Appendix 1

CITY OF SASKATOON

CONNECTING AVENUE C: WALKING AND CYCLING IMPROVEMENTS

FUNCTIONAL DESIGN REPORT

SEPTEMBER 28, 2023

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1 INTRODUCTION

The City of Saskatoon (City) is continually aligning its transportation infrastructure project priorities with its Plan for Growth and Active Transportation Plan (AT Plan). The City has given this project high priority for its ability to improve safety but also to address network gaps and improve equity. It has been demonstrated in other Canadian winter cities that the implementation of safe, comfortable, and equitable active transportation corridors is seen as an essential part of helping the City reach its long-term transportation and land use goals. In addition to this, there are also a wide range of public health co-benefits to active transportation investment that contribute to tangible, long-term improvements to physical and mental health in our communities.

The goal for this project was to complete the necessary public and stakeholder engagement and technical investigations to develop a functional design for an All Ages and Abilities (AAA) cycling facility for Avenue C (Spadina Crescent to 45th Street). The objectives were to develop a design that is context-sensitive, balances the needs of all users, and encourages walking and cycling consistent with the City's AT Plan.

This report provides an overview of the:

- Existing conditions review, including street characteristics, traffic conditions, parking and loading conditions.
- Public and stakeholder engagement program which included three phases of engagement throughout the study.
- Identification of opportunities and challenges for the corridor based on the findings from the existing conditions review and input received from Phase 1 Public Engagement.
- Cycling facility selection process including the cycling facility options that were considered for Avenue C that considered feedback from Phase 1 Public Engagement.
- Evaluation of cycling facility options based on technical expertise and input received from Phase 2 Public Engagement.
- Functional design of the Avenue C corridor that considers feedback received from Phase 3 Public Engagement.
- Prioritization of improvements, implementation plan and cost estimate for the recommended functional design of the Avenue C corridor.

The project study area is shown in **Figure 1.1**.

Figure 1.1: Study Area

2 EXISTING CONDITIONS

2.1 STREET CHARACTERISTICS

The existing street characteristics of the study area include the cross-section; traffic control devices; traffic calming; speed limits and school zones; land uses; asset preservation plans; pavement conditions; transit stop locations; and driveway / laneway locations. The data used in the desktop review was either provided by the City of Saskatoon or gathered from in-field observations.

2.1.1 CROSS-SECTION

The Avenue C corridor has an approximately 20 metre legal right-of-way (property line to property line) that increases to 23 metres north of Cynthia Street. The corridor crosses through many different types of land uses including commercial, residential, and industrial. The total roadway width (curb to curb) varies between nine and 18.5 metres.

COMMERCIAL SEGMENT (SPADINA CRESCENT TO 25TH STREET)

The corridor begins as a residential area that is adjacent to River Landing and is home to Isinger Park. The streetscaping was updated in the past 10 to 15 years up to 20th Street.

The corridor then transitions into a commercial district including restaurants and bingo hall. In this district, Avenue C crosses three major streets (19th Street, 20th Street, and 22nd Street) with traffic signals. The corridor starts off with an approximately 10 metre roadway total width transitioning to a 14 to 15 metre width at 19th Street. The corridor crosses the 23rd Street Bikeway (Blairmore Bikeway), then crosses the Canadian Pacific rail line with flashing light signals and the adjacent West-Central Multi-Use Corridor. **Figure 2.1** illustrates the example cross-section of the commercial section between 19th Street and 25th Street. Currently, there are no dedicated cyclist facilities on this corridor. There are sidewalks on both sides of the corridor with a gap on the east side of the street between 23rd Street and Jamieson Street and a gap on the west side of the street for 50 metres just north of 24th Street. Both of these gaps have been identified in the City's *Sidewalk Infill Program*.

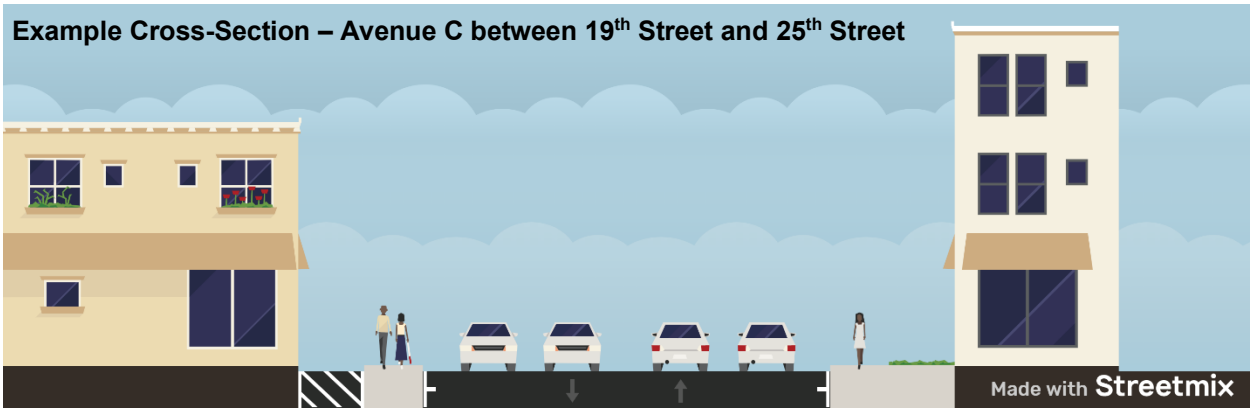


Figure 2.1: Example Cross-Section - Avenue C between 19th Street and 25th Street

NEIGHBORHOOD / RESIDENTIAL SEGMENT (25TH STREET TO 36TH STREET)

In this segment the cross-section of the corridor is narrow and changes multiple times through the study area. Currently, there are no dedicated cyclist facilities on this corridor and it is not classified as a cycling route on the 2023 Cycling Guide. This section intersects the approved 31st Street neighbourhood bikeway. The section includes an offset intersection at 33rd Street with a 20-metre jog measured from centerline to centerline. The 33rd Street intersection currently has stop control on the north and south legs and an Active Pedestrian Corridorbetween the legs. Saskatchewan Polytechnic College is located nearby on Idylwyld Drive and 33rd Street which is two blocks to the east; however, may be moving in the future. There are schools, parks, and access to a public swimming pool near the 30th Street and 31st Street crossings.

The corridor has a consistent nine metre roadway width with sidewalks on both sides of the street. Some boulevards include a furnishing zone. **Figure 2.2** illustrates an example cross-section of the corridor through this section.

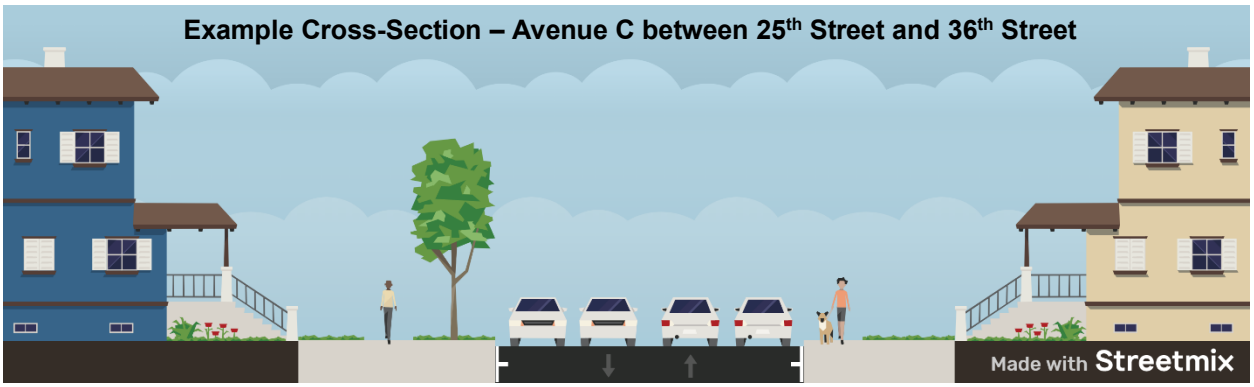


Figure 2.2: Example Cross-Section - Avenue C between 25th Street and 36th Street

TRAFFIC CALMED RESIDENTIAL SEGMENT (36TH STREET TO 38TH STREET)

The cross section of the corridor in this section is similar to the section to the south except for traffic calming to reduce through-traffic. There are traffic diverters on Avenue C at the north leg of 36th Street (restricting northbound traffic) and the south leg of 38th Street (restricting southbound traffic) that do not allow entering traffic between 36th Street and 38th Street. Two-way local traffic from 36th Street to 38th Street is still allowed to provide access to/from residences along this segment. Even though this is a two-way street, vehicles tend to park in the southbound direction between 36th Street and 37th Street on both sides of the street as if it were a one-way southbound street and in the northbound direction between 37th Street and 38th Street on both sides of the street as if it were a one-way northbound street. The 2014 Mayfair / Kelsey-Woodlawn Neighbourhood Traffic Management Plan recommended directional closures at the 36th Street and Avenue C intersection and the 38th Street and Avenue C intersection to reduce shortcutting and encourage drivers to use 36th Street and 38th Street which are collector roadways. There are sidewalks on both sides of the street and no gaps in the sidewalk network. **Figure 2.3** illustrates an example cross-section of the corridor through this section.

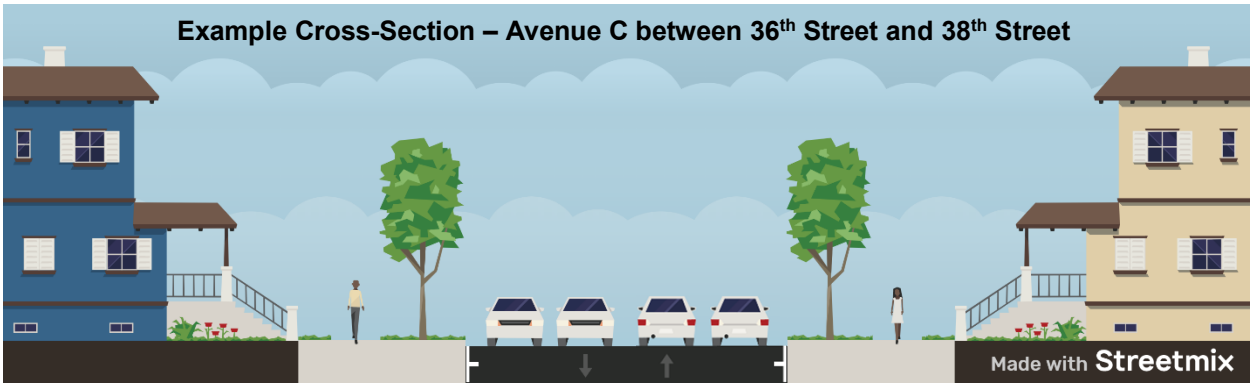


Figure 2.3: Example Cross-Section - Avenue C between 36th Street and 38th Street

RESIDENTIAL TO INDUSTRIAL SEGMENT (38TH STREET TO CIRCLE DRIVE)

North of 38th Street the corridor transitions into the north industrial district. The total roadway width is approximately 11 metres north of 38th Street and transitions to approximately 13 metres north of 39th Street. This segment of Avenue C is classified as a collector and overlaps with the No. 11 Airport / City Centre transit route. The area between 38th Street and the railway is zoned as residential and the area north of the railway is zoned as industrial. There are no dedicated cycling facilities along this segment of Avenue C. There are sidewalks on both sides of the street between 38th Street until 40 metres south of the railway tracks (40th Street). There are no facilities for pedestrians to cross the railway tracks. North of the railway, there is a 17 metre gap of no sidewalks on either side of the street, then there is a sidewalk on the east side of the street between 17 metres north of the railway to 41st Street. There are sidewalks on both sides of the street between 41st Street and Circle Drive, with many intersecting accesses on the east side. **Figure 2.4** illustrates an example cross-section of the corridor through this section.

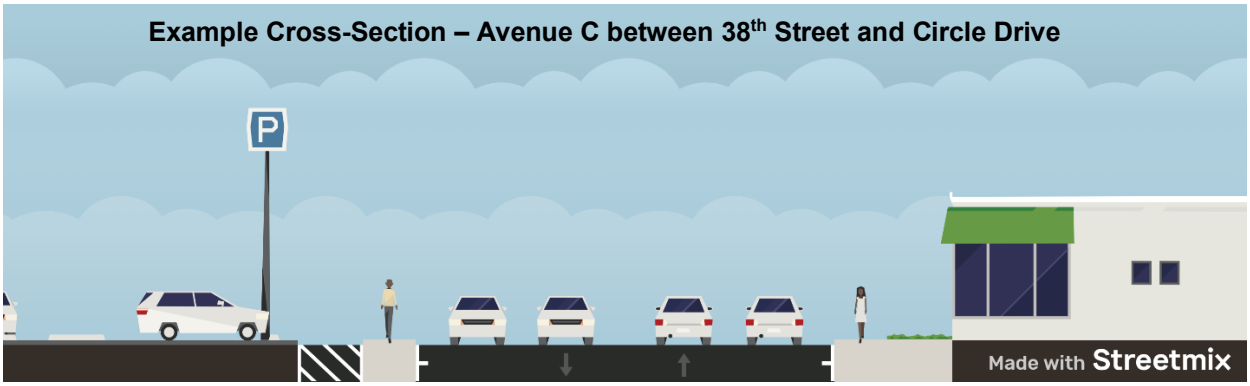


Figure 2.4: Example Cross-Section - Avenue C between 38th Street and Circle Drive

INDUSTRIAL/ARTERIAL SEGMENT (CIRCLE DRIVE TO 45TH STREET)

This segment is classified as an arterial and overlaps with the No. 11 Airport / City Centre transit route. The total roadway width is approximately 18.5 metres between Circle Drive and Cynthia Street, and 13.7 metres between Cynthia Street and 45th Street. There are commercial / industrial businesses and hotels located along this segment. This section does not have on-street parking, sidewalks or dedicated cycling facilities. **Figure 2.5** illustrates an example cross section of the corridor through this section.

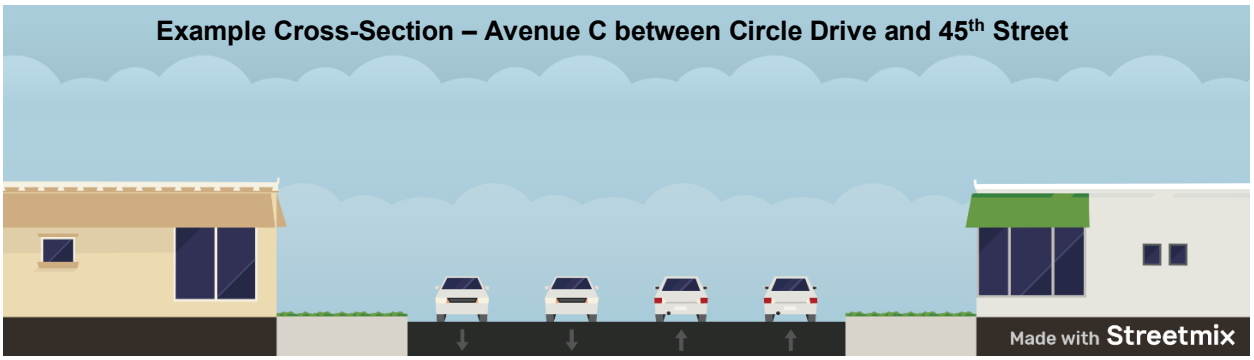


Figure 2.5: Example Cross-Section - Avenue C between Circle Drive and 45th Street

2.1.2 TRAFFIC CONTROL DEVICES

Table 2.1 summarizes the traffic control devices and pedestrian crossing control at all intersections along Avenue C from Spadina Crescent through 45th Street. There are six signalized intersections along the corridor with the remaining twenty-four intersections either yield- or stop-controlled. Thirteen of the yield- or stop-controlled intersections require yielding or stopping along Avenue C (including two 4-way stops), and the remaining eleven intersections have free-flowing traffic on Avenue C (cross-street yields or stops). There are currently six pedestrian crossings along the study corridor.

Table 2.1: Traffic Control Devices and Pedestrian Crossing Control on Avenue C

CROSS-STREET	TRAFFIC CONTROL AND PEDESTRIAN CROSSING CONTROL
Spadina Crescent	One-way stop control on Avenue C; The east and west legs have GM pedestrian crossings (Three-legged intersection where Avenue C terminates)
Sonnenschein Way	One-way yield-control on Sonnenschein Way (Three-legged intersection where Sonnenschein Way terminates)
19th Street	Signalized
20th Street	Signalized
21st Street	Two-way stop-control on 21st Street; The north and south legs have GM pedestrian crossings
22nd Street	Signalized
23rd Street	Four-way (all-way) stop-control
Jamieson Street	One-way stop-control on Jamieson Street (Three-legged intersection where Jamieson Street terminates)
24th Street	Two-way stop-control on 24th Street
25th Street	Two-way stop-control on Avenue C; The east and west legs have GM pedestrian crossings
26th Street	Two-way yield-control on Avenue C
27th Street	Two-way yield-control on 27th Street
28th Street	Two-way yield-control on Avenue C
29th Street	Two-way stop-control on Avenue C; The east and west legs have ground-mounted (GM) pedestrian crossings
30th Street	Two-way stop-control on 30th Street; The north leg has an overhead mounted pedestrian crossing
31st Street	Two-way stop-control on Avenue C

CROSS-STREET	TRAFFIC CONTROL AND PEDESTRIAN CROSSING CONTROL
32nd Street	Two-way yield-control on 32nd Street
33rd Street	Two-way stop-control on Avenue C (misaligned intersection); 33rd Street has a north-south overhead flashing pedestrian corridor between the north and south legs of Avenue C
34th Street	Two-way stop-control on Avenue C
35th Street	Two-way yield-control on 35th Street
36th Street	Two-way stop-control on Avenue C and a traffic diverter for the one-way directional traffic for the southbound movement on Avenue C north of 36th Street
37th Street	Two-way stop-control on Avenue C
38th Street	Two-way stop-control on Avenue C with a traffic diverter on the south leg for one-way northbound traffic on Avenue C
39th Street	Four-way (all-way) stop-control
41st Street	Two-way stop-control on Private Access / 41st Street
Circle Drive	Signalized
Cynthia Street	Signalized
Gyles Place	One-way yield on Gyles Place (Three-legged intersection where Gyles Place terminates)
Haskamp Street / Pakwa Place	Two-way stop-control on Haskamp Street / Pakwa Place
45th Street	Signalized

2.1.3 TRAFFIC CALMING DEVICES

Existing traffic calming devices on Avenue C include two, one-way traffic diverters. The diverters restrict travel on Avenue C to one-way northbound traffic between 37th Street and 38th Street (diverter on the south leg at 38th Street) and to one-way southbound traffic between 36th Street and 37th Street (diverter on the north leg at 36th Street). **Figure 2.6** shows the diverter at 36th Street and **Figure 2.7** shows the diverter at 38th Street.

Figure 2.6: Traffic Diverter on Avenue C at 36th Street (Facing North)

Figure 2.7: Traffic Diverter on Avenue C at 38th Street (Facing South)

2.1.4 SPEED LIMITS AND SCHOOL ZONES

The speed limit on all City of Saskatoon Streets is 50 km/h unless posted. The speed limit on Avenue C is 50 km/h except for the 30 km/h playground zone between Spadina Crescent and 19th Street and the 30 km/h school zone between 30th Street and 31st Street.

On November 22, 2021 City Council approved reduced speed limits of 30 km/h, year-round in both school and playground zones seven days a week from 7:00 a.m. to 7:00 p.m., adjustments to current school zone boundaries, and removal of lower speed zones from high schools. The only school zone on Avenue C is for Caswell Community School and starts approximately 25 metres south of 30th Street and ends approximately 40 metres south of 31st Street. The only playground zone on Avenue C is at Isinger Park, which starts approximately 60 metres north of Spadina Crescent and ends approximately 40 metres south of 19th Street.

2.1.5 PEDESTRIAN FACILITIES

Sidewalks are located on both sides of Avenue C except for the following locations where gaps exist:

- East side of Avenue C between 23rd Street and Jamieson Street;
- West side of Avenue C between 24th Street and 25th Street (for approximately 50m);
- West side of Avenue C between the rail line and 41st Street; and
- Both sides of Avenue C between Circle Drive and 45th Street.

In addition, there are several intersections along Avenue C (north of 20th Street) that do not have accessible pedestrian ramps on all four corners of the intersection.

Additional information on the pedestrian level-of-service, including sidewalk and boulevard widths, are included in **Section 2.1.7**.

2.1.6 CYCLING FACILITIES

EXISTING CYCLING FACILITIES

Figure 2.8 shows the 2023 existing cycling facilities surrounding and within the study area. The City categorizes their facilities as primary routes for all ages and abilities and secondary routes with painted bike lanes that are suitable for intermediate cyclists. The existing facilities relevant to the study area are listed from north to south below:

- Spadina Crescent along the South Saskatchewan River: Multi-use pathway;
- 23rd Street east of Idylwyld Drive: Protected bike lanes (primary cycling route);
- 23rd Street between the railway east of Circle Drive and Avenue C: Bike boulevard (primary cycling route);
- 33rd Street between Warman Road / railway tracks and Ontario Avenue: Multi-use pathway (primary cycling route);
- Warman Road / the railway tracks between Wheeler Place and 33rd Street: Multi-use pathway (primary cycling route); and
- Circle Drive west of Avenue C: Restricted cycling.

Additional information on the cyclist level-of-service is included in **Section 2.1.7**.

Figure 2.8: Existing Cycling Network (source: 2023 Cycling Guide)

PLANNED CYCLING INFRASTRUCTURE

There are several active transportation and Neighbourhood Traffic Review studies that have been completed in recent years that should be considered in the planning and design of the Avenue C active transportation corridor.

AT Plan – Saskatoon's AT Plan (see **Figure 2.9**) has identified several AAA facilities on streets that cross Avenue C, including 19th Street, Jamieson Street (east of Avenue C), 29th Street, 31st Street, and Cynthia Street (west of Avenue C). The Plan also identifies multi-modal corridors on 22nd Street, 25th Street, and 33rd Street, as well as non-AAA cycling facilities on 20th Street, 36th Street, and 45th Street. Since the development of this plan, the City of Saskatoon completed the Neighbourhood Bikeways Project which identified 31st Street (over 29th Street) as the preferred AAA route from Circle Drive to Idylwyld Drive. As a result, 29th Street is no longer planned to be a future AAA route. In addition, the City has identified 22nd Street as a future Bus Rapid Transit route, with a station planned at Avenue C.

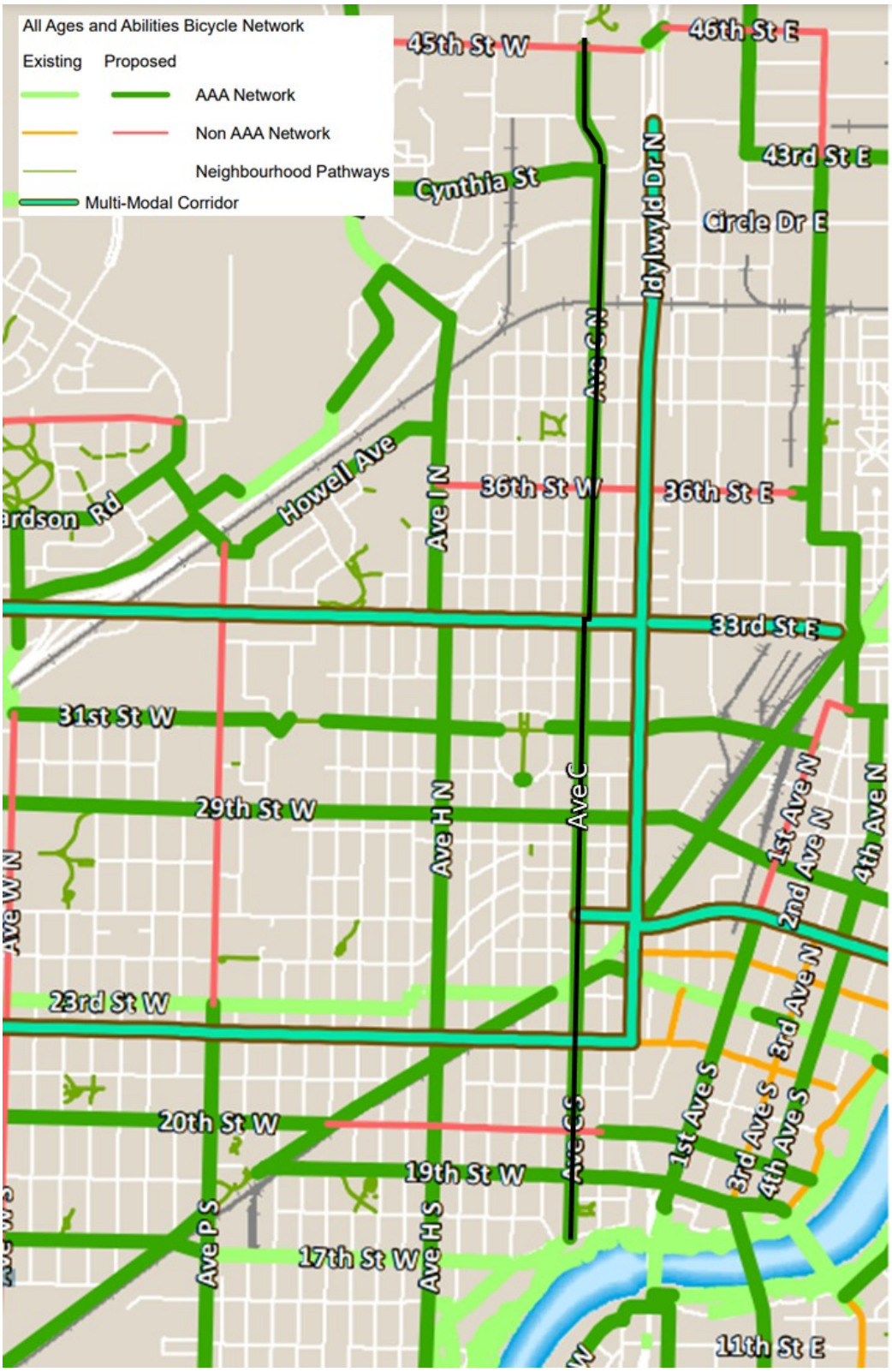


Figure 2.9: Proposed Cycling Network (source: Active Transportation Final Report 2016)

Neighbourhood Bikeways Project – As part of the Neighbourhood Bikeways Project, 31st Street was identified as the preferred corridor for connecting Avenue W to Idylwyld Drive. The concept developed includes a neighbourhood bikeway for the majority of the corridor, including at the intersection with Avenue C. The concept design at the intersection with Avenue C is shown in **Figure 2.10**.

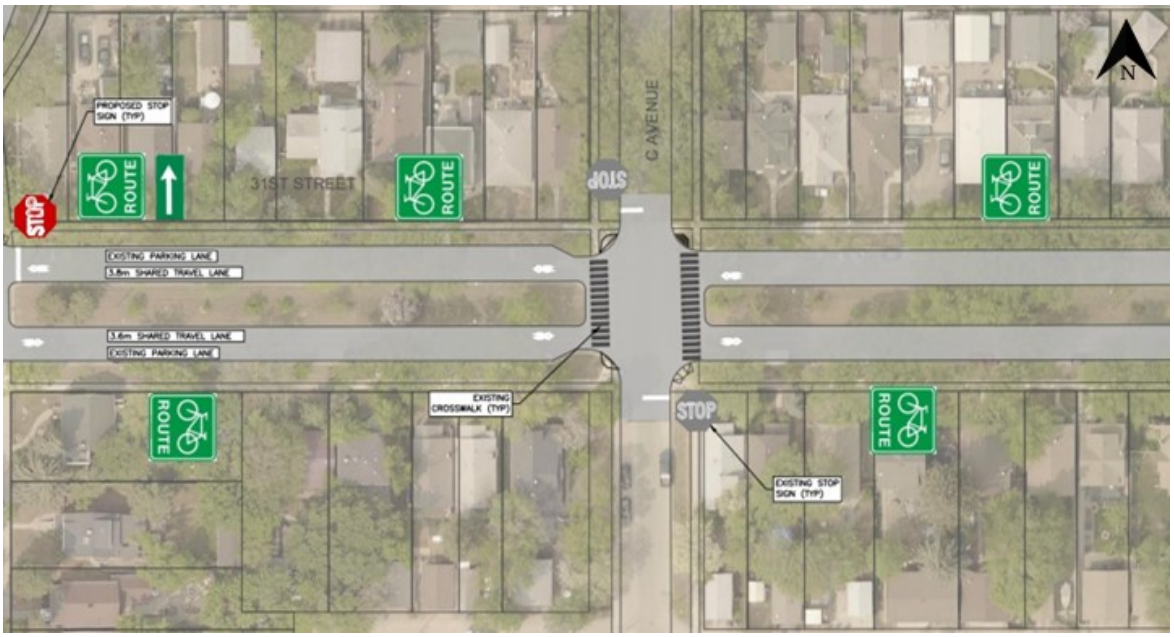


Figure 2.10: Bicycle Boulevard Conceptual Design for 31st Street at Avenue C (Neighbourhood Bikeways Project: 31st Street West Corridor, 2020)

19th Street Corridor Review – An evaluation of cycling facilities on 19th Street or 20th Street was conducted in 2017 and it was recommended that AAA cycling facilities be installed on 19th Street from Avenue A to Avenue H by reducing the number of lanes from four lanes to two lanes. A design has not yet been established; however, the possibility of future cycling facilities on 19th Street should be considered for the Avenue C and 19th Street intersection as part of this study.

West-Central Multi-Use Path – A three-kilometre multi-use pathway adjacent to the CP railway tracks from Idylwyld Drive to Avenue W South was approved by council in 2013. The purpose of this project was to address safety issues and provide an active transportation connection to downtown through the Pleasant Hill, Riversdale and West Industrial neighbourhoods. The pathway is currently constructed between Idylwyld Drive and Avenue F south. The section from 20th Street to Avenue Q South is to be constructed in 2023.

Imagine Idylwyld – Imagine Idylwyld is a conceptual design study completed in 2018 that identified improvements to the roadway and public realm along Idylwyld Drive between 20th Street and 25th Street. The conceptual design includes unidirectional raised cycle tracks on the east and west sides of Idylwyld Drive. Idwylwyld Drive runs north-south and is located two blocks from Avenue C. The concept design from the Conceptual Design Report is shown in **Figure 2.11**.

Connecting Downtown – A conceptual plan has been developed for Saskatoon's downtown active transportation network that includes provision of cycling facilities on 23rd Street. Providing a cycling facility on Jamieson Street to connect Avenue C to 23rd Street is an important consideration for the cycling network.

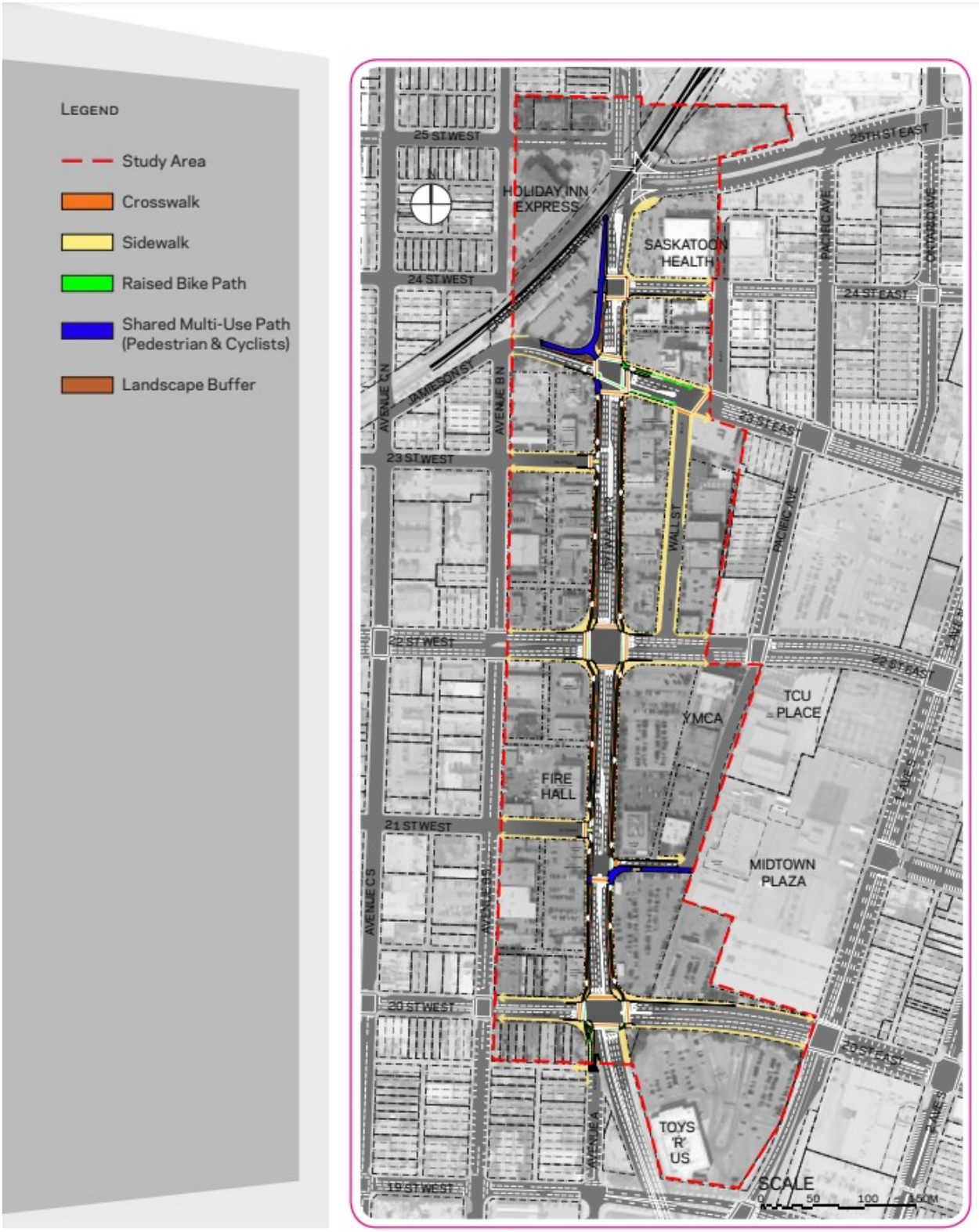


Figure 2.11: Imagine Idylwyld Conceptual Design (Imagine Idylwyld: Conceptual Design Report, 2018)

2.1.7 PEDESTRIAN AND CYCLIST LEVEL-OF-SERVICE

To quantify the existing convenience and comfort of pedestrians and cyclists traveling along the Avenue C corridor, a multi-modal level of service (MMLOS) analysis was performed using industry best practices. The *City of Ottawa's Multi-modal Level of Service (MMLOS) Guidelines* (IBI Group, 2015) methodology was selected for this analysis by the City of Saskatoon:

- The inputs for segment pedestrian level of service (PLOS) are noted in Exhibit 2 of the MMLOS Guideline and include sidewalk width, boulevard width, motor vehicle AADT per travel lane, presence of on-street parking, and vehicle speed. MMLOS Guideline Exhibit 4 shows the evaluation table to determine the PLOS for each segment.
- The inputs for segment bicycle level of service (BLOS) are noted in Exhibit 9 of the MMLOS Guideline and include type of cycling facility (i.e., mixed-traffic, bike lanes, physical separation), number of lanes, vehicle speed, and other factors depending on the type of facility. MMLOS Guideline Exhibit 11 shows the evaluation table to determine the BLOS for each segment.
- The MMLOS Guideline also provides a recommended minimum desirable target for LOS for each mode for specific land use types (Exhibit 22).

The Pedestrian LOS (PLOS) analysis and Bicycle LOS (BLOS) analysis included each segment between both signalized and stop-controlled intersections along Avenue C. The west and east sidewalks were evaluated separately for the PLOS analysis. The PLOS and BLOS results with the minimum desirable LOS are provided in **Table 2.2**. The complete analysis is included in **Appendix A**.

Table 2.2: Pedestrian and Bicycle LOS Segment Results and Minimum Desirable Targets

SEGMENT	SUB SEGMENT	LAND USE	ROAD CLASS	PEDESTRIAN LOS			BICYCLE LOS	
				AVE C PLOS				
				WEST SIDEWALK	EAST SIDEWALK	MIN. DESIRABLE TARGET	AVE C BLOS	MIN. DESIRABLE TARGET
19th Street - Spadina Crescent	Spadina Crescent - Sonnenschein Way	Urban Area	Local	E	A	C	B	B
	Sonnenschein Way - 19th Street	Urban Area	Local	E	C	C	B	B
19th Street - 20th Street		Urban Area	Local	C	C	C	D	B
20th Street - 22nd Street	20th Street - 21st Street	Urban Area	Local	F	E	C	D	B
	21st Street - 22nd Street	Urban Area	Local	E	B	C	D	B
22nd Street - Circle Drive	22nd Street - 23rd Street	Urban Area	Local	E	E	C	D	B
	23rd Street - Jamieson Street	Urban Area	Local	E	F	C	D	B
	Jamieson Street - 24th Street	Urban Area	Local	B	E	C	D	B
	24th Street - 25th Street	Urban Area	Local	E	F	C	D	B
	25th Street - 26th Street	Urban Area	Local	C	C	C	B	B
	26th Street - 27th Street	Urban Area	Local	C	C	C	B	B
	27th Street - 28th Street	Urban Area	Local	C	C	C	B	B
	28th Street - 29th Street	Urban Area	Local	E	C	C	B	B
	29th Street - 30th Street	Urban Area	Local	C	C	C	B	B
	30th Street - 31st Street	Urban Area	Local	D / E	C / C	C	A / B	B
	31st Street - 32nd Street	Urban Area	Local	C	C	C	B	B
	32nd Street - 33rd Street	Urban Area	Local	C	C	C	B	B
	33rd Street - 34th Street	Urban Area	Local	C	C	C	B	B
	34th Street - 35th Street	Urban Area	Local	C	C	C	B	B
	35th Street - 36th Street	Urban Area	Local	C	C	C	B	B
	36th Street - 37th Street	Urban Area	Local	C	C	C	B	B
	37th Street - 38th Street	Urban Area	Local	C	C	C	B	B
	38th Street - 39th Street	Urban Area	Collector	E	E	C	B	B
	39th Street - Rail	Urban Area	Collector	E	E	C	B	B
	Rail - 41st Street	Employment Area	Collector	F	B	C	D	C
	41st Street - Circle Drive	Employment Area	Collector	B	B	C	E	C
Circle Drive - Cynthia Street		Employment Area	Major Arterial	F	F	C	E	C
Cynthia Street - 45th Street	Cynthia Street - Gyles Place	Employment Area	Major Arterial	F	F	C	E	C
	Gyles Place - Haskamp Street / Pakwa Place	Employment Area	Major Arterial	F	F	C	E	C
	Haskamp Street / Pakwa Place - 45th Street	Employment Area	Major Arterial	F	F	C	E	C

Note: Highlighted cells identity segments that have PLOS or BLOS below the minimum desirable target.

The segments that have a PLOS below the minimum desirable target along the west sidewalk include:

- Spadina Crescent to 19th Street;
- 20th Street to 21st Street;
- 21st Street to 22nd Street;
- 22nd Street to 23rd Street;
- 23rd Street to Jamieson Street;
- 24th Street to 25th Street;
- 28th Street to 29th Street;
- 30th Street to 31st Street;
- 38th Street to 39th Street;
- 39th Street to the railway;
- Railway to 41st Street;
- Circle Drive to Cynthia Street; and
- Cynthia Street to 45th Street.

The segments that have a PLOS below the minimum desirable target along the east sidewalk include:

- 20th Street to 21st Street;
- 22nd Street to 23rd Street;
- 23rd Street to Jamieson Street;
- Jamieson Street to 24th Street;
- 24th Street to 25th Street;
- 38th Street to 39th Street;
- 39th Street to the railway;
- Circle Drive to Cynthia Street; and
- Cynthia Street to 45th Street.

The segments that have a BLOS below the minimum desirable target along Avenue C include:

- 19th Street to 20th Street;
- 20th Street to 21st Street;
- 21st Street to 22nd Street;
- 22nd Street to 23rd Street;
- 23rd Street to Jamieson Street;
- Jamieson Street to 24th Street;
- 24th Street to 25th Street;
- The railway to 41st Street;
- 41st Street to Circle Drive;
- Circle Drive to Cynthia Street; and
- Cynthia Street to 45th Street.

2.1.8 LAND USES

Figure 2.12 shows the land use surrounding the study area:

- The land use south of 25th Street is a mix of Utility Area, Residential Multi Use, Arterial Commercial (along 22nd Street), Medium density residential, Special Area Commercial (along 20th Street), Direct Control District 1, and Transitional;
- The land use between 25th Street and 33rd Street is Low Density Residential 1;
- The land use along 33rd Street is Special Area Commercial;
- The land use between 33rd Street and the railway is Low Density Residential 2; and
- The land use north of the railway is light industrial.

South of 33rd Street there are smaller land use districts with a variety of land uses and north of 33rd Street the land use districts are larger and more discrete.

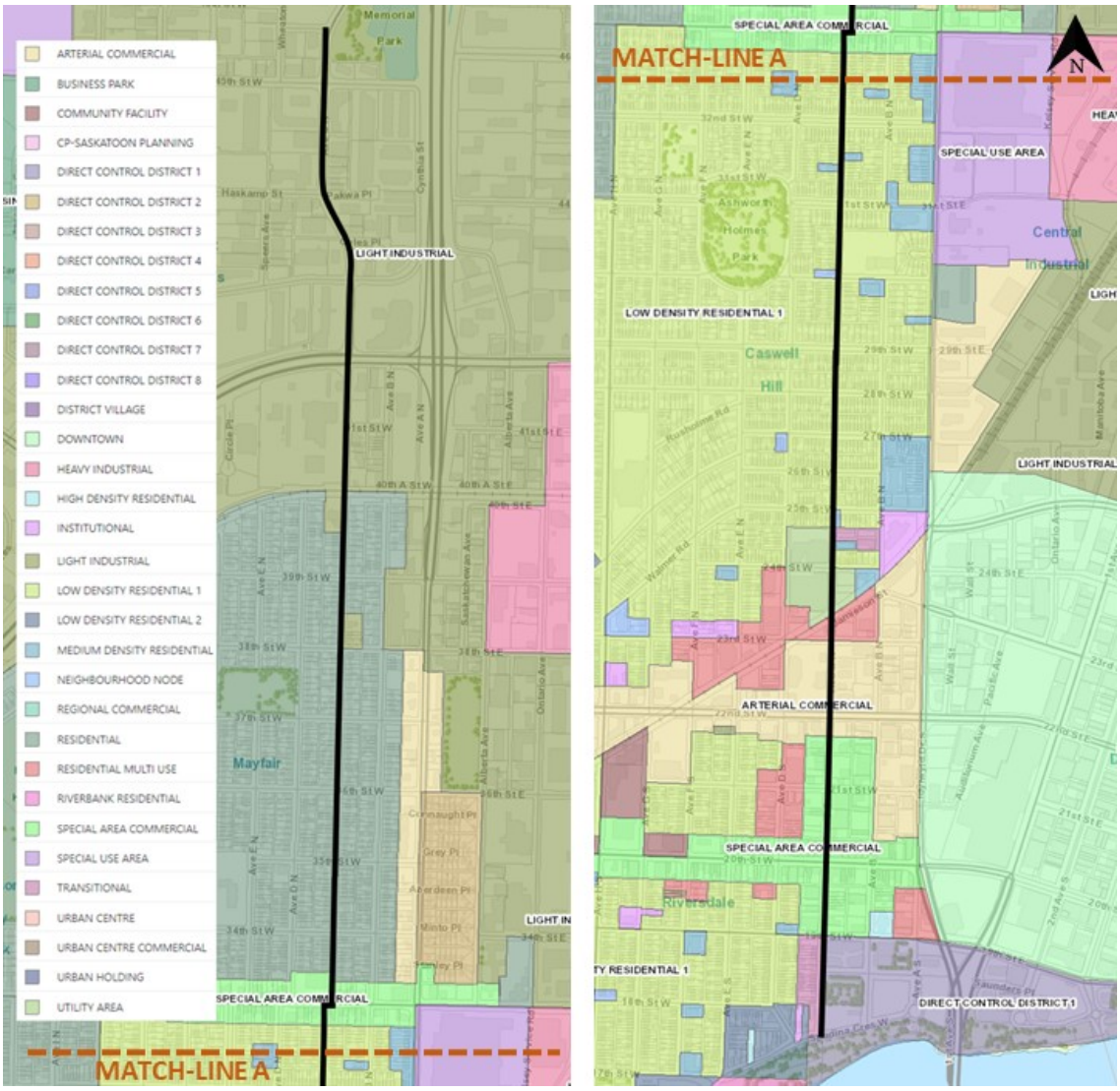


Figure 2.12: Existing Land Use

EXISTING DESTINATIONS

There are five schools (including Saskatoon Polytechnic), two parks, and numerous entertainment attractions within the study area. The entertainment attractions include restaurants, pubs, museums, and family activities. Business improvement districts and associations within the study area include:

- Riversdale Business Improvement District
- 33rd Street Business Improvement District
- North Saskatoon Business Association

Figure 2.13 shows some potential destinations for pedestrians and cyclists within the study area with the existing transit and proposed cycling facilities.

Figure 2.13: Key Destinations with Existing and Proposed Cycling Network

NEIGHBOURHOOD TRAFFIC STUDIES AND LOCAL AREA PLANS

There are several neighbourhood traffic review studies and local area plans that have been completed in recent years that should be considered in the planning and design of the Avenue C active transportation corridor.

Caswell Hill Neighbourhood Traffic Review – The Caswell Hill Neighbourhood Traffic Review was completed in 2015 and included a public meeting to identify issues, concerns and possible solutions related to speeding, shortcutting, pedestrian safety, traffic control, parking, and cycling. Recommended improvements for Avenue C included changing yield signs to stop signs at the Avenue C / 30th Street and Avenue C / Jamieson Street intersections, as well as adding a Zebra crosswalk at the Avenue C / 29th Street intersection. The recommendations from the traffic review have been implemented.

Mayfair / Kelsey-Woodlawn Neighbourhood Traffic Review – The Mayfair / Kelsey-Woodlawn Neighbourhood Traffic Review was completed in 2014 and included a public meeting to identify issues, concerns and possible solutions related to speeding, shortcutting, pedestrian safety, traffic control, parking, and cycling. Recommended improvements for Avenue C included changing yield signs to stop signs at the Avenue C / 34th Street and Avenue C / 37th Street intersections, a directional closure on Avenue C between 36th Street and 38th Street, and curb extensions and a median island on Avenue C south of the railway tracks. The recommendations from the traffic review have been implemented.

Riversdale Neighbourhood Traffic Review – The Riversdale Neighbourhood Traffic Review was completed in 2019 and included a public meeting to identify issues, concerns and possible solutions related to speeding, shortcutting, pedestrian safety, traffic control, parking, and cycling. Recommended improvements for Avenue C included adding a permanent curb extension on the northwest corner of the intersection with Spadina Crescent to improve pedestrian safety. The recommendations from the traffic review have been implemented.

