of the complete project are:

- Timing of build-out of the Blairmore Sector.
- Traffic operations performance (capacity to move traffic).
- Road safety.
- Coordination with future major rehabilitation of the existing structures. The recommended plan incorporates as much of the existing infrastructure as possible in order to minimize cost.
- Development of an alternate access between Highway 7 and Circle Drive South.
- Implementing near-term improvements to 22nd Street.

FINANCIAL IMPLICATIONS

The Class ‘C’ Planning Level Cost Estimate Summary is included in Appendix 7.

OTHER IMPLICATIONS

There are no privacy, legal, or social implications identified as a result of the report. Environmental considerations would be considered in future design stages.

NEXT STEPS

If approved by City Council, the next steps would be:

1. Place the Circle Drive West Functional Planning Study on the STMP Infrastructure List with the 11th Street West Grade Separation project and prioritize for future planning through that process.
2. Continue with the functional planning study to upgrade 22nd Street West between Confederation Drive and the west city limits, including upgrades to the 22nd Street West and Diefenbaker Drive intersection.
3. Place the following near-term projects on the STMP Infrastructure List:
 - a) Widen 22nd Street West eastbound, from Diefenbaker Drive to the Collector/Distributor (C/D) ramps, to provide a third (outside) lane and construct a slotted left-turn eastbound lane at Confederation Drive, including crosswalks.
 - b) Accommodate a future BRT station at Diefenbaker Drive.
 - c) Widen 22nd Street West eastbound and westbound between Diefenbaker Drive and Neault Road.
4. Proceed with developing alternative neighbourhood access concepts, including stakeholder engagement, for Montgomery Place that does not include at-grade rail crossings.
5. Approach regional partners on alternate access between Highway 7 and the Circle Drive South bridge.

APPENDICES

1. Functional Planning Studies Outline
2. Prioritized Transportation Infrastructure Projects List
3. Recommended Plan
4. Open House Reports
5. Frequently Asked Questions
6. 11th Street West Grade Separation Concept
7. Cost Estimate

Report Approval

Written by: Jay Magus, Director of Transportation

Approved by: Terry Schmidt, General Manager, Transportation and Construction