Broadway Avenue vs Victoria Avenue

Bus Rapid and Conventional Transit Planning and Design Services

City of Saskatoon

February 2018

Project Team

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Introduction

The Preferred Configuration identifies Broadway Avenue as the corridor for the Blue Line BRT, which would connect downtown Saskatoon to 8th Street via the Broadway Bridge. Conversations with stakeholders in the Fall of 2017 identified two possible Victoria Avenue options.

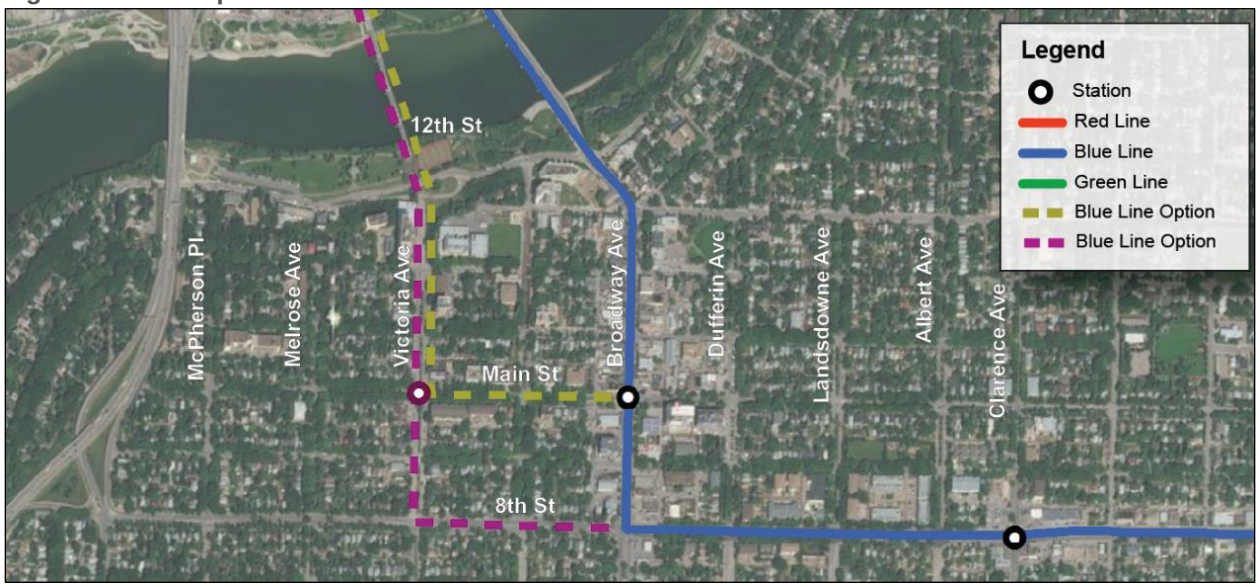
Both Victoria Avenue options utilize the Traffic Bridge to connect from Downtown to Nutana. The Traffic Bridge was closed in 2010 due to structural issues, a replacement bridge will be complete by 2018. The new bridge features one 3.7m wide lane in each direction and two multimodal paths, one on each side of the bridge. The lane width and structural capacity of the bridge will be sufficient for buses to operate in both directions.

The first Victoria Avenue option follows Victoria Avenue from Traffic Bridge to 8th Street, with a potential station at Main Street. The second option follows Victoria Avenue from Traffic Bridge to Main Street, which is utilized to connect to Broadway Avenue and then to 8th Street, with a station at Main Street & Broadway Avenue.

All three options pass through or are adjacent to a major component of the neighbourhood of Nutana, the commercial and retail high street along Broadway Avenue. There are a total of 1,200 residents and 153 businesses within the area bounded by Victoria Avenue, Dufferin Avenue, 8th Street and Saskatchewan Crescent. A successful BRT operation moves passengers quickly and reliably and provides good access and connections to both neighbourhoods and commercial destinations.