Airport Business Area Neighbourhood Traffic Review – The Airport Business Area Neighbourhood Traffic Review was completed in 2020 and included a public meeting to identify issues, concerns and possible solutions related to speeding, shortcutting, pedestrian safety, traffic control, parking, and cycling. Recommended improvements for Avenue C included adding a speed display board (southbound) between Circle Drive off ramp and Hangar Road to reduce speeds, improving access from side streets between Hangar Road and 45th Street (as they become warranted), and identifying intersection improvements at Circle Drive.

Local Area Plans (LAP) – The City of Saskatoon has several local area plans, which are comprehensive neighbourhood plans that enable residents, business owners, property owners, community groups and other stakeholders to provide direct input into determining the future of their communities. Key findings related to Avenue C, as well as pedestrian and cycling improvements include:

- **Riversdale LAP** includes Avenue C from Spadina Crescent to 22nd Street. Goals for the area included providing traffic calming and appropriate pedestrian crossings (particularly at Spadina Crescent) and improving bike networks throughout the neighbourhood. Concerns regarding cycling included cycling safety, ensuring that the Meewasin Trails in Victoria Park are accessible from the roadways and that there are more on-street routes for cyclists, and ensuring cyclists can be detected at traffic signals.
- **Caswell Hill LAP** includes Avenue C from 22nd Street to 33rd Street. Recommendations for Avenue C included traffic calming to reduce short-cutting and speeds, providing safe pedestrian

and bike passages (especially along school routes), and upgrading street corners with wheelchair accessible ramps.

- **Mayfair Kelsey-Woodlawn LAP** includes Avenue C from 33rd Street to 40th Street. The plan suggests that Avenue C be a north-south cycling route with a protected cycling lane, if feasible. It also notes that the safety of pedestrians near schools is a high priority and identifies that the rail lines and high-traffic corridors (like Circle Drive) pose significant barriers for walking and cycling.
- **Airport Industrial LAP** includes Avenue C from 40th Street to 46th Street. A key concern for this area included the lack of pedestrian and cycling facilities in general. The plan included a proposed pedestrian/cyclist trail system that would cross Avenue C at Cynthia Street and 45th Street.

2.1.9 ASSET PRESERVATION PLANS

The 2023-2025 Asset Preservation Plans for Avenue C have been provided in **Table 2.3**. This information was sourced from the City's website: https://citysaskatoon.maps.arcgis.com/apps/View/index.html?appid=7fdbcf561f854589949c884911c35ca4

Table 2.3: Asset Preservation Plans along Avenue C

LOCATION	SANITARY PRESERVATION			ROADWAY AND SIDEWALK PRESERVATION		
	2023	2024	2025	2023	2024	2025
Avenue C – 23rd Street and Jamieson Street				X		
Avenue C at 24th Street (east leg only)*					X *	X *
Avenue C at 30th Street (east leg only)					X	
Avenue C – 33rd Street to 34th Street		X				
Avenue C – Haskamp Street and 45th Street (west side)				X		

**These locations are currently under review due to budget constraints.*

2.1.10 PAVEMENT CONDITIONS

Table 2.4 shows the pavement conditions for each segment along Avenue C between Spadina Crescent and 45th Street. The table includes the classification of the road, the most recent treatment on record, the 2021 estimated Pavement Condition Index (PCI), and the PCI rating. Twenty-four of the thirty-one segments have a PCI rating of fair or better, three segments are rated as "Poor", and four are rated as "Very Poor". The sections that require treatment are 23rd Street to 24th Street, 33rd Street to 35th Street, and Cynthia Street to 45th Street.

Table 2.4: Pavement Conditions on Avenue C

SEGMENT ON AVENUE C	CLASS	TREATMENT	TREATMENT YEAR	2021 ESTIMATED PCI	RATING
Spadina Crescent - Sonnenschein Way	Collector	Resurface	2018	94.0	Good
Sonnenschein Way - 19th Street	Collector	Resurface	2018	94.0	Good
19th Street - 20th Street	Local	Resurface	2018	94.0	Good
20th Street - 21st Street	Local	Resurface	2018	94.0	Good
21st Street - 22nd Street	Local	Resurface	2018	94.0	Good
22nd Street - 23rd Street	Local	-	-	66.2	Fair
23rd Street - Jamieson Street	Local	Resurface	2022	38.9	Very Poor
Jamieson Street - 24th Street	Local	-	-	40.8	Poor
24th Street - 25th Street	Local	-	-	66.1	Fair
25th Street - 26th Street	Local	-	-	63.0	Fair
26th Street - 27th Street	Local	-	-	69.3	Fair
27th Street - 28th Street	Local	-	-	63.9	Fair
28th Street - 29th Street	Local	-	-	68.1	Fair
29th Street - 30th Street	Local	Resurface	2017	81.3	Satisfactory
30th Street - 31st Street	Local	Resurface	2017	85.4	Good
31st Street - 32nd Street	Local	Reconstruction - Light	2017	91.7	Good
32nd Street - 33rd Street	Local	Microsurface	2015	69.6	Fair
33rd Street - 34th Street	Local	Reconstruction - Light	2026	36.5	Very Poor
34th Street - 35th Street	Local	Reconstruction - Light	2026	25.8	Very Poor
35th Street - 36th Street	Local	Microsurface	2020	93.0	Good
36th Street - 37th Street	Local	Microsurface	2020	93.0	Good
37th Street - 38th Street	Local	Reconstruction - Light	2020	98.0	Good
38th Street - 39th Street	Collector	Reconstruction - Light	2020	98.0	Good
39th Street - Rail	Collector	Resurface	2020	98.0	Good
Rail - 41st Street	Collector	Resurface	2020	98.0	Good
41st Street - Circle Drive	Collector	Resurface	2016	85.8	Good
Circle Drive - Cynthia Street SB	Major Arterial	Resurface	2016	77.1	Satisfactory
Circle Drive - Cynthia Street NB	Major Arterial	Resurface	2016	77.6	Satisfactory
Cynthia Street - Gyles Place	Major Arterial	-	-	41.7	Poor
Gyles Place - Haskamp Street / Pakwa Place	Major Arterial	-	-	45.0	Poor
Haskamp Street / Pakwa Place - 45th Street	Major Arterial	-	-	25.5	Very Poor

2.1.11 TRANSIT STOP LOCATIONS

There are nine existing transit routes serving portions of the study area. The only route that runs along Avenue C is Route 11 between 38th Street and 45th Street. Otherwise, all other routes intersect Avenue C with transit stops on or near Avenue C. The following routes provide service within the study area on the cross-streets listed below:

- Route 2/10 Meadowgreen / City Centre services 20th Street;
- Routes 3 Hudson Bay Park / City Centre, Route 60 Confederation / City Centre, Route 64 McCormack / City Centre, and Route 65 Kensington / City Centre service 22nd Street;
- Route 5 Confederation Terminal / City Centre services 23rd Street;
- Route 7 Dundonald / City Centre and Route 22 Confederation / City Centre service 33rd Street;
- Route 9 Riversdale / City Centre services 19th Street; and
- Route 11 Airport / City Centre services 36th Street, 38th Street, 45th Street, and along Avenue C between 38th Street and 45th Street.

The transit stop locations and intersecting transit routes within the study area are shown in **Figure 2.14**.

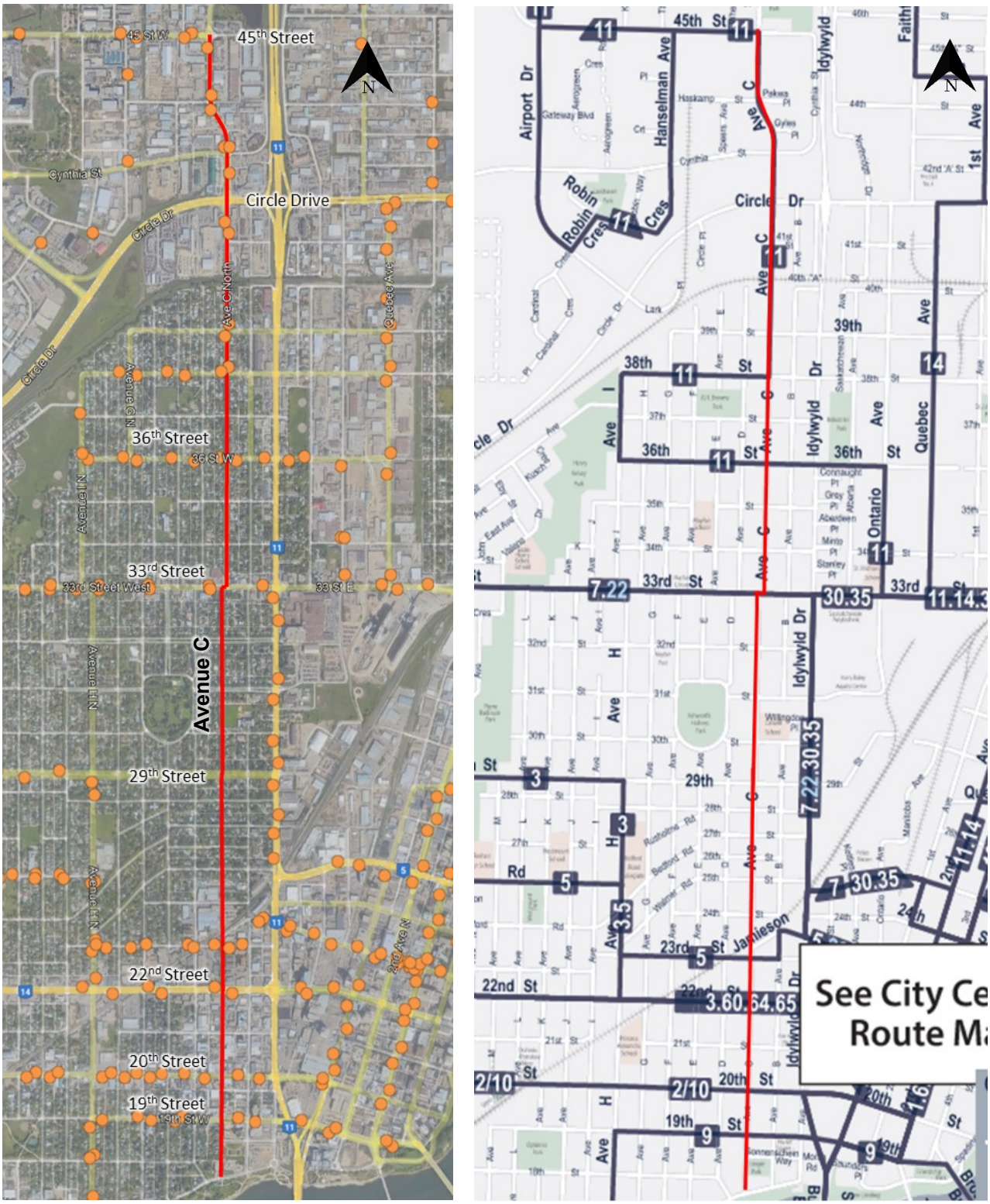


Figure 2.14: Transit Stops (left) and Transit Routes (right)

2.1.12 DRIVEWAY / LANEWAY LOCATIONS

There are almost 160 driveway and laneway locations along Avenue C within the study area. **Figure 2.15** shows the driveways and laneways along Avenue C with the number of accesses for each segment on Avenue C. A larger scale map of the accesses is provided in **Appendix B**. Driveways and accesses are frequent throughout the study area but are reduced to mostly laneways with a few driveways between 25th Street and 33rd Street. Residential driveways are more frequent between 36th Street and the railway. Some parking lots have three to four driveways on Avenue C for a single lot (i.e., northeast corner of Avenue C and 22nd Street, southeast corner of Avenue C and 24th Street, and northeast of Avenue C at the railway). In the industrial and commercial areas, some accesses to parking lots are 15 to 30 metres wide.

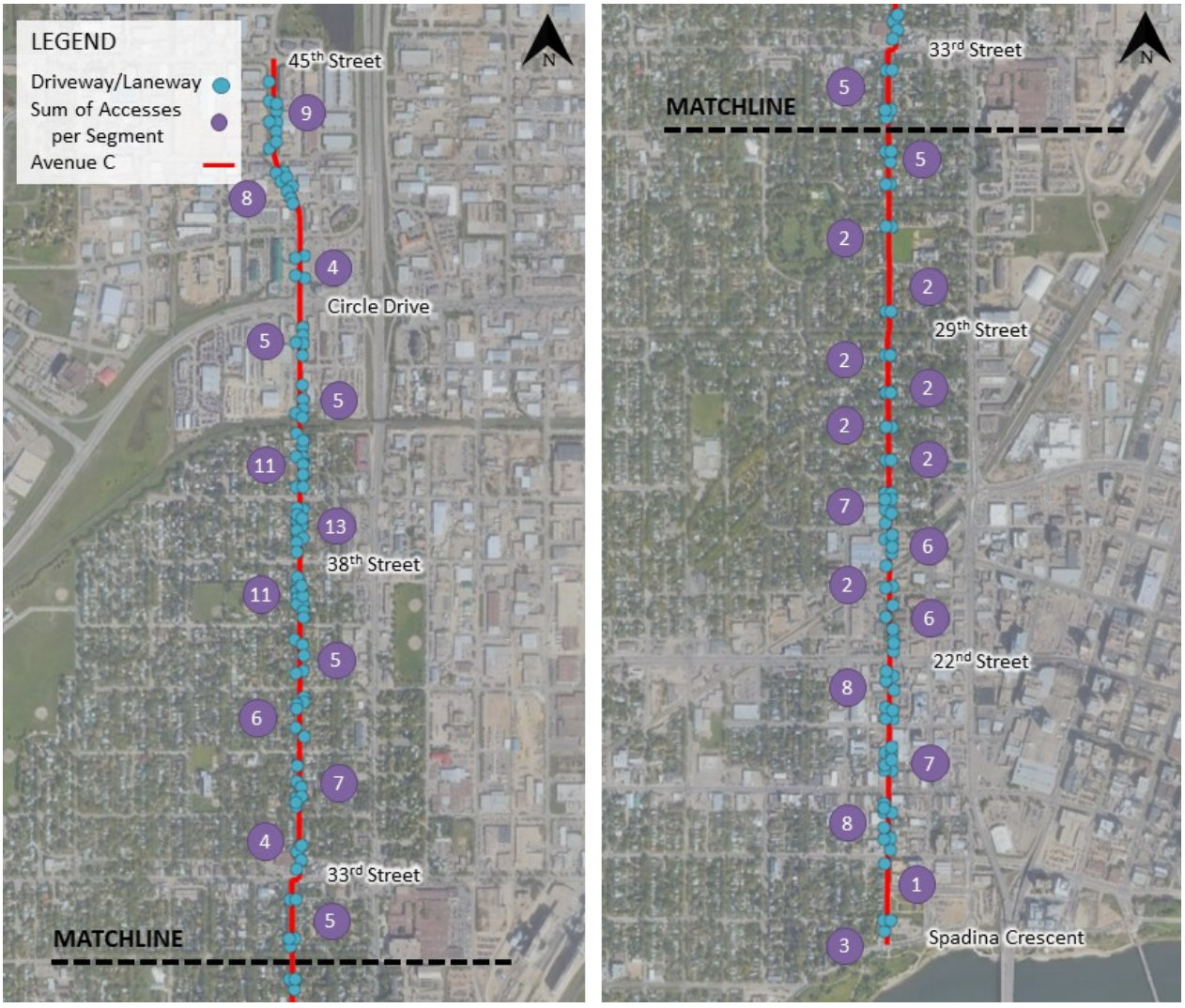


Figure 2.15: Driveway and Laneway Locations

2.2 TRAFFIC CONDITIONS

The traffic conditions along Avenue C were assessed by completing a review of traffic volume, speed, and collision data, as well as identifying potential conflict locations and goods and service delivery routes.

2.2.1 TRAFFIC VOLUMES

The existing average weekday daily traffic (AWDT) volumes throughout the study area are based on traffic counts conducted by the City of Saskatoon in 2021. The data includes mostly 6-hour turning movement counts (TMCs), 24-hour TMCs, and 72-hour tube counts. The weekday p.m. peak hour was multiplied by a factor of 10 to estimate the AWDT from the 6-hour counts. **Table 2.5** shows average weekday traffic volumes for streets where data was available within the study area. Existing traffic volumes on Avenue C range from 490 to 17,400 vehicles per day. The major arterial section (Cynthia Street to 45th Street) has the highest volumes, the local / collector streets have volumes between 1,000 to 6,300 vehicles per day, and most of the local streets (24th Street to 33rd Street) have volumes of less than 1,000 vehicles per day.

Table 2.5: Avenue C Daily Traffic Volumes

AVENUE C SEGMENT	CLASS	DATA SOURCE	AWDT CALCULATION	NORTHBOUND AWDT	SOUTHBOUND AWDT	TOTAL AWDT
Spadina Crescent - 19th Street	Local	6-hour TMC	PM Peak x 10	550	600	**1150**
19th Street - 20th Street	Local	6-hour TMC	PM Peak x 10	985	840	**1825**
20th Street - 21st Street	Local	6-hour TMC	PM Peak x 10	1060	970	**2030**
21st Street - 22nd Street	Local	24-hour TMC	24-hour	1420	1315	**2735**
22nd Street - 23rd Street	Local	24-hour TMC	24-hour	930	925	**1855**
24th Street - 25th Street	Local	72-hour Tube Count	24-hour Avg	455	400	**855**
25th Street - 26th Street	Local	6-hour TMC	PM Peak x 10	500	340	**840**
28th Street - 29th Street	Local	6-hour TMC	PM Peak x 10	240	260	**500**
29th Street - 30th Street	Local	6-hour TMC	PM Peak x 10	180	310	**490**
31st Street - 32nd Street	Local	72-hour Tube Count	24-hour Avg	385	305	**690**
32nd Street - 33rd Street	Local	6-hour TMC	PM Peak x 10	330	550	**880**
33rd Street - 34th Street	Local	6-hour TMC	PM Peak x 10	800	520	**1320**
38th Street - 39th Street	Collector	6-hour TMC	PM Peak x 10	1190	1440	**2630**

AVENUE C SEGMENT	CLASS	DATA SOURCE	AWDT CALCULATION	NORTHBOUND AWDT	SOUTHBOUND AWDT	TOTAL AWDT
39th Street - 41st Street	Collector	6-hour TMC	PM Peak x 10	2350	3310	**5660**
41st Street - Circle Drive	Collector	6-hour TMC	PM Peak x 10	3060	3240	**6300**
Circle Drive - Cynthia Street	Major Arterial	6-hour TMC	PM Peak x 10	5230	12170	**17400**
Haskamp Street / Pakwa Place - 45th Street	Major Arterial	6-hour TMC	PM Peak x 10	5300	6550	**11850**

2.2.2 SPEED STUDIES

The City of Saskatoon provided nine speed studies along Avenue C within the study area. **Table 2.6** summarizes the results from the speed studies including the posted speed, 85th percentile speed, percent of compliant vehicles, and vehicles that are speeding 10 km/h or more over the speed limit.

Key findings:

- The segment of 30th Street to 31st Street is a school zone that has a posted speed limit of 30 km/h from Monday to Friday, September through June, from 8:00 a.m. to 5:00 p.m. and is otherwise posted at 50 km/h. The data for this segment was separated into the two speed limits to assess the speed data with the appropriate speed limit at the time of day analyzed.
- The 85th percentile speed is greater than the posted speed on Avenue C between 24th Street and 25th Street, 30th Street and 31st Street during the school zone hours, and Cynthia Street and 45th Street.
- Compliance with the speed limit is between 49% to 100% along Avenue C with least compliance between Cynthia Street and 45th Street and the most compliance between 34th Street and 35th Street. Only 7% of vehicles travelled 40 km/h or higher within the 30 km/h school zone.
- There is a large difference in speed between the two lanes on Avenue C between 24th Street to 25th Street. This may be due to decelerating / accelerating while entering / exiting or parking within the segment. There is also a large difference in speed in the northbound and southbound directions between 45th Street and Cynthia Street, which may be due to the speed limit change to 60 km/h north of 45th Street.

Table 2.6: Speed Study Summary on Avenue C

AVENUE C SEGMENT	POSTED LIMIT (KM/H)	85TH PERCENTILE SPEED (KM/H)			% VEHICLES OVER LIMIT	% COMPLYING WITH SPEED LIMIT	% VEHICLES >10 KM/H OVER
		NORTH-BOUND	SOUTH-BOUND	LANE TOTAL			
Spadina Crescent - 19th Street	50	45	44	44	4%	96%	0.3%
20th Street - 21st Street	50	47	46	46	4%	96%	0.2%
22nd Street - 23rd Street	50	47	46	46	6%	94%	1%

AVENUE C SEGMENT	POSTED LIMIT (KM/H)	85TH PERCENTILE SPEED (KM/H)			% VEHICLES OVER LIMIT	% COMPLYING WITH SPEED LIMIT	% VEHICLES >10 KM/H OVER
		NORTH-BOUND	SOUTH-BOUND	LANE TOTAL			
24th Street - 25th Street	50	59	39	**56**	29%	71%	7%
27th Street - 28th Street	50			41**	1%	99%	0.1%
30th Street - 31st Street	50*	43	46	44	4%	96%	0.3%
30th Street - 31st Street (School Zone)	30*	36	38	**37**	51%	49%	7%
34th Street - 35th Street	50	38	35	37	0.1%	100%	0.0%
Rail - 41st Street	50	48	52	50	26%	74%	2%
45th Street - Cynthia Street	50	68	49	**63**	46%	54%	23%

* 30 km/h School Zone Monday to Friday, September through June, from 8:00 a.m. to 5:00 p.m., otherwise 50 km/h
** Only Total Lane data provided

2.2.3 COLLISIONS

A collision analysis involves a review of the collision history of a facility through an assessment of multiple years of collision statistics. The purpose of this review is to identify possible relationships between the collisions that have occurred and the geometric features and operational conditions of the facility. Collision data provided by the City of Saskatoon was available from 2016 to 2020 for the study area. Summaries of the intersection and link collision data are provided in **Table 2.7** and **Table 2.8**, respectively. The intersection with the most collisions is Avenue C and Circle Drive with an average of 60 collisions per year and the segment with the most collisions is Avenue C between Circle Drive and 41st Street with an average of four collisions per year. There were fewer collisions in 2020 than in previous years, which may be due to less travel with Covid-19 pandemic restrictions.

Table 2.7: 2016-2020 Intersection Collision Frequency on Avenue C

AVENUE C INTERSECTION	COLLISIONS PER YEAR					TOTAL COLLISIONS	AVERAGE PER YEAR
	2016	2017	2018	2019	2020		
Spadina Crescent	1	1	1	0	0	**3**	0.6
19th Street	2	3	1	0	2	**8**	1.6
20th Street	7	8	7	10	4	**36**	7.2
21st Street	3	2	0	4	1	**10**	2.0
22nd Street	11	4	5	10	6	**36**	7.2
23rd Street	0	0	0	1	1	**2**	0.4
24th Street	3	0	1	0	1	**5**	1.0

AVENUE C INTERSECTION	COLLISIONS PER YEAR					TOTAL COLLISIONS	AVERAGE PER YEAR
	2016	2017	2018	2019	2020		
25th Street	4	1	2	1	0	**8**	1.6
26th Street	0	0	0	0	2	**2**	0.4
27th Street	2	0	0	1	0	**3**	0.6
28th Street	0	0	0	2	0	**2**	0.4
29th Street	4	1	1	3	2	**11**	2.2
31st Street	2	1	1	0	0	**4**	0.8
32nd Street	1	3	4	1	2	**11**	2.2
33rd Street	4	6	3	7	1	**21**	4.2
34th Street	1	0	1	1	0	**3**	0.6
35th Street	0	0	1	0	1	**2**	0.4
36th Street	1	1	0	1	0	**3**	0.6
37th Street	1	2	1	0	0	**4**	0.8
38th Street	1	0	0	2	0	**3**	0.6
39th Street	3	1	0	1	2	**7**	1.4
41st Street	0	0	4	0	1	**5**	1.0
Circle Drive	69	61	63	65	40	**298**	59.6
Cynthia Street	5	9	6	9	3	**32**	6.4
Gyles Place	0	0	0	1	0	**1**	0.2
Haskamp Street / Pakwa Place	0	1	2	0	0	**3**	0.6
Hanger Road	3	0	1	2	5	**11**	2.2
45th Street	17	18	22	24	11	**92**	18.4
Total	**145**	**123**	**127**	**146**	**85**	**626**	**125.2**

Table 2.8: 2016-2020 Segment Collision Frequency on Avenue C

AVENUE C SEGMENT	COLLISIONS PER YEAR					TOTAL COLLISIONS	AVERAGE PER YEAR
	2016	2017	2018	2019	2020		
18th Street - 19th Street	0	1	0	1	1	**3**	0.6
19th Street - 20th Street	1	1	4	0	1	**7**	1.4
20th Street - 21st Street	1	0	2	2	0	**5**	1.0
21st Street - 22nd Street	0	1	1	1	1	**4**	0.8
22nd Street - 23rd Street	1	0	0	2	0	**3**	0.6
23rd Street - Jamieson Street	1	0	0	0	0	**1**	0.2
23rd Street - 24th Street	0	0	1	0	1	**2**	0.4
24th Street - 25th Street	0	0	1	0	0	**1**	0.2

AVENUE C SEGMENT	COLLISIONS PER YEAR					TOTAL COLLISIONS	AVERAGE PER YEAR
	2016	2017	2018	2019	2020		
25th Street - 26th Street	0	1	0	0	0	**1**	0.2
26th Street - 27th Street	0	1	0	0	0	**1**	0.2
27th Street - 28th Street	1	0	0	0	0	**1**	0.2
29th Street - 30th Street	1	1	1	1	0	**4**	0.8
30th Street - 31st Street	0	0	0	0	1	**1**	0.2
31st Street - 32nd Street	1	0	0	1	0	**2**	0.4
32nd Street - 33rd Street	0	0	1	0	0	**1**	0.2
33rd Street - 34th Street	0	2	1	0	1	**4**	0.8
34th Street - 35th Street	1	1	1	0	1	**4**	0.8
35th Street - 36th Street	0	0	0	0	1	**1**	0.2
37th Street - 38th Street	0	1	0	0	0	**1**	0.2
38th Street - 39th Street	1	1	1	1	1	**5**	1.0
40th Street - 41st Street	1	0	1	0	0	**2**	0.4
41st Street - Circle Drive	6	4	3	5	1	**19**	3.8
Circle Drive - Cynthia Street	2	2	3	0	0	**7**	1.4
Cynthia Street - Gyles Place	0	0	1	0	1	**2**	0.4
45th Street - Haskamp Street / Pakwa Place	1	2	2	3	0	**8**	1.6
45th Street - 46th Street	0	2	1	1	0	**4**	0.8
Total	**19**	**19**	**24**	**17**	**11**	**90**	**18.0**

There are six recorded pedestrian collisions and five recorded cyclist collisions within the study area between 2016 and 2020. **Table 2.9** provides more information about the pedestrian collisions including location, severity, and configuration. **Table 2.10** provides information on the cyclist collisions including location, severity, and configuration.

Table 2.9: Pedestrian Collision Data on Avenue C

LOCATION	YEAR	COLLISION SEVERITY	PEDESTRIAN INJURY SEVERITY	CONFIGURATION
Avenue C and 19th Street	2016	Injury	Moderate	At Intersection in a Pedestrian Crossing Area
Avenue C and 21st Street	2017	Injury	Minor	At Intersection in a Pedestrian Crossing Area
Avenue C and 22nd Street	2016	Injury	Minor	At Intersection in a Pedestrian Crossing Area
Avenue C and 31st Street	2016	Injury	Minor	On Sidewalk
Avenue C and Circle Drive	2016	Injury	Moderate	On Road or Behind Vehicle
Avenue C between 41st Street and Circle Drive	2018	Injury	Minor	On Sidewalk

Table 2.10: Cyclist Collision Data on Avenue C

LOCATION	YEAR	COLLISION SEVERITY	CYCLIST INJURY SEVERITY	CONFIGURATION
Avenue C and 20th Street	2016	Injury	Minor	Other
Avenue C and 22nd Street	2019	Injury	Minor	Right Angle
Avenue C and 22nd Street	2016	Injury	Minor	Left Turn/Straight - Opposite Direction
Avenue C and 33rd Street	2019	Injury	Minor	Right Angle
Avenue C and 33rd Street	2019	Property Damage Only	N/A	Right Angle

2.2.4 CONFLICT LOCATIONS

Conflict locations between motorists, transit, cyclists and pedestrians are discussed in this section. These locations include turning movements at intersections, sightline obstructions, and high-volume driveways and back lanes.

INTERSECTIONS

The collision data indicates intersections that may have increased conflicts or risk based on historic collision data. The intersections with the highest annual collisions are Circle Drive (60 collisions per year), 45th Street (18 collisions per year), 20th Street and 22nd Street (7 collisions per year each), Cynthia Street (6 collisions per year), 33rd Street (4 collisions per year) and the segment of 41st Street to Circle Drive (4 collisions per year). The pedestrian and cycling collisions were spread out through the study area.

Potential conflict locations for cyclists and pedestrians at intersections include left- and right-turn movements at the signalized intersections, as well as the two-way stops and two-way yields on the cross-streets. The four intersections that have two-way yields on the cross-street are Sonnenschein Way (one-way only), 27th Street, 32nd Street, 35th Street, and Gyles Place.

The traffic diverters between 36th Street and 38th Street create one-way southbound traffic between 36th Street and 37th Street and one-way northbound traffic between 37th Street and 38th Street. Although the diverters reduce the amount of vehicular traffic on the road, cyclists travelling contraflow to traffic can be against driver expectation and create conflict without dedicated cycling infrastructure.

SIGHTLINE OBSTRUCTIONS

Sightline obstructions also create potential conflicts between modes. There are five commercial garages on Avenue C and have limited sightlines to the sidewalk. There are three on the east side of Avenue C between 20th Street and 21st Street (**Figure 2.16**), one on the west side of Avenue C between 21st Street and 22nd Street, and one on the west side of Avenue C between Jamieson Street and 24th Street (**Figure 2.17**). Parked vehicles can also obstruct sightlines. Transit stops can also create sightline obstructions while buses are stopped and other modes may be passing it. There are transit stops within the study area on Avenue C between 38th Street and 45th Street. None of the transit stops along Avenue C have infrastructure such as bus shelters that obstruct sightlines.

Figure 2.16: Garage fronting onto the east sidewalk on Avenue C between 20th Street and 21st Street

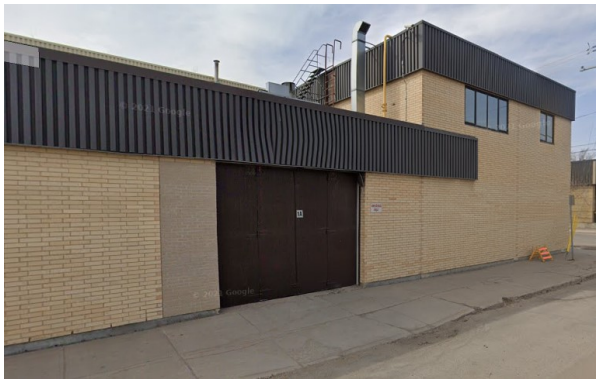


Figure 2.17: Garage fronting onto the west sidewalk on Avenue C between Jaimeson Street and 24th Street

DRIVEWAYS AND BACK LANES

Driveways and back lanes create conflicts for crossing pedestrians and cyclists. **Figure 2.18** shows a parking lot with two accesses on Avenue C that is also adjacent to a back lane. **Figure 2.19** shows areas along Avenue C where there are multiple accesses (driveways and back lanes) in close proximity.

Figure 2.18: Access off Avenue C Instead of Back Lane

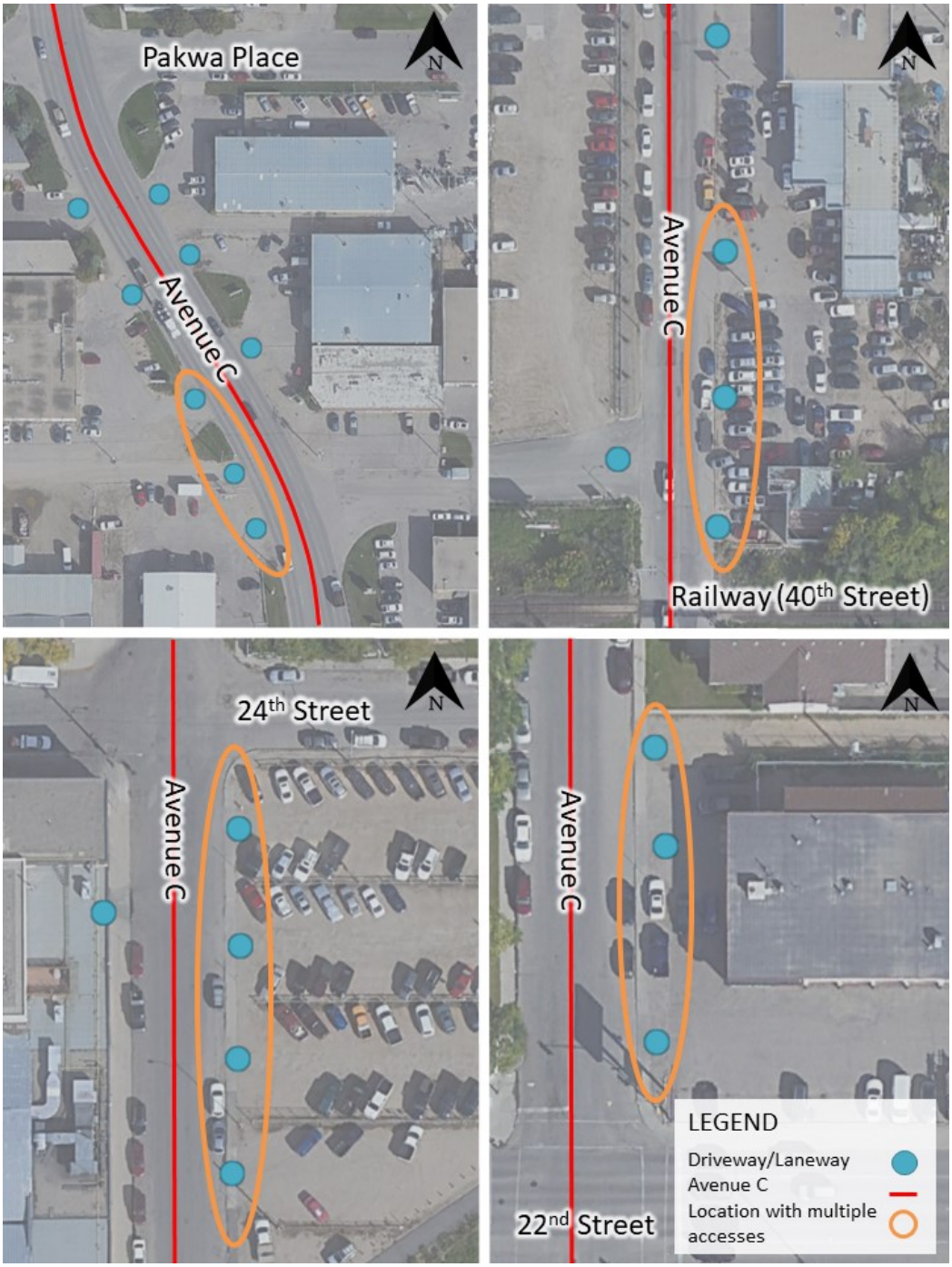


Figure 2.19: Multiple Accesses (Driveways and Back Lanes) in Close Proximity

2.2.5 GOODS & SERVICE DELIVERY

Avenue C is not part of the designated truck route within the City of Saskatoon according to the 2013 Pick Up and Delivery Vehicle Routes (Schedule 8 - Bylaw #7200) map. Local deliveries are allowed on Avenue C as long as the vehicle is using the shortest path to the destination from the arterial network.

2.3 PARKING & LOADING CONDITIONS

A parking survey was completed the week of December 6, 2021 for the following study segments:

- Avenue C between Spadina Crescent and 25th Street (Commercial) and cross-streets between Avenue B and Avenue C: Data was collected at hourly intervals for 12-hours between 8:00 a.m. and 8:00 p.m. Note: On-street parking is restricted on 22nd Street.
- Avenue C between 25th Street and 45th Street (Residential and Industrial): Data was collected at hourly intervals for 4 hours for mid-day (11:00 a.m. to 1:00 p.m.) and evening (8:00 p.m. to 10:00 p.m.). Note: On-street parking is restricted between 41st Street and 45th Street.

The study tracked the utilization of existing loading zones and parking spots designated for people with disabilities, as well as the number of vehicles with disabled parking placards (mirror tags). The parking utilization study determined how much reserve capacity, if any, is available in the study area.

2.3.1 PARKING & LOADING INVENTORY

Table 2.9 includes a summarized inventory of existing parking, loading and accessible spaces determined through field observations and other available data. Almost all streets within the parking survey study area permit on-street parking on at least one side of the street.

Table 2.11: Parking, Loading and Accessible Spaces

STREET	SEGMENT	PARKING SPACES	ACCESSIBLE AND LOADING SPACES
	Spadina Crescent to 19th Street	NB: 20, SB: 27	None.
	19th Street to 20th Street	NB: 17, SB: 12	One SB 5-minute loading zone
Avenue C (South to North)	20th Street to 21st Street	NB: 11, SB: 18	Two NB 5-minute loading zones
	21st Street to 22nd Street	NB: 13, SB: 13	None.
	22nd Street to 23rd Street	NB: 14, SB: 18	None.
	23rd Street to 24th Street	NB: 0, SB: 16	None.
	24th Street to 25th Street	NB: 10, SB: 8	One SB Dedicated Accessible Parking Zone Spot
	25th Street to 26th Street	NB: 8, SB: 8	None.
	26th Street to 27th Street	NB: 8, SB: 8	None.
	27th Street to 28th Street	NB: 10, SB: 10	None.
	28th Street to 29th Street	NB: 10, SB: 10	None.

STREET	SEGMENT	PARKING SPACES	ACCESSIBLE AND LOADING SPACES
	29th Street to 30th Street	NB: 19, SB: 19	None.
	30th Street to 31st Street	NB: 12, SB: 19	A school zone is present. Parking is restricted on the east side with a 5-minute drop-off zone between 8:00 a.m. to 5:00 p.m., Monday to Friday.
	31st Street to 32nd Street	NB: 21, SB: 22	None.
	32nd Street to 33rd Street	NB: 23, SB: 25	None.
	33rd Street to 34th Street	NB: 19, SB: 16	One NB Dedicated Accessible Parking Zone Spot
	34th Street to 35th Street	NB: 22, SB: 21	One SB Dedicated Accessible Parking Zone Spot
	35th Street to 36th Street	NB: 22, SB: 21	One SB Dedicated Accessible Parking Zone Spot
	36th Street to 37th Street	NB: 22, SB: 21	One SB Dedicated Accessible Parking Zone Spot
	37th Street to 38th Street	NB: 22, SB: 22	None.
	38th Street to 39th Street	NB: 22, SB: 22	None.
	39th Street to 40th Street	NB: 12, SB: 20	None.
	40th Street to 41st Street	NB: 12, SB: 12	None.
	41st Street to 45th Street	NB: 0, SB: 3	None.
Spadina Crescent	Avenue B to Avenue D	EB: 0, WB: 5	None.
19th Street	Avenue B to Avenue D	EB: 22, WB: 0	None.
20th Street	Avenue B to Avenue D	EB: 20, WB: 19	Three – 5-minute loading zones (one westbound between Avenue B and Avenue C, one westbound between Avenue C and Avenue D, and one eastbound between Avenue C and Avenue D
21st Street	Avenue B to Avenue D	EB: 20, WB: 24	One – 5-minute loading zone directly in front of the Saskatoon Foodbank eastbound between Avenue B and Avenue C.
22nd Street	Avenue B to Avenue D	EB: 0, WB: 0	Parking prohibited in both directions from Avenue B to Avenue D.
23rd Street	Avenue B to Avenue D	EB: 19, WB: 5	Parking is prohibited from Avenue B to Avenue C in the westbound direction.
24th Street	Avenue B to Avenue D	EB: 24, WB: 23	None.
25th Street	Avenue B to Avenue D	EB: 24, WB: 23	Westbound between Avenue C and Avenue D, there is a Dedicated Accessible Parking Zone Spot southbound.

2.3.2 PARKING & LOADING RESTRICTIONS

Table 2.10 identifies the various types of parking and loading restrictions throughout the study area.

Table 2.12: Parking and Loading Restrictions

STREET	SEGMENT	RESTRICTION
Avenue C (South to North)	Spadina Crescent to 19th Street	NB – 3-hour limit from 9:00 a.m. to 6:00 p.m., Monday to Saturday and a pay parking zone SB – 2-hour limit from 9:00 a.m.to 6:00 p.m., Monday to Saturday and the Riversdale parking permit zone
	19th Street to 20th Street	NB – 2-hour limit from 9:00 a.m. to 6:00 p.m., Monday to Saturday and a pay parking zone
	20th Street to 21st Street	NB and SB – 2-hour limit from 9:00 a.m. to 6:00 p.m., Monday to Saturday and a pay parking zone
	21st Street to 22nd Street	NB – 2-hour limit from 9:00 a.m. to 6:00 p.m., Monday to Saturday
	22nd Street to 23rd Street	None.
	23rd Street to 24th Street	NB – No parking permitted
	24th Street to 25th Street	None.
	25th Street to 26th Street	None.
	26th Street to 27th Street	None.
	27th Street to 28th Street	None.
	28th Street to 29th Street	None.
	29th Street to 30th Street	None.
	30th Street to 31st Street	None.
	31st Street to 32nd Street	NB and SB – 2-hour limit from 9:00 a.m. to 5:00 p.m., Monday to Friday (Caswell Hill Zone)
	32nd Street to 33rd Street	NB and SB – 2-hour limit from 9:00 a.m. to 5:00 p.m., Monday to Friday (Caswell Hill Zone)
	33rd Street to 34th Street	NB – 2-hour limit from 9:00 a.m. to 6:00 p.m., Monday to Friday
	34th Street to 35th Street	None.
	35th Street to 36th Street	None.
	36th Street to 37th Street	None.
	37th Street to 38th Street	None.
	38th Street to 39th Street	None.
	39th Street to 40th Street	None.
	40th Street to 41st Street	NB and SB – 2-hour limit from 9:00 a.m. to 6:00 p.m., Monday to Saturday
	41st Street to 45th Street	NB and SB – Parking prohibited (except 3 parking spaces on west side of Avenue C between 41st Street and Circle Drive)
Spadina Crescent	Avenue B to Avenue D	EB and WB – No parking permitted.
19th Street	Avenue B to Avenue D	EB – 3-hour limit from 9:00 a.m. to 6:00 p.m., Monday to Saturday and a pay parking zone between Avenue B and Avenue C WB – No parking permitted westbound between Avenue B and Avenue D

STREET	SEGMENT	RESTRICTION
20th Street	Avenue B to Avenue D	EB and WB – 90-minute limit between 9:00 a.m. to 6:00 p.m. and a pay parking zone between Avenue B and Avenue C, both eastbound and westbound,
21st Street	Avenue B to Avenue D	EB and WB – 4-hour parking limit from 9:00 a.m. to 6:00 p.m., Monday to Saturday from Avenue C to Avenue D EB and WB – 30-minute parking limit from 9:00 a.m. to 3:00 p.m., Monday to Saturday. The remainder of the segment between Avenue B and Avenue C in both directions has a 2-hour parking limit between 9:00 a.m. to 6:00 p.m., Monday through Saturday.
22nd Street	Avenue B to Avenue D	EB and WB – Parking prohibited in both directions from Avenue B to Avenue D
23rd Street	Avenue B to Avenue D	WB – Parking is prohibited from Avenue B to Avenue C in the westbound direction
24th Street	Avenue B to Avenue D	None.
25th Street	Avenue B to Avenue D	EB and WB – There is a 2-hour parking limit from 9:00 a.m. to 6:00 p.m., Monday through Saturday.

2.3.3 PARKING & LOADING UTILIZATION

A summary of the recorded peak parking demand and parking utilization during the survey per block is provided in **Figure 2.20**, **Table 2.10,** and **Table 2.11**. The parking and loading utilization data is provided in **Appendix C**.

AVENUE C – SPADINA CRESCENT TO 25TH STREET

- Total hourly on-street parking utilization on each block peaked at just below 80%. Parking demand began to taper off after 5:00 p.m. (less than 50%) except between 20th Street and 21st Street.
- Accessible parking demand within each block was identified based on visible accessible placards. It was observed that a maximum of four spaces per hour were used by vehicles with visible accessible placards and some vehicles with accessible placards did not utilize the designated accessible parking spaces. Accessible parking demand only lasted over a short period of time (2 to 3 hours) except on Avenue C between 19th Street and 20th Street where accessible parking demand was recorded throughout the day.
- Loading zone parking demand was only recorded in the two loading zones between 20th Street and 21st Street. For the majority of the time, only 50% loading zone parking demand was recorded except for one hour where the demand was at 100%.

AVENUE C – 25TH STREET TO 45TH STREET

- Total hourly on-street parking utilization on each block peaked at just below 45%. On-street parking peak demand was less than 40% except between 30th Street and 31st Street, 34th Street and 35th Street, and 36th Street and 37th Street where it ranged from 40% to 60%.
- There is one designated accessible parking space on the east side of Avenue C between 33rd Street and 34th Street. This space was occupied during three of the four hours it was observed.

- There are designated accessible parking spaces on the west side of Avenue C between 34th Street and 35th Street, 35th Street and 36th Street, and 36th Street and 37th Street. These spaces were typically vacant during the mid day period and occupied during the night counts.

CROSS-STREETS – AVENUE B AND AVENUE C

- The cross-streets studied between Avenue B and Avenue C included Spadina Crescent, 19th Street, 20th Street, 21st Street, 23rd Street, 24th Street and 25th Street.
- Total hourly on-street parking utilization was below 40% on the majority of the side-streets except 20th Street and 21st Street. Total parking utilization on 20th Street peaked at 80%, while 21st Street parking utilization was above 50% only between 1:00 p.m. and 3:00 p.m.
- No accessible parking demand was observed.
- Loading zone parking demand was observed on 21st Street between 11:00 a.m. and 3:00 p.m. up to 100% (in front of the food bank).

CROSS-STREETS – AVENUE C AND AVENUE D:

- The cross-streets studied between Avenue C and Avenue D included Spadina Crescent, 19th Street, 20th Street, 21st Street, 23rd Street, 24th Street and 25th Street.
- Total hourly on-street parking utilization was below 40% on the majority of the side-streets except 20th Street and 21st Street. Total parking utilization on 20th Street peaked at 75% only between 7:00 p.m. and 9:00 p.m., while 21st Street parking utilization was between 60% and 90% from 8:00 a.m. to 4:00 p.m.
- No accessible parking demand was observed on the cross-streets from Spadina Crescent up to 24th Street. Demand for up to two accessible parking stalls was observed throughout the day on 25th Street.
- No loading parking demand was observed.

