Plan for Growth - Bus Rapid Transit Technical Analysis

Recommendation

That the report of the General Manager, Community Services Department, dated June 20, 2018, be received as information.

Topic and Purpose

The purpose of this report is to outline the technical analysis of the Bus Rapid Transit routes and strategies.

Report Highlights

1. The Existing Conditions Report for bus rapid and conventional transit planning and design services documents multiple conditions within Saskatoon that have implications on the design of the Bus Rapid Transit (BRT) and reconfigured Transit system.
2. The BRT route analysis has determined a configuration that is generally aligned with the Growth Plan to Half a Million (Growth Plan), while making some minor adjustments for improved system function, rider understanding, and to ensure all potential viable destinations are served.
3. The technical analysis has confirmed that three locations warrant dedicated transit lanes (runningways) to ensure system reliability and improved travel times:
    a) 3rd Avenue, 25th Street to 19th Street;
    b) College Drive, Clarence Avenue to Preston Avenue; and
    c) Broadway Avenue, 12th Street to 8th Street.
4. A number of supplemental studies and supporting projects have also been completed or are in progress, including:
    a) Park and Ride Study;
    b) Station Concept Design;
    c) Intelligent Transportation Systems Strategic Plan; and
    d) Multiple Accounts Evaluation.

Strategic Goals

This report supports the City of Saskatoon's (City) Strategic Goals of Moving Around and Sustainable Growth by advancing to implementation the Transit Plan component of the Growth Plan.

Background

At its April 25, 2016 meeting, City Council approved, in principle, the Growth Plan. This approval included a Transit Plan with a proposed routing and configuration for a BRT Transit system based around two lines (Red and Blue).

At its July 26, 2017 meeting, City Council awarded a contract to HDR Corporation (HDR) for bus rapid and conventional transit planning, design, and engineering services. The major deliverables of this project include:

a) Existing Conditions Assessment;
b) BRT Functional Plan;
c) BRT Station Design;
d) BRT Detailed Design;
e) Park and Ride Study and Concept Design;
f) Transit System Plan; and
g) Implementation Plan.

During its November 20, 2017 meeting, City Council resolved, in part:

> "That the preferred configuration and conceptual network for the Bus Rapid Transit system, as outlined in the report of the General Manager, Community Services Department dated November 6, 2017, be approved as the basis for further engagement and design."

The preferred configuration generally validated the Growth Plan and identified the main components of the Red and Blue BRT Lines, which includes Transit Signal Priority Measures, Roadway Geometric Measures, Stations, Customer Systems, and Runningways.

Report

Existing Conditions Report

The Existing Conditions Report for bus rapid and conventional transit planning and design services (see Attachment 1) documents multiple conditions within Saskatoon that have implications on the design of the BRT and reconfigured Transit system, including:

a) preliminary routes;
b) station locations;
c) land use adjacent to the corridors;
d) roadway geometry;
e) transit network;
f) corridor travel times;
g) traffic conditions;
h) existing traffic signal conditions;
i) active transportation facilities; and
j) stage 1 road safety audit.

The BRT and Transit system reconfiguration design work has used the information from the Existing Conditions Report to facilitate an inclusive and rigorous evaluation of the benefits new routes will provide. It will also ensure cost-effective improvements and priority measures are implemented and will limit any impacts to the existing transportation system and land uses.

Routing Analysis

Working from the proposed routing of the BRT system identified by Urban Systems in the Growth Plan, HDR's initial analysis confirmed the routes selected for the BRT. Following stakeholder engagement, the Administration requested that further analysis of the proposed routing through Downtown and the connection to 8th Street East be conducted. The results of this analysis are attached (see Attachment 2). The analysis of the Downtown corridor is summarized in Table 1 on page 7.

HDR's recommended corridor for the Downtown is 3rd Avenue due to its central location, functionality, relatively low traffic volumes, and road width.

Earlier work from Urban Systems in Growth Plan Report #2 (see Attachment 3) analyzed the Idylwyld Drive to 8th Street connection, as well as Broadway to 8th Street route options, recommending Broadway Avenue.

> "In general, the Broadway Avenue route (Option A) supports a greater mixture of land uses in terms of population and employment. Planned long-term land use patterns suggest that this corridor will continue to support transit-oriented development and be a significant generator of transit trips for the city."[1]

HDR analyzed three route options from Downtown to 8th Street (see Attachment 4, Table 2-4, page 6). HDR's recommended corridor between Downtown and 8th Street is Broadway Avenue, with a station at Main Street.