The three options are shown in **Figure 1.** Descriptions of both corridor options are provided below. A summary of these details is provided in **Table 1.**

Figure 1 Route Options from Downtown to 8th Street



Option 1: Broadway Avenue

Broadway Avenue is a four lane minor arterial and a popular retail location in the city. It is comprised of low to medium density commercial, retail and mixed use areas with low to high density residential units nearby. There are also two high schools, École Victoria School and Oskayak High School. The walkshed for BRT on Broadway Avenue is shown in **Figure 2.**

Broadway Avenue has a right-of-way (ROW) of 30.2m with a 22.4m wide roadway with paid parking lanes curbside. Left turn lanes are present at 12th Street (southbound to eastbound 12th Street only), 10th Street and Main Street. There are no left turn lanes at 11th Street and 9th Street, and at 8th Street there are dual left turn lanes onto eastbound 8th Street from southbound Broadway Avenue with protected left turn signals.

The speed limit of the corridor is 50km/h, though there is a 30km/h speed limit between 8am and 5pm from September to June due to the presence of the two high schools. All intersections from 12th to 8th Street are signalized except at 9th Street where there is a two-way stop for 9th Street traffic. Pedestrian crossings are at the signalized intersections as well as at 9th Street which is marked but uncontrolled. There are northbound and southbound bus stops within each block.

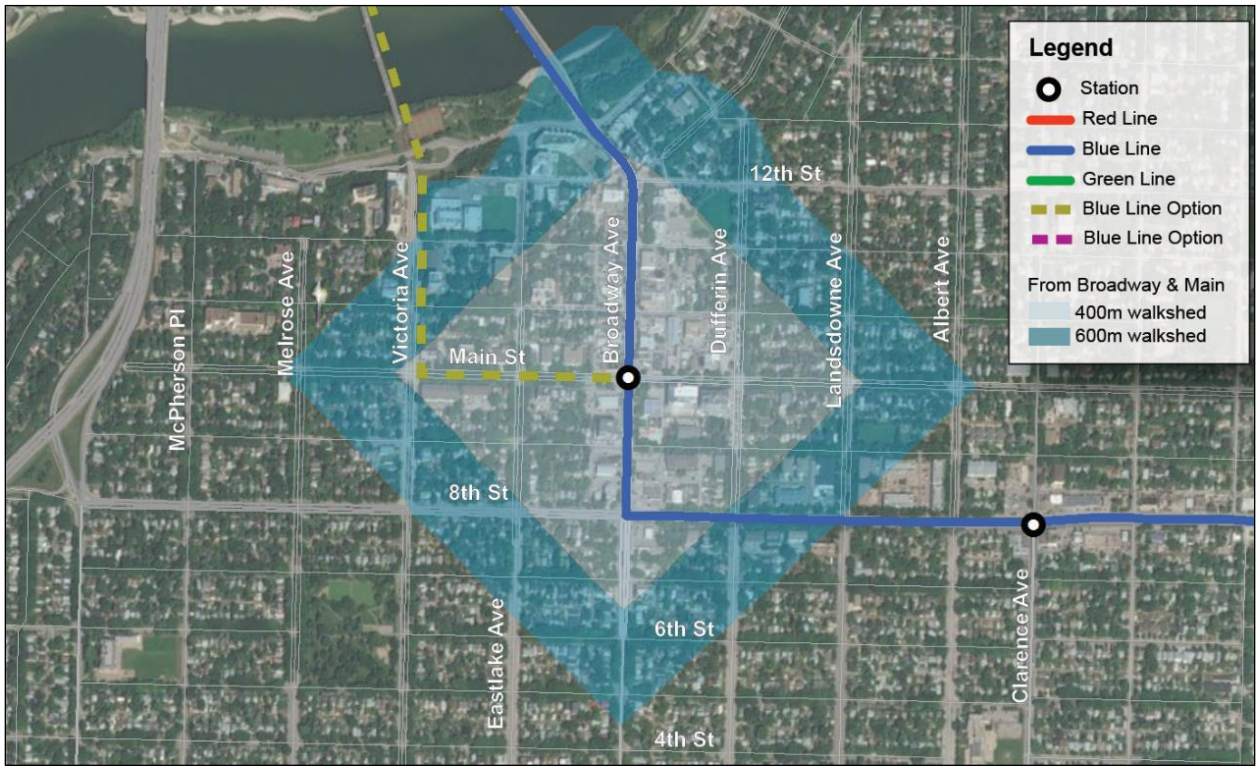
The average annual daily traffic (AADT) for Broadway Avenue between 8th Street and 12th Street was 16,100 in 2009; this value has fallen to 12,600 by 2015[1]. Though the nearby Traffic Bridge was closed to traffic in 2010, the Circle Drive South Bridge was opened in 2013, providing an alternate way to travel across the South Saskatchewan River. These values are comparable to other thoroughfares such as 1st Avenue.