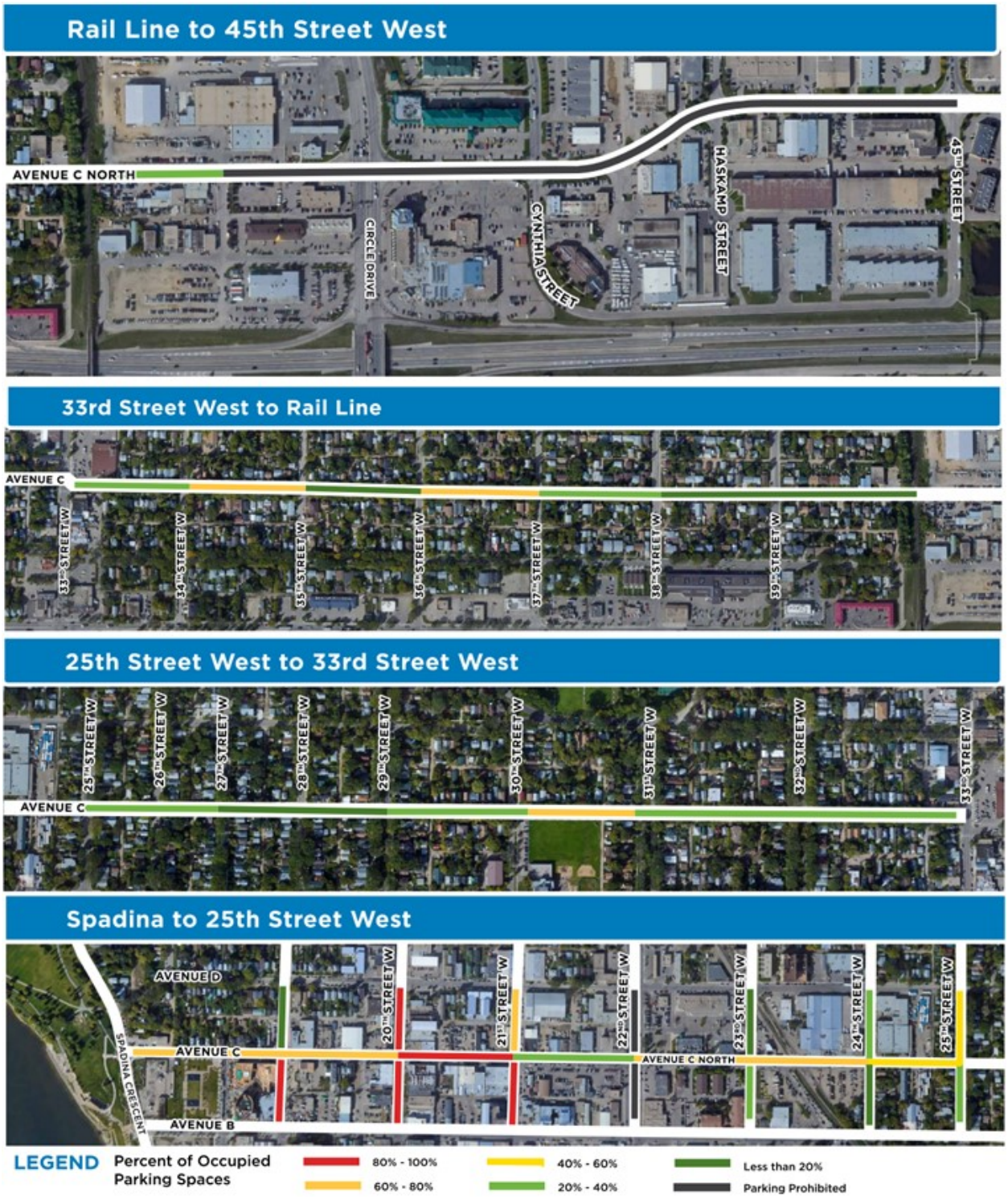


Figure 2.20: Avenue C and Cross-Street Peak Parking Demand

Table 2.13: Avenue C Parking Utilization

STREET	SEGMENT	NORTHBOUND UTILIZATION			SOUTHBOUND UTILIZATION		
		PEAK TIME	PEAK %	AVERAGE %	PEAK TIME	PEAK %	AVERAGE %
Avenue C (South to North)	Spadina Crescent to 19th Street	9:00, 12:00, 16:00	20%	12%	17:00	70%	43%
	19th Street to 20th Street	19:00	59%	24%	20:00	67%	17%
	20th Street to 21st Street	12:00	100%	47%	12:00	72%	36%
	21st Street to 22nd Street	10:00	38%	7%	10:00	38%	20%
	22nd Street to 23rd Street	13:00, 14:00	71%	54%	11:00	83%	47%
	23rd Street to 24th Street	N/A	N/A	N/A	13:00	69%	35%
	24th Street to 25th Street	13:00	50%	29%	12:00, 13:00	38%	19%
	25th Street to 26th Street	20:00	38%	22%	12:00	25%	13%
	26th Street to 27th Street	12:00	25%	16%	11:00, 12:00	25%	16%
	27th Street to 28th Street	N/A	0%	0%	20:00, 21:00	10%	5%
	28th Street to 29th Street	20:00, 21:00	20%	15%	11:00, 12:00, 20:00, 21:00	10%	10%
	29th Street to 30th Street	20:00	37%	30%	20:00, 21:00	42%	30%
	30th Street to 31st Street	11:00, 12:00	33%	17%	11:00, 12:00	58%	54%
	31st Street to 32nd Street	20:00, 21:00	38%	33%	20:00	32%	23%
	32nd Street to 33rd Street	20:00	43%	34%	20:00, 21:00	16%	14%
	33rd Street to 34th Street	20:00	42%	33%	11:00, 20:00, 21:00	25%	23%
	34th Street to 35th Street	20:00	41%	32%	21:00	43%	36%
	35th Street to 36th Street	11:00, 12:00, 20:00, 21:00	9%	9%	20:00, 21:00	29%	19%
	36th Street to 37th Street	20:00	45%	33%	21:00	43%	32%
	37th Street to 38th Street	21:00	32%	20%	12:00	27%	23%
	38th Street to 39th Street	11:00, 12:00, 20:00, 21:00	9%	9%	12:00	14%	6%
	39th Street to 40th Street	N/A	0%	0%	20:00, 21:00	10%	5%
	40th Street to 41st Street	11:00	25%	10%	11:00	33%	10%
	41st Street to 45th Street	N/A	N/A	N/A	N/A	N/A	N/A

Note: Avenue C between Spadina Crescent and 25th Street included 14-hours of data collected between 8:00 a.m. and 10:00 p.m. Avenue C between 25th Street and 45th Street included 4-hours of data collected from 11:00 a.m. to 1:00 p.m. and from 8:00 p.m. to 10:00 p.m.

Table 2.14: Cross-Street Parking Utilization

STREET	SEGMENT	EASTBOUND UTILIZATION			WESTBOUND UTILIZATION		
		PEAK TIME	PEAK %	AVERAGE %	PEAK TIME	PEAK %	AVERAGE %
Spadina Crescent	Avenue B to Avenue C	N/A	N/A	N/A	N/A	N/A	N/A
	Avenue C to Avenue D	N/A	N/A	N/A	15:00	20%	1%
19th Street	Avenue B to Avenue C	14:00	18%	6%	N/A	N/A	N/A
	Avenue C to Avenue D	9:00	100%	60%	N/A	N/A	N/A
20th Street	Avenue B to Avenue C	13:00, 19:00, 20:00	80%	51%	20:00	89%	60%
	Avenue C to Avenue D	18:00, 19:00	70%	22%	18:00, 19:00	90%	41%
21st Street	Avenue B to Avenue C	13:00	88%	38%	14:00	50%	24%
	Avenue C to Avenue D	8:00, 10:00, 14:00	92%	50%	8:00, 9:00	92%	48%
22nd Street	Avenue B to Avenue C	N/A	N/A	N/A	N/A	N/A	N/A
	Avenue C to Avenue D	N/A	N/A	N/A	N/A	N/A	N/A
23rd Street	Avenue B to Avenue C	14:00, 15:00	55%	31%	N/A	N/A	N/A
	Avenue C to Avenue D	11:00, 12:00, 13:00	38%	25%	18:00	20%	1%
24th Street	Avenue B to Avenue C	10:00, 11:00, 12:00	46%	38%	8:00, 9:00, 10:00, 11:00	15%	9%
	Avenue C to Avenue D	8:00, 9:00, 10:00, 13:00	9%	3%	8:00, 11:00, 12:00, 16:00-20:00	10%	6%
25th Street	Avenue B to Avenue C	13:00, 14:00, 15:00, 19:00	42%	35%	8:00-12:00, 17:00, 19:00-21:00	42%	38%
	Avenue C to Avenue D	17:00, 18:00, 19:00, 20:00	50%	33%	10:00	45%	20%

Note: The Cross-Streets between Avenue B and Avenue D included 14-hours of data collected between 8:00 a.m. and 10:00 p.m.

3 PHASE 1 PUBLIC ENGAGEMENT

The objectives of the first phase of engagement, conducted from May to June 2022, were to:

- Introduce the community to the project by providing information on existing conditions, needs assessment and pertinent background information;
- Gather feedback from the community on opportunities and challenges they see related to developing Avenue C as an active transportation corridor; and
- Help inform design options that will be tailored to the corridor's transportation needs.

An online stakeholder session was held in the afternoon of May 13th, 2022 and had 13 attendees. An online public survey was open for responses from May 12th to June 13th, 2022 and had 295 responses. A total three paper surveys were received (paper surveys were available at the Mayfair Library), as well as eight emails and three phone calls were received through the Project Manager's email and phone line.

Common themes from the *stakeholder session* included:

- Maintaining trees and creating green space wherever possible should be a priority.
- The facility design needs to be inclusive and consider the needs of all users (walking, wheelchair, etc.).
- Safe, accessible, and controlled intersection crossings will be necessary to ensure comfort and safety of all non-vehicle users.

Common themes from the *survey responses* included:

- Overall concerns for cyclist safety and concerns regarding sharing the road with vehicle traffic;
- The need for street lighting, sidewalk installation or widening of sidewalks to create a safe walking environment for pedestrians; and
- Improving traffic calming and intersection safety.

Common themes from *phone call and email responses* included:

- High traffic speeds and volume along Avenue C creating safety concerns for pedestrians and cyclists;
- Concerns around parking loss and disruption to access of local businesses on Avenue C; and
- Creating accessible and easily understandable ways for all residents to provide feedback on the proposed design.

The complete Phase 1 Public Engagement: What We Heard Report and Phase 1 Stakeholder Session Presentation can be found in **Appendix C**.

Feedback received by the public and stakeholders helped identify opportunities and challenges for the corridor (**Section 4**) was considered in the development of cycling facilities options (**Section 5**).

4 OPPORTUNITIES & CHALLENGES

Opportunities and challenges for the corridor were identified based on the findings from the existing conditions review and input received from Phase 1 Public & Stakeholder Engagement. The existing conditions review and a summary of findings from Phase 1 Public & Stakeholder Engagement are summarized under separate covers. Common themes from the Phase 1 stakeholder session, online survey responses, and phone call / email messages included:

- Maintaining trees and creating green space wherever possible should be a priority.
- The facility design needs to be inclusive and consider the needs of all users (walking, wheelchair, etc.).
- Safe, accessible, and controlled intersection crossings will be necessary to ensure comfort and safety of all non-vehicle users.
- Overall concerns for cyclist safety and concerns regarding sharing the road with vehicle traffic.
- The need for street lighting, sidewalk installation or widening of sidewalks to create a safe walking environment for pedestrians.
- Improving traffic calming and intersection safety.
- High traffic speeds and volumes along Avenue C create safety concerns for pedestrians and cyclists.
- Concerns around potential parking loss and disruption to access of local businesses on Avenue C.
- Creating accessible and easily understandable ways for all residents to provide feedback on the proposed design.

The online survey also included a mapping exercise that allowed participants to drop pins on a map of the project area (see **Figure 4.1**) to indicate where individuals experience barriers or challenges to walking and/or cycling, and where there are opportunities for improvement. Seven categories were included - cycling, pedestrian, road condition, amenities, connectivity, accessibility, and other.

The opportunities and challenges identified focus on the street characteristics and road user characteristics that impact safety, comfort, operations, and connectivity. To present the findings, the Avenue C corridor was divided into four segments:

- Spadina Crescent to 25th Street West: Commercial Area
- 25th Street West to 33rd Street West: Residential Area
- 33rd Street West to Rail Line: Residential Area
- Rail Line to 45th Street West: Commercial and Industrial Area

Figure 4.2 to **Figure 4.5** on the following pages identify key opportunities and challenges for each segment along Avenue C.

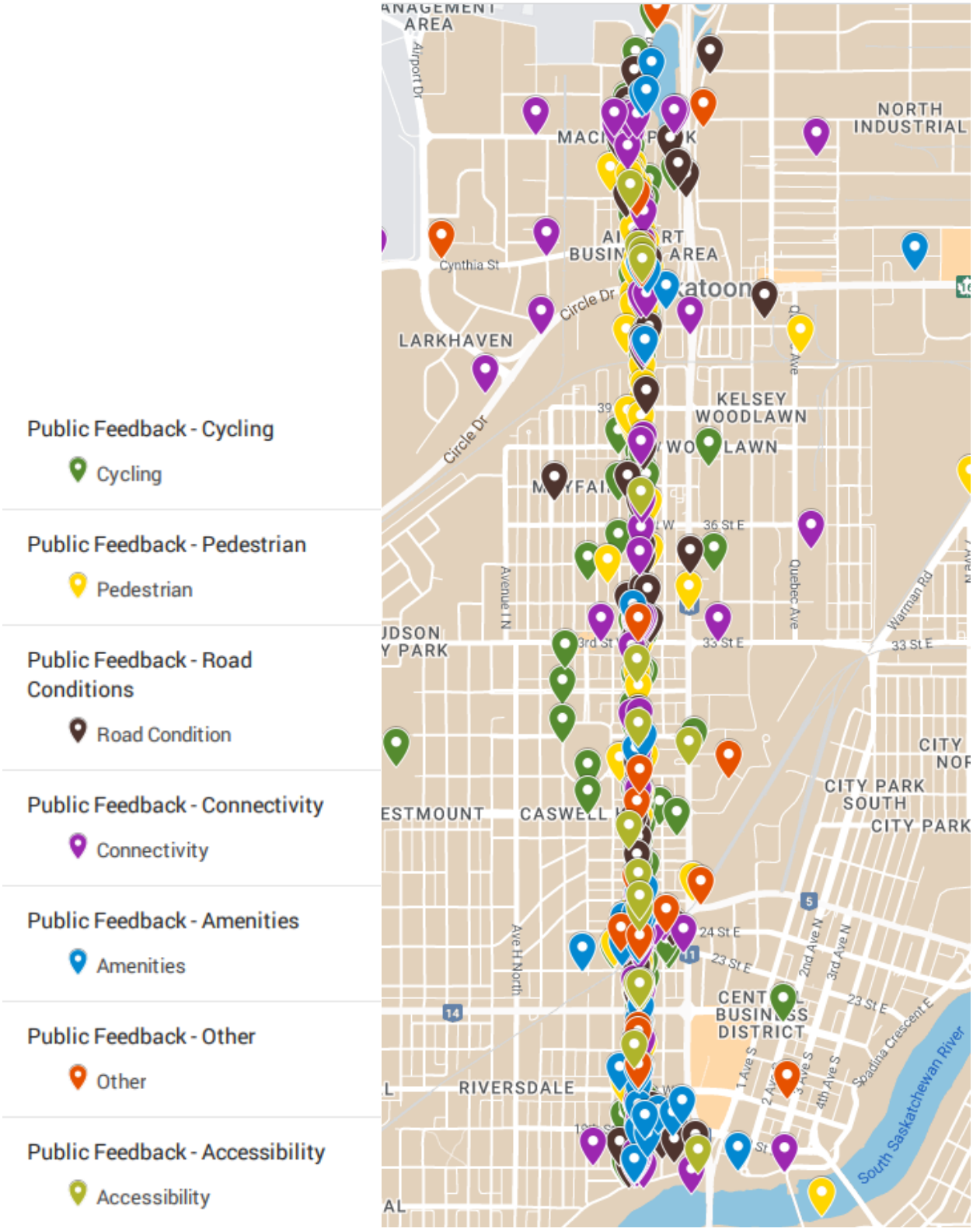


Figure 4.1: Online Survey Mapping Exercise

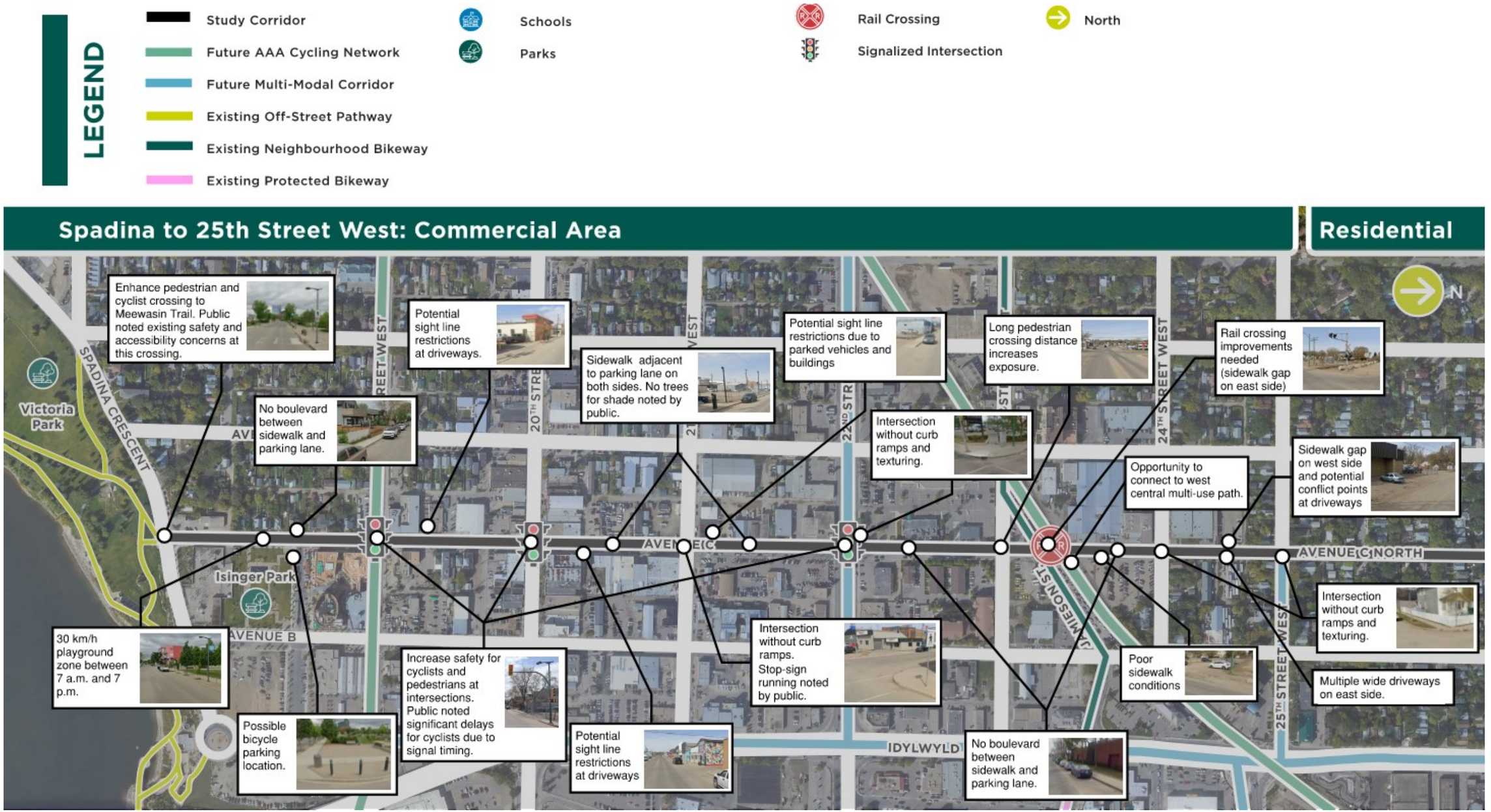


Figure 4.2: Avenue C Opportunities and Challenges – Spadina Crescent to 25th Street West: Commercial Area

Figure 4.3: Avenue C Opportunities and Challenges – 25th Street West to 33rd Street West: Residential Area

LEGEND

- Study Corridor
- Future AAA Cycling Network
- Future Multi-Modal Corridor
- Existing Off-Street Pathway
- Existing Neighbourhood Bikeway
- Existing Protected Bikeway
- Schools
- Parks
- Rail Crossing
- Signalized Intersection
- North
- One-Way Closure to prevent short cutting (arrow points in direction of closure)

33rd Street West to Rail Line: Residential Area

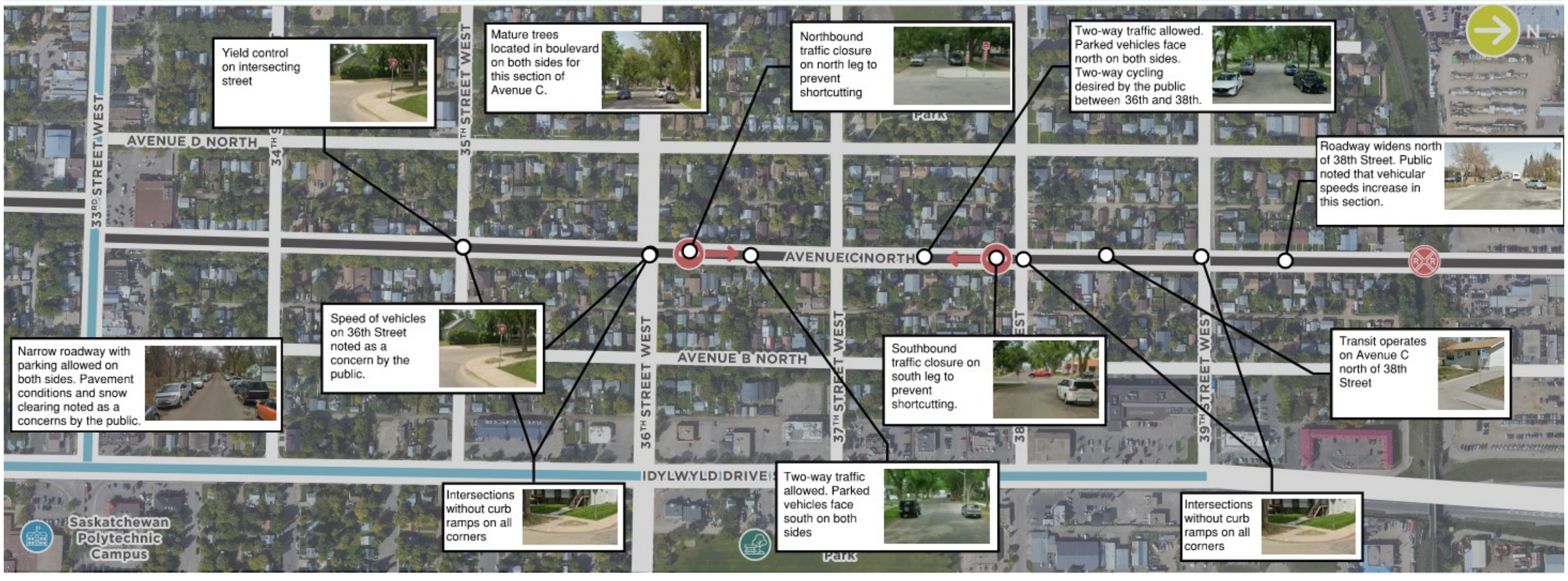


Figure 4.4: Avenue C Opportunities and Challenges – 33rd Street West to Rail Line: Residential Area

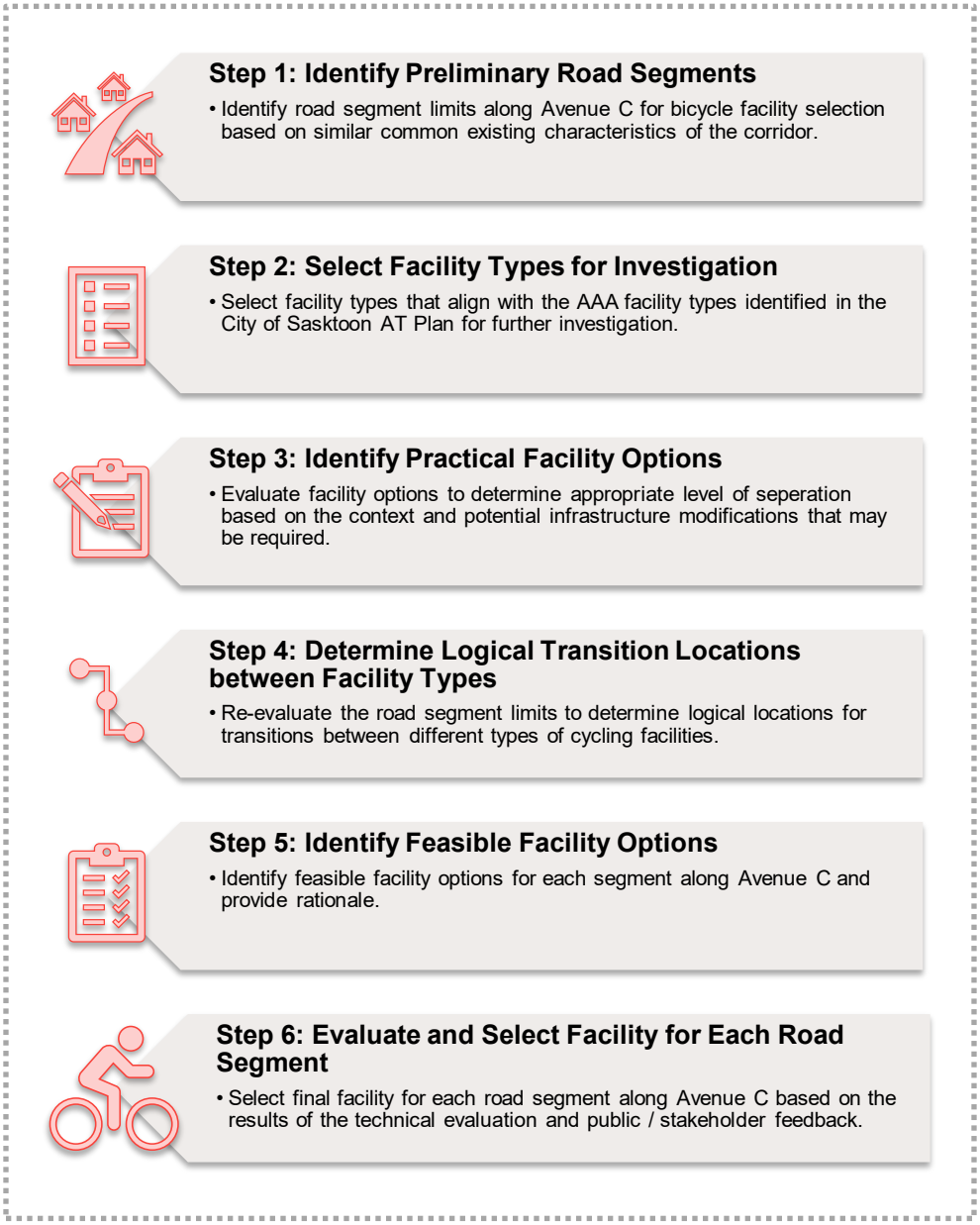
Figure 4.5: Avenue C Opportunities and Challenges – Rail Line to 45th Street West: Commercial and Industrial Area

5 CYCLING FACILITY SELECTION

5.1 FACILITY SELECTION PROCESS

The cycling facility selection process was based on industry best practices which were then tailored to the Avenue C context. The cycling facility selection process includes six steps.

FACILITY SELECTION PROCESS



Appendix D includes the facility selection matrix which includes information gathered during the six-step facility selection process. A summary of the results of the process is provided below.

STEP 1: IDENTIFY PRELIMINARY ROAD SEGMENTS

Fourteen (14) preliminary road segments were identified based on similar common existing characteristics of the corridor. The segments were determined based on the following characteristics:

- Number of Lanes
- Parking Restrictions
- Parking Utilization
- Adjacent Land Uses
- Speed Limits
- Daily Traffic Volumes
- Roadway Width (curb-to-curb)
- Available Boulevard Space
- Possible Cycling Route Function
- Intersection / Driveway Frequency

STEP 2: SELECT FACILITY TYPES FOR EVALUATION

Four (4) possible facility types for Avenue C were investigated based on AAA facility types identified in the City of Saskatoon's AT Plan. The facility types included:

- Unidirectional Protected Bicycle Lanes
- Bidirectional Protected Bicycle Lanes
- Multi-Use Paths
- Neighbourhood Bikeways

STEP 3: IDENTIFY PRACTICAL FACILITY OPTIONS

The facility types (Step 2) were initially reviewed for each preliminary road segment (Step 1) to determine whether the facility was practical based on the available space and existing right-of-way constraints. If the facility was practical, it was further evaluated to assess the impacts to the street and users of the transportation system.

STEP 4: DETERMINE LOGICAL TRANSITION LOCATIONS BETWEEN FACILITY TYPES

Facility consistency along the corridor is important to consider in the planning and design of cycling facilities. Following the facility option evaluation (Step 3), the road segment limits were re-evaluated and adjusted based on where there could be logical transitions between different facility types. This was conducted after Step 3, as the evaluation provided greater insight into the type of facilities that would be best suited for each segment and where there are opportunities to provide a consistent facility type along the Avenue C corridor. This exercise reduced the number of segments along Avenue C from fourteen (14) to eight (8). The revised segments along Avenue C include:

- Spadina Crescent to 19th Street
- 19th Street to 25th Street
- 25th Street to 38th Street
- 38th Street to 39th Street
- 39th Street to 41st Street
- 41st Street to Circle Drive
- Circle Drive to Cynthia Street
- Cynthia Street to 45th Street

STEP 5: IDENTIFY FEASIBLE FACILITY OPTIONS

Based on the results of the evaluation (Step 3), feasible cycling facility options for each revised segment along the Avenue C corridor were identified. Four of the eight segments included only one option, while other segments included either two options with different facility types (i.e., unidirectional protected

bicycle lanes or neighbourhood bikeways) or two options that would have different roadway impacts (i.e., unidirectional protected bicycle lanes with either one parking lane or two parking lanes).

STEP 6: EVALUATE AND SELECT FACILITY FOR EACH SEGMENT

The feasible cycling facility options were evaluated by the project team based on technical evaluation criteria (**Section 6**) and presented to the public and stakeholders (**Section 7**) to get their input on the possible facility types. The evaluation was revised following Phase 2 Public Engagement to ensure that public and stakeholder feedback was considered in the evaluation.

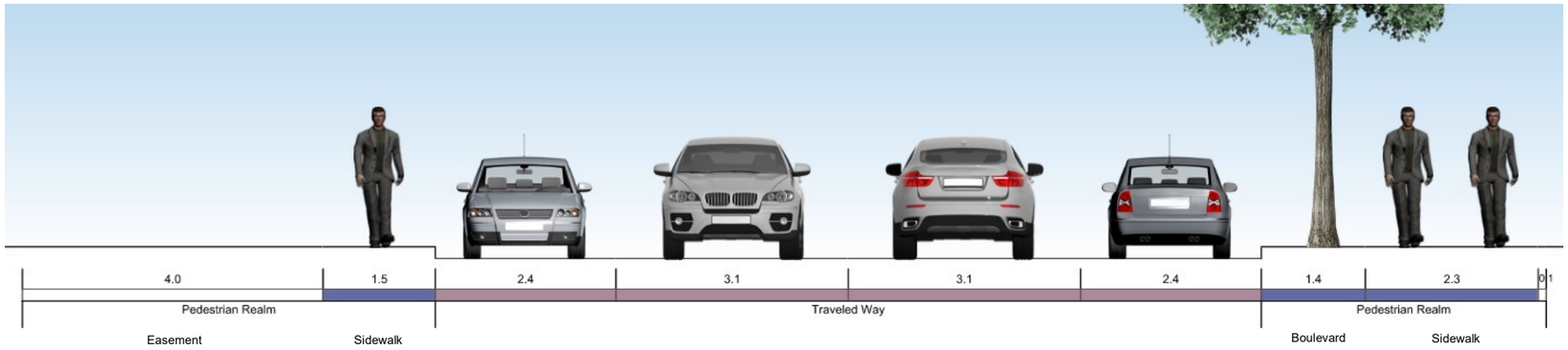
5.2 CYCLING FACILITY OPTIONS

The facility selection process resulted in the following cycling facility options for Avenue C:

SPADINA CRESCENT TO 19TH STREET

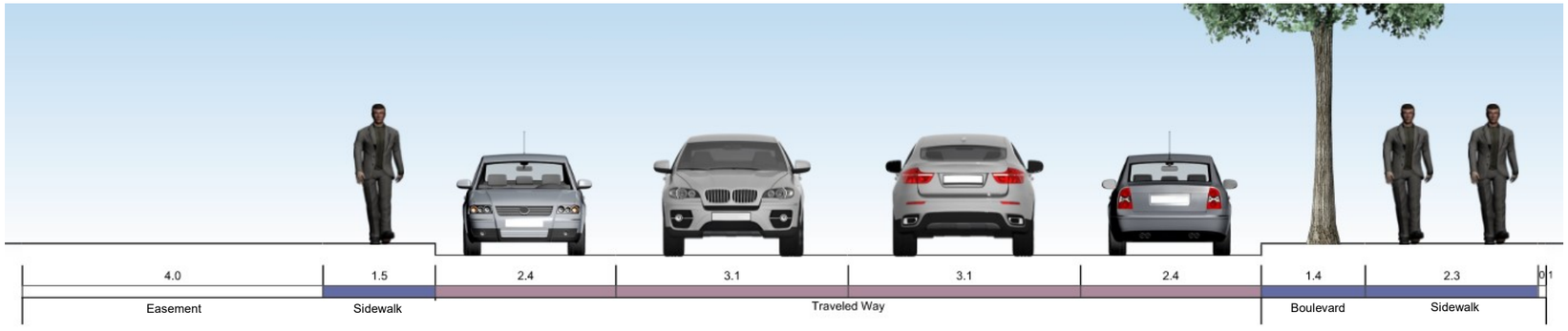
Existing

The existing cross-section includes a parking lane and travel lane in both directions (four lanes total). The curb-to-curb width is approximately 11.0 m and the right-of-way is approximately 20.3 m. On the west side, the sidewalk is adjacent to the parking lane and there is 4.0 m between the property line and sidewalk; however, there is currently an easement agreement with adjacent properties. On the east side, there is a furnishing area adjacent to the parking lane and the sidewalk that extends to the property line.



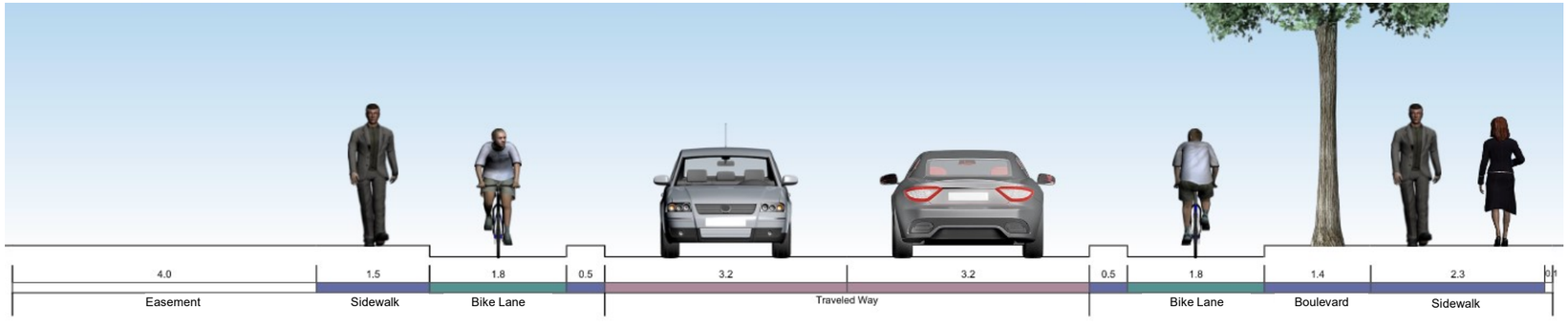
Option A. Neighbourhood Bikeway

A neighbourhood bikeway could be an appropriate treatment based on the traffic volumes. There is a 30 km/h speed limit playground zone in a portion of this section that is in effect between 7:00 a.m. and 7:00 p.m.; the requirement for additional traffic calming measures would be determined at the next phase of design.



Option B. Unidirectional Protected Bike Lanes

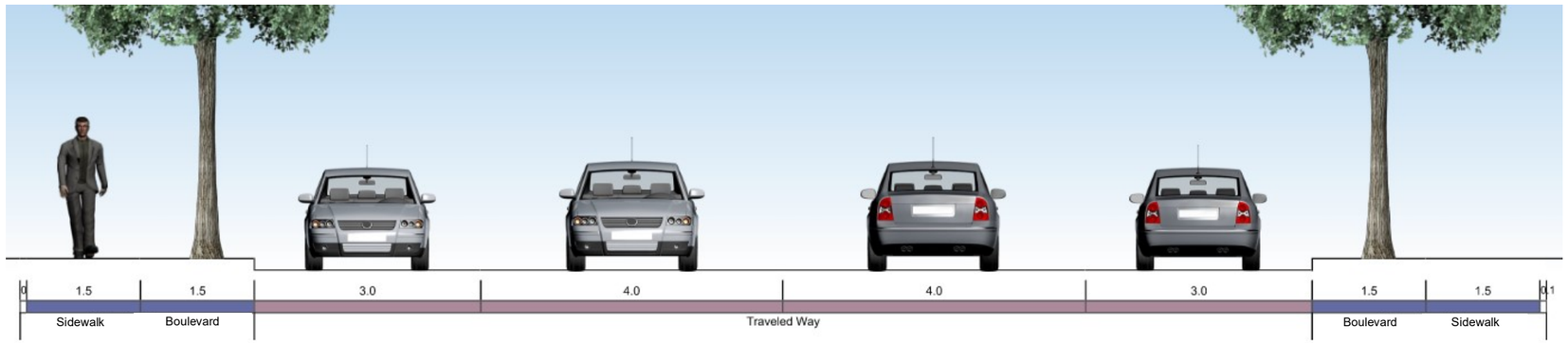
Given that a unidirectional bike lane is required north of 19th Street, it may be beneficial to continue the bike lane for facility consistency. A bike lane would provide an enhanced level of separation; however, parking would need to be removed. The bike lane is 1.8 m wide and could be at street-level with a raised barrier (as shown) or raised. The bike lane height would be determined at the next phase of the design and would be dependent on several factors (cost, drainage, accessibility, comfort, conflicts, etc.)



19TH STREET TO 25TH STREET

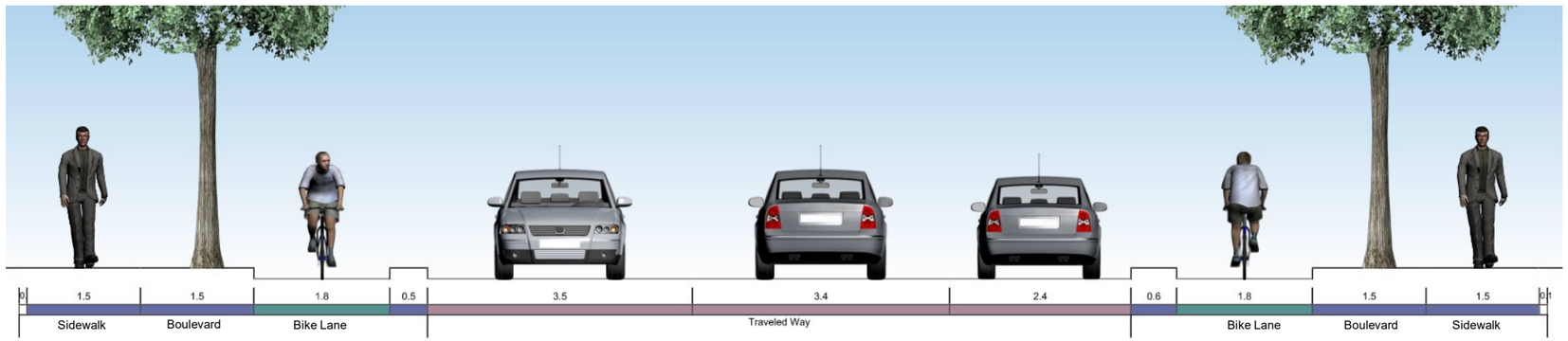
Existing

The existing cross-section includes a parking lane and travel lane in both directions (four lanes total). The curb-to-curb width varies from 13.0 m to 15.0 m and the pedestrian area (sidewalk, furnishing zones, etc.) also slightly varies from block-to-block. The diagram shown illustrates the existing Avenue C cross-section between 19th Street and 20th Street which has a curb-to-curb width of approximately 14.0 m and right-of-way width of 20.2 m.



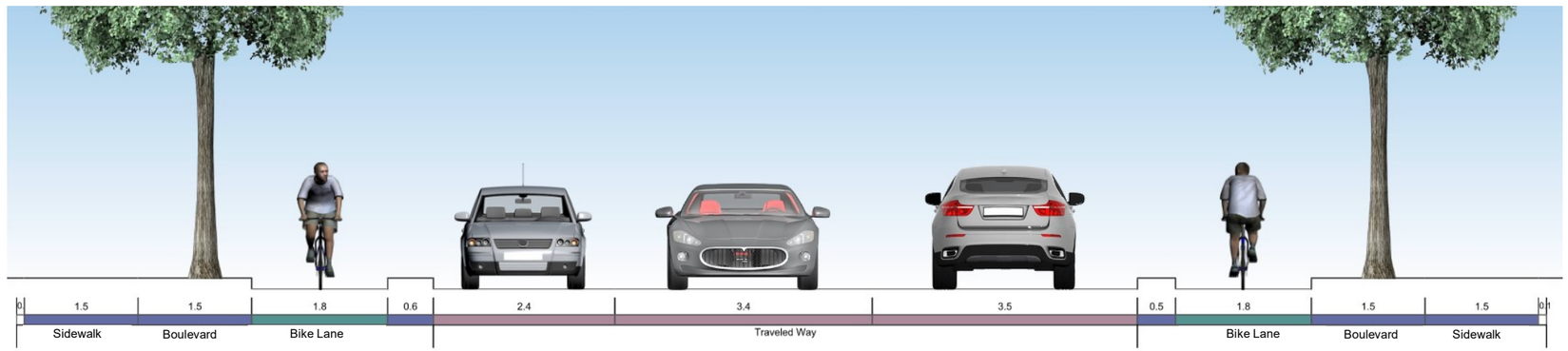
Option A. Unidirectional Protected Bike Lanes with Parking on East Side

A unidirectional bike lane provides a suitable level of separation given the traffic volumes and roadway function. One lane of parking would need to be removed in order to implement protected bike lanes. This option retains parking on the east side of Avenue C only. The bike lane is 1.8 m wide and could be at street-level with a raised barrier (as shown) or raised. The bike lane height would be determined at the next phase of the design and would be dependent on several factors (cost, drainage, accessibility, comfort, conflicts, etc.)



Option B. Unidirectional Protected Bike Lanes with Parking on West Side

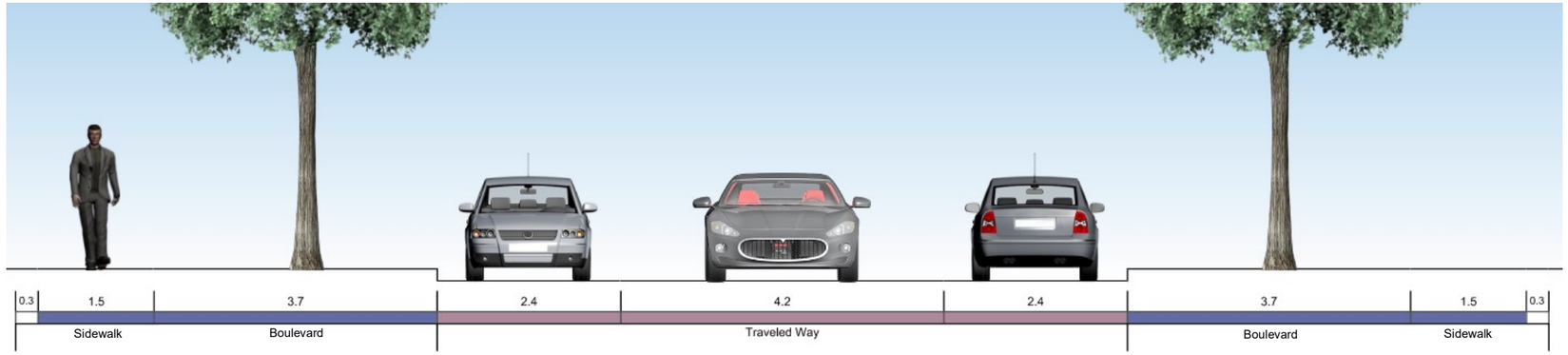
Option B is similar to Option A; however, parking is located on the west side of Avenue C only.



25TH STREET TO 38TH STREET

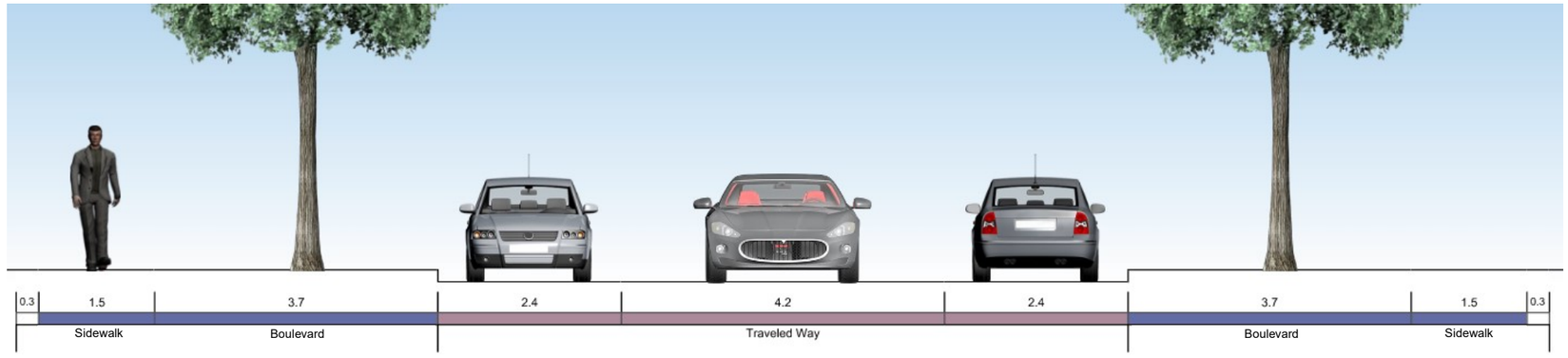
Existing

The existing cross-section includes a wide bi-directional travel lane and parking on both sides of the street. The curb-to-curb width is approximately 9.0 m between 25th Street and 38th Street; however, the pedestrian area (sidewalk, furnishing zones, etc.) varies from block-to-block. The diagram shown illustrates the existing Avenue C cross-section between 33rd Street and 34th Street which has a curb-to-curb width of 9.0 m and 20.0 m right-of-way.