HDR has recommended separating the Red Line into the Green and Red Lines. The separation into Red and Green Lines will make navigating and operating the system easier. The previous Red Line layout split at Preston Avenue into a north and south segment. Extending the south end of the Blue Line into the Stonebridge neighbourhood and the north end of the Blue Line to Primrose Drive and Pinehouse Drive is also recommended.

Dedicated Transit Lanes (Runningways)

The technical analysis has confirmed that three locations warrant dedicated transit lanes (runningways) to ensure system reliability and improved travel times:

a) 3rd Avenue, 25th Street to 19th Street;
b) College Drive, Clarence Avenue to Preston Avenue; and
c) Broadway Avenue, 12th Street to 8th Street.

Exclusive or dedicated BRT runningways provide improved bus travel time and schedule reliability by the application of transit signal priority measures and the separation from auto traffic and parking activities. As well, the provision of dedicated passenger boarding platforms, shelters, and amenities significantly improves customer comfort and appeal.

[1] Growth Plan to Half a Million – Technical Report #2, page 53 (Attachment 3)

Additionally, with new BRT systems in developing transit markets, it is critical to use runningways as a means to signal significant change within the transit market. Unique transit infrastructure can be a powerful marketing tool for both transit users (and future transit users) and property owners.

Initial runningway sections were defined on College Drive, Broadway Avenue, and 3rd Avenue. The selection of these runningway sections is supported by traffic and bus flow analysis and benefits to transit customers.

In the future, increases in traffic volumes and congestion, and increases in transit passenger volumes may trigger consideration of extending or creating new runningways sections. The creation of extended or new runningways would be based on benefits to bus flow and schedule reliability, and improvements to the transit customer environment.

Supplemental Studies and Supporting Projects

HDR has submitted a number of supplemental studies and reports:

a) Park and Ride Study; and

b) Station Concept Design.

The Park and Ride Study and Station Concept Design Report recommends the method for the City to institute park and ride facilities in conjunction with the proposed BRT system (see Attachment 5). The objectives for park and ride are to support transit ridership; reduce parking demand in the city centre, University of Saskatchewan, and other significant demand generators; help shape growth and development opportunities; and make efficient use of parking facilities. The report recommends the City pursue partnerships for joint-use sites on the BRT corridors with existing owners of parking facilities that have peak parking demands outside of normal weekday working hours.

The Station Concept Design Report identified the key attributes that the BRT stations should include, as well as two potential conceptual station designs. The conceptual designs have been shown during stakeholder engagement to help evaluate the designs prior to more detailed design work.

The results of the Intelligent Transportation Systems Strategic Plan and Multiple Accounts Evaluation are addressed in another report.

Public and/or Stakeholder Involvement

Information on the public and stakeholder involvement component of the BRT and Transit Plan Project is provided in the Engagement Results report during the same Committee meeting.

Communication Plan

The Administration has developed a comprehensive communication and engagement plan for the Growth Plan implementation initiatives, including the BRT/Transit Plan Implementation Project.

The plan identifies numerous opportunities to communicate project progress with the public through the project website, engagement page, news releases, press conferences, monthly Plan for Growth newsletters, and a range of social media and public space communication channels. Also, each component of the Growth Plan has identified stakeholder and public engagement touchpoints.

Financial Implications

There are no financial implications as a direct result of this report. More detailed plans/designs and an implementation plan with funding options will be brought forward in due course.

Safety/Crime Prevention Through Environmental Design (CPTED)

CPTED principles have been considered throughout the planning process. A CPTED Review will be conducted at the appropriate times during the functional planning and detailed design phases.

Other Considerations/Implications

There are no policy, environmental, or privacy implications or considerations.

Due Date for Follow-up and/or Project Completion

A decision-oriented report regarding the BRT Functional Plan will be submitted to the Governance and Priorities Committee in the third quarter of 2018, with a target to complete the BRT Detailed Design and Implementation Plans in fall of 2018.

Public Notice

Public notice pursuant to Section 3 of Policy No. C01-021, Public Notice Policy, is not required.

Attachments

1. Existing Conditions Report
2. Downtown BRT Corridor Alternatives Review
3. Growth Plan Report #2
4. Broadway Avenue vs Victoria Avenue
5. Park and Ride

Report Approval

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