Broadway Avenue is closed to traffic from 8th Street to 12th Street during two events every year, which are the Broadway Street Fair and the Saskatoon Fringe Theatre Festival (now the Potash Corp Fringe Theatre Festival). The first event occurs on the first Saturday after Labour Day, closing the roadway from 5am to 7pm. The second event occurs for 10 days in July and August, closing the roadway from 6pm to 10:30pm on weekdays and from 12pm to 10:30pm on holidays. Other events, such as Bikes on Broadway, have required full or partial closure of the roadway in order to host a street component to festival programming.

Overall, Broadway Avenue would be a suitable corridor for a BRT exclusive runningway and station as it is a major destination and is within a 400m walking distance to residential, commercial and retail uses. The BRT corridor would connect approximately 54,000 residents with the businesses and destinations on Broadway Avenue. It also connects directly to Broadway Bridge linking the corridor with Downtown. Furthermore, a number of features exist that may reinforce a potential BRT, including restricted left turns, pedestrian crossings at signalized intersections, advance left turns at 8th Street and a wide median that may be converted into an exclusive centre runningway.

[1] Saskatoon: 2016 Average Annual Daily Traffic (AADT) Report

Figure 2 Walkshed for Broadway Avenue BRT Station at Main Street



Option 2: Victoria Avenue

Victoria Avenue is a two lane major collector running through Nutana, connecting to Downtown via Traffic Bridge. The corridor is predominately low and medium density residential with one high school, Nutana Collegiate. On-street parking is allowed on both curbsides from 8th Street to 11th Street. Medium to high density residential can be found along Saskatchewan Crescent, west of Victoria Avenue.

The walkshed from a potential station at Main Street is shown in **Figure 3.** Few major destinations are within 400m and while both Broadway Avenue and high density residential units are just within 600m, the mixed use area east of Broadway Avenue is not within the walkshed of the potential stop. Also, access to areas further west is hampered by the Idylwyld Drive Freeway, with no connections across except at Saskatchewan Crescent and 8th Street.

There is a ROW of 30.2m except north of 11th Street where it narrows at the approach to Traffic Bridge. The roadway is approx. 22.6m wide with a 5.5m wide median, 10m wide SB lane and 6.5m NB lane. There are no road surface markings except at 8th Street and at the pedestrian crosswalks at 11th Street and Main Street. A left turn lane is provided at the signalized intersection with 8th Street, though there is no advance left signal. Speed limit is 50km/h. The steep road grade at the south end of Traffic Bridge is an operational concern.