Neighbourhood Bikeway

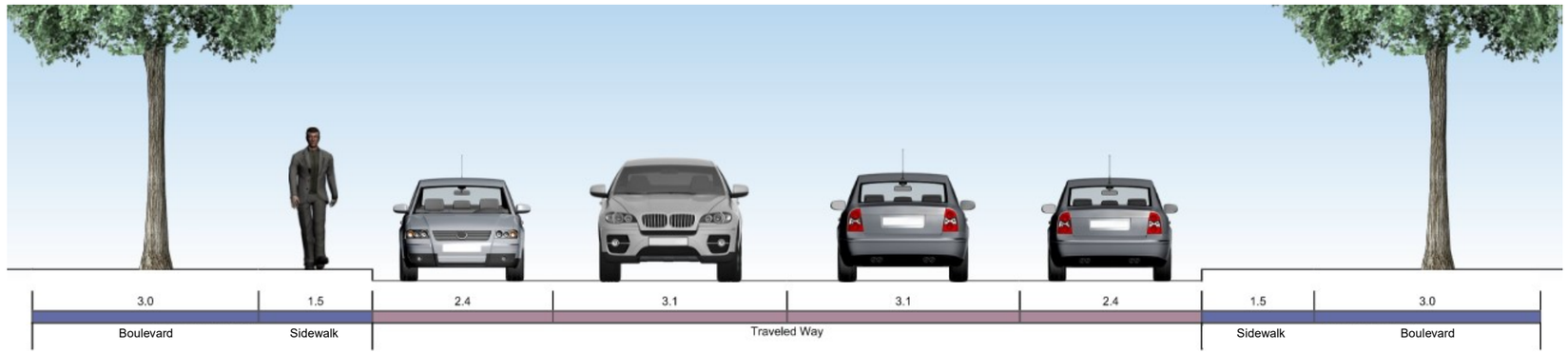
A neighbourhood bikeway is an appropriate treatment based on the traffic volumes; therefore, is the only option proposed for this section. There is a 30 km/h speed limit school zone in a portion of this section that is in effect between 7:00 a.m. and 7:00 p.m.; the requirement for additional traffic calming measures would be determined at the next phase of design.



38TH STREET TO 39TH STREET

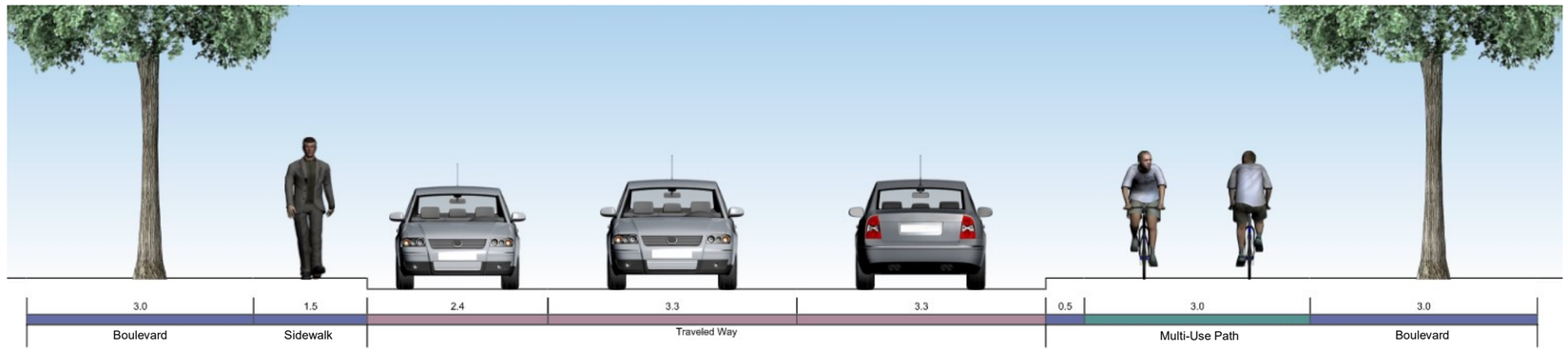
Existing

The existing cross-section includes a parking lane and travel lane in both directions (4 lanes total). The curb-to-curb width is approximately 11.0 m and the right-of-way is 20.0 m. Sidewalks are located adjacent to the parking lane on both sides and there is a 3.0 m boulevard between the property lines and sidewalks.



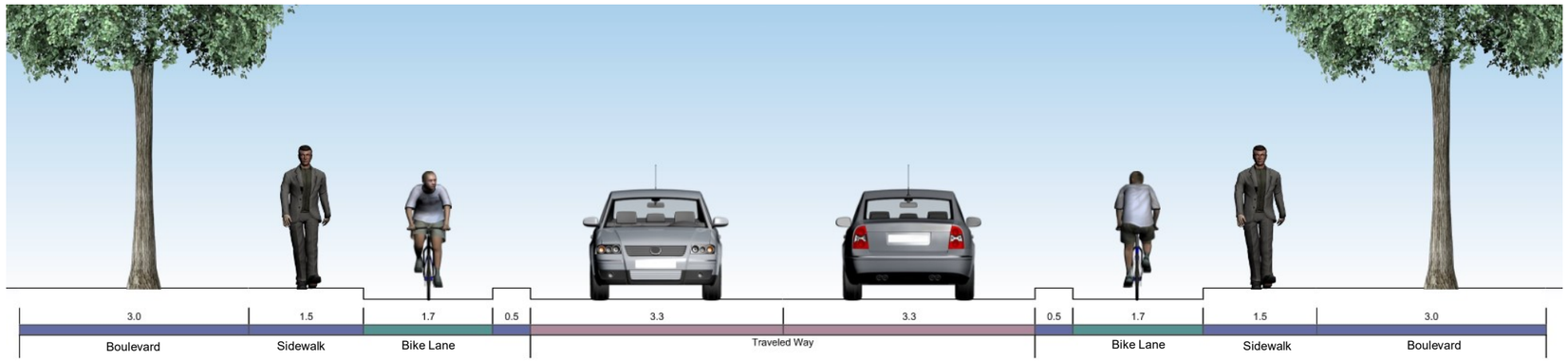
Option A. Multi-Use Path on East Side and Sidewalk on West Side

A multi-use path provides a suitable level of separation from vehicles. Parking is removed on the east side adjacent to the multi-use path in order to provide sufficient lane widths (3.3 m) to accommodate transit buses. The multi-use path is 3.0 m wide and raised (as shown). The path replaces the existing sidewalk since it is shared by both pedestrians and cyclists. It is proposed that the multi-use path be located on the east side to be consistent with the proposed multi-use path north of 39th Street.



Option B. Unidirectional Protected Bike Lane (NOT RECOMMENDED)

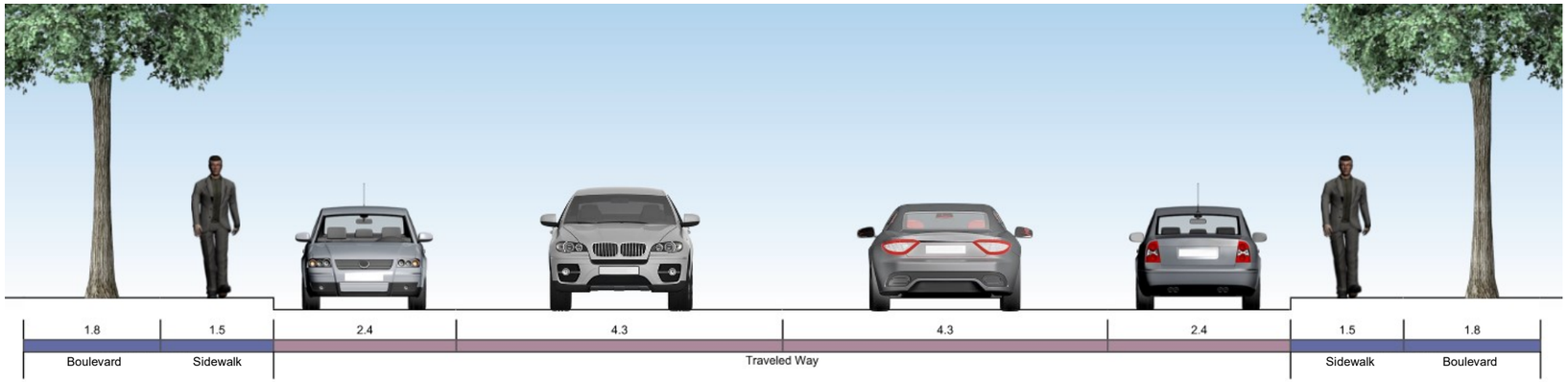
A unidirectional bike lane provides a suitable level of separation given the traffic volumes which increase north of 38th Street. The bike lane is 1.7 m wide and could be at street-level with a raised barrier (as shown) or raised. Parking would need to be removed on both sides in order to have sufficient lane widths (3.3 m minimum) to accommodate transit buses, and the width of the bike lane would be substandard. In addition, a multi-use path is the only option north of 41st Street so having a different bike facility for three blocks (38th to 41st) is not optimal. **This option was therefore not recommended and was eliminated from consideration.**



39TH STREET TO 41ST STREET

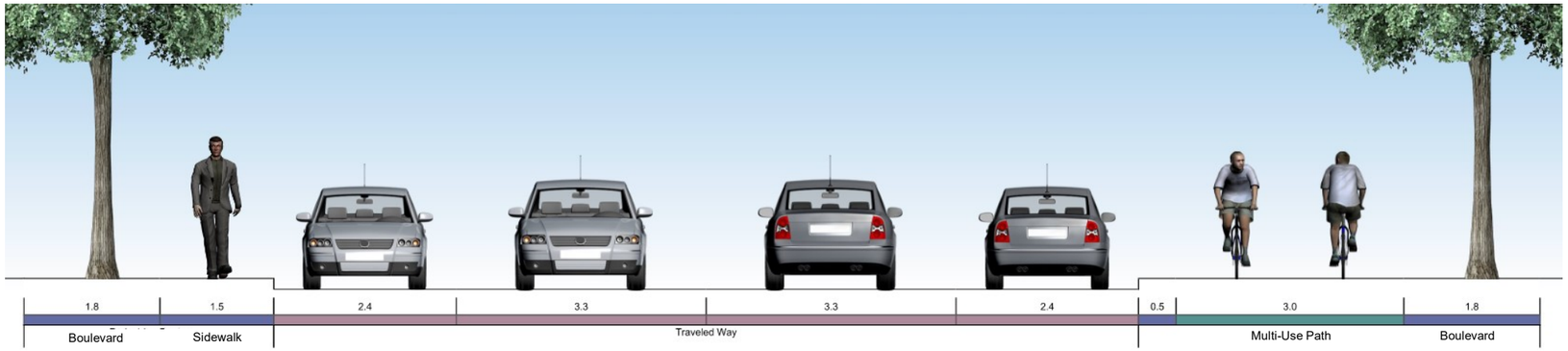
Existing

The existing cross-section includes a parking lane and travel lane in both directions (four lanes total). The curb-to-curb width is approximately 13.4 m and the right-of-way is 20.0 m wide. Sidewalks are located adjacent to the parking lane on both sides; however, there are sidewalk gaps near the rail line. There is a 1.8 m boulevard between the property lines and sidewalks.



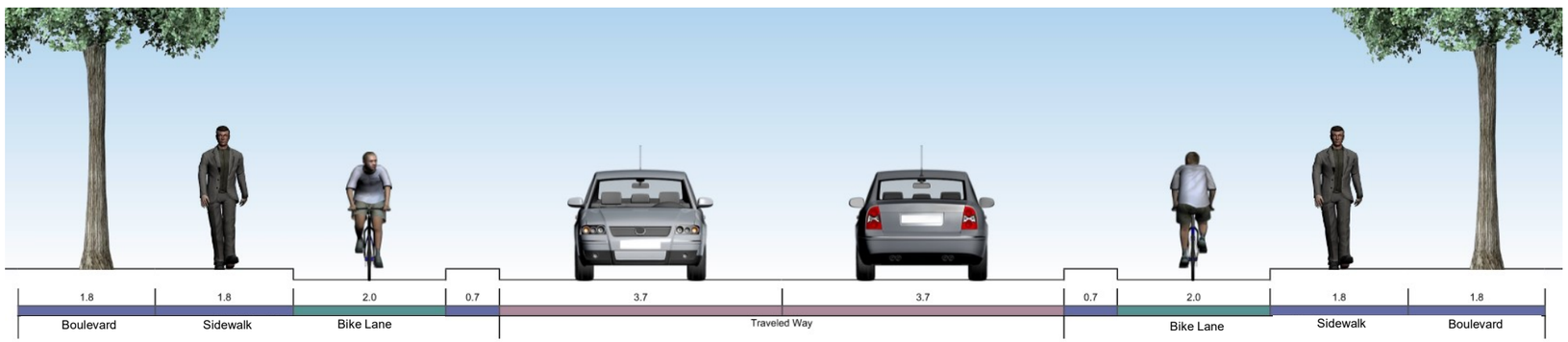
Option A. Multi-Use Path on East Side and Sidewalk on West Side

A multi-use path on the east side provides a suitable level of separation from vehicles. Parking could be maintained on both sides of the street while maintaining sufficient lane widths (3.3 m minimum) for transit buses. The multi-use path is 3.0 m and raised (as shown). The path replaces the existing sidewalk since it is shared by both pedestrians and cyclists. It is proposed that the multi-use path be located on the east side due to the presence of light standards adjacent to the curb on the west side north of the rail line.



Option B. Unidirectional Protected Bike Lane (NOT RECOMMENDED)

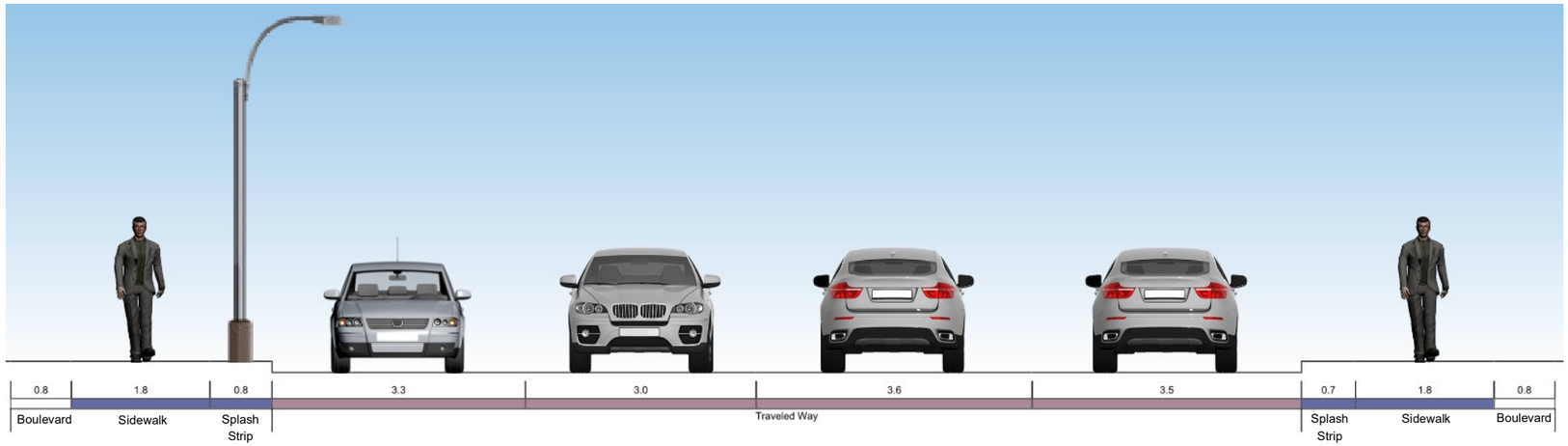
A unidirectional bike lane provides a suitable level of separation given the traffic volumes and roadway function. The bike lane is 2.0 m wide and could be at street-level with a raised barrier (as shown) or raised. Parking would need to be removed on both sides in order to have sufficient lane widths (3.3 m minimum) to accommodate transit buses. In addition, a multi-use path is the only option north of 41st Street so having a different bike facility for three blocks (38th to 41st) is not optimal. **<u>This option was therefore not recommended and was eliminated from consideration.</u>**



41ST STREET TO CIRCLE DRIVE

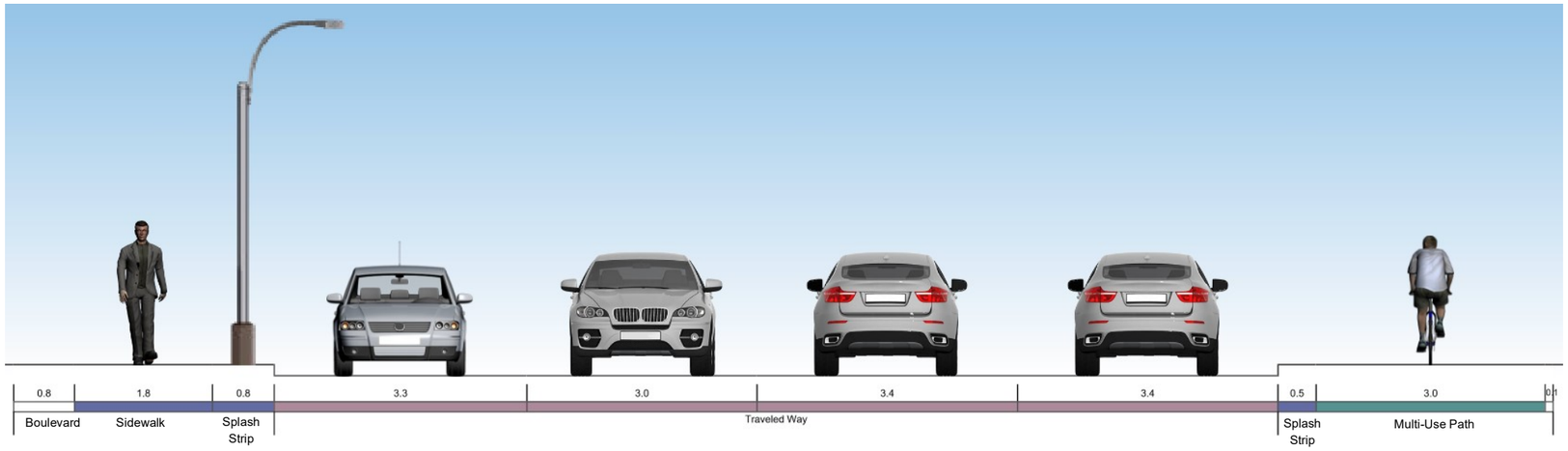
Existing

The existing cross-section includes two travel lanes in both directions (four lanes total). The curb-to-curb width is approximately 13.4 m and the right-of-way is 24.0 m wide. A narrow splash strip is provided between the sidewalk and travel lanes on both sides of the roadway.



Multi-Use Path on East Side and Sidewalk on West Side

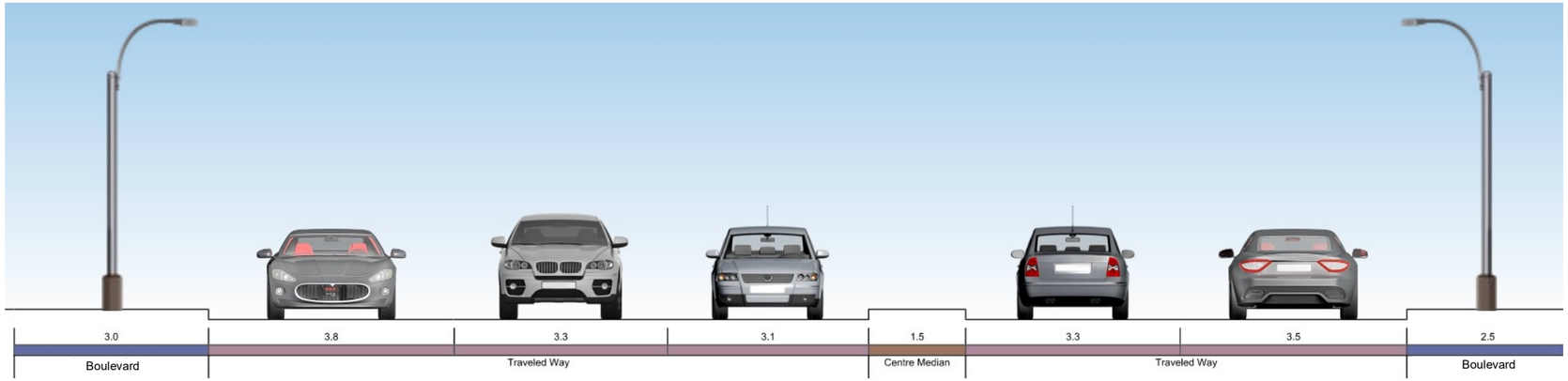
A multi-use path provides a suitable level of separation from vehicles. Four travel lanes are maintained; however, the northbound lanes would need to be slightly narrowed. The multi-use path is 3.0 m and raised (as shown). The path replaces the existing sidewalk on the east side since it is shared by both pedestrians and cyclists. It is proposed that the multi-use path be located on the east side due to the presence of light standards adjacent to the curb on the west side.



CIRCLE DRIVE TO CYNTHIA STREET

Existing

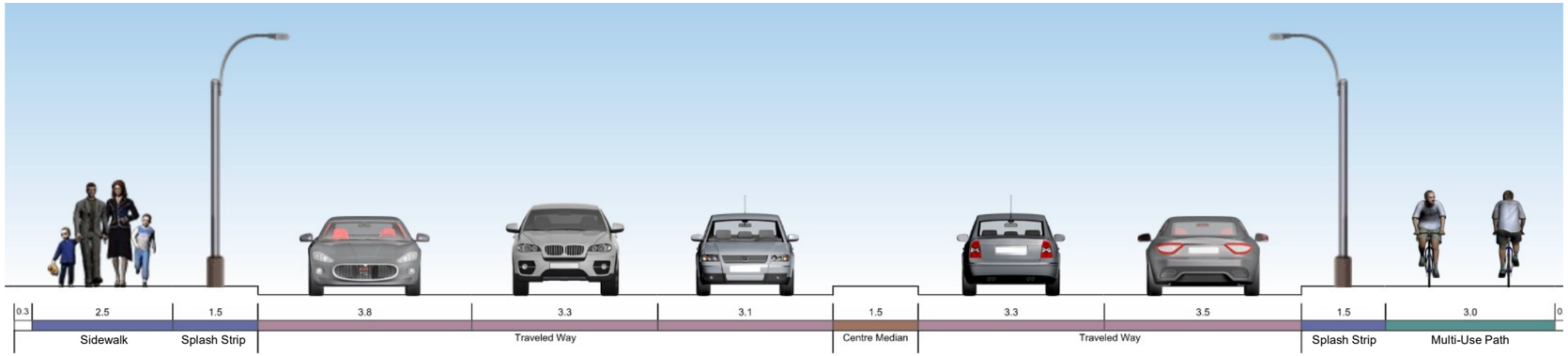
The existing cross-section includes two travel lanes in both directions (four lanes total) and a median turning lane. The curb-to-curb width is approximately 18.5 m (with a 1.5 m median) and the right-of-way is 24.0 m wide. There are no sidewalks in this section. The boulevard is approximately 3.0 m on the west side and 2.5 m on the east side.



Multi-Use Path on East Side and Sidewalk on West Side

A multi-use path provides a suitable level of separation given the high traffic volumes on this portion of Avenue C. The multi-use path would be 3.0 m wide and accommodate both pedestrians and cyclists. It is proposed that the multi-use path be located on the east side to be consistent with the proposed multi-use path south of Circle Drive. The path would also be located behind the existing streetlights (which are located 1.0-1.5 m from the road edge) to provide additional separation from traffic which will enhance the pedestrian and cyclist experience, as well as mitigate streetlight relocations. Since the existing boulevard is only 2.5 m wide, approximately 2.3 m of additional property (from the property line) would be required between Circle Drive and Cynthia to construct the multi-use path.

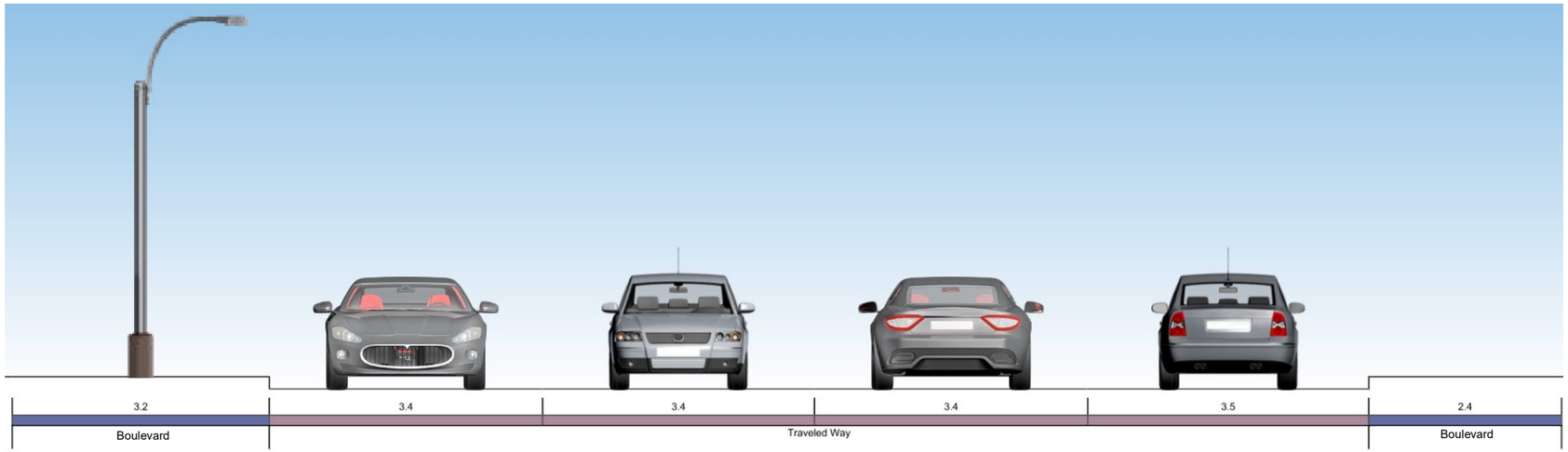
A new 2.5 m wide sidewalk is also proposed on the west side of Avenue C within the existing boulevard space and would be exclusive to pedestrians. It is proposed that the sidewalk be located behind the existing streetlights (which are located 1.0-1.5 m from the road edge) to provide additional separation from traffic which will enhance the pedestrian experience, as well as mitigate streetlight relocations. Since the existing boulevard is only 3.0 m wide, approximately 1.3 m of additional property (from property line) would be required between Circle Drive and Cynthia to construct the sidewalk.



CYNTHIA STREET TO 45TH STREET

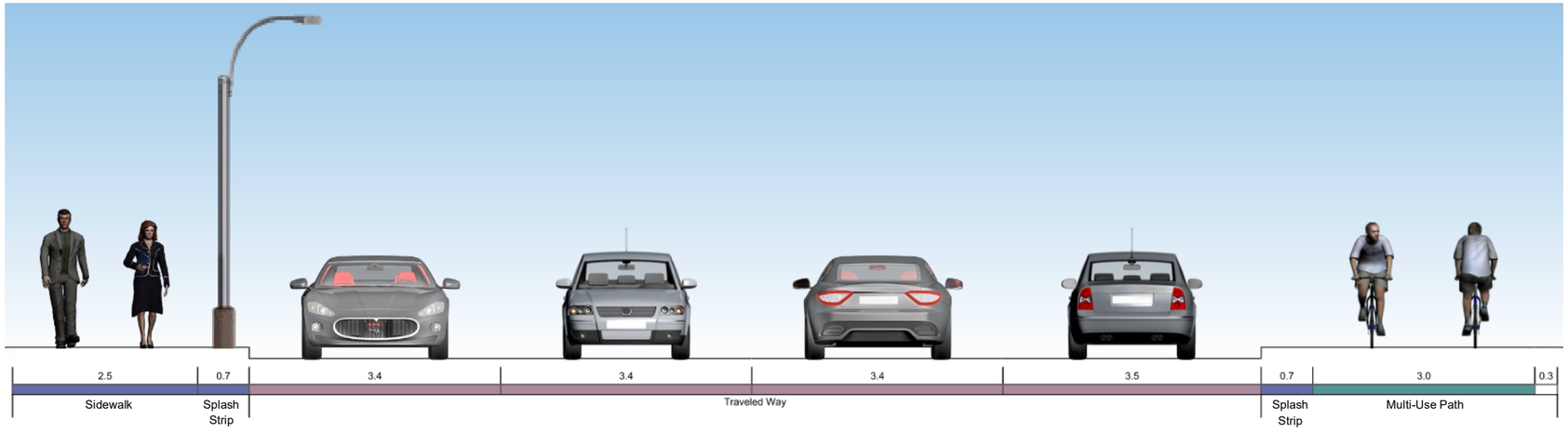
Existing

The existing cross-section includes a parking lane and travel lane in both directions (four lanes total). The curb-to-curb width is approximately 13.7 m and the right-of-way is approximately 19.3 m wide. There are no sidewalks in this section. The boulevard is approximately 3.2 m on the west side and 2.4 m on the east side.



Multi-Use Path on East Side and Sidewalk on West Side

A multi-use path provides a suitable level of separation given the high traffic volumes on this portion of Avenue C. The multi-use path would be 3.0 m wide and accommodate both pedestrians and cyclists. It is proposed that the multi-use path be located on the east side to be consistent with the proposed multi-use path south of Cynthia Street. It is recommended that a 0.7 m splash strip be provided to provide additional separation from traffic which will enhance the pedestrian and cyclist experience. Since the existing boulevard is only 2.4 m wide, approximately 1.6 m of additional property (from the property line) would be required between Cynthia Street and 45th Street to construct the multi-use path. Streetlight and powerline relocations would be mitigated as best as possible.



A new 2.5 m wide sidewalk is also proposed on the west side of Avenue C within the existing boulevard space and would be exclusive to pedestrians. The proximity of the streetlights from the road edge varies in this section, however, there appears to be sufficient width to provide the sidewalk within the existing right-of-way. Property may be required in localized areas (at pinch points) and would be confirmed in the next design phase.

6 PHASE 2 PUBLIC ENGAGEMENT

The objectives of the second phase of engagement, conducted from November to December 2022, were to:

- Provide information on existing conditions, pertinent background information, and the types of facilities proposed for Avenue C, and
- Gather feedback from stakeholders and the community on preferred facility options for each segment of the Avenue C corridor.

An online stakeholder session was held on November 16, 2022 and had 7 attendees. An online public engagement session was held on November 17, 2022 and had 20 attendees. An online public survey was open for responses from November 2 to November 30, 2022 and received 346 responses. Paper surveys were available at Mayfair Library and received 3 responses. A total of five emails were received from the public.

Common themes from the *stakeholder session* included:

- Maintaining, protecting, and adding trees and landscaping wherever possible.
- Sidewalk widths should be widened to enhance comfort and safety for all users.
- The number of pedestrian and cyclist crossovers that occur in some sections, especially school zones, is a concern.
- Concern regarding potential conflicts between pedestrian and cyclists on shared, multi-use paths.
- Concern for cyclist safety on shared roadways.

Common themes from the *survey responses* included:

- A general desire to prioritize pedestrians and cyclists over vehicular traffic.
- A desire to retain existing green space and trees, as well as a desire to increase the landscaping along the corridor, especially in the industrial area where there is less/non-existent green space.

Common themes from *phone call and email responses* included:

- Overall concerns for cyclist safety and concerns regarding sharing the road with vehicle traffic.
- Concerns around the removal of parking on certain segments of Avenue C.
- Desire to become less car-centric and to support active transportation.

The complete *Phase 2 Public Engagement: What We Heard Report* and *Phase 2 Stakeholder Session Presentation* can be found in **Appendix E**.

Feedback received by the public and stakeholders was considered in the evaluation of the walking and cycling facility options (**Section 7**).

7 EVALUATION OF OPTIONS

7.1 EVALUATION CRITERIA

The criteria and weightings used for the evaluation of the cycling facility options for Avenue C are described in **Table 7.1**. The criteria weightings considered feedback received during Phase 2 Public Engagement (**Section 6**).

Table 7.1: Evaluation Criteria

CRITERIA	WEIGHTING	DESCRIPTION
CONNECTIVITY (15%)		
Connections to Adjacent Facilities	10%	How direct and continuous is the facility? Does the option transition well to adjacent facility types along Avenue C, as well as to the existing and future planned network?
Connections to Destinations	5%	How well does the facility connect to key community destinations?
CYCLIST COMFORT & SAFETY (35%)		
All Ages and Abilities	10%	How attractive is the facility to the broadest number of users (all ages and abilities)?
Convenience	5%	Is the facility convenient to access?
Safety	10%	How many conflict points are there with intersections, accesses, and driveways? What level of protection or safety measures (e.g. traffic calming) is provided to increase safety for cyclists?
IMPACTS (35%)		
Impacts to Adjacent Businesses and Residents	5%	How will adjacent businesses and residents be impacted by this facility? Will it improve or worsen patron/visitor access to businesses and residences? Will it impact loading / deliveries? (Note: parking and property impacts are considered below in separate criteria)
Impacts to People Walking	5%	How will the facility type impact people walking? Will there be additional conflict points between pedestrians and cyclists? Will the option provide opportunities for traffic calming and/or improved pedestrian infrastructure (crossings, bulb-outs, sidewalks, etc.)?
Impacts to People Driving	5%	How will the facility type impact people driving? Will there be increased delay along the corridor or at intersections?

CRITERIA	WEIGHTING	DESCRIPTION
Impacts to On-Street Motor Vehicle Parking	5%	How will the facility type impact on-street parking? How many on-street parking spaces will be lost?
Impacts to Transit Operations	5%	How will the facility type impact transit? Will modifications to existing transit stops be required?
Impacts to Emergency Services	2.5%	How will the facility type impact emergency services? Will emergency service access to adjacent buildings be impacted? Will emergency service operation along the corridor need to change?
Impacts to Vegetation	5%	How will the facility type impact existing vegetation (trees, green space, etc.)? Will the option require tree removals?
Impacts to Property	5%	How will the facility type impact property? How much property will be required with this option?
COMMUNITY SUPPORT (10%)		
Consistency with Public Feedback	10%	Is this facility consistent with previously received public feedback?
CAPITAL COST & MAINTENANCE (15%)		
Capital Cost	10%	How much will the route cost? Lower cost options rate higher than high cost infrastructure. This will be a relative rating between the various options rather than a detailed estimate.
Maintenance	5%	Compared to the other options, will this facility be more or less difficult to maintain to allow for all-seasons travel?

7.2 EVALUATION RESULTS

The segments presented in **Section 5.2** were further consolidated where they had similar existing characteristics and the same cycling facility options. This resulted in six segments along Avenue C where cycling facility options evaluated:

- Spadina Crescent to 19th Street
- 19th Street to 25th Street
- 25th Street to 38th Street
- 38th Street to 41st Street
- 41st Street to Circle Drive
- Circle Drive to 45th Street

The cycling facility options for consolidated segments were presented to the public during Phase 2 Public Engagement (**Section 6**) and feedback received was considered in the evaluation of options.

The evaluation of the cycling facility options for each segment are included in **Table 7.2** to **Table 7.7**. The cycling facility options for each segment were evaluated against a "Do Nothing" option, where no cycling facility would be added to Avenue C.

The options were evaluated based on the criteria and weightings identified in **Table 7.1**. A three-point evaluation system was used with both a visual and numeric rating system:

- Impact: 3 - 2 (Good), 2 - 1 (Fair), 1 - 0 (Poor)
- Visual Rating of Impact: Green (Good), Yellow (Fair), and Red (Poor)

Based on the evaluation, the following cycling facilities were recommended for Avenue C:

- Spadina Crescent to 19th Street – Neighbourhood Bikeway
- 19th Street to 25th Street – Unidirectional Protected Bicycle Lanes – Parking on West Side
- 25th Street to 38th Street – Neighbourhood Bikeway
- 38th Street to 41st Street – Multi-Use Pathway on East Side, Sidewalk on West Side
- 41st Street to Circle Drive – Multi-Use Pathway on East Side, Sidewalk on West Side
- Circle Drive to 45th Street – Multi-Use Pathway on East Side, Sidewalk on West Side

Table 7.2: Evaluation of Cycling Facility Options for Avenue C – Spadina Crescent to 19th Street

Evaluation Criteria	Weighting Factor	Option A: Neighbourhood Bikeway	Option B: Unidirectional Protected Bike Lanes	Option C: Do Nothing	Option A: Neighbourhood Bikeway	Option B: Unidirectional Protected Bike Lanes	Option C: Do Nothing	Notes
		Impact (0 - 3)			Weighted Score			
Connectivity	**15.0%**							
Connections to Adjacent Facilities	10.0%	1.5	3.0	0.5	15.0	30.0	5.0	Option B (unidirectional bike lanes) are expected to connect better to adjacent facilities, as both options north of 19th Street are unidirectional bike lanes. Option A (neighbourhood bikeway) will provide connections to adjacent facilities, however, it would not be as seamless as Option B. Option C (do nothing) does nothing to improve connections to adjacent facilities and would create a gap in the network.
Connections to Destinations	5.0%	2.5	2.5	0.5	12.5	12.5	2.5	Option A (neighbourhood bikeway) and Option B (unidirectional bike lanes) were ranked the same since both would connect similarly to destinations on both sides of the street. Both options will provide better cycling connections to Meewason Trail and Isinger Park. Option C (do nothing) does nothing to improve connections to destinations.
Cyclist Comfort & Safety	**25.0%**							
All Ages and Abilities	10.0%	1.5	3.0	0.5	15.0	30.0	5.0	Option B (unidirectional bike lanes) provides the greatest level of separation from motor vehicle travel, therefore, is considered the most attractive for all ages and abilities. Option A (neighbourhood bikeway) includes traffic calming to attract cyclists, while Option C (do nothing) does nothing to attract more cyclists.
Convenience	5.0%	3.0	2.0	1.5	15.0	10.0	7.5	Option A (neighbourhood bikeway) would be the easiest to access, as it can be accessed from anywhere along block, whereas Option B (unidirectional bike lanes) would be typically accessed at intersections. Option C given a lower score since it may be more difficult to access without traffic calming.
Safety	10.0%	2.0	2.5	0.5	20.0	25.0	5.0	There are a similar number of conflict points for all options (two on east side and three on west side). Option B (unidirectional bike lanes) provides highest level of protection from on-street traffic. Option A (neighbourhood bikeway) would incorporate traffic calming measures to reduce traffic volumes and speeds; however the facility would still share the road with vehicular traffic. Option C (no nothing) does nothing to improve safety for cyclists.
Impacts	**35.0%**							
Impacts to Adjacent Businesses and Residents	5.0%	2.0	0.5	1.5	10.0	2.5	7.5	Opportunities for loading/delivery parking on Avenue C will be lost with the Option B (unidirectional bike lanes); however, cycling access will be improved. Option A (neighbourhood bikeway) slightly improves cyclists access to businesses. Option C (do nothing) does nothing to improve cyclist access to business.
Impacts to People Walking	5.0%	2.5	2.5	1.5	12.5	12.5	7.5	Cyclists will be separated from pedestrians for all options. Option A and B will provide opportunities for improved pedestrian infrastructure. The Option A (neighbourhood bikeway) will also provide opportunities for traffic calming. Option C (do nothing) does not include opportunities for improved walking facilities.
Impacts to People Driving	5.0%	2.0	2.0	3.0	10.0	10.0	15.0	Option A (neighbourhood bikeway) may result in slower vehicular speeds with traffic calming measures and more people cycling on-road. Option B (protected bike lanes) may slightly reduce vehicular delays at intersections if bicycle signal phasing is incorporated into signal timing plans. Impacts to people driving are expected to be minimal. Option C (do nothing) would have no impact to people driving.
Impacts to On-Street Motor Vehicle Parking	5.0%	2.5	0.0	3.0	12.5	0.0	15.0	The Option A (neighbourhood bikeway) is expected to have little to no impacts on parking (may have slight impacts depending if curb bulb-outs are implemented as traffic calming measure). The Option B (unidirectional bike lanes) removes all parking between Spadina Crescent and 19th Street (47 spaces). The parking study found that parking use at peak times is 20% on the east side and 70% on the west side.

Evaluation Criteria	Weighting Factor	Option A: Neighbourhood Bikeway	Option B: Unidirectional Protected Bike Lanes	Option C: Do Nothing	Option A: Neighbourhood Bikeway	Option B: Unidirectional Protected Bike Lanes	Option C: Do Nothing	Notes
		Impact (0 - 3)			Weighted Score			
Impacts to Transit Operations	2.5%	0.0	0.0	0.0	0.0	0.0	0.0	Not applicable for this section. All options given same score to not influence rankings.
Impacts to Emergency Services	2.5%	1.5	2.0	1.5	3.8	5.0	3.8	No significant impacts to emergency service access or operation is expected with any option. Emergency service access will be slightly better with bike lane option, as there would be no on-street parked vehicles potentially blocking access to buildings.
Impacts to Vegetation	5.0%	1.5	1.5	1.5	7.5	7.5	7.5	No impacts to vegetation are expected with any option, as they would be accommodated within the existing street space.
Impacts to Property	5.0%	3.0	3.0	3.0	15.0	15.0	15.0	No impacts to property are expected with any option.
Community Support	**10.0%**							
Consistency with Public Feedback	10.0%	1.5	2.5	1.0	15.0	25.0	10.0	Option B (unidirectional bike lanes) was preferred by 181 respondents (53%), Option A (neighbourhood bikeway) was preferred by 74 respondents (21%), and 21% responded neither. Option B was seen as providing higher comfort and safety for cyclists, while Option A was seen as providing less disruptions to parking and being more cost effective.
Capital Cost & Maintenance	**15.0%**							
Capital Cost	10.0%	2.5	0.5	3.0	25.0	5.0	30.0	Option B (unidirectional bike lanes) would have highest cost to construct curb barriers and any other associated curb modifications. Option A (neighbourhood bikeway) would have a minor cost for traffic calming.
Maintenance	5.0%	2.5	1.0	3.0	12.5	5.0	15.0	Option B (unidirectional bike lanes) would require special equipment for snow clearing in winter, whereas Option A (neighbourhood bikeway) could be cleared by street snow clearing equipment. Option B (unidirectional bike lanes) may have additional maintenance requirements in summer due to additional concrete curbs/barriers and pavement markings. Option C (do nothing) would have no additional maintenance costs compared to what is currently required.
Total	**100.0%**	**32.0**	**28.5**	**25.5**	**201.3**	**195.0**	**151.3**	

Table 7.3: Evaluation of Cycling Facility Options for Avenue C – 19th Street to 25th Street

Evaluation Criteria	Weighting Factor	Option A: Unidirectional Protected Bike Lanes - Parking on East Side	Option B: Unidirectional Protected Bike Lanes - Parking on West Side	Option C: Do Nothing	Option A: Unidirectional Protected Bike Lanes - Parking on East Side	Option B: Unidirectional Protected Bike Lanes - Parking on West Side	Option C: Do Nothing	Notes
		Impact (0 - 3)			Weighted Score			
Connectivity	**15.0%**							
Connections to Adjacent Facilities	10.0%	2.5	2.5	0.5	25.0	25.0	5.0	Option A and B will connect similarly to adjacent facility types along Avenue C, as well as existing and future planned network. Option C does nothing to improve connections to adjacent facilities and would create a gap in the network.
Connections to Destinations	5.0%	2.5	2.5	0.5	12.5	12.5	2.5	Option A and B would connect similarly to destinations on both sides of the street. Option C does nothing to improve connections to destinations.
Cyclist Comfort & Safety	**25.0%**							
All Ages and Abilities	10.0%	3.0	3.0	0.5	30.0	30.0	5.0	Unidirectional bike lanes provides the greatest level of separation from motor vehicle travel, therefore, both Option A and B are considered the most attractive for all ages and abilities. Option C does nothing to attact more cyclists.
Convenience	5.0%	2.0	2.0	0.5	10.0	10.0	2.5	Option A and B are considered to be similar in terms of convenience. Unidirectional Bike Lanes are typically accessed at intersections, therefore would not be as convenient to access mid-block. Option C given a lower score since it may be more difficult to access with higher traffic volumes on this section.
Safety	10.0%	2.5	2.5	0.5	25.0	25.0	5.0	Similar number of conflict points for both bike lane options (33 on east side and 29 on west side). Option A and B provide a high level of protection from on-street traffic, therefore would be significantly more safe than the Option C.
Impacts	**35.0%**							
Impacts to Adjacent Businesses and Residents	5.0%	1.0	1.0	1.5	5.0	5.0	7.5	Cycling access to businesses will be improved with both Option A and B; however, removing parking on the east side or west side would remove two loading zones (2 on west side and 2 on east side). Option C (Do Nothing) does not improve cycling access to businesses, however, also does not impact loading/deliveries.
Impacts to People Walking	5.0%	2.5	2.5	1.5	12.5	12.5	7.5	Cyclists will be separated from pedestrians for all Options. Option A and B provide opportunities for improved pedestrian infrastructure, while Option C does not.
Impacts to People Driving	5.0%	2.0	2.0	3.0	10.0	10.0	15.0	Option A and B may slightly increase vehicular delays at intersections if bicycle signal phasing is incorporated into signal timing plans. Impacts to people driving are expected to be minimal. Option C does nothing to impact traffic operations.
Impacts to On-Street Motor Vehicle Parking	5.0%	0.5	1.0	3.0	2.5	5.0	15.0	Option A retains parking on the east side and requires approximately 86 spaces to be removed on the west side, while Option B retains parking on the west side and requires 51 spaces to be removed on the east side. Option C has no impacts to parking. Peak parking use on east side ranges from 24% to 54%, while peak parking use on west side ranged from 38% to 78%.
Impacts to Transit Operations	2.5%	0.0	0.0	0.0	0.0	0.0	0.0	Not applicable for this section. All options given same score to not influence rankings.
Impacts to Emergency Services	2.5%	2.0	2.0	1.5	5.0	5.0	3.8	No significant impacts to emergency service access or operation is expected with any option. Emergency service access will be slightly better on the side of the street without parking (for Option A and B), as there would be no on-street parked vehicles potentially blocking access to buildings.

Evaluation Criteria	Weighting Factor	Option A: Unidirectional Protected Bike Lanes - Parking on East Side	Option B: Unidirectional Protected Bike Lanes - Parking on West Side	Option C: Do Nothing	Option A: Unidirectional Protected Bike Lanes - Parking on East Side	Option B: Unidirectional Protected Bike Lanes - Parking on West Side	Option C: Do Nothing	Notes
		Impact (0 - 3)			Weighted Score			
Impacts to Vegetation	5.0%	1.5	1.5	1.5	7.5	7.5	7.5	No impacts to vegetation are expected with any option, as they would be accommodated within the existing street space.
Impacts to Property	5.0%	3.0	3.0	3.0	15.0	15.0	15.0	No impacts to property are expected with any option.
Community Support	**10.0%**							
Consistency with Public Feedback	10.0%	2.0	2.5	1.0	20.0	25.0	10.0	Over half of survey participants (59%) were not sure/had no opinion or chose neither Option A nor Option B. Between the two options; however, Option B: Unidirectional Bike Lanes with parking on the west side received the most favourable response being preferred by 67 respondents (21%). In contrast, Option A was preferred by 56 respondents (18%).
Capital Cost & Maintenance	**15.0%**							
Capital Cost	10.0%	0.5	0.5	3.0	5.0	5.0	30.0	Option A and B would have a similar cost to construct curb barriers and any other associated curb / drainage modifications. Option C would have no capital cost.
Maintenance	5.0%	1.0	1.0	3.0	5.0	5.0	15.0	Option A and B would require special equipment for snow clearing in winter. Unidirectional Bike Lanes may have additional maintenance requirements in summer due to additional concrete curbs/barriers and pavement markings. Option C (do nothing) would have no additional maintenance costs compared to what is currently required.
Total	**100.0%**	**28.5**	**29.5**	**24.5**	**190.0**	**197.5**	**146.3**	

Table 7.4: Evaluation of Cycling Facility Options for Avenue C – 25th Street to 38th Street

Evaluation Criteria	Weighting Factor	Option A: Neighbourhood Bikeway	Option B: Do Nothing	Option A: Neighbourhood Bikeway	Option B: Do Nothing	Notes
		Impact (0-3)		Weighted Score		
Connectivity	**15.0%**					
Connections to Adjacent Facilities	10.0%	2.5	0.5	25.0	5.0	Option A (neighbourhood bikeway) will incorporate elements to better facilitate transitions to adjacent facilities and continue the network. Option B (do nothing) would leave a gap in the network.
Connections to Destinations	5.0%	2.5	0.5	12.5	2.5	Option A (neighbourhood bikeway) would provide traffic calming which would be beneficial for nearby community destinations such as schools and parks. Option B (do nothing) does nothing to improve connections to destinations.
Cyclist Comfort & Safety	**25.0%**					
All Ages and Abilities	10.0%	2.0	1.0	20.0	10.0	Option A (neighbourhood bikeway) would incorporate additional traffic calming measures to attract users of all ages and abilities. Option B (do nothing) does not include any additional measures to attract more users to the route.
Convenience	5.0%	2.0	1.0	10.0	5.0	Option A (neighbourhood bikeway) would be easier to access due to lower traffic volumes and speeds and more crossing opportunities compared to Option B (do nothing)
Safety	10.0%	2.0	1.0	20.0	10.0	Similar number of conflict points for both options as most residents have driveways. Options A (neighbourhood bikeway) will include traffic calming measures to improve safety for cyclists (lowering speeds).
Impacts	**35.0%**					
Impacts to Adjacent Businesses and Residents	5.0%	1.5	1.5	7.5	7.5	Minimal business impacts along this section, as it is mostly residential. No loading/delivery areas for residents would be impacted with either option.
Impacts to People Walking	5.0%	2.5	1.5	12.5	7.5	Option A (neighbourhood bikeway) provides opportunities for improved pedestrian infrastructure (curb extensions, enhanced crossings, etc.); Option B (do nothing) does not.
Impacts to People Driving	5.0%	1.5	3.0	7.5	15.0	Option A (neighbourhood bikeway) will incorporate traffic calming measures to reduce traffic speeds and volumes. Option B (do nothing) would have no impact to how people currently drive on Avenue C.
Impacts to On-Street Motor Vehicle Parking	5.0%	2.5	3.0	12.5	15.0	Option A (neighbourhood bikeway) is expected to have little to no impacts on parking (may have slight impacts depending if curb extensions are implemented as traffic calming measure). Option B would have no impacts to parking.
Impacts to Transit Operations	2.5%	0.0	0.0	0.0	0.0	Not applicable for this section. All options given same score to not influence rankings.
Impacts to Emergency Services	2.5%	1.5	1.5	3.8	3.8	No significant impacts to emergency service access or operation is expected with either option.
Impacts to Vegetation	5.0%	1.5	1.5	7.5	7.5	No impacts to vegetation are expected with either option, as both options would be accommodated within the existing street space.
Impacts to Property	5.0%	3.0	3.0	15.0	15.0	No impacts to property are expected with either option.

Evaluation Criteria	Weighting Factor	Option A: Neighbourhood Bikeway	Option B: Do Nothing	Option A: Neighbourhood Bikeway	Option B: Do Nothing	Notes
		Impact (0-3)		Weighted Score		
Community Support	**10.0%**					
Consistency with Public Feedback	10.0%	2.0	1.0	20.0	10.0	106 respondents (35%) think that a neighbourhood bikeway is not a good option for this section of Avenue C, while 93 (31%) indicated that it is a good option. 24% of participants chose somewhat and less than 10% are unsure if this is a good option. For those that liked Option A, they noted that it would not disrupt parking, would lower speeds, low cost solution, provides a north-south route for cyclists. For those that disliked Option A, concern related to cyclist safety, parking congestion/dooring were noted.
Capital Cost & Maintenance	**15.0%**					
Capital Cost	10.0%	2.0	3.0	20.0	30.0	Option A (neighbourhood bikeway) would have capital costs associated with implementing new traffic calming measures. Option B would have no capital cost.
Maintenance	5.0%	2.0	3.0	10.0	15.0	Option A (neighbourhood bikeway) would have higher maintenance requirements than Option B (do northing) to allow for all seasons travel. Would require higher snow clearing priority, as well as more maintenance for new traffic calming measures.
Total	**100.0%**	**31.0**	**26.0**	**203.8**	**158.8**	

Table 7.5: Evaluation of Cycling Facility Options for Avenue C – 38th Street to 41st Street

Evaluation Criteria	Weighting Factor	Option A: Multi-Use Path on East Side and Sidewalk on West Side	Option B: Unidirectional Bike Lanes	Option C: Do Nothing	Option A: Multi-Use Path on East Side and Sidewalk on West Side	Option B: Unidirectional Bike Lanes	Option C: Do Nothing	Notes
		Impact (0 - 3)			Weighted Score			
Connectivity	**15.0%**							
Connections to Adjacent Facilities	10.0%	1.5	1.0	0.5	15.0	10.0	5.0	Option A (multi-use path) requires cyclists to transition to the east side of Avenue C to access the facility at 38th Street. The transition at 41st Street would be more seamless as the proposed facility north of 41st is a multi-use path on the east side. Option B (unidirectional bike lanes) requires cyclists to transition from a neighbourhood greenway to protected bike lanes at 38th Street. The transition at 41st Street would be challenging given that there would be a switch from a one-way to two-way facility and there isn't currently crossing control at 41st Street. Option C (do nothing) does nothing to improve connections to adjacent facilities and would create a gap in the network.
Connections to Destinations	5.0%	1.5	1.5	0.5	7.5	7.5	2.5	No significant community destination exist in this section. Options A and B provide cycling facilities to connect to potential destinations, while Option C does nothing to improve cycling connections to destinations.
Cyclist Comfort & Safety	**25.0%**							
All Ages and Abilities	10.0%	3.0	3.0	0.5	30.0	30.0	5.0	Both Option A and B provide high level of separation from motor vehicle travel, and therefore are both attractive for all ages and abilities. Option C does nothing to attract more cyclists.
Convenience	5.0%	2.0	2.0	0.5	10.0	10.0	2.5	Option A and B offer similar level of convenience for accessing. Multi-use path requires cyclists to access the path on the east side, whereas the unidirectional bike lane option may require cyclists to cross the street depending on their direction of travel. Option C given a lower score since it may be more difficult to access with higher traffic volumes on this section.
Safety	10.0%	2.0	2.5	0.5	20.0	25.0	5.0	There is a high number of conflict points between 38th Street and 41st Street as many residents have driveways. Option A would be impacted by conflict points on the east side, whereas Option B would be impacted by conflict points on both sides. Both options provide increased protection for cyclists compared to Option C.
Impacts	**35.0%**							
Impacts to Adjacent Businesses and Residents	5.0%	1.5	1.5	1.5	7.5	7.5	7.5	No significant impacts to businesses / residents are expected. Parking evaluated separately below.
Impacts to People Walking	5.0%	1.5	2.5	1.5	7.5	12.5	7.5	Option A and B will provide opportunities for improved pedestrian infrastructure. Option A will require a shared use facility for pedestrians and cyclists on the east side. Option C does nothing to improving walking facilities.
Impacts to People Driving	5.0%	2.5	2.5	3.0	12.5	12.5	15.0	Impacts to people driving are expected to be minimal with Option A and B. Option C would have no impacts to people driving.
Impacts to On-Street Motor Vehicle Parking	5.0%	1.5	0.5	3.0	7.5	2.5	15.0	For Option A, parking would need to be removed on the east side between 38th and 39th. Between 39th and 41st Street, parking could be maintained on both sides of the street. For Option B, all parking would be removed (approximately 100 spaces). Peak parking use ranges from 0% to 25%. Option C would have no impacts to parking.
Impacts to Transit Operations	2.5%	2.0	2.5	3.0	5.0	6.3	7.5	There are two transit stops on the east side and one transit stop on the west side. Option A narrows travel lanes to 3.3m which is the minimum lane width required for transit buses. Option B maintains 3.7m wide travel lanes. Both options provide opportunities to improve transit stop amenities (currently only signed). Option C does not impact current transit operations.

Evaluation Criteria	Weighting Factor	Option A: Multi-Use Path on East Side and Sidewalk on West Side	Option B: Unidirectional Bike Lanes	Option C: Do Nothing	Option A: Multi-Use Path on East Side and Sidewalk on West Side	Option B: Unidirectional Bike Lanes	Option C: Do Nothing	Notes
		Impact (0 - 3)			Weighted Score			
Impacts to Emergency Services	2.5%	1.5	2.0	1.5	3.8	5.0	3.8	No significant impacts to emergency service access or operation is expected with any option. Emergency service access will be slightly better without parking, as there would be no on-street parked vehicles potentially blocking access to buildings.
Impacts to Vegetation	5.0%	1.5	1.5	1.5	7.5	7.5	7.5	No impacts to vegetation are expected with any option, as all options would be accommodated within the existing street/sidewalk space.
Impacts to Property	5.0%	3.0	3.0	3.0	15.0	15.0	15.0	No impacts to property are expected with any option.
Community Support	**10.0%**							
Consistency with Public Feedback	10.0%	2.5	2.0	1.0	25.0	20.0	10.0	Option A: Multi-Use Path on East Side received the most favourable response and was preferred by 123 respondents (42%). In contrast, Option B: Unidirectional Bike Lanes was preferred by 99 respondents (34%).
Capital Cost & Maintenance	**15.0%**							
Capital Cost	10.0%	1.5	0.5	3.0	15.0	5.0	30.0	Option B would have a higher cost than Option A, as curb modifications and barriers would be required on both sides of the roadway. Option A would require curb modifications / pathway widening on the east side only. Option C would have no capital cost associated with it.
Maintenance	5.0%	1.5	1.0	3.0	7.5	5.0	15.0	Option A and B would require special snow clearing equipment. Option B (Unidirectional Bike Lanes) may have additional maintenance requirements in summer due to additional concrete curbs/barriers and pavement markings. Option C (do nothing) would have no additional maintenance costs compared to what is currently required.
Total	**100.0%**	**30.5**	**29.5**	**27.5**	**196.3**	**181.3**	**153.8**	

Table 7.6: Evaluation of Cycling Facility Options for Avenue C – 41st Street to Circle Drive

Evaluation Criteria	Weighting Factor	Option A: Multi-Use Path on East Side and Sidewalk on West Side	Option B: Do Nothing	Option A: Multi-Use Path on East Side and Sidewalk on West Side	Option B: Do Nothing	Notes
		Impact (0-3)		Weighted Score		
Connectivity	**15.0%**					
Connections to Adjacent Facilities	10.0%	2.5	0.5	25.0	5.0	Option A (multi-use path) would provide a more seamless transition to the options proposed both north of Circle Drive and south of 41st (if the preferred option south of 41st Street is a multi-use path on the east side). Option A would allow for a continuous route, whereas, Option B would create a gap in the network in a location with high volumes.
Connections to Destinations	5.0%	1.5	0.5	7.5	2.5	No key community destination exists in this section. Options A provides a cycling facility to connect to potential destinations, while Option B does nothing to improve cycling connections to destinations.
Cyclist Comfort & Safety	**25.0%**					
All Ages and Abilities	10.0%	2.5	0.5	25.0	5.0	Option A (multi-use path) provides a highest level of separate from traffic as it is off-street and at sidewalk level. Due to land constraints the proximity to the street is less than ideal. Option B would not be attractive to the majority of cyclists due to the high volumes of traffic and safety concerns.
Convenience	5.0%	2.0	1.0	10.0	5.0	Option A (multi-use path) provides convenient access to/from the east side. Cyclists with origins or destinations on the west side must cross at designated crossings or signalized intersections. Option B would allow for access from both sides, however, may inconvenience cyclists wanting to turn left as they would need to make lane changes in traffic in order to do so.
Safety	10.0%	2.5	0.0	25.0	0.0	There are two conflict points on the east side and two conflict points on the west side between 41st Street and Circle Drive. Option A would be impacted by conflict points on the east side, whereas Option B would be impacted by conflict points on both sides. Option A (multi-use path) provides a significant safety benefit over Option B (do nothing) as it removes cyclists from the travel lanes.
Impacts	**35.0%**					
Impacts to Adjacent Businesses and Residents	5.0%	1.5	1.5	7.5	7.5	No significant impacts to businesses / residents are expected for either option.
Impacts to People Walking	5.0%	1.5	1.5	7.5	7.5	Option A provides opportunities for improved pedestrian infrastructure (e.g. new, wider pathway on the east side), however, it would also require that pedestrians share the pathway with cyclists. Option B would maintain the sidewalks on both sides in this section.
Impacts to People Driving	5.0%	2.0	3.0	10.0	15.0	Option A may result in a slight decline in the Circle Drive and Avenue C level-of-service with signal timing changes associated with the bicycle crossing. Option B would not impact current traffic operations.
Impacts to On-Street Motor Vehicle Parking	5.0%	1.5	1.5	7.5	7.5	No parking losses are expected with either option.
Impacts to Transit Operations	2.5%	2.0	1.5	5.0	3.8	There is one transit stop on the east side north of 41st Street that would be impacted with Option A. Option A also provides the opportunity to improve the bus stop area at this location (wider platform, bench, etc.). Option B would not impact the existing transit stop.
Impacts to Emergency Services	2.5%	1.5	1.5	3.8	3.8	No significant impacts to emergency service access or operation is expected with either option.
Impacts to Vegetation	5.0%	1.5	1.5	7.5	7.5	No impacts to vegetation are expected with either option.

Evaluation Criteria	Weighting Factor	Option A: Multi-Use Path on East Side and Sidewalk on West Side	Option B: Do Nothing	Option A: Multi-Use Path on East Side and Sidewalk on West Side	Option B: Do Nothing	Notes
		Impact (0-3)		Weighted Score		
Impacts to Property	5.0%	0.5	3.0	2.5	15.0	Option A may require some property on the southeast corner of the Avenue C and Circle Drive intersection. Option B would have no property impacts.
Community Support	**10.0%**					
Consistency with Public Feedback	10.0%	2.5	0.5	25.0	5.0	Just over half of the survey respondents (51%) think that a multi-use path is a good option for this section of Avenue C, while 23% do not, and just under 20% of respondents selected somewhat.
Capital Cost & Maintenance	**15.0%**					
Capital Cost	10.0%	1.0	3.0	10.0	30.0	Option A would have a higher cost for construction of the multi-use path, transit stop modifications, and possible property acquisition. Option B would have no capital cost associated with it.
Maintenance	5.0%	2.0	3.0	10.0	15.0	Option A would have higher snow clearing and maintenance requirements than Option B to allow for all-season travel.
Total	**100.0%**	**28.5**	**24.0**	**188.8**	**135.0**	

Table 7.7: Evaluation of Cycling Facility Options for Avenue C – 41st Street to Circle Drive

Evaluation Criteria	Weighting Factor	Option A: Multi-Use Path on East Side and Sidewalk on West Side	Option B: Do Nothing	Option A: Multi-Use Path on East Side and Sidewalk on West Side	Option B: Do Nothing	Notes
		Impact (0-3)		Weighted Score		
Connectivity	**15.0%**					
Connections to Adjacent Facilities	10.0%	2.5	0.5	25.0	5.0	Option A (multi-use path) would provide a more seamless transition to the option proposed south of Circle Drive. Option A would allow for a continuous route, whereas, Option B would create a gap in the network in a location with high traffic volumes.
Connections to Destinations	5.0%	1.5	0.5	7.5	2.5	This area predominately consists of employment destinations. Options A provides a cycling facility to connect to employment destinations, while Option B does nothing to improve pedestrian or cycling connections to destinations.
Cyclist Comfort & Safety	**25.0%**					
All Ages and Abilities	10.0%	3.0	0.0	30.0	0.0	Option A (multi-use path) provides a highest level of separate from traffic as it is off-street and at sidewalk level. Option B would not be attractive to the majority of cyclists due to the high volumes of traffic and safety concerns.
Convenience	5.0%	2.0	0.0	10.0	0.0	Option A (multi-use path) is convenient to access from the east side. Cyclists with origins or destinations on the west side must cross at designated crossings or signalized intersections. Option B would allow for access from both sides, however, may inconvenience cyclists wanting to turn left as they would need to make lane changes in traffic in order to do so.
Safety	10.0%	2.5	0.0	25.0	0.0	There are a high number of conflict points on both sides of the street at four intersections (Circle Drive, Gyles Place, Haskamp Street/Pakwa Place, and 45th Street) and several private approaches to businesses. Option A would be impacted by conflict points on the east side, whereas Option B would be impacted by conflict points on both sides. Option A (multi-use path) provides a significant safety benefit over Option B (do northing) as it removes cyclists from the travel lanes.
Impacts	**35.0%**					
Impacts to Adjacent Businesses and Residents	5.0%	1.0	1.5	5.0	7.5	Businesses may benefit from the addition of pedestrian and cycling infrastructure adjacent to their property, as it provides alternative ways for patrons/staff to access their establishment. However, Option A will have a negative impact on off-street parking spaces where property acquisition is required (approximately 40 spaces on east side and 42 on west side between Circle Drive and Cynthia Street). A sampling of historic Google Earth imagery indicates that the parking lots are not fully utilized and could have capacity for parking reduction; however, a parking utilization study was not completed.
Impacts to People Walking	5.0%	3.0	0.0	15.0	0.0	Option A provides opportunities for new pedestrian infrastructure on both sides of the street where there currently is no pedestrian facilities. Option A will require a shared use facility for pedestrians and cyclists on the east side. Option B has no benefit for pedestrians (no existing facilities).
Impacts to People Driving	5.0%	1.0	1.5	5.0	7.5	There may be a slight decline in signalized intersection level-of-service with Option A with signal timing changes associated with the bicycle crossing. Option B has no impacts on traffic operations.
Impacts to On-Street Motor Vehicle Parking	5.0%	0.0	0.0	0.0	0.0	Not applicable for this section. All options given same score to not influence rankings.
Impacts to Transit Operations	2.5%	2.5	1.5	6.3	3.8	There are two transit stops on the east side and three on the west side north of Cynthia Street that would be impacted with Option A. Option A provides the opportunity to add bus stop infrastructure and connections (platforms, benches, sidewalk connections, etc.) and improve accessibility. Option B does nothing to improve existing transit stops or the connection to those stops which currently lack infrastructure.
Impacts to Emergency Services	2.5%	1.5	1.5	3.8	3.8	No significant impacts to emergency service access or operation is expected with either option.

Evaluation Criteria	Weighting Factor	Option A: Multi-Use Path on East Side and Sidewalk on West Side	Option B: Do Nothing	Option A: Multi-Use Path on East Side and Sidewalk on West Side	Option B: Do Nothing	Notes
		Impact (0-3)		Weighted Score		
Impacts to Vegetation	5.0%	1.0	1.5	5.0	7.5	Some vegetation may be impacted between Haskamp Street/Pakwa Place and 45th Street for Option A, however, the design would aim to mitigate any tree removals.
Impacts to Property	5.0%	0.5	3.0	2.5	15.0	Option A will require property on both sides between Circle Drive and Cynthia Street and on the east side between Cynthia Street and 45th Street. No property is required for Option B.
Community Support	**10.0%**					
Consistency with Public Feedback	10.0%	2.5	0.5	25.0	5.0	The majority of respondents (54%) think that a multi-use path is a good option for this section of Avenue C, while 22% do not, and 20% think it is somewhat a good option.
Capital Cost & Maintenance	**15.0%**					
Capital Cost	10.0%	0.5	3.0	5.0	30.0	Option A would have a higher cost for construction of the multi-use path, transit stop modifications, and property acquisition. Option B would have no capital cost associated with it.
Maintenance	5.0%	2.0	3.0	10.0	15.0	Option A would have higher snow clearing and maintenance requirements than Option B to allow for all-season travel.
Total	**100.0%**	**27.0**	**18.0**	**180.0**	**102.5**	

8 PHASE 3 PUBLIC ENGAGEMENT

The objectives of the third phase of engagement, conducted from May to July 2023, focused on sharing and collecting feedback on the proposed design before taking the recommended design to City Council.

An in-person stakeholder session was held in the afternoon on June 13, 2023 and had approximately 12 attendees. An in-person public engagement session was held in the evening on June 13, 2023 and had 55 to 60 attendees. An online public survey was open for responses from May 29 to June 30, 2023 and received 527 responses. One paper survey was submitted at the public engagement session. A total of four emails were received from the public and four comments were submitted on the project Engage Page.

Common themes / comments from the *stakeholder session* included:

- Support for the 30 km/h speed limit on neighbourhood bikeways.
- Support for proposed bike parking.
- Concerns about snow clearing.
- Support for curb ramps and sidewalk improvements.
- Concerns about parking impacts.

Common themes / comments from the *public open house* included:

- Suggestion for secure bike parking.
- Concerns with personal safety and crime rates.
- Concerns about accessibility issues.
- Concerns and questions around the cost of the project.
- Concerns about snow clearing.
- Concerns about the loss of parking spaces.
- Questions about how many people want / would use cycling facilities on Avenue C.

Common themes / comments from the *survey responses* included:

- Support for reduced, 30 km/h speed limit on neighbourhood bikeways.
- Concerns around the removal of parking on certain segments of Avenue C.
- Concerns for cyclist safety in areas without separate and protected cycling lanes proposed.
- Safety in general for cyclists and pedestrians is a recurrent concern / priority.
- Concerns and questions around the cost of the project.
- Concerns over whether there is any demand for a cycling facility.

The complete *Phase 3 Public Engagement: What We Heard Report* and *Phase 3 Engagement Presentation* can be found in **Appendix F**.

Feedback received by the public and stakeholders was considered for the functional design and implementation plan (**Section 9** and **Section 10**).

9 FUNCTIONAL DESIGN

The recommended walking and cycling facilities for Avenue C from Spadina Crescent to 45th Street include:

- Spadina Crescent to 19th Street – Neighbourhood Bikeway
- 19th Street to 25th Street – Unidirectional Protected Bicycle Lanes – Parking on West Side
- 25th Street to 38th Street – Neighbourhood Bikeway
- 38th Street to 41st Street – Multi-Use Pathway on East Side, Sidewalk on West Side
- 41st Street to Circle Drive – Multi-Use Pathway on East Side, Sidewalk on West Side
- Circle Drive to 45th Street – Multi-Use Pathway on East Side, Sidewalk on West Side

An overview of key design details associated with each segment is provided below. The functional design drawings are included in **Appendix G**.

9.1 SPADINA CRESCENT TO 19TH STREET

A neighbourhood bikeway was recommended for Avenue C from Spadina Crescent to 19th Street. Neighbourhood bikeways are on-street routes designed to move cyclists, pedestrians, and vehicles comfortably and safely. Neighbourhood bikeways typically include a range of treatments such as signage, pavement markings and traffic calming.

The proposed design includes parking on both sides of Avenue C and the existing sidewalks are retained on both sides of Avenue C. The proposed design also includes a reduced speed limit of 30 km/h in this segment. A sample cross-section of a neighbourhood bikeway on Avenue C between Spadina Crescent and 19th Street is shown in **Figure 9.1**.

Figure 9.1: Proposed Avenue C Cycling Facility – Spadina Crescent to 19th Street

Both the pedestrian and cyclist experience in this segment will be improved with the recommended design. The pedestrian LOS was calculated to be the same as existing, as there are currently sidewalks

on both sides of the street (the pedestrian LOS calculation does not take into account other pedestrian improvements such as curb extensions or raised crosswalks). The Cyclist LOS increases from LOS B to LOS A with the addition of the neighbourhood bikeway. Additional details on the Pedestrian and Cyclist LOS calculations are provided in **Appendix A**.

Vehicles will be required to travel at slightly lower speeds in this segment (with the 30 km/h speed limit); however, the overall traffic operations are expected to be similar to existing.

The following design elements were included in the functional design for Avenue C from Spadina Crescent to 19th Street.

Spadina Crescent Intersection (Figure 9.2):

- Curb extensions were added at the intersection to reduce the crossing distance on Avenue C.
- Pedestrian crosswalks were added on both sides of Avenue C.
- Bike access to the south side of Spadina Crescent was added in the centre of the intersection to allow bikes to travel between the neighbourhood bikeway on Avenue C and the off-street pathway network on the south side of Spadina Crescent along the river.
- 30 km/h posted speed limit signage and bike route signage was added north of Spadina Crescent. The recommended 30 km/h speed limit is subject to Council approval.

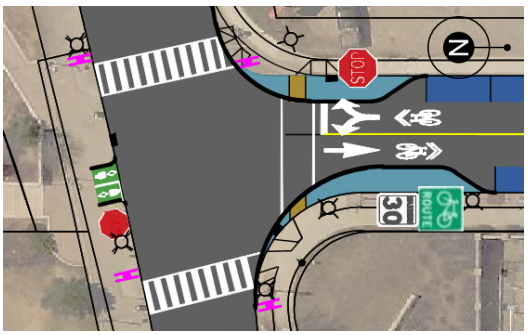


Figure 9.2: Spadina Crescent Intersection

Sonnenschein Way Intersection (Figure 9.3):

- Curb extensions were added at the intersection to reduce the crossing distance on Avenue C. Saskatoon's Traffic Bylaw restricts parking within 10 meters of an intersection; however, parking is currently permitted within the intersection.
- A raised crosswalk was added on the south side of Sonnenschein Way connecting to Isinger Park to reduce vehicle speeds and enhance the pedestrian crossing environment.
- A possible location for bicycle parking was identified at the southeast corner of Avenue C and Sonnenschein Way.

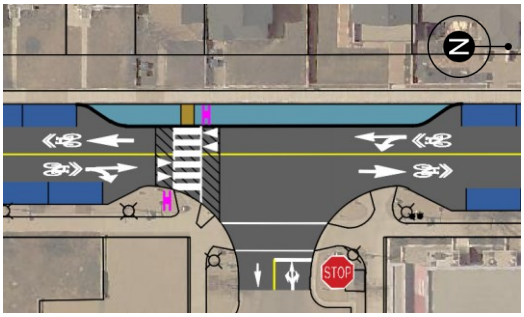


Figure 9.3: Sonnenschein Way Intersection

19th Street Intersection Transition to Bike Lanes (Figure 9.4):

- A short segment of protected bicycle lane was added in the northbound direction south of 19th Street to help transition to the unidirectional bike lanes north of 19th Street.
- 30 km/h posted speed limit signage and bike route signage was added south of 19th Street. The recommended 30 km/h speed limit is subject to Council approval.

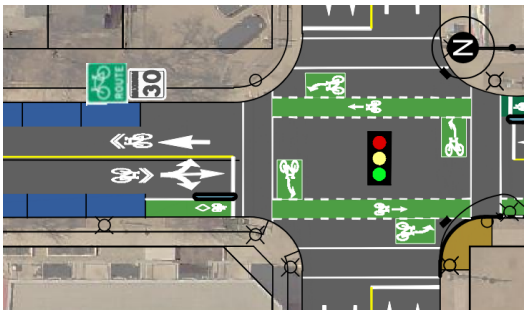


Figure 9.4: 19th Street Intersection Transition to Bike Lanes

9.2 19TH STREET TO JAMIESON STREET

Unidirectional bike lanes at street level were recommended for Avenue C from 19th Street to Jamieson Street. Unidirectional bike lanes are physically separated, on-street lanes designated exclusively for one-way bike travel. Cyclists will be physically separated from vehicles by a raised curb. Cyclists can enter / exit at intersections and vehicles are blocked from entering the bike lane.

The proposed design includes parking on the west side of Avenue C and the existing sidewalks are retained on both sides of Avenue C. Adding the unidirectional bike lanes requires that 85 parking spaces be removed on the east side and 18 parking spaces be removed on the west side, resulting in the loss of 103 parking spaces. The existing 50 km/h speed limit will remain. A sample cross-section of unidirectional bike lanes on Avenue C between 19th Street and Jamieson Street is shown in **Figure 9.5**.

Figure 9.5: Proposed Avenue C Cycling Facility – 19th Street to Jamieson Street

The pedestrian and cyclist experience in this segment will be improved with the recommended design. The pedestrian LOS increases from LOS E to LOS C on the east side between 23rd Street and Jamieson Street with the addition of a new sidewalk. The Cyclist LOS between 19th Street and Jamieson Street

increases from LOS D to LOS A with the addition of unidirectional protected bike lanes. Additional details on the pedestrian and cyclist LOS calculations are provided in **Appendix A**.

Traffic operations are expected to be similar to existing, as no signal timing changes are required. Leading bicycle intervals could also potentially be incorporated into the signal timing plans as a way to improve cyclist safety while having minimal impact on the vehicle LOS at intersections. The incorporation of leading bicycle intervals into the signal timing plans should be confirmed at detailed design, as they would require a separate cycling signal head.

The following design elements were included in the functional design for Avenue C from 19th Street to Jamieson Street.

19th Street Intersection (Figure 9.6):

- Curb extension was removed in the northeast corner to facilitate the northbound bike lane.
- Left-turn queue boxes were added in all four directions to facilitate turning movements between Avenue C and 19th Street (future AAA cycling infrastructure on 19th Street).

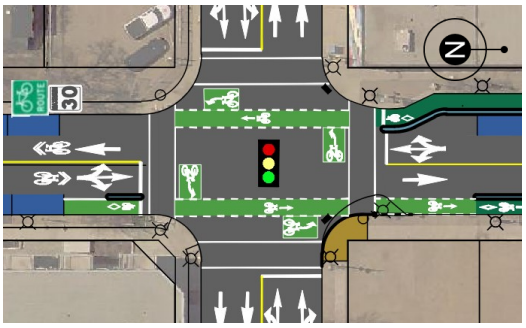


Figure 9.6: 19th Street Intersection

20th Street Intersection (Figure 9.7):

- Curb extensions were removed in the northeast and southwest corners to facilitate the bike lanes.
- A curb extension was added in the northwest corner of the intersection to reduce the crossing distance.
- Left-turn queue boxes were added in all four directions to facilitate turning movements between Avenue C and 20th Street (future multi-modal corridor on 20th Street).

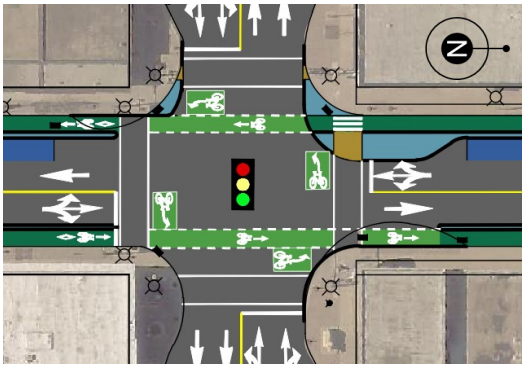


Figure 9.7: 20th Street Intersection

21st Street Intersection (Figure 9.8):

- Curb extensions were added on all four corners of the intersection to reduce the crossing distances at the intersection.
- Pedestrian crosswalks and signage were added to cross Avenue C.

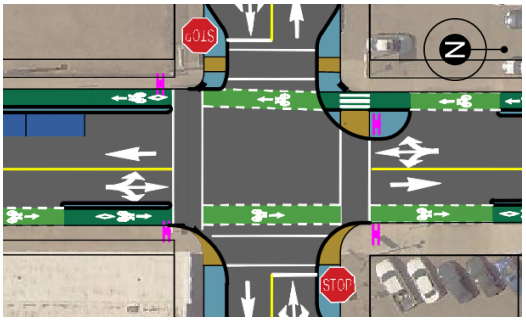


Figure 9.8: 21st Street Intersection

22nd Street Intersection (Figure 9.9):

- A curb extension was added in the northwest corner of the intersection to reduce the crossing distance.

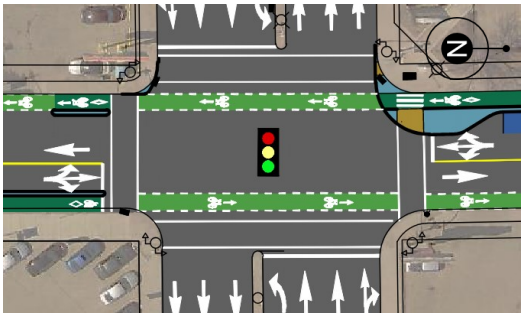


Figure 9.9: 22nd Street Intersection

23rd Street Intersection (Figure 9.10):

- Curb extensions were added in the northwest, southwest, and northeast corners of the intersection to reduce the crossing distance.
- Existing driveways on either side of Avenue C just north of 23rd Street were identified for removal due to their proximity to the intersection. The properties impacted have other access points.
- Sidewalk is added on the east side of Avenue C north of 23rd Street.

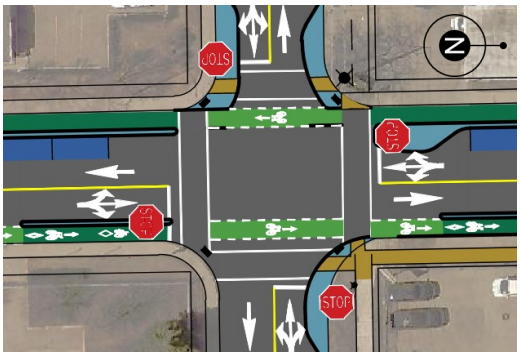


Figure 9.10: 23rd Street Intersection

9.3 JAMIESON STREET TO 38TH STREET

A neighbourhood bikeway was selected for Avenue C from Jamieson Street to 38th Street.

The proposed design includes parking on both sides of Avenue C, installing missing curb ramps along Avenue C, and retaining the existing sidewalks on both sides of Avenue C. The proposed design also includes a reduced speed limit of 30 km/h in this segment. A sample cross-section of a neighbourhood bikeway on Avenue C between Jamieson Street and 38th Street is shown in **Figure 9.11**.

Figure 9.11: Proposed Avenue C Cycling Facility – Jamieson Street to 38th Street

The pedestrian and cyclist experience in this segment will be improved with the recommended design. The pedestrian LOS increases from:

- LOS B to LOS A on the west side and LOS E to D on the east side between Jamieson Street and 24th Street with the addition of sidewalks.
- LOS E to LOS D on the west side between 24th Street and 25th Street with the addition of a sidewalk.
- LOS E to LOS D on the west side between 28th Street and 29th Street and between 30th Street and 31st Street with the speed limit reduction.

The Cyclist LOS increases from:

- LOS D to LOS A between 24th Street and 25th Street with the proposed speed limit reduction.
- LOS B to LOS A between 25th Street and 38th Street with the proposed speed limit reduction.

Additional details on the pedestrian and cyclist LOS calculations are provided in **Appendix A**.

Vehicles will be required to travel at slightly lower speeds in this segment (with the 30 km/h speed limit); however, traffic operations are expected to be similar to existing. Some of the intersection control measures (stop signs and yield signs) have been adjusted to improve safety and signage consistency; however, are also expected to also have minimal impacts on traffic operations.

The following design elements were included in the functional design for the functional design for Avenue C from Jamieson Street to 38th Street.

Jamieson Street Intersection and Rail Crossing (Figure 9.12):

- The transition from unidirectional bike lanes (south of the intersection) to a neighbourhood bikeway (north of the intersection) occurs at Jaimeson Street. Jamieson Street is an existing neighbourhood bikeway.
- Sidewalks were added on both sides of Avenue C through the at-grade railway crossing.
- Rail crossing is pending a detailed safety assessment.
- Pedestrian crosswalk and signage were added just north of the railway crossing to cross Avenue C at the existing multi-use pathway.
- There is potential for protected bike lanes and sidewalk improvements north of the rail crossing as part of the South Caswell redevelopment.

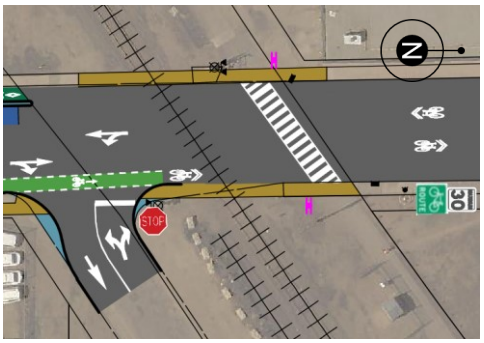


Figure 9.12: Jamieson Street Intersection and Rail Crossing

24th Street Intersection (Figure 9.13):

- Pedestrian crosswalks and signage were added to cross Avenue C.
- There is potential for protected bike lanes and sidewalk improvements north of 24th Street as part of the South Caswell redevelopment.

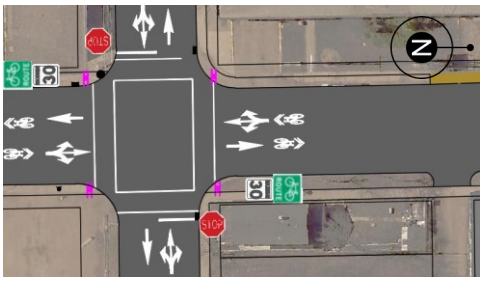


Figure 9.13: 24th Street Intersection

25th Street Intersection (Figure 9.14):

- A curb extension was added on the east side of Avenue C immediately south of the intersection to align with the curbs to the north and south.
- Intersection was converted to a four-way stop to facilitate pedestrian and cyclist crossings.
- 25th Street is identified as a future multimodal corridor east of Avenue C.

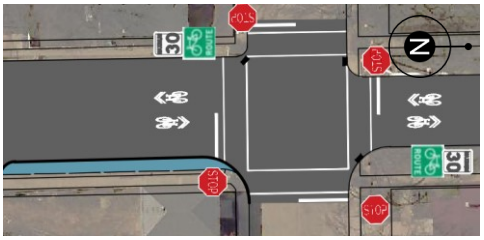


Figure 9.14: 25th Street Intersection

26th Street Intersection (Figure 9.15):

- Stop signs were added for traffic on 26th Street and yield signs were removed on Avenue C to facilitate cyclist traffic on Avenue C.

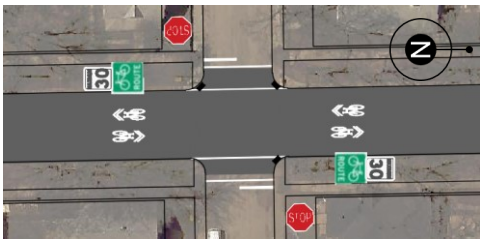


Figure 9.15: 26th Street Intersection

27th Street Intersection (Figure 9.16):

- Existing yield signs for traffic on 27th Street were converted to stop signs to encourage stopping on 27th Street and facilitate cyclist traffic on Avenue C.

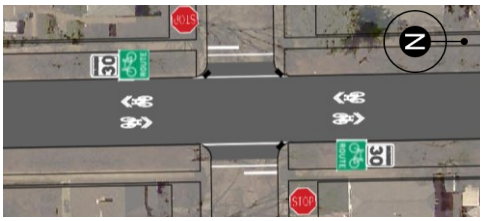


Figure 9.16: 27th Street Intersection

28th Street Intersection (Figure 9.17):

- Stop signs were added for traffic on 28th Street and yield signs were removed on Avenue C to facilitate cyclist traffic on Avenue C.

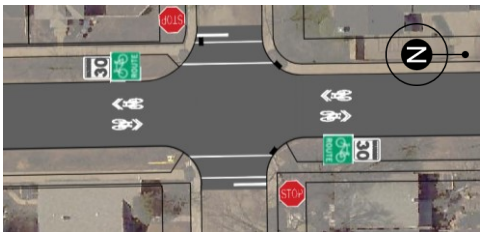


Figure 9.17: 28th Street Intersection

29th Street Intersection (Figure 9.18):

- A Pedestrian and Cyclist Activated Signal was proposed at the intersection to facilitate crossings of 29th Street. Design includes bicycle push buttons in the boulevard to activate the half signal. Push buttons for pedestrians to activate the half signal would also be added.

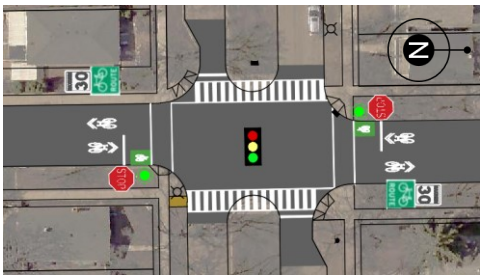


Figure 9.18: 29th Street Intersection

30th Street Intersection (Figure 9.19):

- Pavement markings and signage were added to cross Avenue C on the north side of 20th Street at the existing pedestrian crosswalk with overhead sign.
- Caswell Community School is located in the northeast quadrant of the intersection.

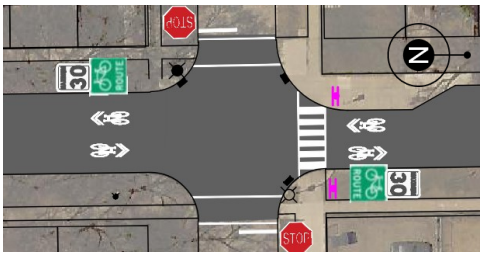


Figure 9.19: 30th Street Intersection

31st Street Intersection (Figure 9.20):

- Intersection was converted to a four-way stop to facilitate pedestrian and cyclist crossings.
- 31st Street is identified as a future neighbourhood bikeway.

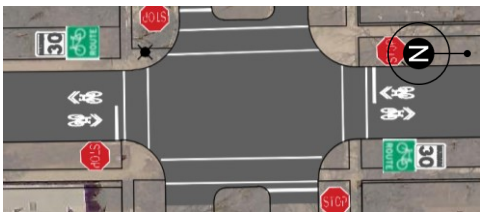


Figure 9.20: 31st Street Intersection

32nd Street Intersection (Figure 9.21):

- Existing yield signs for traffic on 32nd Street were converted to stop signs to facilitate cyclist traffic on Avenue C.

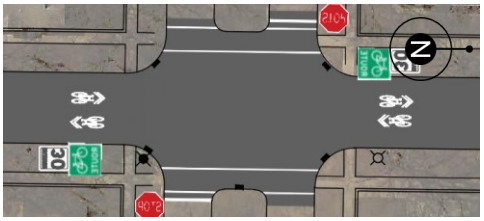


Figure 9.21: 32nd Street Intersection

33rd Street Intersection (Figure 9.22):

- A Pedestrian and Cyclist Activated Signal was proposed at the intersection to facilitate crossings of 33rd Street as Avenue C is offset at the intersection. Design includes bicycle push buttons in the boulevard to activate the half signal and queue boxes were added for cyclists on Avenue C at the intersection adjacent to the push buttons. Push buttons for pedestrians to activate the half signal would also be added. The pedestrian crossing would be located in the center of the intersection (crossings would not be permitted on the furthest east and west legs of the intersection).
- 33rd Street is identified as a future multimodal corridor.

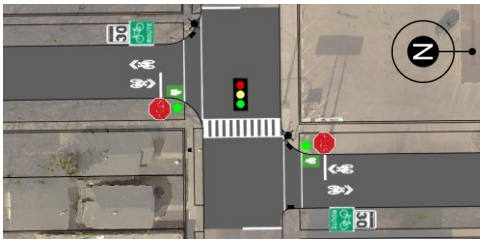


Figure 9.22: 33rd Street Intersection

34th Street Intersection (Figure 9.23):

- Stop signs were added for traffic on 34th Street and stops signs were removed on Avenue C to facilitate cyclist traffic on Avenue C.

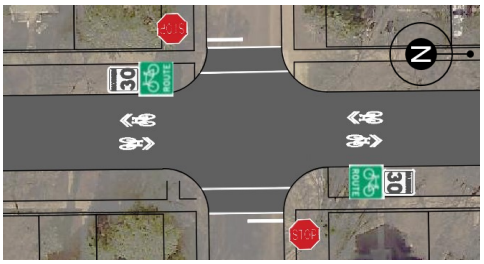


Figure 9.23: 34th Street Intersection

35th Street Intersection (Figure 9.24):

- Existing yield signs for traffic on 35th Street were converted to stop signs to promote stopping and to facilitate cyclist traffic on Avenue C.

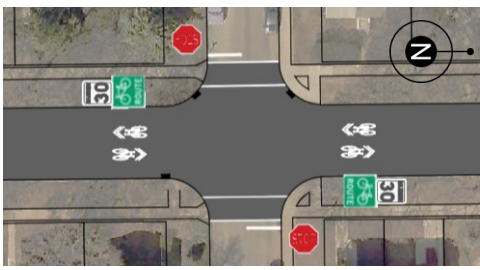


Figure 9.24: 35th Street Intersection

36th Street Intersection (Figure 9.25):

- Intersection was converted to a four-way stop to facilitate pedestrian and cyclist crossings.
- A cyclist connection was added in northeast quadrant through the curb extension and a “no parking” area was added north of the extension to facilitate northbound cyclist movements. The cyclist connection is intended to ramp up to sidewalk level and back to street level through the curb extension.

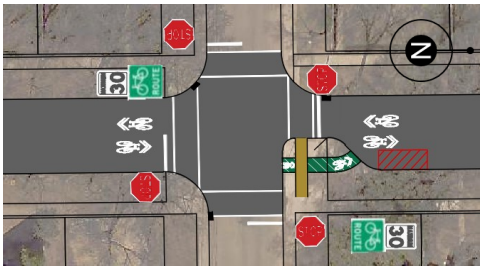


Figure 9.25: 36th Street Intersection

37th Street Intersection (Figure 9.26):

- Intersection was converted to a four-way stop to facilitate pedestrian and cyclist crossings.

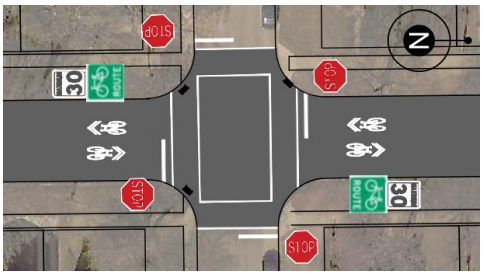


Figure 9.26: 37th Street Intersection

9.4 38TH STREET TO 41ST STREET

A multi-use path on the east side at sidewalk level was selected for Avenue C from 38th Street to 41st Street. Multi-use paths are off-street facilities that are physically separated from vehicles and run alongside or nearby roadways. These paths allow for two-way travel and are shared by pedestrians, cyclists and other non-motorized users.

The proposed design includes removing parking on the east side of Avenue C from 38th Street to 39th Street (loss of 22 spaces) and retaining parking on the west side only, permitting parking on both sides of Avenue C north of 39th Street, and retaining the existing sidewalk on the west side of Avenue C. The existing 50 km/h speed limit will remain. A sample cross-section of a multi-use pathway on Avenue C between 38th Street and 41st Street is shown in **Figure 9.27**.