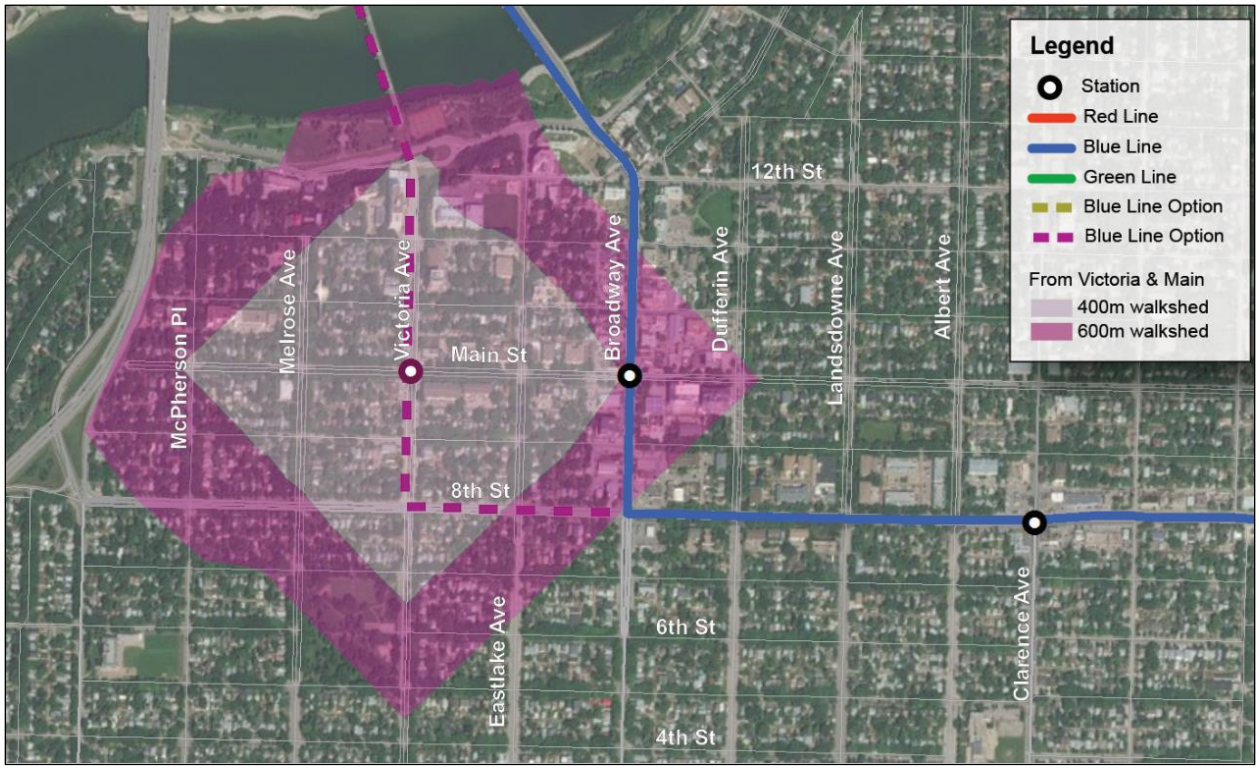
The AADT for Victoria Avenue was 7,300 in 2009 and 3,000 in 2015, before and after the removal of Traffic Bridge, respectively. Though traffic has fallen since Traffic Bridge was closed, traffic levels were not high to begin with, being lower than nearby Broadway Avenue and comparable to roadways such as 3rd Avenue.

With the reopening of the new Traffic Bridge, Victoria Avenue would be suitable as a BRT corridor. It has a wide ROW for most of its length and direct access to Downtown. Also, it has a relatively low amount of

traffic, reducing delays from both operations in mixed traffic (along Traffic Bridge and approaches) and from cross streets.

A station at Victoria Avenue and Main Street provides good coverage for the low to medium density residential uses around the station, but access to most of the commercial and retail along the Broadway Avenue corridor is a 600m walk.

Figure 3 Walkshed for Victoria Avenue BRT Station at Main Street



Option 3: Victoria Avenue and Broadway Avenue via Main Street

Another alternate route for the Blue Line BRT would be the Traffic Bridge to Victoria Avenue, then Main Street to Broadway Avenue, and Broadway Avenue to 8th Street. This section of Main Street is occupied by low to medium density residential homes and apartments, and is within walking distance of three high schools and the many commercial and retail units on Broadway Avenue.

The station location for this option would be at Main Street & Broadway Avenue, with the walkshed nearly identical to the station option for a Broadway Avenue route, which was shown in **Figure 2**. However, the platform configuration would differ as bus movements to and from Main Street would need to be accommodated.

Main Street has a ROW of 30.2m and a roadway width of 20.5m with one through lane per direction, curbside parking and a wide treed median. There are no road surface markings except at Broadway Avenue and at the pedestrian crosswalk across Victoria Avenue. Speed limit is 50km/h.

This option along Victoria Avenue, Main Street and Broadway Avenue would be suitable as a BRT corridor. It has a wide ROW for most of its length and direct access to Downtown. Traffic volumes are also low, leading to fewer delays from general traffic on the corridor and from cross street. However, there

are a number of issues with this option, including multiple left turns and the potential disturbance of the quiet residential area by frequent bus service.