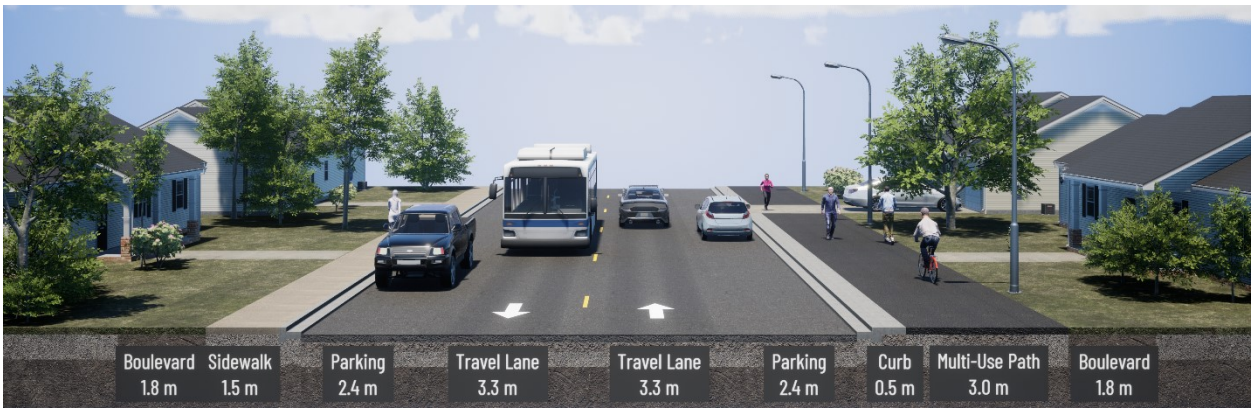


Figure 9.27: Proposed Avenue C Cycling Facility – 38th Street to 41st Street

The pedestrian and cyclist experience in this segment will be improved with the recommended design. The pedestrian LOS increases from:

- LOS E to LOS A on the east side between 38th Street and the rail line with the addition of a multi-use pathway.
- LOS F to LOS C on the west side with the addition of a sidewalk and LOS B to A on the east side with the addition of a multi-use pathway between the rail line and 41st Street.

The Cyclist LOS increases from:

- LOS B to LOS A between 38th Street and the rail line with the addition of a multi-use pathway.
- LOS D to LOS A between the rail line and 41st Street with the addition of a multi-use pathway.

Additional details on the LOS calculations are provided in **Appendix A**.

Traffic operations are expected to be similar to existing; however, there have been minor changes to the stop-controlled intersections at 38th Street and 39th Street (changed from two-way stops to four-way stops) to improve safety.

The following design elements were included in the functional design for Avenue C from 38th Street to 41st Street.

38th Street Intersection (Figure 9.28):

- Intersection was converted to a four-way stop to facilitate pedestrian and cyclist crossings.
- A cyclist connection was added in southwest quadrant through the curb extension and a “no parking” area was added south of the extension to facilitate southbound cyclist movements. The cyclist connection is intended to ramp up to sidewalk level and back to street level through the curb extension.
- Cyclist crossings were included on the north and west legs for southbound cyclists to transition from the multi-use pathway to the neighbourhood bikeway. A two-stage turn queue box is also included in the northwest corner.
- A curb extension was added in the northeast corner of the intersection to shorten crossing distances and provide space for the two stage cyclist movement.
- The multi-use pathway was shifted to the east immediately north of 38th Street to accommodate a transit stop in the northbound direction.

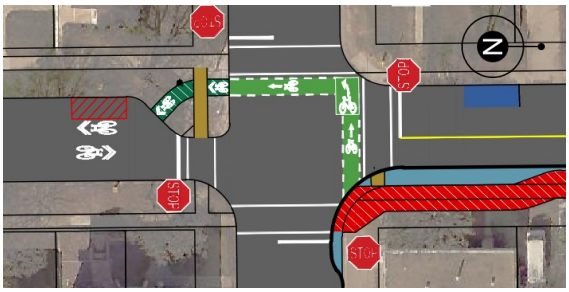


Figure 9.28: 38th Street Intersection

39th Street Intersection (Figure 9.29):

- The multi-use pathway was shifted to the east immediately south and north of 39th Street to accommodate a transit stop in the northbound direction.

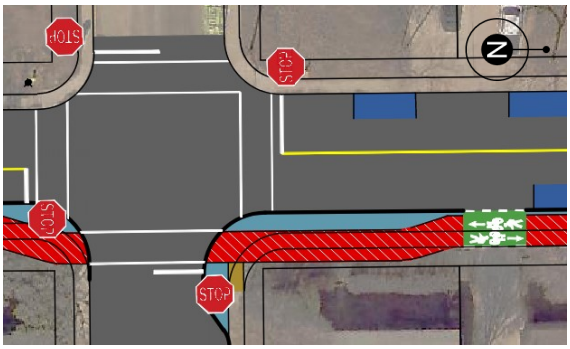


Figure 9.29: 39th Street Intersection

Rail Crossing (Figure 9.30):

- Multi-use pathway on the east side of Avenue C was shifted around the existing crossing infrastructure through the at-grade railway crossing.
- Sidewalk was added on the west side of Avenue C through the at-grade railway crossing and to the north on Avenue C.
- There are existing shrubs on the west side of Avenue C north of the rail line that may be impacted with the sidewalk addition.
- Rail crossing is pending a detailed safety assessment.

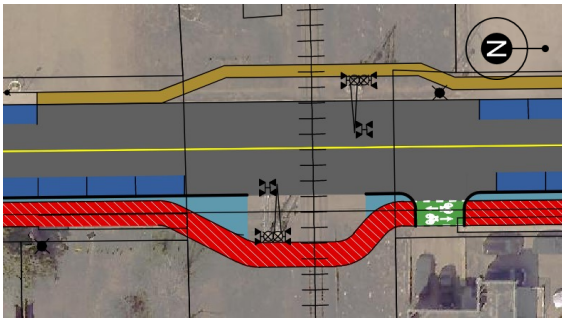


Figure 9.30: Rail Crossing

41st Street Intersection (Figure 9.31):

- The curb along the west side was relocated south of the intersection to accommodate the multi-use path. The extension was designed to accommodate garbage trucks on the south side of the intersection; however, semi-trailers were used as the design vehicle north of the intersection.
- The northbound transit stop was located north of the intersection (same as existing). Transit riders will need to wait on the multi-use path.

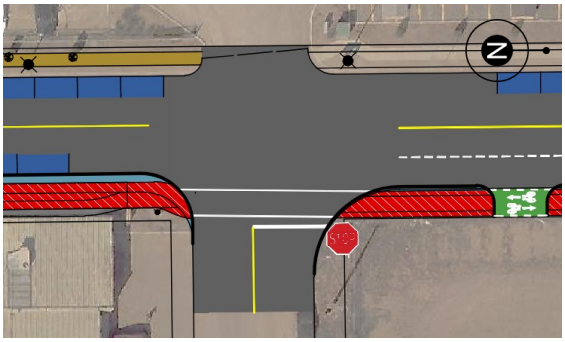


Figure 9.31: 41st Street Intersection

9.5 41ST STREET TO 45TH STREET

A multi-use path on the east side at sidewalk level was selected for Avenue C from 41st Street to 45th Street.

The proposed design includes retaining the existing sidewalk on the west side of Avenue C between 41st Street and Circle Drive and installing a new sidewalk on the west side of Avenue C north of Circle Drive. The existing 50 km/h speed limit will remain. A sample cross-section of a multi-use pathway on Avenue C between 41st Street and 45th Street is shown in **Figure 9.32**.

Figure 9.32: Proposed Avenue C Cycling Facility – 41st Street and 45th Street

The pedestrian and cyclist experience in this segment will be improved with the recommended design. The pedestrian LOS increases from:

- LOS B to LOS A on the east side between 41st Street and Circle Drive with the addition of a multi-use pathway.
- LOS F to LOS C on the east and west sides between Circle Drive and Haskamp Street / Pakwa Place with the addition of a multi-use pathway on the east side and sidewalk on the west side.
- LOS F to LOS A on the east and west sides between Haskamp Street / Pakwa Place and 45th Street with the addition of a multi-use pathway on the east side and sidewalk on the west side.

The cyclist LOS increases from LOS E to LOS A between 41St Street and 45th Street with the addition of a multi-use pathway on the east side. Additional details on the LOS calculations are provided in **Appendix A**.

The vehicle LOS for the southbound left-turn at Circle Drive and Avenue C is expected to slightly decline with the introduction of a pedestrian and cyclist crossing on the east side of the intersection; however, the overall vehicle LOS for the intersection would remain the same as existing (see below for additional details). No impacts to traffic operations are expected for the rest of the segment, as there are no changes to the number of lanes or signal timing at other intersections.

The following design elements were included in the functional design for Avenue C from 41st Street to 45th Street.

Circle Drive Intersection (Figure 9.33):

- Traffic islands in the northeast and northwest quadrants were enlarged to better accommodate pedestrian and cyclist crossings, as well as enable the accommodation of accessible curb ramps. Curb ramps were added to all islands which requires signal pole relocations.
- A pedestrian crossing was added to the east leg of the intersection which requires a new pedestrian signal and signal timing modifications. Adding a crossing has no impact on the overall LOS of the intersection in the a.m. peak hour (LOS remains at LOS D) and p.m. peak hours (LOS remains at LOS E); however, the delay for the southbound left-turn increases from 48 seconds to 81 seconds in the a.m. peak hour and increases from 102 seconds to 133 seconds in the p.m. peak hour. The traffic model modelling results are included in **Appendix H**.
- The geometry of the northeast and northwest right-turn channels was modified to promote slower speeds and encourage driver yielding behavior.
- A sidewalk was added on the west side of Avenue C north of Circle Drive. Property acquisition is required.
- A sidewalk was added on the north side of Circle Drive, east of Avenue C. Property acquisition and relocation of the existing hotel sign is required.
- A multi-use path was added on the east side of Avenue C, north of Circle Drive. Property acquisition is required.
- A standard curb was added on the east side north of the intersection to replace the existing roll curb. This reduces the likelihood of a vehicle driving onto the multi-use pathway.

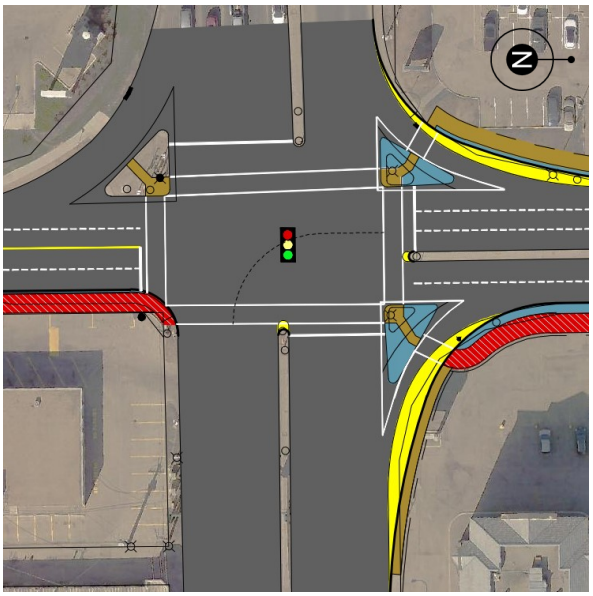


Figure 9.33: Circle Drive Intersection

Cynthia Street Intersection (Figure 9.34):

- The multi-use pathway south of the intersection was located behind the existing light poles on the adjacent property. Property acquisition is required.
- The sidewalk south of the intersection was located on the adjacent property. Property acquisition is required.
- The multi-use pathway was shifted to the east immediately north of Cynthia Street to accommodate a transit stop in the northbound direction. The multi-use pathway was located on adjacent property. Property acquisition is required.

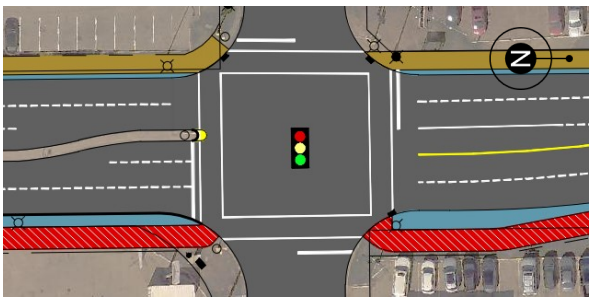


Figure 9.34: Cynthia Street Intersection

Gyles Place Intersection (Figure 9.35):

- Existing yield sign for traffic on Gyles Place was converted to stop sign to facilitate cyclist traffic on Avenue C.
- The multi-use pathway and sidewalk are located within the existing right-of-way.

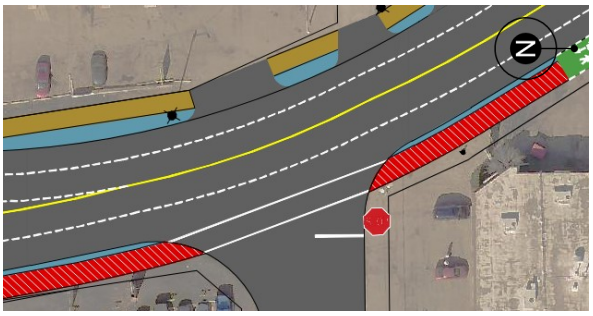


Figure 9.35: Gyles Place Intersection

Haskamp Street / Pakwa Place Intersection (Figure 9.36):

- Existing stop signs for traffic on Haskamp Street / Pakwa Place remain to facilitate cyclist traffic on Avenue C.
- The multi-use pathway and sidewalk are located within the existing right-of-way.

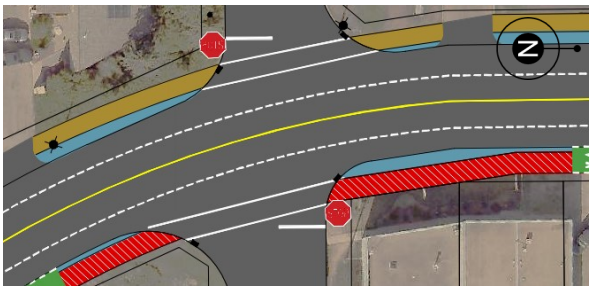


Figure 9.36: Haskamp Street / Pakwa Place Intersection

45th Street Intersection (Figure 9.37):

- Eight trees on the east side and one tree on the west side of Avenue C south of 45th Street require removal with the addition of the multi-use pathway and sidewalk.
- 45th Street is identified for future bicycle infrastructure.

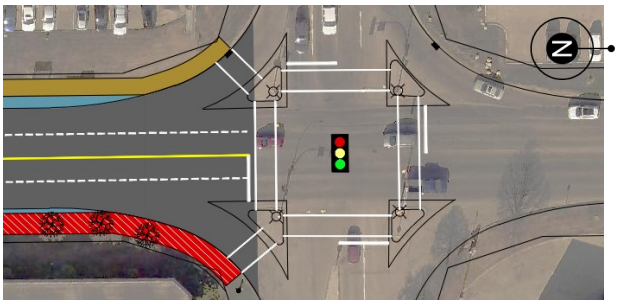


Figure 9.37: 45th Street Intersection

10 COST ESTIMATE & IMPLEMENTATION PLAN

10.1 COST ESTIMATE

A summary of the construction cost estimates for the functional design by segment are included in **Table 10.1**. Additional details are provided in **Appendix I**.

Table 10.1: Construction Cost Estimate

SEGMENT	CONSTRUCTION COST [2]	CONTINGENCY (50%) [2]	ENGINEERING (15%) [2]	TOTAL COST [2]
Spadina Crescent to 19th Street	$61,000	$30,000	$14,000	**$105,000**
19th Street to Jamieson Street	$1,919,000	$959,000	$432,000	**$3,310,000**
Jamieson Street to 38th Street	$601,000	$301,000	$135,000	**$1,037,000**
38th Street to 41st Street	$1,313,000	$657,000	$295,000	**$2,265,000**
41st Street to 45th Street [1]	$1,204,000	$602,000	$271,000	**$2,077,000**
	$5,098,000	**$2,549,000**	**$1,147,000**	**$8,794,000**

[1] Cost does not include property acquisition costs.
[2] Costs are rounded to the nearest thousand.

10.2 PRIORITIZATION OF IMPROVEMENTS

Given the length of the Avenue C corridor, a prioritization exercise was conducted to determine the Avenue C improvement segments that should be given the highest priority for implementation based on the following criteria:

- Pedestrian experience improvements, including the level-of-service and safety improvements when comparing the existing facilities to the recommended facilities (**Section 9**).
- Cyclist experience improvements, including the level-of-service and safety improvements when comparing the existing facilities to the recommended facilities (**Section 9**).
- Connectivity to existing and planned cycling facilities to ensure no gaps in the cycling network are created (**Section 2.1.6**).
- Costs (construction cost and anticipated property acquisition costs) associated with the improvements (**Section 10.1**).
- Ease of implementation, including whether coordination is required with property owners for property acquisition and driveway closures (**Section 9**).

The five Avenue C improvement segments were ranked from 1 (best ranking) to 5 (lowest ranking) based on the prioritization criteria outlined above. The prioritization exercise is summarized in **Table 10.2**.

Note: The prioritization criteria did not include coordination with asset preservation plans, as no opportunities are identified for Avenue C in 2024 and 2025 based on the City's current plans.

Table 10.2: Prioritization of Improvements

PRIORITIZATION CRITERIA	SEGEMENT				
	Spadina Crescent to 19th Street	19th Street to Jamieson Street	Jamieson Street to 38th Street	38th Street to 41st Street	41st Street to 45th Street
Pedestrian Experience (LOS and Safety Improvement)	3*	2*	3*	2*	1
Cyclist Experience (LOS and Safety Improvement)	4*	2	4*	3	1
Connectivity to Cycling Facilities	1*	1*	2	4	3
Cost (construction and property acquisition)	1	4	2	3	5
Ease of Implementation	1	4	2	3	5
Total **	**10**	**13**	**13**	**15**	**15**
Priority	**1**	**2**	**2**	**3**	**3**

** This location was ranked the same as another location, as there is no indication which segment would rank higher / lower based the prioritization criteria and available information.*

*** Lowest total has the highest priority based on the prioritization exercise.*

Based on the prioritization exercise outlined in **Table 10.2**, Spadina Crescent to 19th Street has the highest priority:

- The Spadina Crescent to 19th Street segment is considered to have good connectivity to cycling facilities (connects Meewasin Trail to the future cycling facility on 19th Street), low cost, and is relatively easy to implement.

The 19th Street to Jamieson Street and the Jamieson Steet to 38th Street segments have the second highest priority:

- The 19th Street to Jamieson Street segment was ranked high in terms of connectivity to existing and future cycling facilities, and enhancing the pedestrian and cycling experience (by adding protected bike lanes, curb extensions and filling sidewalk gaps); however, the segment is costly and may be more difficult to implement based on the curb works, driveway closures, rail crossing safety assessment, and signal modifications required.
- The Jamieson Street to 38th Street segment is relatively low cost, easy to implement, and provides good connectivity to existing and future cycling facilities; however, does not significantly improve the pedestrian and cyclist experience, as there are already sidewalks and cyclists will continue to travel in mixed traffic.

The 38th Street to 41st Street and the 41st Street to 45th Street segments have the third highest priority:

- The 38th Street to 41st Street improves the pedestrian experience by filling in gaps in the sidewalk network; however, the segment does not connect to existing or future planned cycling facilities

(unless the other segments along Avenue C are constructed first) and may be more challenging to implement (and more costly) based on the curb works and rail crossing safety assessment required.

- The 41st Street to 45th Street segment is costly and will be more difficult to implement based on the property acquisitions required; however, it would substantially improve the pedestrian and cyclist experience, as there are currently no facilities north of Circle Drive.

10.3 IMPLEMENTATION PLAN

While the prioritization exercise (**Section 10.2**) provided an understanding of possible priorities for the corridor, consideration should also be given to logical start and end points for the cycling facilities along Avenue C to ensure no gaps in the cycling network are created.

It was identified that the project has the potential to be implemented in a phased approach. Three implementation phases have been recommended based on the prioritization exercise (**Section 10.1**) while considering logical start and end points for the cycling facilities along Avenue C.

Implementing the project in a phased approach could result in lower overall costs if the project is coordinated with future road renewal work. The phased approach could allow for quicker implementation of Phases 1 and 2, as these phases would not be held up by Phase 3 which requires property acquisition.

PHASE 1: AVENUE C – SPADINA CRESCENT TO JAMIESON STREET

Phase 1 includes a neighbourhood bikeway between Spadina Crescent and 19th Street and unidirectional protected bicycle lanes between 19th Street and Jamieson Street. The neighbourhood bikeway will require the implementation and/or modification of signage and pavement markings throughout the corridor, as well as the implementation of a curb extension and raised crosswalk. The unidirectional protected bicycle lanes will require implementation and/or modification of raised curb barriers, curb extensions, catch basins, parking, driveways, bicycle signals, pavement markings, signage, etc.

This phase will moderately improve the pedestrian experience with the addition of curb extensions and sidewalks (where there are currently gaps) and will substantially improve the cyclist experience since no facilities currently exist.

This phase would provide a cycling facility connection to the commercial businesses along Avenue C and connect the Meewasin Trail to the existing neighbourhood bikeways on 23rd Street and Jamieson Street and West Central Multi-Use Pathway, as well as the planned cycling facilities / multi-modal corridors on 19th Street and 22nd Street.

The construction cost estimate associated with this phase is **$3,414,000**. The costs associated with this phase are higher than Phase 2 but are lower than Phase 3 (due to the costs associated with property acquisition). Similarly, Phase 1 is more difficult to implement than Phase 2 but is less difficult than Phase 3 (due to property acquisitions).

PHASE 2: AVENUE C – JAMIESON STREET TO 38TH STREET

Phase 2 includes a neighbourhood bikeway between Jamieson Street and 38th Street. The neighbourhood bikeway will require the implementation / modification of signage and pavement markings

throughout the corridor, as well as the implementation of Pedestrian and Cyclist Activated Signals at two intersections.

This phase would connect Phase 1 to the existing residential neighbourhood and destinations along Avenue C (e.g., Caswell School). This phase would also connect to the future planned cycling routes / multi-modal corridors at 25th Street, 31st Street and 33rd Street.

This phase will only moderately improve the pedestrian and cyclist experience, as pedestrians already have sidewalks on both sides of the street for most of this section, and cyclists are still travelling in mixed traffic. It is also noted that the pavement condition in some sections of Avenue C between Jamieson Street and 38th Street are in poor-fair condition and may benefit from repaving to enhance the cyclist experience. Repaving has not been included in the cost estimate, however, is recommended for future consideration when this project goes to detailed design.

The construction cost estimate associated with this phase is **$1,037,000**. This phase is the lowest cost and easiest to implement, as it requires no property acquisition and minimal roadworks.

It is noted that Avenue C between 33rd Street and 34th Street is planned for sanitary preservation works in 2024 and the east legs of 24th Street and 30th Street are planned for roadway and sidewalk preservation works in 2024 or 2025.

PHASE 3: AVENUE C – 38TH STREET TO 45TH STREET

This section includes a multi-use pathway on the east side of Avenue C from 38th Street to 45th Street, as well as sidewalks on the west side near the rail line and north of Circle Drive. The multi-use paths and sidewalks will require modification to parking between 38th Street and 39th Street, as well as property acquisition from adjacent properties along Avenue C between Circle Drive and Gyles Place. Additional business / property owner discussions should occur during detailed design.

This phase will substantially increase the pedestrian and cyclist experience as there are no cycling facilities and walking facilities (north of Circle Drive) in this area. This area has high traffic and truck volumes; therefore, adding off-street walking and cycling facilities have significant safety benefits.

This phase would provide a walking and cycling facility connection to the commercial / industrial businesses at the north end of Avenue C and would connect Phase 2 to the future planned cycling route on Cynthia Street. There are no existing cycling facilities at the start and end points of this segment, therefore, it would be beneficial to have Phase 2 completed prior to Phase 3. That being said, adding the multi-use path and sidewalk to Avenue C (north of Circle Drive) prior to Phase 2 would benefit transit riders, as there are currently no pedestrian facilities that connect to the transit stops.

The construction cost estimate associated with this phase is **$4,342,000**; however, this does not include property acquisition costs. When considering construction costs, property acquisition costs and coordination requirements, the cost and ease of implementation associated with this phase is relatively high compared to the other phases.

11 CONCLUSIONS

This project included the necessary public and stakeholder engagement and technical investigations to develop a functional design for an All Ages and Abilities (AAA) cycling facility for Avenue C (Spadina Crescent to 45th Street). The project included:

- Existing conditions review, including street characteristics, traffic conditions, parking and loading conditions.
- Public and stakeholder engagement program which included three phases of engagement throughout the study.
- Identification of opportunities and challenges for the corridor based on the findings from the existing conditions review and input received from Phase 1 Public Engagement.
- Cycling facility selection process including the cycling facility options that were developed for Avenue C that considered feedback from Phase 1 Public Engagement.
- Evaluation of cycling facility options based on technical expertise and input received from Phase 2 Public Engagement.
- Functional design of the Avenue C corridor that considers feedback received from Phase 3 Public Engagement.
- Prioritization of improvements, implementation plan and cost estimates for the recommended functional design of the Avenue C corridor.

Through this process, a functional design for the corridor was developed that is context-sensitive, balances the needs of all users, and encourages walking and cycling consistent with the City's AT Plan.

The functional design includes the following recommended walking and cycling facilities for Avenue C:

- Neighbourhood bikeway from Spadina Crescent to 19th Street.
- Unidirectional protected bicycle lanes with parking on the west side from 19th Street to Jamieson Street.
- Neighbourhood Bikeway from Jamieson Street to 38th Street.
- Multi-use pathway on the east side and sidewalk on the west side from 38th Street to 45th Street.

In addition to the cycling and walking facilities above, the design includes a variety of walking and cycling treatments throughout the Avenue C corridor to improve comfort, safety and experience for all road users:

- Pavement Markings, including green paint to indicate the path for cyclists through intersections and driveways, as well as Zebra pavement markings to enhance the crosswalk visibility.
- Two-stage turn boxes to provide a safe waiting area for left-turning cyclists at intersections.
- Curb extensions to reduce the speed of vehicles and reduce crossing distances for pedestrians.
- Bicycle signals to provide direction to cyclists crossing the streets.
- Raised crosswalks to enhance the pedestrian crossing environment.
- Pedestrian and Cyclist Actuated Signals to improve safety for pedestrians and cyclists.
- Formalized rail line pedestrian and cyclist crossings (pending rail safety assessments).
- Potential locations for bicycle parking have been identified throughout the corridor.

The proposed design maintains existing parking for much of the corridor, however:

- On Avenue C between 19th Street and Jamieson Street, adding unidirectional bike lanes would require that 85 parking spaces be removed on the east side and 18 parking spaces be removed on the west side, resulting in the loss of 103 parking spaces.
- On Avenue C between 38th Street and 39th Street, adding a multi-use path would require that parking be removed on the east side, resulting in the loss of 22 parking spaces.

The recommended design also has some impacts to existing boulevard space where new sidewalks and multi-use paths are proposed. Nine trees will require removal along Avenue C, including one on the west side and eight on the east side between Haskamp Street / Pakwa Place and 45th Street, and some existing shrubs may require removal on the west side of Avenue C between the rail line and 41st Street.

The project has the potential to be implemented in a phased approach. Three implementation phases have been recommended based on a prioritization exercise while considering logical start and end points for the cycling facilities along Avenue C to ensure no gaps in the cycling network are created. The three phases include:

- Phase 1: Avenue C – Spadina Crescent to Jamieson Street
- Phase 2: Avenue C – Jamieson Street to 38th Street
- Phase 3: Avenue C – 38th Street to 45th Street

Implementing the project in a phased approach could result in lower overall costs if the project is coordinated with future road renewal work. The phased approach could also allow for quicker implementation of Phases 1 and 2, as these phases would not be held up by Phase 3 which requires property acquisition.

The construction cost estimates associated with the three implementation phases are:

- $3,414,000 for Phase 1
- $1,037,000 for Phase 2
- $4,342,000 for Phase 3

The total construction cost estimate for this project is approximately $8.8 million.

This concludes the functional design report for the Connecting Avenue C: Walking and Cycling Improvement project.

APPENDIX

A MULTI-MODAL LOS ANALYSIS

West Sidewalk Pedestrian Level of Service Calculation – Existing Conditions

SEGMENT	SUB SEGMENT	SIDEWALK WIDTH (M)	BOULEVARD WIDTH (M)	AADT PER LANE	ON-STREET PARKING (Y/N)	OPERATING VEHICLE SPEED (KM/H)**	PEDESTRIAN LEVEL OF SERVICE
19th Street - Spadina Crescent	Spadina Crescent - Sonnenschein Way	1.5	0	≤3000	Yes	50	E
	Sonnenschein Way - 19th Street	1.5	0	≤3000*	Yes	50	E
19th Street - 20th Street		1.5	0.5 to 2	≤3000*	Yes	50	C
20th Street - 22nd Street	20th Street - 21st Street	<1.5	0	≤3000*	Yes	50	F
	21st Street - 22nd Street	1.5	0	≤3000*	Yes	50	E
22nd Street - Circle Drive	22nd Street - 23rd Street	1.5	0	≤3000*	Yes	50	E
	23rd Street - Jamieson Street	1.5	0	≤3000	Yes	50	E
	Jamieson Street - 24th Street	1.8	0	≤3000	Yes	50	B
	24th Street - 25th Street	1.5	0	≤3000*	Yes	50	E
	25th Street - 26th Street	1.5	2 or more	≤3000*	Yes	50	C
	26th Street - 27th Street	1.5	2 or more	≤3000	Yes	50	C
	27th Street - 28th Street	1.5	2 or more	≤3000	Yes	50	C
	28th Street - 29th Street	1.5	0	≤3000*	Yes	50	E
	29th Street - 30th Street	1.5	2 or more	≤3000*	Yes	50	C
	30th Street - 31st Street	1.5	0	≤3000	Yes	30 / 50	D / E
	31st Street - 32nd Street	1.5	2 or more	≤3000*	Yes	50	C
	32nd Street - 33rd Street	1.5	2 or more	≤3000*	Yes	50	C
	33rd Street - 34th Street	1.5	2 or more	≤3000*	Yes	50	C
	34th Street - 35th Street	1.5	2 or more	≤3000	Yes	50	C
	35th Street - 36th Street	1.5	2 or more	≤3000	Yes	50	C
	36th Street - 37th Street	1.5	2 or more	≤3000	Yes	50	C
	37th Street - 38th Street	1.5	2 or more	≤3000	Yes	50	C
	38th Street - 39th Street	1.5	0	≤3000*	Yes	50	E
	39th Street - Rail	1.5	0	≤3000*	Yes	50	E
	Rail - 41st Street	0	0	≤3000*	Yes	50	F
	41st Street - Circle Drive	1.8	0.5 to 2	≤3000*	No	50	B
Circle Drive - Cynthia Street		0	0	>3000*	No	50	F
Cynthia Street - 45th Street	Cynthia Street - Gyles Place	0	0	>3000	No	50	F
	Gyles Place - Haskamp Street / Pakwa Place	0	0	>3000	No	50	F
	Haskamp Street / Pakwa Place - 45th Street	0	0	≤3000*	No	50	F

* AADT was estimated using an average of adjacent segments
** Operating speed was assumed to be the same as the posted speed for the purpose of this analysis.

East Sidewalk Pedestrian Level of Service Calculation – Existing Conditions

SEGMENT	SUB SEGMENT	SIDEWALK WIDTH (m)	BOULEVARD WIDTH (m)	AADT PER LANE	ON-STREET PARKING (Y/N)	OPERATING VEHICLE SPEED (KM/H)**	PEDESTRIAN LEVEL OF SERVICE
19th Street - Spadina Crescent	Spadina Crescent - Sonnenschein Way	2 or more	0.5 to 2	≤3000	Yes	50	A
	Sonnenschein Way - 19th Street	1.5	0.5 to 2	≤3000*	Yes	50	C
19th Street - 20th Street		1.5	0.5 to 2	≤3000	≤3000*	50	C
20th Street - 22nd Street	20th Street - 21st Street	1.5	0	≤3000*	Yes	50	E
	21st Street - 22nd Street	2 or more	0	≤3000*	Yes	50	B
22nd Street - Circle Drive	22nd Street - 23rd Street	1.5	0	≤3000*	Yes	50	E
	23rd Street - Jamieson Street	0	0	≤3000	No	50	F
	Jamieson Street - 24th Street	1.5	0	≤3000	No	50	E
	24th Street - 25th Street	<1.5	0	≤3000*	Yes	50	F
	25th Street - 26th Street	1.5	2 or more	≤3000*	Yes	50	C
	26th Street - 27th Street	1.5	2 or more	≤3000	Yes	50	C
	27th Street - 28th Street	1.5	2 or more	≤3000	Yes	50	C
	28th Street - 29th Street	1.5	2 or more	≤3000*	Yes	50	C
	29th Street - 30th Street	1.5	2 or more	≤3000*	Yes	50	C
	30th Street - 31st Street	1.5	2 or more	≤3000	Yes	30 / 50	C / C
	31st Street - 32nd Street	1.5	2 or more	≤3000*	Yes	50	C
	32nd Street - 33rd Street	1.5	2 or more	≤3000*	Yes	50	C
	33rd Street - 34th Street	1.5	2 or more	≤3000*	Yes	50	C
	34th Street - 35th Street	1.5	2 or more	≤3000	Yes	50	C
	35th Street - 36th Street	1.5	2 or more	≤3000	Yes	50	C
	36th Street - 37th Street	1.5	2 or more	≤3000	Yes	50	C
	37th Street - 38th Street	1.5	2 or more	≤3000	Yes	50	C
	38th Street - 39th Street	1.5	0	≤3000*	Yes	50	E
	39th Street - Rail	1.5	0	≤3000*	Yes	50	E
	Rail - 41st Street	1.8	0.5 to 2	≤3000*	Yes	50	B
	41st Street - Circle Drive	1.8	0.5 to 2	≤3000*	No	50	B
Circle Drive - Cynthia Street		0	0	>3000	>3000*	50	F
Cynthia Street - 45th Street	Cynthia Street - Gyles Place	0	0	>3000	No	50	F
	Gyles Place - Haskamp Street / Pakwa Place	0	0	>3000	No	50	F
	Haskamp Street / Pakwa Place - 45th Street	0	0	≤3000*	No	50	F

* AADT was estimated using an average of adjacent segments.
** Operating speed was assumed to be the same as the posted speed for the purpose of this analysis.

Bicycle Level of Service for Segments – Existing Conditions

SEGMENT	SUB SEGMENT	NUMBER OF LANES (BOTH DIRECTIONS)	VEHICULAR OPERATING SPEED (KM/H)*	NO MARKED CENTRELINE / RESIDENTIAL (Y/N)	BICYCLE LEVEL OF SERVICE
19th Street - Spadina Crescent	Spadina Crescent - Sonnenschein Way	2	50	Y	B
	Sonnenschein Way - 19th Street	2	50	Y	B
19th Street - 20th Street		2	50	N	D
20th Street - 22nd Street	20th Street - 21st Street	2	50	N	D
	21st Street - 22nd Street	2	50	N	D
22nd Street - Circle Drive	22nd Street - 23rd Street	2	50	N	D
	23rd Street - Jamieson Street	2	50	N	D
	Jamieson Street - 24th Street	2	50	N	D
	24th Street - 25th Street	2	50	N	D
	25th Street - 26th Street	2	50	Y	B
	26th Street - 27th Street	2	50	Y	B
	27th Street - 28th Street	2	50	Y	B
	28th Street - 29th Street	2	50	Y	B
	29th Street - 30th Street	2	50	Y	B
	30th Street - 31st Street	2	30 / 50	Y	A / B
	31st Street - 32nd Street	2	50	Y	B
	32nd Street - 33rd Street	2	50	Y	B
	33rd Street - 34th Street	2	50	Y	B
	34th Street - 35th Street	2	50	Y	B
	35th Street - 36th Street	2	50	Y	B
	36th Street - 37th Street	2	50	Y	B
	37th Street - 38th Street	2	50	Y	B
	38th Street - 39th Street	2	50	Y	B
	39th Street - Rail	2	50	Y	B
	Rail - 41st Street	2	50	N	D
	41st Street - Circle Drive	4	50	N	E
Circle Drive - Cynthia Street		4	50	N	E
Cynthia Street - 45th Street	Cynthia Street - Gyles Place	4	50	N	E
	Gyles Place - Haskamp Street / Pakwa Place	4	50	N	E
	Haskamp Street / Pakwa Place - 45th Street	4	50	N	E

* Operating speed was assumed to be the same as the posted speed for the purpose of this analysis.

West Sidewalk Pedestrian Level of Service Calculation – Proposed Design

SEGMENT	SUB SEGMENT	SIDEWALK WIDTH (M)	BOULEVARD WIDTH (M)	AADT PER LANE	ON-STREET PARKING (Y/N)	OPERATING VEHICLE SPEED (KM/H)**	PEDESTRIAN LEVEL OF SERVICE
19th Street - Spadina Crescent	Spadina Crescent - Sonnenschein Way	1.5	0	≤3000	Yes	30	E
	Sonnenschein Way - 19th Street	1.5	0	≤3000*	Yes	30	E
19th Street - 20th Street		1.5	0.5 to 2	≤3000*	Yes	50	C
20th Street - 22nd Street	20th Street - 21st Street	<1.5	0	≤3000*	Yes	50	F
	21st Street - 22nd Street	1.5	0	≤3000*	Yes	50	E
22nd Street - Circle Drive	22nd Street - 23rd Street	1.5	0	≤3000*	Yes	50	E
	23rd Street - Jamieson Street	1.5	0	≤3000	Yes	50	E
	Jamieson Street - 24th Street	1.8	0	≤3000	Yes	30	A
	24th Street - 25th Street	1.5	0	≤3000*	Yes	30	D
	25th Street - 26th Street	1.5	2 or more	≤3000*	Yes	30	C
	26th Street - 27th Street	1.5	2 or more	≤3000	Yes	30	C
	27th Street - 28th Street	1.5	2 or more	≤3000	Yes	30	C
	28th Street - 29th Street	1.5	0	≤3000*	Yes	30	D
	29th Street - 30th Street	1.5	2 or more	≤3000*	Yes	30	C
	30th Street - 31st Street	1.5	0	≤3000	Yes	30	D
	31st Street - 32nd Street	1.5	2 or more	≤3000*	Yes	30	C
	32nd Street - 33rd Street	1.5	2 or more	≤3000*	Yes	30	C
	33rd Street - 34th Street	1.5	2 or more	≤3000*	Yes	30	C
	34th Street - 35th Street	1.5	2 or more	≤3000	Yes	30	C
	35th Street - 36th Street	1.5	2 or more	≤3000	Yes	30	C
	36th Street - 37th Street	1.5	2 or more	≤3000	Yes	30	C
	37th Street - 38th Street	1.5	2 or more	≤3000	Yes	30	C
	38th Street - 39th Street	1.5	0	≤3000*	Yes	50	E
	39th Street - Rail	1.5	0	≤3000*	Yes	50	E
	Rail - 41st Street	1.5	0.5 to 2	≤3000*	Yes	50	C
	41st Street - Circle Drive	1.8	0.5 to 2	≤3000*	No	50	B
Circle Drive - Cynthia Street		2.5	2.5	>3000*	No	50	C
Cynthia Street - 45th Street	Cynthia Street - Gyles Place	2.5	0.5 to 2	>3000	No	50	C
	Gyles Place - Haskamp Street / Pakwa Place	2.5	0.5 to 2	>3000	No	50	C
	Haskamp Street / Pakwa Place - 45th Street	2.5	0.5 to 2	≤3000*	No	50	A

* AADT was estimated using an average of adjacent segments
** Operating speed was assumed to be the same as the posted speed for the purpose of this analysis.

East Sidewalk Pedestrian Level of Service Calculation – Proposed Design

SEGMENT	SUB SEGMENT	SIDEWALK WIDTH (m)	BOULEVARD WIDTH (m)	AADT PER LANE	ON-STREET PARKING (Y/N)	OPERATING VEHICLE SPEED (KM/H)**	PEDESTRIAN LEVEL OF SERVICE
19th Street - Spadina Crescent	Spadina Crescent - Sonnenschein Way	2 or more	0.5 to 2	≤3000	Yes	30	A
	Sonnenschein Way - 19th Street	1.5	0.5 to 2	≤3000*	Yes	30	C
19th Street - 20th Street		1.5	0.5 to 2	≤3000	≤3000*	50	C
20th Street - 22nd Street	20th Street - 21st Street	1.5	0	≤3000*	Yes	50	E
	21st Street - 22nd Street	2 or more	0	≤3000*	Yes	50	B
22nd Street - Circle Drive	22nd Street - 23rd Street	1.5	0	≤3000*	Yes	50	E
	23rd Street - Jamieson Street	0	0	≤3000	No	50	C
	Jamieson Street - 24th Street	1.5	0	≤3000	No	30	D
	24th Street - 25th Street	<1.5	0	≤3000*	Yes	30	F
	25th Street - 26th Street	1.5	2 or more	≤3000*	Yes	30	C
	26th Street - 27th Street	1.5	2 or more	≤3000	Yes	30	C
	27th Street - 28th Street	1.5	2 or more	≤3000	Yes	30	C
	28th Street - 29th Street	1.5	2 or more	≤3000*	Yes	30	C
	29th Street - 30th Street	1.5	2 or more	≤3000*	Yes	30	C
	30th Street - 31st Street	1.5	2 or more	≤3000	Yes	30	C
	31st Street - 32nd Street	1.5	2 or more	≤3000*	Yes	30	C
	32nd Street - 33rd Street	1.5	2 or more	≤3000*	Yes	30	C
	33rd Street - 34th Street	1.5	2 or more	≤3000*	Yes	30	C
	34th Street - 35th Street	1.5	2 or more	≤3000	Yes	30	C
	35th Street - 36th Street	1.5	2 or more	≤3000	Yes	30	C
	36th Street - 37th Street	1.5	2 or more	≤3000	Yes	30	C
	37th Street - 38th Street	1.5	2 or more	≤3000	Yes	30	C
	38th Street - 39th Street	3	0.5 to 2	≤3000*	Yes	50	A
	39th Street - Rail	3	0.5 to 2	≤3000*	Yes	50	A
	Rail - 41st Street	3	0.5 to 2	≤3000*	Yes	50	A
	41st Street - Circle Drive	3	0.5 to 2	≤3000*	No	50	A
Circle Drive - Cynthia Street		3	0.5 to 2	>3000	>3000*	50	C
Cynthia Street - 45th Street	Cynthia Street - Gyles Place	3	0.5 to 2	>3000	No	50	C
	Gyles Place - Haskamp Street / Pakwa Place	3	0.5 to 2	>3000	No	50	C
	Haskamp Street / Pakwa Place - 45th Street	3	0.5 to 2	≤3000*	No	50	A

* AADT was estimated using an average of adjacent segments.
** Operating speed was assumed to be the same as the posted speed for the purpose of this analysis.

Bicycle Level of Service for Segments – Proposed Design

SEGMENT	SUB SEGMENT	NUMBER OF LANES (BOTH DIRECTIONS)	VEHICULAR OPERATING SPEED (KM/H)*	NO MARKED CENTRELINE / RESIDENTIAL (Y/N)	BICYCLE LEVEL OF SERVICE
19th Street - Spadina Crescent	Spadina Crescent - Sonnenschein Way	2	30	Y	A
	Sonnenschein Way - 19th Street	2	30	Y	A
19th Street - 20th Street		2	50	N	A**
20th Street - 22nd Street	20th Street - 21st Street	2	50	N	A**
	21st Street - 22nd Street	2	50	N	A**
22nd Street - Circle Drive	22nd Street - 23rd Street	2	50	N	A
	23rd Street - Jamieson Street	2	30	N	A
	Jamieson Street - 24th Street	2	30	N	A
	24th Street - 25th Street	2	30	Y	A
	25th Street - 26th Street	2	30	Y	A
	26th Street - 27th Street	2	30	Y	A
	27th Street - 28th Street	2	30	Y	A
	28th Street - 29th Street	2	30	Y	A
	29th Street - 30th Street	2	30	Y	A
	30th Street - 31st Street	2	30	Y	A
	31st Street - 32nd Street	2	30	Y	A
	32nd Street - 33rd Street	2	30	Y	A
	33rd Street - 34th Street	2	30	Y	A
	34th Street - 35th Street	2	30	Y	A
	35th Street - 36th Street	2	30	Y	A
	36th Street - 37th Street	2	30	Y	A
	37th Street - 38th Street	2	50	Y	A**
	38th Street - 39th Street	2	50	Y	A**
	39th Street - Rail	2	50	N	A**
	Rail - 41st Street	4	50	N	A**
	41st Street - Circle Drive	2	50	N	A**
Circle Drive - Cynthia Street		4	50	N	A**
Cynthia Street - 45th Street	Cynthia Street - Gyles Place	4	50	N	A**
	Gyles Place - Haskamp Street / Pakwa Place	4	50	N	A**
	Haskamp Street / Pakwa Place - 45th Street	4	50	N	A**

* Operating speed was assumed to be the same as the posted speed for the purpose of this analysis.
** Physically separated bikeways (cycle tracks, protected bike lanes, and multi-use paths) automatically score LOS A.

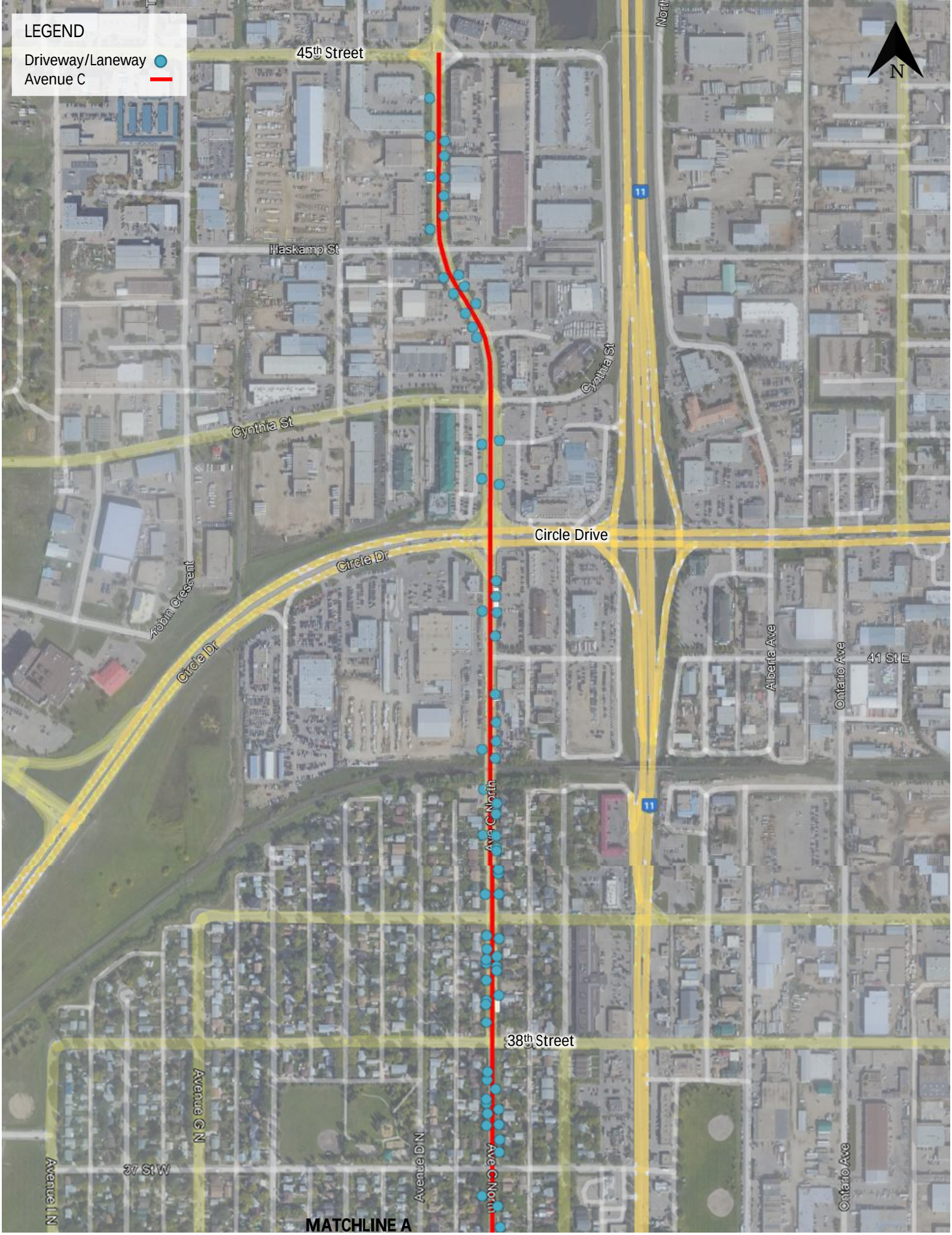
Comparison of Existing Conditions to Proposed Design

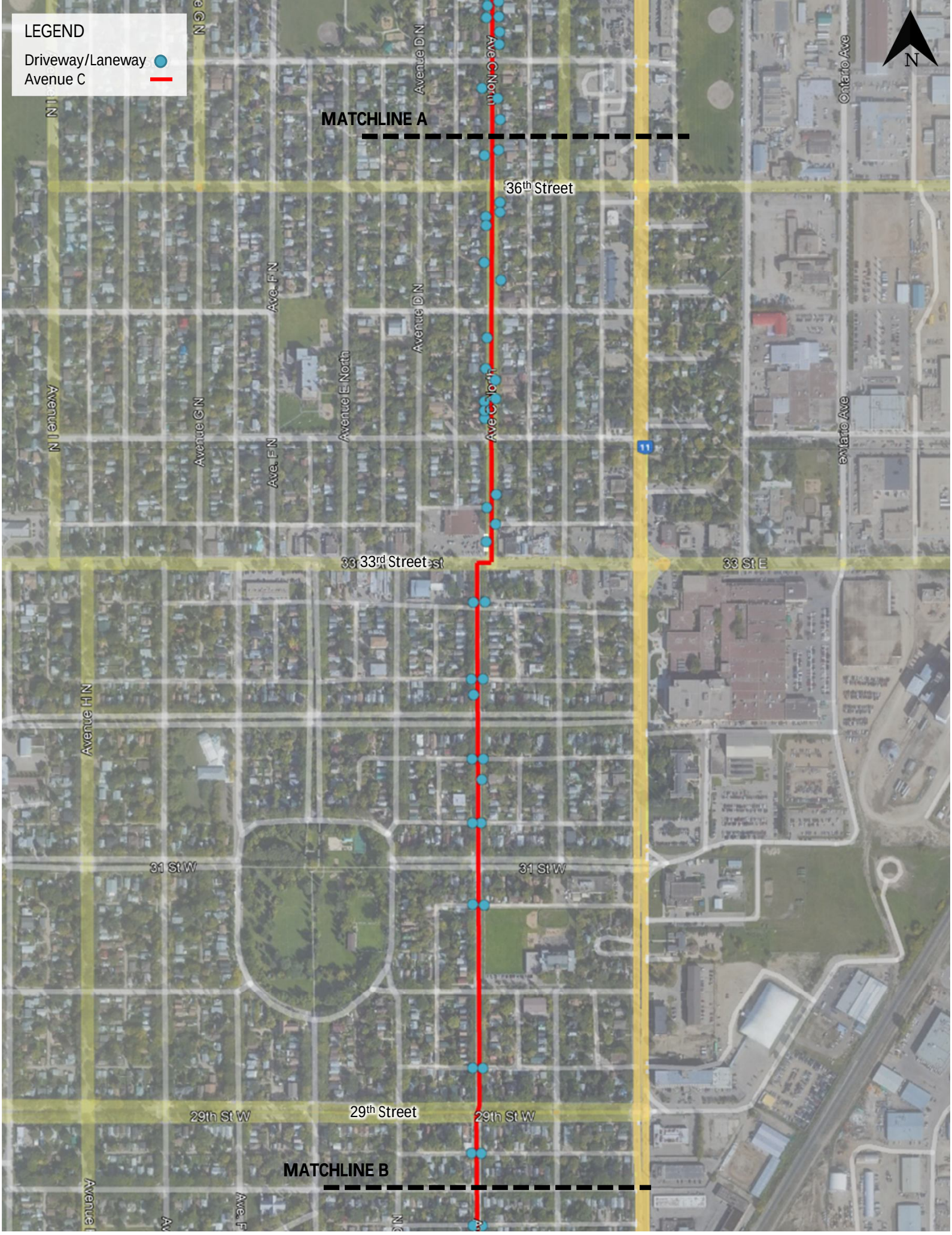
SEGMENT	SUB SEGMENT	PEDESTRIAN LOS				BICYCLE LOS	
		EXISTING		PROPOSED			
		WEST SIDEWALK	EAST SIDEWALK	WEST SIDEWALK	EAST SIDEWALK	EXISTING	PROPOSED
19th Street - Spadina Crescent	Spadina Crescent - Sonnenschein Way	E	A	E	A	B	A
	Sonnenschein Way - 19th Street	E	C	E	C	B	A
19th Street - 20th Street		C	C	C	C	D	A
20th Street - 22nd Street	20th Street - 21st Street	F	E	F	E	D	A
	21st Street - 22nd Street	E	B	E	B	D	A
22nd Street - Circle Drive	22nd Street - 23rd Street	E	E	E	E	D	A
	23rd Street - Jamieson Street	E	F	E	C	D	A
	Jamieson Street - 24th Street	B	E	A	D	D	A
	24th Street - 25th Street	E	F	D	F	D	A
	25th Street - 26th Street	C	C	C	C	B	A
	26th Street - 27th Street	C	C	C	C	B	A
	27th Street - 28th Street	C	C	C	C	B	A
	28th Street - 29th Street	E	C	D	C	B	A
	29th Street - 30th Street	C	C	C	C	B	A
	30th Street - 31st Street	D / E	C / C	D	C	A / B	A
	31st Street - 32nd Street	C	C	C	C	B	A
	32nd Street - 33rd Street	C	C	C	C	B	A
	33rd Street - 34th Street	C	C	C	C	B	A
	34th Street - 35th Street	C	C	C	C	B	A
	35th Street - 36th Street	C	C	C	C	B	A
	36th Street - 37th Street	C	C	C	C	B	A
	37th Street - 38th Street	C	C	C	C	B	A
	38th Street - 39th Street	E	E	E	A	B	A
	39th Street - Rail	E	E	E	A	B	A
	Rail - 41st Street	F	B	C	A	D	A
	41st Street - Circle Drive	B	B	B	A	E	A
Circle Drive - Cynthia Street		F	F	C	C	E	A
Cynthia Street - 45th Street	Cynthia Street - Gyles Place	F	F	C	C	E	A
	Gyles Place - Haskamp Street / Pakwa Place	F	F	C	C	E	A
	Haskamp Street / Pakwa Place - 45th Street	F	F	A	A	E	A

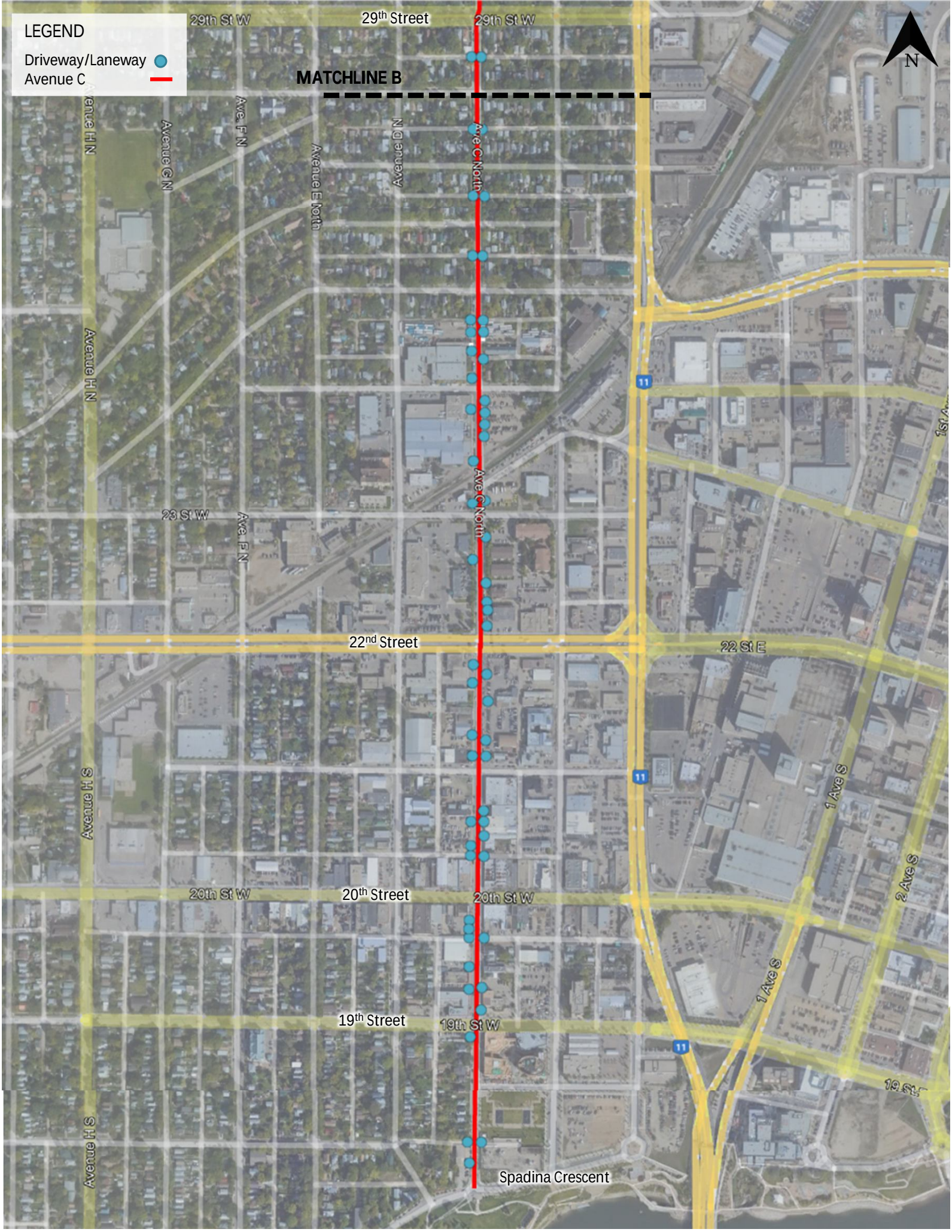
	Indicates LOS D or worse.
	Indicates proposed conditions LOS improved from existing conditions.

APPENDIX

B DRIVEWAY AND LANEWAY MAP


LEGEND
Driveway/Laneway
Avenue C
45th Street
Haskamp St
Cynthia St
Cynthia St
Circle Drive
Circle Dr
Circle Dr
Robin Crescent
Alberta Ave
Ontario Ave
41 St E
Ave C North
38th Street
Avenue G N
Avenue D N
Ave C North
37 St W
Avenue I N
Ontario Ave
11
11
N
MATCHLINE A


LEGEND
Driveway/Laneway
Avenue C
N
MATCHLINE A
36th Street
33rd Street
33 St E
31 St W
29th Street
MATCHLINE B
Avenue C North
Avenue D N
Avenue E North
Ave. F N
Avenue G N
Avenue H N
Avenue I N
Ontario Ave
11


LEGEND
Driveway/Laneway
Avenue C
MATCHLINE B
N
29th St W
29th Street
29th St W
Avenue H N
Avenue G N
Ave. F N
Avenue E North
Avenue D N
Ave C North
Avenue H N
23 St W
Ave. F N
Ave C North
22nd Street
22 St E
11
Avenue H S
1 Ave S
2 Ave S
20th St W
20th Street
20th St W
1 Ave S
19th Street
19th St W
11
19 St
Avenue H S
Spadina Crescent

APPENDIX

C PHASE 1 PUBLIC ENGAGEMENT

Connecting Avenue C Walking & Cycling Improvement Project

Phase 1 Public Engagement: What We Heard Report

September 2022

Executive Summary

The City of Saskatoon is committed to promoting active transportation and providing transportation choices that are safe and comfortable for people of all ages and abilities all year round.

Saskatoon's Active Transportation Plan (2016) identified Avenue C as a future All Ages and Abilities (AAA) cycling and walking route to help address community and infrastructure needs for cycling, walking, and other modes of active transportation in Saskatoon.

Three phases of engagement will be conducted as part of the evaluation and design process for cycling facilities on Avenue C from Spadina Crescent to 45th Street. Phase 1 Engagement was complete as of June 2022, Phase 2 Engagement is slated to begin in Fall 2022, and Phase 3 Engagement is slated to begin in Winter 2022.

Phase 1

The objectives of the first phase of engagement, conducted May-June 2022, were to:

- Introduce the community to the project by providing information on existing conditions, needs assessment and pertinent background information;
- Gather feedback from the community on opportunities and challenges they see related to developing Avenue C as an active transportation corridor; and
- Help inform design options that will be tailored to the corridor's transportation needs.

A stakeholder session was held in the afternoon of May 13th, 2022 and had 13 attendees. An online public survey was open for responses from May 12th – June 13th, 2022 and had 295 responses. Lastly, a total of 8 emails and 3 phone calls were received through the Project Manager's email and phone line.

Common themes from the stakeholder session included:

- Maintaining trees and creating green space wherever possible should be a priority.
- The facility design needs to be inclusive and consider the needs of all users (walking, wheelchair, etc.).
- Safe, accessible, and controlled intersection crossings will be necessary to ensure comfort and safety of all non-vehicle users.

Common themes from the survey responses included:

- Overall concerns for cyclist safety and concerns regarding sharing the road with vehicle traffic;
- The need for street lighting, sidewalk installation or widening of sidewalks to create a safe walking environment for pedestrians; and
- Improving traffic calming and intersection safety.

Common themes from phone call and email responses included:

- High traffic speeds and volume along Avenue C creating safety concerns for pedestrians and cyclists;
- Concerns around parking loss and disruption to access of local businesses on Avenue C; and
- Creating accessible and easily understandable ways for all residents to provide feedback on the proposed design.

Contents

Figures

Appendices

Appendix C-1 Phase 1 Stakeholder List
Appendix C-2 Phase 1 Online Stakeholder Session Presentation

1 Background

This document outlines feedback received from 2022 public engagement events in support of the City of Saskatoon's Connecting Avenue C Walking & Cycling Improvement Project (the "Project"). The Project focuses on the design of All Ages and Abilities (AAA) cycling facilities and improvements to walking facilities on Avenue C from Spadina Crescent to 45th Street in Saskatoon to enhance connectivity, safety, and accessibility.

The route will be designed as a safe and inclusive space for all modes of transportation that connects the people of Saskatoon to each other and to many destinations in the City.

Several key factors will be considered in the planning and design of AAA walking and cycling facilities along Avenue C, including:

2 Stakeholder Groups

A comprehensive list of stakeholders identified as having the potential to be impacted by or interested in the construction of active transportation facilities along Avenue C was developed, including:

Local Residents/ Homeowners

Those who live or own property on or near Avenue C between Spadina Crescent and 45th Street.

Business Owners & Community Service Organizations

Those who own or operate businesses and/or community service organizations on or near Avenue C between Spadina Crescent and 45th Street.

Cyclists, Pedestrians, Drivers and Mobility Device Users

Those who walk, cycle, drive or use mobility devices to travel along Avenue C between Spadina Crescent and 45th Street.

The stakeholder list will be a living resource to be developed and continuously refined to include people who are either directly or indirectly impacted by the project. Concerted efforts were made to identify any vulnerable and marginalized segments of the community, or community organizations who service vulnerable or marginalized segments of the community, to ensure they are invited to share their perspectives. The stakeholder list can be found in **Appendix** C-1**.**

3 Engagement Activities

Phase 1 Engagement included a targeted stakeholder session and interactive online survey to collect feedback that will inform development of design options for All Ages and Abilities (AAA) cycling facilities and improvements to walking facilities on Avenue C.

The general public were also able to provide input through the City of Saskatoon Engage Page forum and contact the Project Manager directly via email, mail, or telephone.

Stakeholder	Level of Influence	Objective	Engagement Goal	Engagement activity
All stakeholders	Consult	Share information and obtain feedback and ideas	Phase 1: Receive input on what community members and stakeholders see as challenges regarding improvements to walking, cycling, driving or using mobility devices on Avenue C.	Stakeholder session Public survey – online and paper versions were made available Engage Page Correspondence with project team via email and phone

4 What We Heard

4.1 Phase 1 Stakeholder Session

4.1.1 Purpose

The objectives of the stakeholder session conducted on May 18th, 2022 were to:

- Introduce the community to the project by providing information on existing conditions, needs assessment and pertinent background information;
- Gather feedback from the community on opportunities and challenges they see related to developing Avenue C as an active transportation corridor; and
- Help inform design options that will be tailored to the corridor's transportation needs.

4.1.2 Marketing Techniques

Key community groups and partners were directly invited to participate in this session based on the impacts of this project along Avenue C.

4.1.3 Input Received

A total of 13 attendees participated in the stakeholder session. The session was hosted virtually because it was held prior to the return to in-person engagement events. The presentation slide deck for the online stakeholder session can be found in **Appendix** C-2**.**

A series of key project considerations were presented on maps representing segments of Avenue C from Spadina Crescent to 45th Street, and attendees were asked to share their perspectives on the following questions:

- Where do you experience barriers or challenges, where are walking and cycling enjoyable, or where so you see opportunities for improvement?
- What are your top priorities for an active transportation corridor on Avenue C?

Feedback from session participants is broken down by road segment and themes, as outlined below:

Road Segment: Spadina to 25th Street West – Commercial Area

Accessibility

- Sidewalks are narrow and obstructed by posts, trees, and meters. Pedestrians cannot walk easily on these streets unless in single file without carts, baby carriages, etc.

- There are several corners that are very difficult to navigate via wheelchair.

- Pedestrian traffic volume should also be considered during the study. There is a high volume of pedestrian traffic on Ave C South from 19th to 22nd due to access points for various services and businesses (The Salvation Army, Out Saskatoon, Saskatoon Food Bank). Keep in mind that you will see people in line or congregating on sidewalks when accessing community-based services.

Safety

- Sidewalks could be enhanced in the commercial area and separated by a line of trees along the curb to provide separation from pedestrian and cycle traffic.
- There are numerous parking lots and entryways along the street that are hazardous to pedestrians as well as the intersections. Good visibility and control of the cross-traffic would add to safety of people ages 8 to 80.
- There needs to be a plan for how bikes can safely cross intersections, as there are challenges with raised facilities.
- Crossing 22nd Street can feel unsafe because it's such a wide street and vehicles can be unpredictable. This is an area where extra safety for cyclists and pedestrians is needed.
- The railway crossing presents a safety issue and there needs to be a mechanism to avoid collision with trains, such as a barrier system when the train is crossing.
- There is high traffic on 20th and Ave C. As stated, sidewalks are narrow and filled with posts, parking meters and trees. Also, vehicles are coming in and out of the back alleys—additional safety measures should be considered here.

Traffic Flow

- The intersection at 23rd Street needs special attention– there is a fair amount of traffic that travels along 23rd Street from the east and makes the right-hand turn going South on Avenue C difficult. There is a stop sign there, but at the pedestrian crossing there's a roll through stop sign. Attention also needs to be paid to the railroad crossing that is parallel to the street crossing, and another one on 25th Street.

Green Space & Tree Preservation

- Blocks of trees need to be preserved in this section as they provide much-needed shade in warmer weather.

Road Segment: 25th Street West to 33rd Street West – Residential Area

Accessibility

- Curbs need to have ramps at each intersection.

- Sidewalk maintenance will be very important for walking and wheelchair users.

Safety

- Avenue C and 33rd Street will need adjustments to existing traffic control that can assure safety of pedestrians and cyclists crossing 33rd Street.
- Intersections with narrow streets and speed issues need to be resolved – 33rd and 25th Streets in particular.
- The intersection at 33rd Street needs special attention. It has a grocery store on the corner with a jog in the street and no stop signs on 33rd Street – there should be a traffic light installed here to enhance bike and pedestrian safety when crossing the street

Traffic Flow

- Traffic speeds need to be not only slow enough to allow pedestrian and cycling safety, but also consistent and predictable for drivers.

Green Space & Tree Preservation

- Trees separating sidewalks from the street are an asset in terms of both shelter and distancing from traffic.

Road Segment: 33rd Street West to Rail Line – Residential Area

Safety

- It may be better to divert cycle routes on to Avenue D from 35th to 39th to avoid one-way sections (traffic travels in both directions but there are directional closures) and airport traffic. You cannot cycle at full speed going the wrong way and therefore are sometimes forced to take the sidewalk.
- Vehicles tend to move faster in the north end, there will need to be increased safety at intersections.

Traffic Flow

- There will be a lot of cycle commuter traffic on Ave C to the industrial area and to Hampton Village via Cynthia Street. Cyclists and pedestrians must be separated.
- 33rd Street to Circle Drive has been used as an alternative route to the airport, so traffic calming has been a bit of an issue along that section and needs to be resolved.

Green Space & Tree Preservation

- The trees are wonderful. Please keep them.

Road Segment: Rail Line to 45th Street West – Commercial & Industrial Area

Accessibility

- When we think about active transportation it is not simply for cyclists, it is for users with all sorts of abilities and disabilities such as wheelchair users, stroller users, walker users, etc. Regarding the 45th Street pedestrian overpass and stair upgrades, it's very important that instead of putting rails in that we invest first and foremost to have ramps are installed. If you plan to be inclusive, putting rails in (even if temporary) caters only to bike users and you're ignoring a large portion of the population who use this route and will not benefit as a result.

- Having benches or other facilities to make it easier to wait for crossing at Circle Drive intersection would be beneficial – especially for seniors or handicapped people.

Safety

- This segment is a death trap.

- This is a very truck dominated neighbourhood, and there is a lot of fear and hesitancy to walk or cycle in this area. Safety must be a priority here.

- This segment is currently the most difficult to cycle and walk. I avoid 45th and go up the East side of Cynthia Street and back along 45th. Would prefer to see a dedicated cycle lane and sidewalks along the whole stretch. This may reduce the width of the road for motor vehicles – traffic along that route is characterized by impatience as much as speed, which can be equally dangerous.

Traffic Flow

- Circle Drive intersection is very complicated with a lot of traffic – there is already a long wait time to cross Circle Drive and adding pedestrian signals could make it even longer, so that should be a design consideration.

- Circle Drive to 45th Street is not pedestrian friendly and is a rather hostile environment. It would be a good place for some additional landscaping/trees that could be used as traffic separators.

Green Space & Tree Preservation

- Circle Drive to 45th Street would be a good place for additional landscaping/trees to make the community more pleasant.

General Comments

Accessibility

- In the central section where Bike Boulevards/Neighbourhood Bikeways may be used, aggressive traffic calming would help to make active transportation travel safer.
- Benches to allow for rest stops everywhere are needed and would be much appreciated.

Safety

- At key intersections, include the advance bike boxes to separate bikes from the cars and to allow for better intersection clearing.
- Dedicated bike lanes and sidewalks should be included along the entire length of the study area.

Green Space & Tree Preservation

- Pocket parks along the way for people to take a break would be beneficial and it would also add a little bit of green on the route to enjoy.

General

- Publicly accessible washrooms are needed all along this route (Saskatoon Public Library on 33rd Street responded that public washrooms are available at the library).
- Transit users frequently have bus stops that are not easily used, particular in winter and spring thaws. These stops need to be built into the pedestrian network.
- Bikes and other new modes of transportation now need to be planned for as well.
- The city should be looking not only at how to make life easier for active transportation but also at reducing motorised vehicle use.

4.2 Phase 1 Survey: MetroQuest

4.2.1 Purpose

An online survey was prepared using the MetroQuest platform to help develop a stronger understanding of community needs and desires. The survey was open from May 12, 2022 to June 13, 2022 for a total of 32 days. A hard copy version of the survey was available to residents at the Mayfair Branch Library and Harry Bailey Aquatic Centre. The survey captured 295 online participants and 4 paper survey participants for a total of 299 participants. The survey questions/activities were developed to gather input on the best way to develop a plan to enhance mobility and safety on Avenue C from Spadina Crescent to 45th Street.

Of note, these were self-administered, non-random surveys and thus results cannot be considered to be statistically significant or representative of the opinions of all residents. As with other consultation tools, the survey findings should not be considered in isolation, but instead factored into the context of other community input and assessment methodologies.

4.2.2 Marketing Techniques

The survey was advertised on the City's Engage page website, through Saskatoon's social media feeds and by direct email to stakeholder groups. Flyers with information about the project and survey were delivered to the neighbourhoods along Avenue C. Mini billboards were placed along Avenue C to promote the survey. Paper copies of the survey were available at the Mayfair Branch Library and Harry Bailey Aquatic Centre. Posters were also placed in these locations to promote the survey. Identified stakeholders were encouraged to share the survey with their networks.

4.2.3 Input Received

A total of 295 individuals responded to the public survey. Survey respondents largely represented the age cohorts of:

- 35-44 years (35%),
- 25-34 years (18%), and
- 45-54 years (17%).

Males represented 48% of participants and females represented 43%, while 2% of respondents identify as non-binary. 11% of respondents identified as having a disability. 7% of respondents identify as being part of a visible minority group.

When asked whether participants are Indigenous, 11% identified as First Nations, and 3% identified as Métis. Figure 1: Age Cohort, Figure 2: Gender Distribution, Figure 3: Disability Identification, Figure 4: Visible Minority Identification, Figure 5: Indigenous Identification.

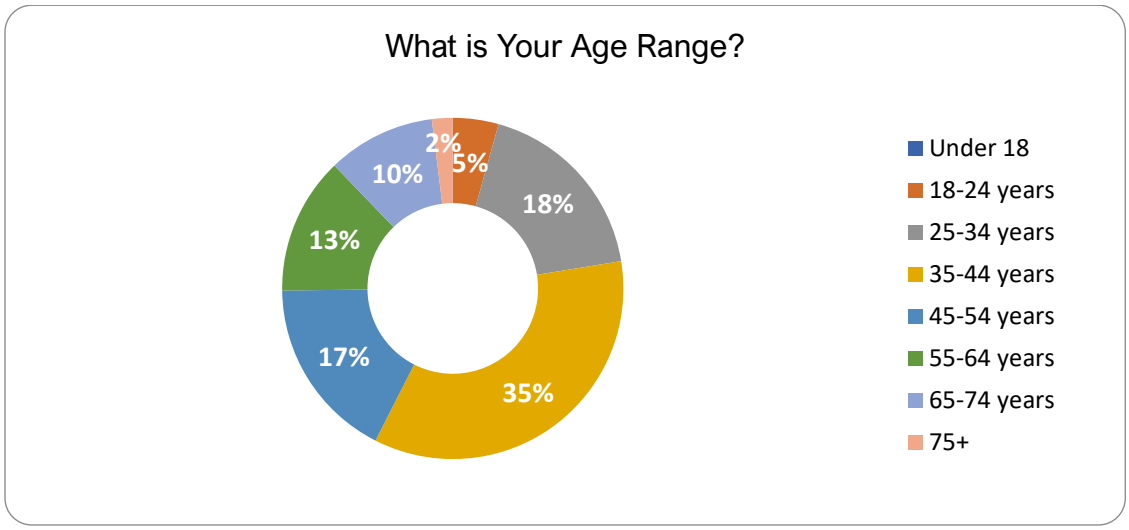


Figure 1 Age Cohort

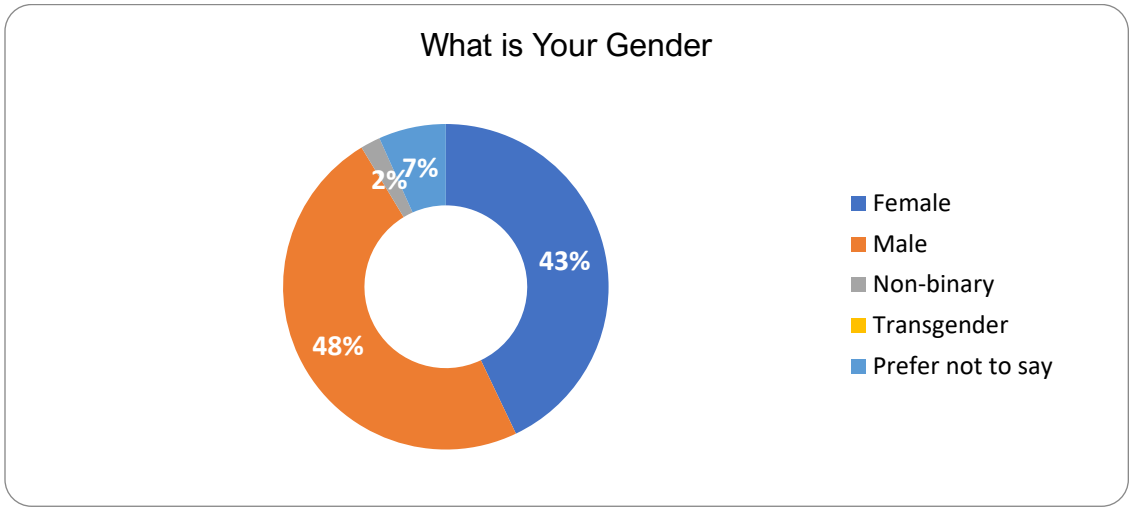


Figure 2 Gender Distribution

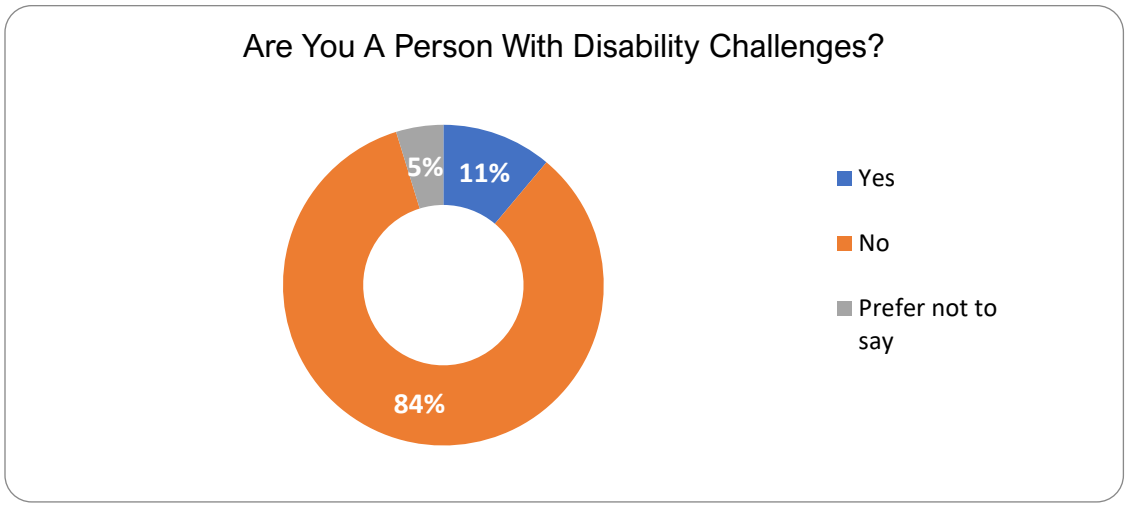


Figure 3 Disability Identification

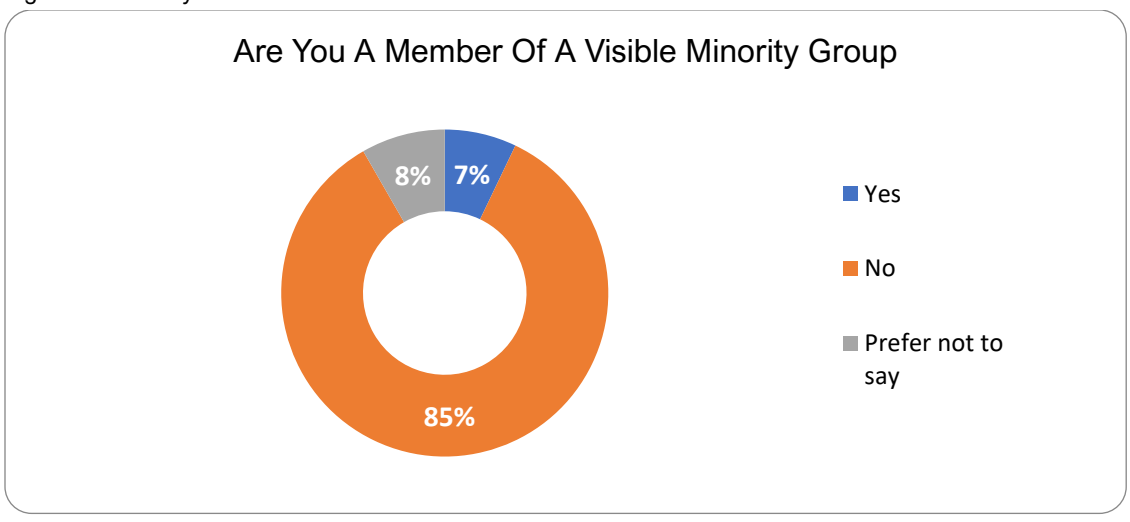


Figure 4 Minority Group Identification

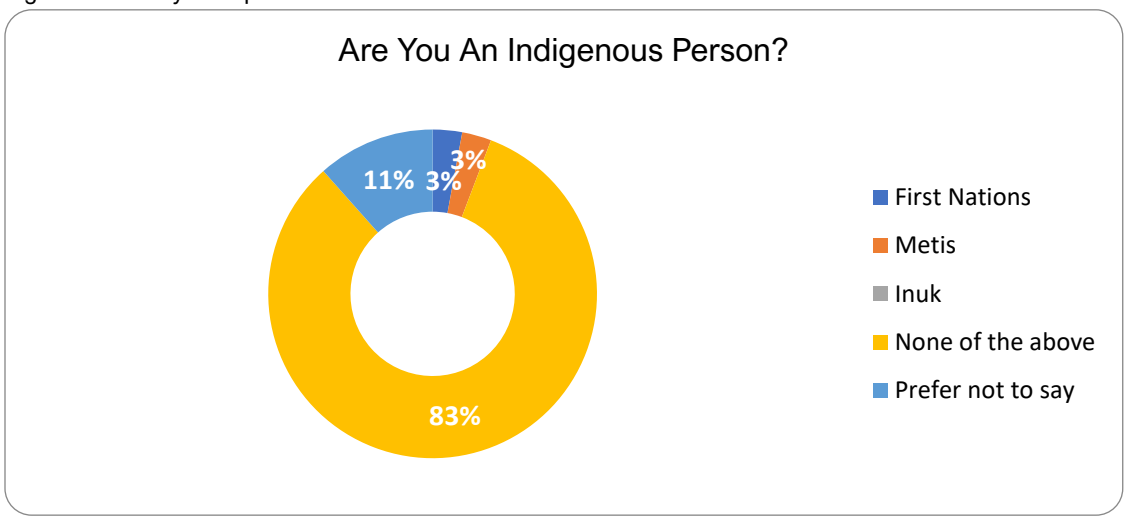


Figure 5 Indigenous Identification

Activity 1: Map Markers

In the map markers activity, survey participants were asked to drop pins on a map of the project area indicating where individuals experience barriers or challenges to walking and/or cycling, and where there are opportunities for improvement. Seven categories were included - cycling, pedestrian, road condition, amenities, connectivity, accessibility, and other.

The technical team has undertaken detailed analysis of all comments provided through this activity during the development of design options. The map link below outlines all participant feedback provided for each category: Connecting Avenue C - Google My Maps

The following is a sample list of paraphrased, high-level comments which are meant to provide an overview of general topics, concerns, and opinions regarding active transportation on Avenue C. For a detailed category/comment breakdown, please visit the map link where you can navigate to any areas of interest: Connecting Avenue C - Google My Maps.

Accessibility – What is a priority or opportunity for improvement here?

- No effort has been made to make Avenue C generally accessible and, as such, it poses a major obstacle for users with mobility challenges
- Accessible ramps are required on all sides of the sidewalks at intersections
- Crosswalk lights along Avenue C change too quickly – does not give enough time for those with mobility challenges or families pushing strollers to safely cross
- Snow clearing needed for those pushing a stroller, using a wheelchair or motorized scooter
- Sidewalks are difficult to navigate - too narrow and the sidewalk curbs are high
- Too much space for cars and too little space for pedestrians and cyclists – feels unsafe
- Needs overall aesthetic improvements to be more inviting including picnic tables, shade trees, benches, etc.

Amenities - What is a priority or opportunity for improvement here?

- Trees for shade – trees would provide shade and increase the aesthetic of the area which would in turn encourage foot traffic for local businesses
- Desire picnic tables and street trees in green spaces along Avenue C
- Mostly vacant buildings, parking lots, and chain link fences create an unwelcoming and unsafe atmosphere for users
- Speeding drivers make the area unsafe
- Would like to see raised crosswalks to improve safety
- Sidewalks all along Avenue C are too narrow for pedestrian traffic – sidewalks need to be widened to encourage foot traffic
- Desire to see a dedicated bike lane along the entire Avenue C corridor
- Requires street cleaning and waste removal
- Add bike lanes

Connectivity - What is a priority or opportunity for improvement here?

- Link to the Meewasin Valley Trail with improved cycling infrastructure and safer connections
- Improve connectivity from downtown bike paths onto a protected west bound bike path
- Awkward/unsafe intersections in many sections along Avenue C with poorly marked crossing for pedestrians and cyclists
- Sidewalks needed or need improvements – sidewalks too narrow
- Overall safety concerns for pedestrians and cyclists along this corridor

Cycling - What is working well, needs improvement, or is a priority here?

- Overall concerns for cyclists' safety and concern regarding sharing the road with vehicle traffic
- No bike lanes or bike parking available
- Safe walkways are needed in many areas
- Road is too narrow for cyclists and vehicles to share safely
- Support for protected bike lanes
- Traffic calming required to improve safety in many areas
- Improved signage, sightlines, crossing lights, and road conditions needed
- Need for designated cycling lanes

Pedestrian - What is working well, needs improvement, or is a priority here?

- Overall concern for pedestrian safety (poorly lit, isolated, dangerous alleyways, no sidewalks, pedestrian crosswalk times too short)
- Traffic calming to reduce speeding vehicles is required to improve safety for pedestrians and cyclists
- Widened sidewalks are needed
- Additional lighting and existing lighting improvements are needed
- Surroundings feel uninviting in many areas (too many parking lots, garbage, no greenery)
- Sidewalks and crosswalks end abruptly/do not connect to anything
- Insufficient visible crosswalks – concerns of speeding vehicles that do not stop for pedestrians

Road Condition - What is a priority or opportunity for improvement here?

- Poor condition of road needs improvement in many areas (i.e., potholes, uneven and bumpy)
- Road is too narrow and cars parked along sides makes it hard for cyclists to use the road
- Poor visibility to oncoming traffic due to street parking

Activity 2: Priorities Ranking

The priority ranking activity gave survey participants the chance to rank their top priorities for an active transportation corridor on Avenue C from 1 to 3 with 1 having the highest priority and 3 having the lowest priority, see Figure 6 Priority Ranking Activity MetroQuest View. The ranking options included:

- Connectivity of cycling routes;

- Comfortable cycling environment;
- Condition/maintenance of bike facilities;
- Connections to amenities/destinations;
- Comfortable walking environment;
- Maintaining parking and loading;
- Accessibility for all users;
- Bike parking; and
- Access to transit services.

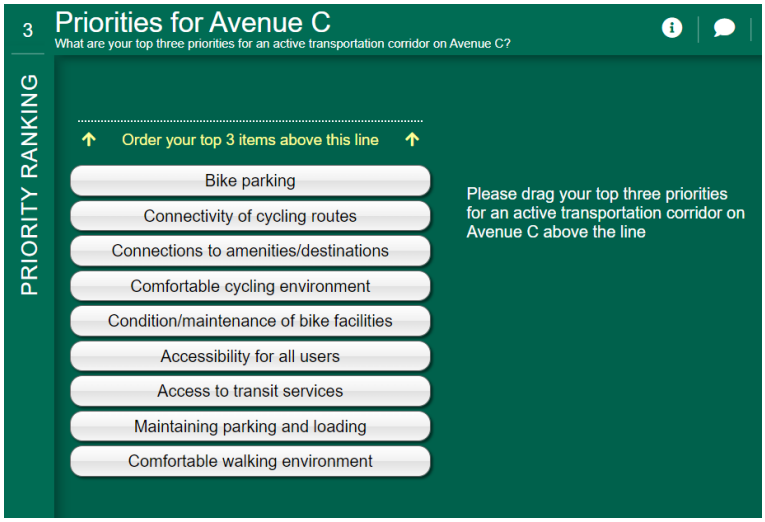


Figure 6 Priority Ranking Activity MetroQuest View

Comfortable Cycling Environment received the highest priority ranking with 57 participants ranking it number 1 out of 3. The next ranked priority was Comfortable Walking Environment with 38 votes for top priority, followed by Accessibility For All Users with 34 votes for top priority. Connectivity Of Cycling Routes was closely ranked with Maintaining Parking And Loading. Conversely, the lowest ranked option was Bike Parking which received 0 votes for top priority. Figure 7: Priorities for Avenue C, Figure 8: Top Priorities for Avenue C.

Common comments related to the prioritization activity included the importance of focusing on cyclist and pedestrian safety first before comfort or aesthetics, providing clear connections, maintaining active transportation infrastructure, and shifting from car centric design priorities to active transportation priorities.

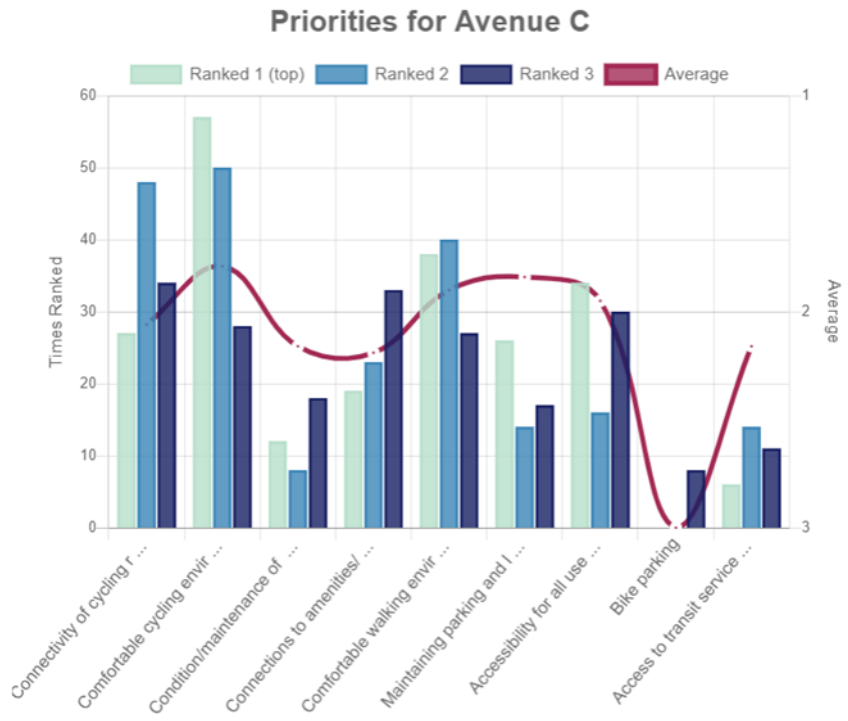


Figure 7 Priorities for Avenue C

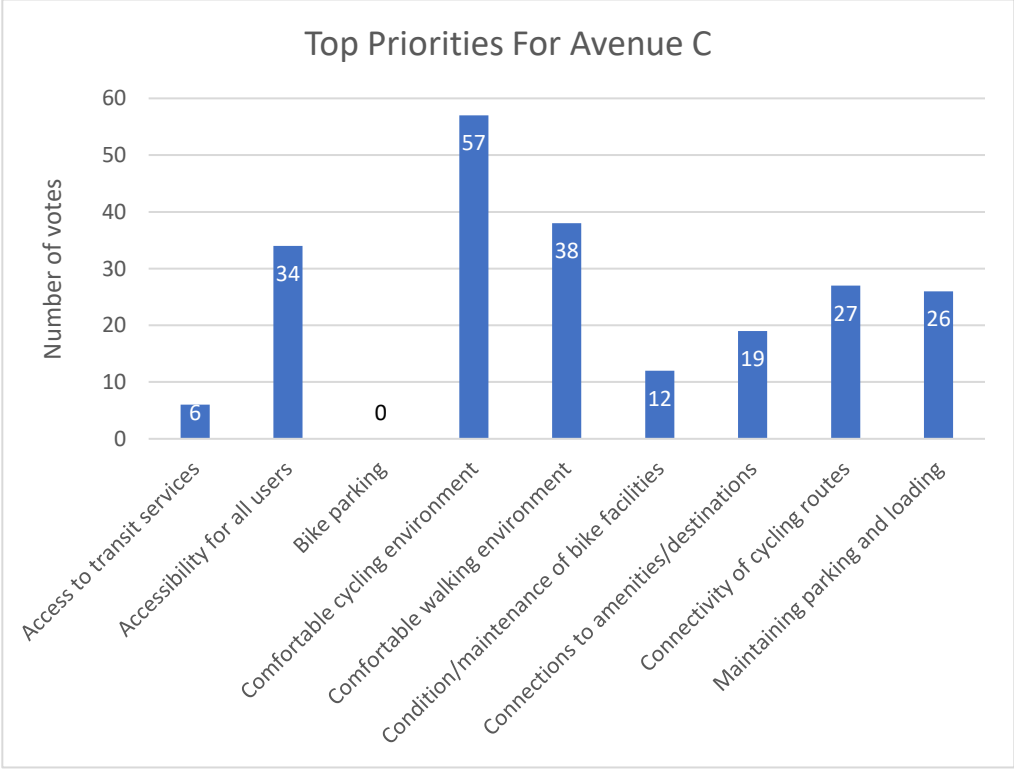


Figure 8 Top Priorities for Avenue C

Activity 3: General Questions

The third activity consisted of a number of questions related to modes and frequency of transportation used and the number of household vehicles.

Transportation
The modes of transportation used by survey respondents are as follows:

- walking (31%),
- biking (26%),
- driving (32%),
- transit (9%), and
- other – no additional information was supplied for this option.

The majority of respondents who selected walk indicated that they walk

- weekly (28%),
- occasionally (24%), and
- everyday (21%).

The respondents who selected bike indicated that they use this mode

- weekly (30%),
- seasonally (mostly in summer months) (20%), and
- occasionally or never (17%).

Nearly 60% of survey participants who responded to this question indicated that they never use transit as a mode of transportation on Avenue C, while 25% use transit occasionally. It is worth noting that Avenue C does not currently have many transit routes, which may have impacted the large percentage of participants that indicated they never use transit on Avenue C.

The majority of respondents that drive on Avenue C use this mode

- everyday (38%),
- weekly (27%), and
- occasionally (14%).