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Table 2-4 Comparison of Route Options 1 to 3

Criteria	Option 1: Broadway Ave	Option 2: Victoria Ave	Option 3: Victoria to Broadway Ave via Main St*
Roadway Cross-Section	• 30.2m ROW • 22.4m wide roadway (2 through lanes per direction + parking lanes)	• 30.2m ROW south of 11th St • 22.6m wide roadway south of 11th St (1 lane per direction + curbside parking with wide median)	• 30.2m ROW • 20.5m wide roadway (1 lane per direction + curbside parking with wide median)
Traffic Volume[1]	• 2009: 16,100 • 2015: 12,600	• 2009: 7,300 • 2015: 3,000	• Unavailable, though AADT at Main St & Cumberland Ave in 2009 was 5,000
Intersections and Controls	• 6 intersections from 12th to 8th St: 5 signalized, 1 two-way stop • No left turns onto 11th St • Dual left turn lanes onto 8th St • 50km/h, 30km/h in school zone (8am – 5pm, Sept to June)	• 5 intersections from 11th to 8th St: 1 signalized, 1 all-way stop, 1 two-way stop w/pedestrian crosswalk, 2 two-way stops • No connection to 12th St • 50km/h speed limit	• 3 intersections from Victoria Ave to Broadway Ave: 1 signalized, 1 all-way stop, 1 two-way stop w/Main St as minor road • 50km/h speed limit
Pedestrian and Cyclist Safety	• Sharrows for bikes • 1 uncontrolled ped xing at 9th St • Ped xing at all signalized intersections	• No bike infrastructure • 2 crosswalks at 11th and Main St	• No bike infrastructure • 1 crosswalk at Victoria Ave
Service Coverage	• 3 existing bus routes (1, 6, 13)	• No existing bus service	• No existing bus service
Land Use	• Commercial and retail on corridor with low to medium residential areas in the surrounding area • Access to retail and commercial along Broadway within a 400m walk of the station	• Nearly all low to medium density residential on corridor and surrounding area • Access to retail and commercial along Broadway is around a 600m walk from the station	• Low to medium density residential homes and apartments • Access to retail and commercial along Broadway within a 400m walk of the station
Major Institutions	• Two high schools on corridor	• One high school on corridor	• One high school each on Victoria Ave and Broadway Ave
Transit Priority & Operations	• Exclusive runningway requires conversion of median and 1 lane of traffic in each direction • Signalization at most intersections allows opportunity for TSP	• Low traffic volumes would not require exclusive runningway • Possible delays from pedestrian crossings at limited locations	• Low traffic volumes would not require exclusive runningway
Event Closures	• Affected by multiple full or partial closures throughout the year	• Street access unaffected by any major festivals or events	• Broadway from Main St to 8th St may be affected by events
Bridge to Downtown	• Broadway Bridge: 2 lanes per direction w/ 50km/h speed limit	• Traffic Bridge: will be 1 lane per direction w/ 50km/h speed limit	• Traffic Bridge: will be 1 lane per direction w/ 50km/h speed limit
Stakeholder Concerns	• Disruptions to traffic flow, congestion and parking • Loss of street space for events	• Disruptions from frequent bus service in residential area • Possible disruptions to parking	• Disruptions from frequent bus service in residential sections of route • Possible disruptions to parking

[1] Saskatoon: 2016 Average Annual Daily Traffic (AADT) Report

* Main Street details provided; Victoria Ave and Broadway Ave are as mentioned in previous options.

Recommended Corridor

Based on the analysis, Broadway Avenue is the recommended corridor between Downtown and 8th Street with a station at Main Street. The routing along Broadway is a logical extension of existing transit service along the corridor, and a station at Broadway and Main Street will improve access for customers and employees.

Though Victoria Avenue is both as wide and has less traffic than Broadway Avenue, delays at both Traffic Bridge and through the residential area may create less reliable service than operating on Broadway Avenue and Broadway Bridge. Volume to capacity ratios on both the new Traffic Bridge and Broadway Bridge are expected to exceed 1.0 in 30 years, though the effect will be worse on Traffic Bridge than Broadway Bridge (peak directional V/C 1.15 versus 1.05, respectively[2]). Existing signalization on Broadway provides more opportunities for transit signal priority than on Victoria Avenue which would benefit transit travel times and reliability.

Despite being closed for a number of days each year for special events, the use of parallel alternate routes is an option for both the BRT and conventional bus routes along the corridor.

[2] Growth Plan Technical Report, 2016, Urban Systems Ltd.