The reason that respondents travel on Avenue C is fairly dispersed and the top reasons includes

- travel to work (31%),
- the respondent lives along the corridor (20%),
- in order to access shopping and restaurants (20%), and
- to access the river (14%).

The majority of respondents indicated that they have either 1 vehicle (46%) or 2 vehicles (33%).

Figure 9 Transportation Modes; Figure 10 Walk Mode Frequency; Figure 11 Bike Mode Frequency: Figure 12 Transit Mode Frequency: Figure 13 Vehicle Mode Frequency; Figure 14 Reason for Travel on Ave C; Figure 15 Total Vehicles Per Household.

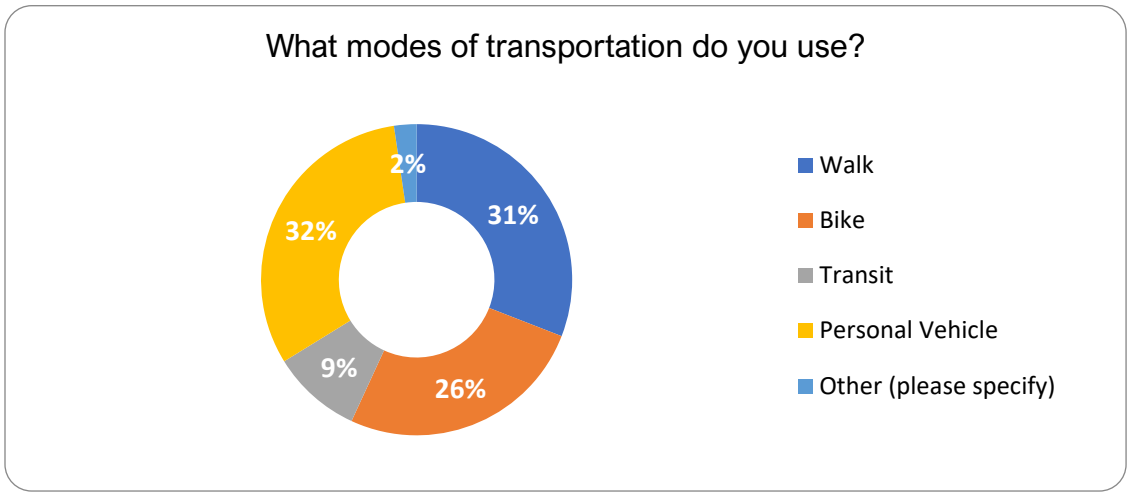


Figure 9 Transportation Modes

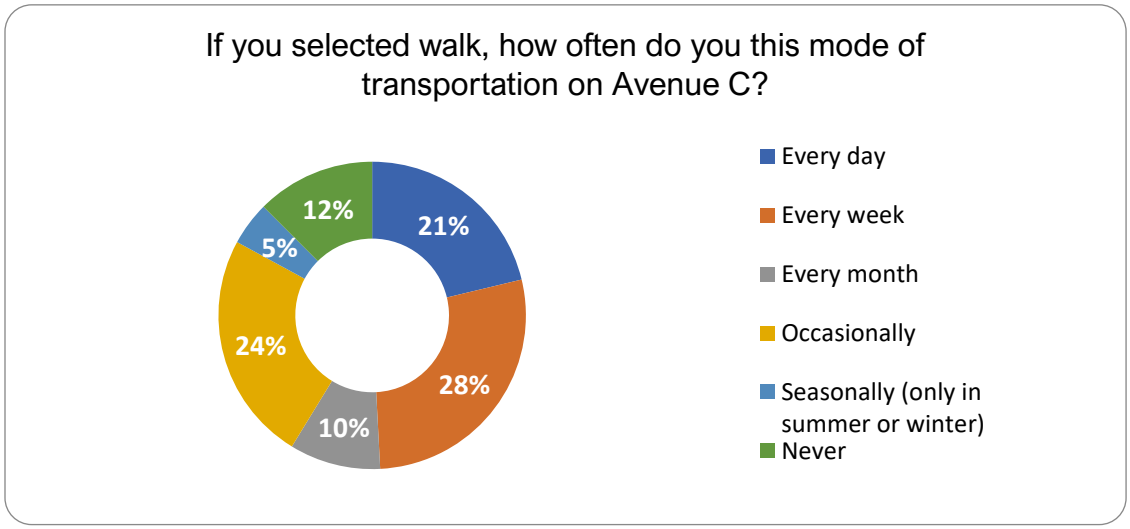


Figure 10 Walk Mode Frequency

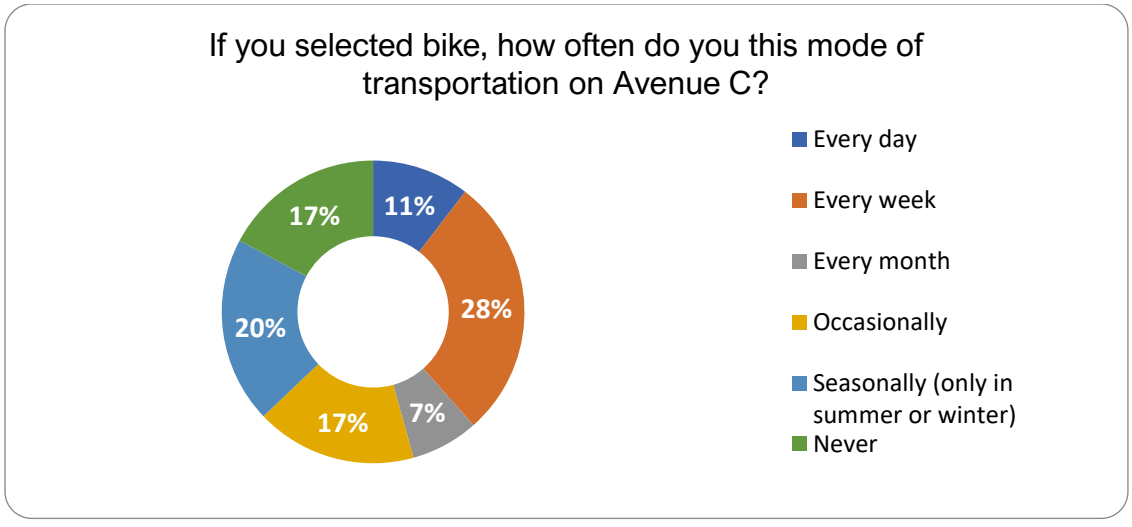


Figure 11 Bike Mode Frequency

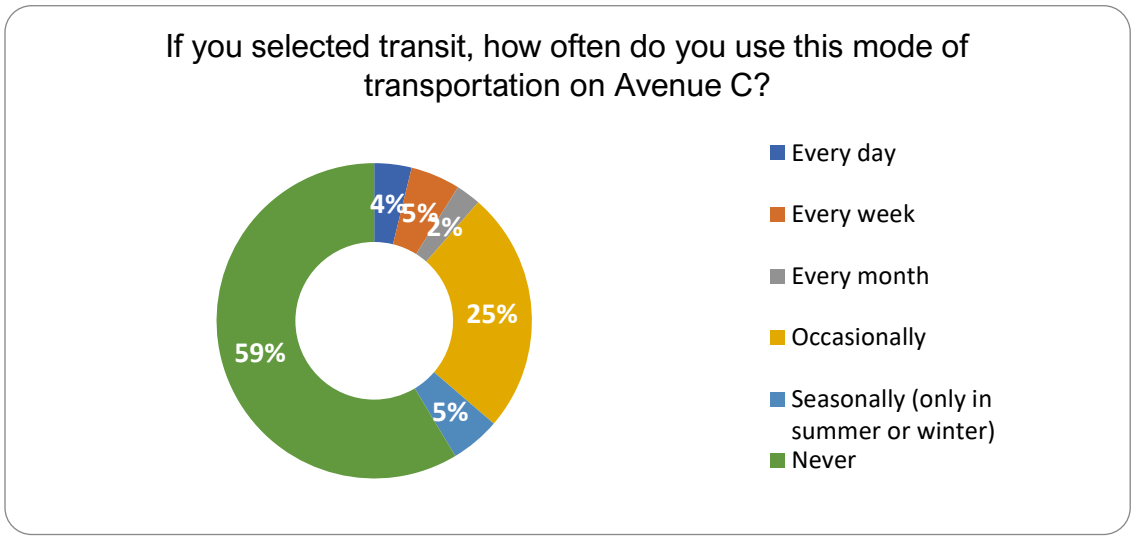


Figure 12 Transit Mode Frequency

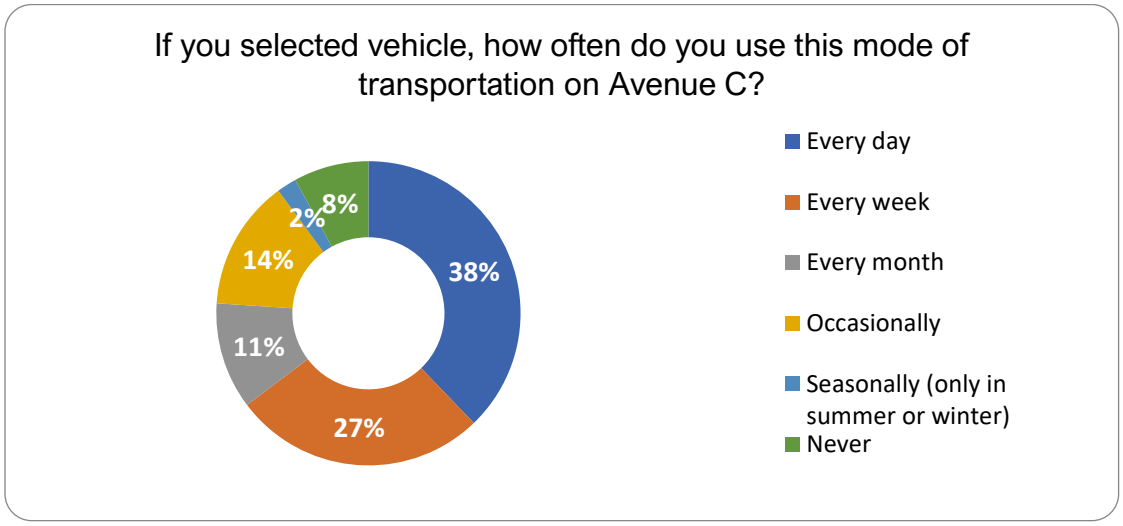


Figure 13 Vehicle Mode Frequency

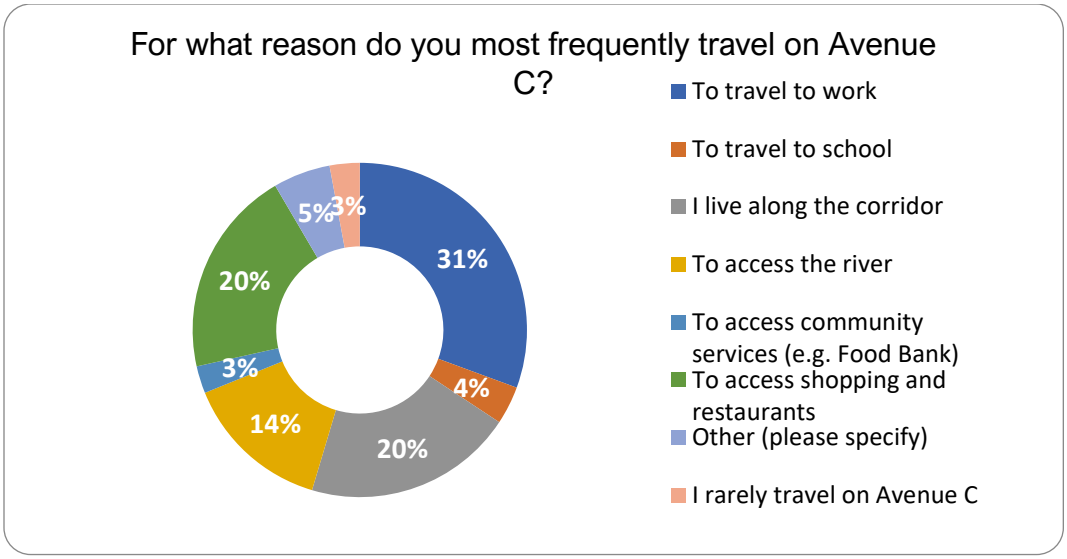


Figure 14 Reason for Travel on Ave C

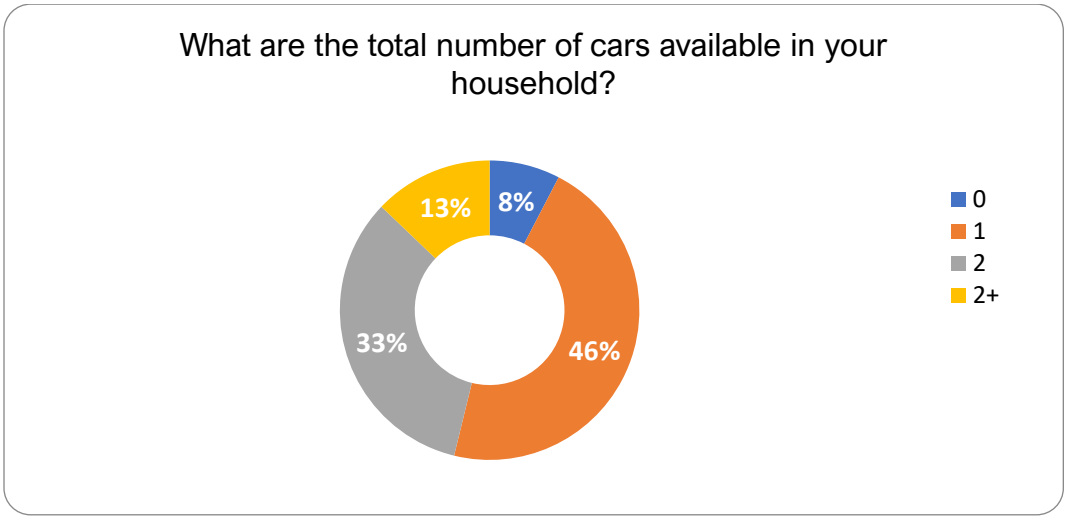


Figure 15 Total Vehicles Per Household

5 Additional Comments

The following themes are high-level, paraphrased results from the feedback received.

- Without creating separated bike lanes, wider sidewalks, treed areas, and connections to places people want to go (like a bike lane down 20th Street), efforts to improve Ave C will fail
- Desire to use active transportation more often but the infrastructure to support it isn't there – feels unsafe for families and commuters wishing to bike more
- Improve bicycle infrastructure and connectivity - require better bike path connectivity, bike parking, and more protected bike lanes to keep commuters safe
- General concerns around the noise, pollution, safety, and traffic along Avenue C – desire to have alternate active transportation routes along quieter, safer, and greener side lanes/routes off Avenue C
- Traffic calming to reduce vehicles speeding on Avenue C is desired

- Concerns around the lack of snow removal on sidewalks hindering walkability
- Improve transit access along Avenue C
- Need active transportation education component to shift car-centric mentality of the community

6 Data Limitations

Due to the changing provincial regulations around Covid-19, the team utilized interactive online platforms to host stakeholder workshops and gather input from the community. All Phase 1 public and stakeholder feedback was gathered in an online environment.

Prior the online Phase 1 Stakeholder Session, an accidental meeting cancellation was sent. While many participants still logged into the meeting, it may have caused confusion and prevented some invited participants from joining the meeting.

7 Next Steps

The feedback received during Phase 1 Engagement will be used to help inform the Connecting Avenue C design options for a walking and cycling facility along Avenue C that will be presented in Phase 2 (Fall 2022). Future engagement activities will include presenting the design options to the public through a community session and survey.

Engagement feedback, along with technical analysis and best practices, will be used to prepare the recommendations for the corridor, which will be presented to City Council in Winter 2023.

APPENDIX

C-1

EXTERNAL STAKEHOLDERS
EDUCATION
Applicable school divisions
City of Saskatoon – University of Saskatchewan Students Connection Committee
Mayfair Library Branch
Saskatoon Public Library
Saskatoon Community Youth Arts Programming (SCYAP)
MOBILITY/RECREATIONAL USERS
Bike Doctor - E-Bike Provider
Biktrix - E-Bike Provider
Bridge City Bicycle Co-Op
Saskatoon Cycles
Walking Saskatoon
Jane's Walk Saskatoon
Bus Riders of Saskatoon
EQUITY/ACCESSIBILITY/ADVOCACY
Canadian National Institute for the Blind (CNIB)
SaskAbilities
Saskatoon Accessibility Advisory Committee
Saskatoon Council on Aging
Saskatoon Food Bank and Learning Centre
Salvation Army
OutSaskatoon
Core Neighbourhood Youth Co-op
PAVED Arts
Crocus Cooperative
COMMUNITY ASSOCIATIONS
Caswell Community Association
Kelsey Woodlawn Community Association
Mayfair Community Association
Riversdale Community Association
BUSINESS/ECONOMIC
Business & Property Owners along Avenue C - key sections of corridor along 20th St, 33rd St, 45th St
Riversdale Business Improvement District (BID)
Downtown BID
33rd Street BID
North Saskatoon Business Association

Saskatoon Chamber of Commerce
Tourism Saskatoon
Farmer's Market Tenants
INDIGNEOUS
Central Urban Métis Federation Inc. (CUMFI)
Metis Nation Saskatchewan
Saskatoon Tribal Council
ENVIRONMENTAL
Eco Friendly Saskatoon
Climate Justice Saskatoon
Saskatchewan Environmental Society
Meewasin Valley Authority
Saskatoon Youth Climate Committee
SOS Trees Coalition
Wild About Saskatoon
TRANSPORTATION/INFRASTRUCTURE
Airport Business Area/North Industrial

INTERNAL STAKEHOLDERS
EDUCATION
City Communications Department
Community Services Department - Communications
Community Services Department - Community Development
Community Services Department - Economic Development
Community Services Department - Indigenous Initiatives
Community Services Department – Parking
Community Services Department – Planning and Development
Fire Department
Parks Department (Urban Forestry)
Roadways Department
Saskatoon Police Service
Saskatoon Transit Services
Transportation Department
Urban Design

APPENDIX

C-2

Saskatoon TRANSPORTATION MASTER PLAN

Connecting Avenue C

Walking and Cycling Improvements

ABOUT THE PROJECT

Saskatoon TRANSPORTATION MASTER PLAN

The City of Saskatoon is committed to improving active transportation options for residents and visitors. In support of the City's active transportation goals, **Avenue C** has been identified as an **All Ages and Abilities (AAA) cycling route** to be designed as a safe and inclusive space for all modes of transportation that **connects the people of Saskatoon to each other and to many destinations in the City**.

Key goals of the study include:

Designing a **safe, comfortable, and accessible active transportation corridor** along Avenue C

Engaging residents throughout plan development to **understand local priorities and concerns**

Creating a plan that will **consider the needs of all users.**

2

PROJECT LOCATION

Saskatoon TRANSPORTATION MASTER PLAN

The project is focused on the design **of All Ages and Abilities (AAA) cycling facilities** and **improvements to walking facilities** on Avenue C from Spadina Cresent to 45th Street in Saskatoon. The Avenue C corridor crosses many different types of land uses including commercial, residential, and industrial.

LEGEND

- Study Corridor
- Future AAA Cycling Network
- Future Multi-Modal Corridor
- Existing Off-Street Pathway
- Existing Neighbourhood Bikeway
- Existing Protected Bikeway
- Schools
- Parks
- Low Traffic Volume (less than 1,500 vehicles per day)
- Medium Traffic Volume (1,500 – 6,500 vehicles per day)
- High Traffic Volume (greater than 6,500 vehicles per day)
- Rail Crossing
- Signalized Intersection
- Low Speed (*<40 km/hr)
- Medium Speed (*between 40 and 55 km/hr)
- High Speed (*greater than 55 km/hr)
- North

* Observed 85th percentile operating speeds. Speed limit is 50 km/h along Avenue C, except between 30th Street and 31st Street where the speed limit reduces to 30 km/hr due to the school zone.

3

PROJECT SCOPE

Saskatoon TRANSPORTATION MASTER PLAN

The project will include:

1. Design of AAA cycling facilities

Possible cycling facilities


Multi-use pathway


Neighbourhood bikeway


Raised cycle track


Protected bicycle lane

2. Identification of improvements to walking facilities

Possible improvements to walking facilities


Connected sidewalks


Accessible intersections


Enhanced pedestrian crossings


Pedestrian safety improvements

4

GENERAL DESIGN CONSIDERATIONS

Saskatoon TRANSPORTATION MASTER PLAN

Several key factors will be considered in the planning and design of AAA walking and cycling facilities along Avenue C, including:

- Network of connections
- Safety and comfort for all users
- Public and stakeholder input
- Equity and accessibility
- Parking, loading and deliveries
- Adjacent land uses
- Transit stops and routes
- Traffic operations
- Right-of-way and road constraints
- Snow clearing and maintenance

5

PARKING

Saskatoon TRANSPORTATION MASTER PLAN

A parking study was conducted to **determine use of available on-street parking.** The parking study was conducted on December 6, 2021 for 12-hours (8:00 a.m. to 8:00 p.m.) between Spadina Crescent and 25th Street, and 4-hours (11:00 a.m. to 1:00 p.m. and 8:00 p.m. to 10:00 p.m.) between 25th Street and 45th Street.

Spadina to 25th Street West

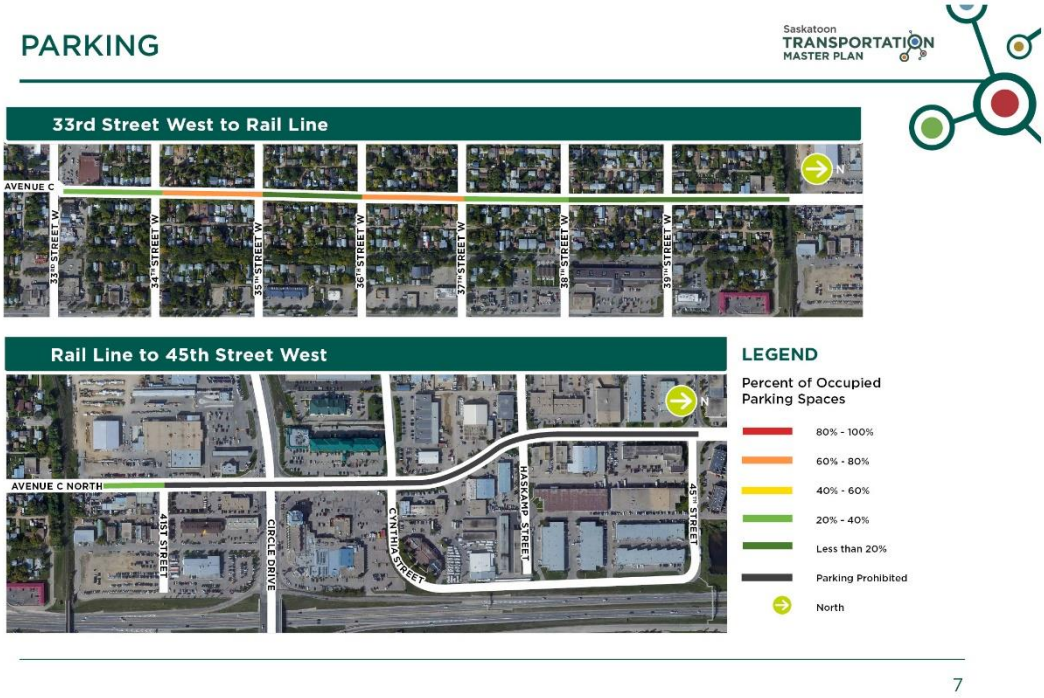
25th Street West to 33rd Street West

LEGEND

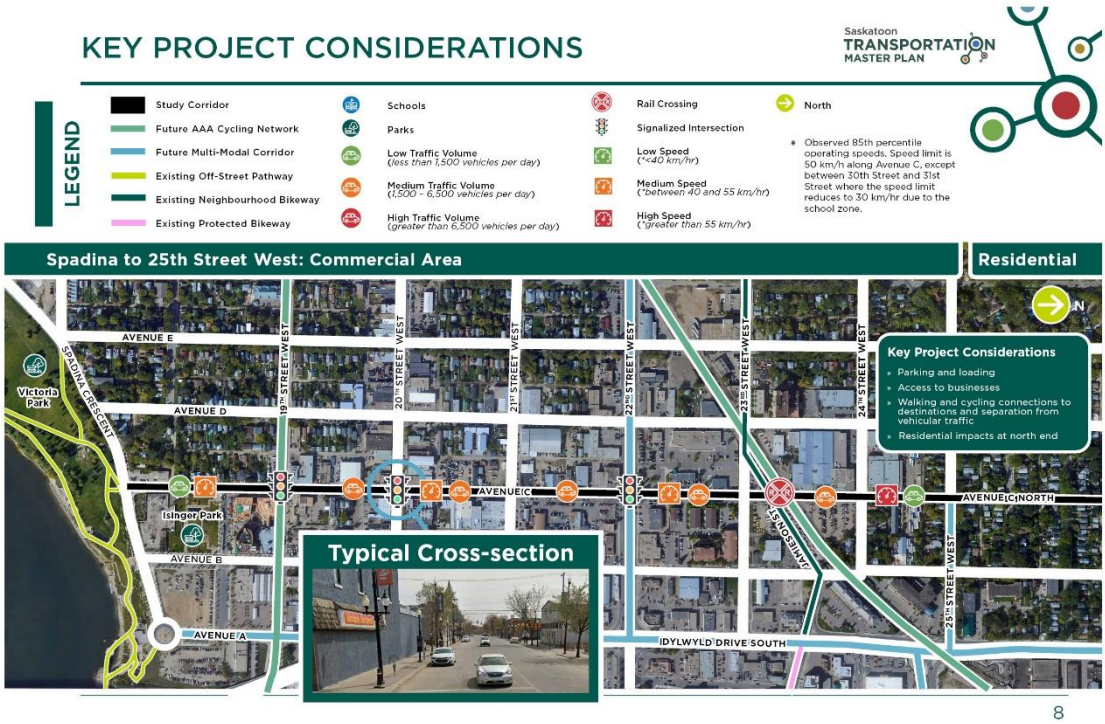
Percent of Occupied Parking Spaces

- 80% - 100%
- 60% - 80%
- 40% - 60%
- 20% - 40%
- Less than 20%
- Parking Prohibited
- North

6


PARKING
Saskatoon TRANSPORTATION MASTER PLAN
33rd Street West to Rail Line
AVENUE C
33RD STREET W
34TH STREET W
35TH STREET W
36TH STREET W
37TH STREET W
38TH STREET W
39TH STREET W
Rail Line to 45th Street West
AVENUE C NORTH
41ST STREET
CIRCLE DRIVE
CYNTHIA STREET
HASKAMP STREET
45TH STREET
LEGEND
Percent of Occupied Parking Spaces
80% - 100%
60% - 80%
40% - 60%
20% - 40%
Less than 20%
Parking Prohibited
North

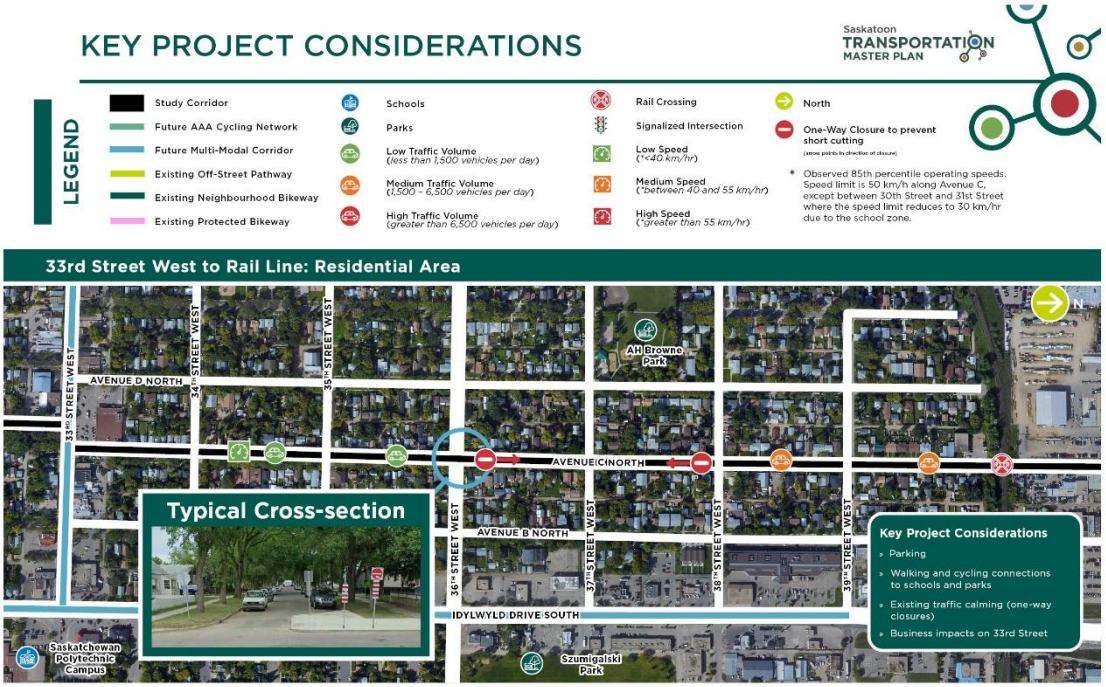
7


KEY PROJECT CONSIDERATIONS
Saskatoon TRANSPORTATION MASTER PLAN
LEGEND
Study Corridor
Future AAA Cycling Network
Future Multi-Modal Corridor
Existing Off-Street Pathway
Existing Neighbourhood Bikeway
Existing Protected Bikeway
Schools
Parks
Low Traffic Volume (less than 1,500 vehicles per day)
Medium Traffic Volume (1,500 - 6,500 vehicles per day)
High Traffic Volume (greater than 6,500 vehicles per day)
Rail Crossing
Signalized Intersection
Low Speed (*<40 km/hr)
Medium Speed (*between 40 and 55 km/hr)
High Speed (*greater than 55 km/hr)
North
* Observed 85th percentile operating speeds. Speed limit is 50 km/h along Avenue C, except between 30th Street and 31st Street where the speed limit reduces to 30 km/hr due to the school zone.
Spadina to 25th Street West: Commercial Area
Residential
AVENUE E
AVENUE D
AVENUE B
AVENUE A
AVENUE C
AVENUE C NORTH
Victoria Park
SPADINA CRESCENT
Isinger Park
19TH STREET WEST
20TH STREET WEST
21ST STREET WEST
22ND STREET WEST
23RD STREET WEST
24TH STREET WEST
25TH STREET WEST
IDYLWYLD DRIVE SOUTH
Typical Cross-section
Key Project Considerations
Parking and loading
Access to businesses
Walking and cycling connections to destinations and separation from vehicular traffic
Residential impacts at north end

8


KEY PROJECT CONSIDERATIONS
Saskatoon TRANSPORTATION MASTER PLAN
LEGEND
Study Corridor
Future AAA Cycling Network
Future Multi-Modal Corridor
Existing Off-Street Pathway
Existing Neighbourhood Bikeway
Existing Protected Bikeway
Schools
Parks
Low Traffic Volume (less than 1,500 vehicles per day)
Medium Traffic Volume (1,500 – 6,500 vehicles per day)
High Traffic Volume (greater than 6,500 vehicles per day)
Rail Crossing
Signalized Intersection
Low Speed (*<40 km/hr)
Medium Speed (*between 40 and 55 km/hr)
High Speed (*greater than 55 km/hr)
North
Off-Set Intersection
* Observed 85th percentile operating speeds. Speed limit is 50 km/h along Avenue C, except between 30th Street and 31st Street where the speed limit reduces to 30 km/hr due to the school zone.
25th Street West to 33rd Street West: Residential Area
Ashworth Holmes Park
AVENUE D NORTH
AVENUE C NORTH
AVENUE B NORTH
Caswell Community School
IDYLWYLD DRIVE SOUTH
25TH STREET WEST
26TH STREET WEST
27TH STREET WEST
28TH STREET WEST
29TH STREET WEST
31ST STREET WEST
32ND STREET WEST
33RD STREET WEST
Typical Cross-section
Key Project Considerations
» Parking and loading
» Walking and cycling connections to schools, parks and businesses
» Traffic calming opportunities

9


KEY PROJECT CONSIDERATIONS
Saskatoon TRANSPORTATION MASTER PLAN
LEGEND
Study Corridor
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Existing Off-Street Pathway
Existing Neighbourhood Bikeway
Existing Protected Bikeway
Schools
Parks
Low Traffic Volume (less than 1,500 vehicles per day)
Medium Traffic Volume (1,500 – 6,500 vehicles per day)
High Traffic Volume (greater than 6,500 vehicles per day)
Rail Crossing
Signalized Intersection
Low Speed (*<40 km/hr)
Medium Speed (*between 40 and 55 km/hr)
High Speed (*greater than 55 km/hr)
North
One-Way Closure to prevent short cutting
* Observed 85th percentile operating speeds. Speed limit is 50 km/h along Avenue C, except between 30th Street and 31st Street where the speed limit reduces to 30 km/hr due to the school zone.
33rd Street West to Rail Line: Residential Area
AH Browne Park
AVENUE D NORTH
AVENUE C NORTH
AVENUE B NORTH
IDYLWYLD DRIVE SOUTH
Saskatchewan Polytechnic Campus
Szumigalski Park
33RD STREET WEST
34TH STREET WEST
35TH STREET WEST
36TH STREET WEST
37TH STREET WEST
38TH STREET WEST
39TH STREET WEST
Typical Cross-section
Key Project Considerations
» Parking
» Walking and cycling connections to schools and parks
» Existing traffic calming (one-way closures)
» Business impacts on 33rd Street

10

KEY PROJECT CONSIDERATIONS

Saskatoon TRANSPORTATION MASTER PLAN

LEGEND

- Study Corridor
- Future AAA Cycling Network
- Future Multi-Modal Corridor
- Existing Off-Street Pathway
- Existing Neighbourhood Bikeway
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- Schools
- Parks
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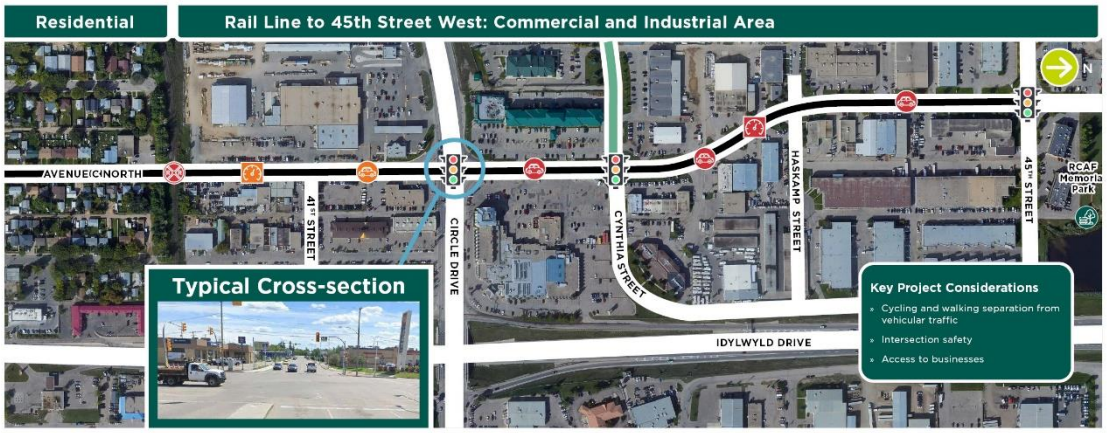

11

PROJECT TIMELINE & PUBLIC ENGAGEMENT

Saskatoon TRANSPORTATION MASTER PLAN

The project began in Winter 2022 and is set to be completed in Winter 2023 when a final report detailing findings and recommendations will be presented to Council.

Public and stakeholder engagement will be conducted at key points throughout the project, including:

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GIVE FEEDBACK

Saskatoon TRANSPORTATION MASTER PLAN

Your input will help create a plan for Avenue C that supports the needs of all users. We look forward to hearing from you!

SCAN ME

Complete the project survey to **share your initial thoughts** by June 13, 2022:
https://live.metroquestsurvey.com/g8j6

Sign up to **receive updates about the project** by visiting the City of Saskatoon's Engage Page at:
https://www.saskatoon.ca/engage

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APPENDIX

D CYCLING FACILITY SELECTION MATRIX

Avenue C Segment Limits	Segment Characteristics									Facility Type Options Evaluation				Recommended Facility Options	
	West Side Peak Parking Use	East Side Peak Parking Use	Adjacent Land Use	Speed Limit	ADT	Roadway Width (approximate)	Boulevard Space Available?	Possible cycling route function	Intersection / Driveway Frequency	Unidirectional Protected Bike Lanes	Bidirectional Protected Bike Lanes	Multi-Use Pathways	Neighbourhood Bikeways	Re-Evaluated Road Segment Limits	Facility Options
Spadina Crescent to 19th Street	70%	20%	Commercial / Residential	50 (with 30 km/h playground zone planned near Isinger Park as of Sept 1, 2022)	1150	11m	No	connecting to Meewasin trail and Isinger Park, commuting, accessing businesses	moderate (2 on east side, 3 on west side)	Enhanced level of separation, however would require removal of both parking lanes. Parking utilization is high on the west side in this section (paid parking on the east side).	Enhanced level of separation, however would require removal of at least one parking lane and all lane widths would be sub-standard so not recommended. Safety for contraflow cyclists could be an issue.	Minimal boulevard space available so not recommended.	Suitable level of separation, as traffic volumes are below 1500 vehicles per day, however, additional traffic calming measures may be desired.	Spadina Crescent to 19th Street	A. Neighbourhood Bikeway - A neighbourhood bikeway could be an appropriate treatment based on the traffic volumes. There is a 30 km/h speed limit playground zone in a portion of this section; the requirement for additional traffic calming measures would be determined at the next phase of design. B. Unidirectional Protected Bike Lanes - Given that a unidirectional bike lane is required north of 19th Street, it may be beneficial to continue the bike lane for facility consistency. A bike lane would provide an enhanced level of separation; however, parking would need to be removed. The bike lane is 1.8 m wide and could be at street-level with a raised barrier (as shown) or raised. The bike lane height would be determined at the next phase of the design and would be dependant on several factors (cost, drainage, accessibility, comfort, conflicts, etc.)
19th Street to 21st Street	67% (19 and 20) and 72% (20 and 21)	24% (19 and 20) and 47% (20 and 21)	Commercial	50	1830-2030	14m	No	accessing businesses and commuting	high (9 on east side, 10 on west side)	Suitable level of separation. One lane of parking would need to be removed to maintain standard lane widths.	Suitable level of separation. Safety for contraflow cyclists could be an issue especially with number of access points / driveways. As a result this option is not recommended.	Minimal boulevard space available so not recommended.	Not recommended as traffic volumes are greater than 1,500 vehicles per day and the amount of on-street activity (higher parking turnover, turning in/out of driveways, pedestrian activity, etc.). Higher degree of separation for cyclists is desired for this section.	19th Street to 25th Street	A. Unidirectional Protected Bike Lanes with Parking on East Side - A unidirectional bike lane provides a suitable level of separation given the traffic volumes and roadway function. One lane of parking would need to be removed in order to implement protected bike lanes. This option retains parking on the east side of Avenue C only. The bike lane is 1.8 m wide and could be at street-level with a raised barrier (as shown) or raised. The bike lane height would be determined at the next phase of the design and would be dependant on several factors (cost, drainage, accessibility, comfort, conflicts, etc.) B. Unidirectional Protected Bike Lanes with Parking Parking on West Side - Option B is similar to Option A; however, parking is located on the west side of Avenue C only.
21st Street to 22nd Street	38%	7%	Commercial	50	2740	13m	No	accessing businesses and commuting	high (5 on east side, 5 on west side)						
22nd Street to 23rd Street	83%	54%	Commercial	50	1860	13.6m	No	accessing businesses and commuting	high (7 on east side, 3 on west side)						
23rd Street to 24th Street	69%	N/A	Commercial	50	1360	13.9m	No	accessing businesses and commuting	high (7 on east side, 5 on west side)	Enhanced level of separation. One lane of parking would need to be removed to maintain standard lane widths.	Enhanced level of separation. Safety for contraflow cyclists could be an issue especially with number of access points / driveways. As a result this option is not recommended.		Suitable level of separation, as traffic volumes are below 1500 vehicles per day, however, additional traffic calming measures may be desired.		
24th Street to 25th Street	38%	50%	Residential / Commercial	50	860	12.5-15m	No	accessing businesses and commuting	high (5 on east side, 6 on west side)						
25th Street to 33rd Street	25% (25-27), 10% (27-29), 42% (29-30), 58% (30-31), 32% (31-32), 16% (32-33)	38% (25-26), 25% (26-27), 0% (27-28), 20% (28-29), 37% (29-30), 33% (30-31), 38% (31-32), 43% (32-33)	Residential	50 (with 30 km/h school zone between 30th and 31st)	490-880	9m	Minimal (trees in boulevard)	commuting, recreation, school travel	low (primarily at back lanes and intersections)	Enhanced level of separation. Raised bike lanes (or cycle tracks) could be implemented by utilizing some of the boulevard space (assumed 0.5m of boulevard space on either side) and removing one lane of parking (or two lanes where there is no boulevard on one side of the street). Would likely have drainage implications.	Enhanced level of separation, however would require removal of all parking therefore not recommended.	Minimal boulevard space available so not recommended.	Suitable level of separation, as traffic volumes are well below 1500 vehicles per day, however, additional traffic calming measures may be desired.	25th Street to 38th Street	Proposed - Neighbourhood Bikeway - A neighbourhood bikeway is an appropriate treatment based on the traffic volumes; therefore, is the only option proposed for this section. There is a 30 km/h speed limit school zone in a portion of this section; the requirement for additional traffic calming measures would be determined at the next phase of design.
33rd Street to 36th Street	25% (33-34), 43% (34-35), 29% (35-36)	33% (33-34), 32% (34-35), 9% (35-36)	Residential	50	1320	9m	Minimal (trees in boulevard)	commuting, recreation, school travel	moderate (several residents have driveways)	Suitable level of separation. Raised bike lanes (or cycle tracks) could be implemented by utilizing some of the boulevard space (assumed 0.5m on either side) and removing a lane of parking. Would likely have drainage implications.	Suitable level of separation, however would require removal of all parking therefore not recommended.		Suitable based on adjacent land uses, and already has traffic diverters at 36th and 38th to reduce volumes.		
36th Street to 38th Street	43% (36-37), 27% (37-38)	45% (36-37), 32% (37-38)	Residential	50	Less than 1320	9m	Minimal (trees in boulevard)	commuting, recreation, school travel	moderate (several residents have driveways)						

Avenue C Segment Limits	Segment Characteristics									Facility Type Options Evaluation				Recommended Facility Options	
	West Side Peak Parking Use	East Side Peak Parking Use	Adjacent Land Use	Speed Limit	ADT	Roadway Width (approximate)	Boulevard Space Available?	Possible cycling route function	Intersection / Driveway Frequency	Unidirectional Protected Bike Lanes	Bidirectional Protected Bike Lanes	Multi-Use Pathways	Neighbourhood Bikeways	Re-Evaluated Road Segment Limits	Facility Options
38th Street to 39th Street	14%	9%	Residential / Commercial	50	2630	11m	No	commuting, recreation, school travel	high (most residents have driveways)	Suitable level of separation, however would require removal of both parking lanes. Parking utilization is lower in this section.	Suitable level of separation, however would require removal of both parking lanes. Parking utilization is lower in this section. Safety for contraflow cyclists could be an issue.	Suitable level of separation. A multi-use could replace the sidewalk on one side allowing for one lane of parking to be maintained.	Not recommended as traffic volumes are greater than 1,500 vehicles per day and traffic calming measures (speed humps, roadway narrowing. etc.) would likely not reduce volumes enough to make it suitable for a Neighbourhood Bikeway. Traffic diversion would impact transit which currently operates on this section.	38th Street to 39th Street	A. Multi-Use Path on East Side and Sidewalk on West Side - A multi-use path provides a suitable level of separation from vehicles. Parking is removed on the east side adjacent to the multi-use path in order to provide sufficient lane widths (3.3 m) to accommodate transit buses. The multi-use path is 3.0 m wide and raised (as shown). The path replaces the existing sidewalk since it is shared by both pedestrians and cyclists. It is proposed that the multi-use path be located on the east side to be consistent with the proposed multi-use path north of 39th Street. B. Unidirectional Protected Bike Lane - A unidirectional bike lane provides a suitable level of separation given the traffic volumes which increase north of 38th Street. The bike lane is 1.7 m wide and could be at street-level with a raised barrier (as shown) or raised. Parking would need to be removed on both sides in order to have sufficient lane widths (3.3 m minimum) to accommodate transit buses, and the width of the bike lane would be substandard. In addition, a multi-use path is the only option north of 41st Street so having a different bike facility for three blocks (38th to 41st) is not optimal.
39th to 41st Street	10% (39-40), 33% 40-41)	0% (39-40), 25% 40-41)	Commercial / Industrial	50	5660	13.4m	No	commuting, accessing businesses	high (most residents and businesses on east side have driveways)	Suitable level of separation, however would require removal of both parking lanes. Parking utilization is lower in this section.	Suitable level of separation. Parking lanes could be maintained, however, lane widths would need to be sub-standard. Safety for contraflow cyclists could be an issue particularly if lane is on east side.	Suitable level of separation. A multi-use could replace the sidewalk on one side allowing for one lane of parking to be maintained.	Not recommended as traffic volumes are greater than 1,500 vehicles per day and traffic calming measures (speed humps, roadway narrowing. etc.) would likely not reduce volumes enough to make it suitable for a Neighbourhood Bikeway. Traffic diversion would impact transit which currently operates on this section.	39th Street to 41st Street	A. Multi-Use Path on East Side and Sidewalk on West Side - A multi-use path on the east side provides a suitable level of separation from vehicles. Parking could be maintained on both sides of the street while maintaining sufficient lane widths (3.3 m minimum) for transit buses. The multi-use path is 3.0 m and raised (as shown). The path replaces the existing sidewalk since it is shared by both pedestrians and cyclists. It is proposed that the multi-use path be located on the east side due to the presence of light standards adjacent to the curb on the west side north of the rail line. B. Unidirectional Protected Bike Lane - A unidirectional bike lane provides a suitable level of separation given the traffic volumes and roadway function. The bike lane is 2.0 m wide and could be at street-level with a raised barrier (as shown) or raised. Parking would need to be removed on both sides in order to have sufficient lane widths (3.3 m minimum) to accommodate transit buses. In addition, a multi-use path is the only option north of 41st Street so having a different bike facility for three blocks (38th to 41st) is not optimal.
41st Street to Circle Drive	0%	N/A	Commercial / Industrial	50	6300	13.4m	Minimal	commuting, accessing businesses	high (most businesses on east side have driveways)	Suitable level of separation, however, travel lanes would need to be sub-standard, therefore this option is not recommended.	Suitable level of separation, however, difficult to implement with right-of-way constraints near Circle Drive. Safety for contraflow cyclists could be an issue and would have more significant impacts on traffic operations at Circle Drive , therefore, not recommended.	Enhanced level of separation. A multi-use could replace the sidewalk on one side allowing for all travel lanes to be maintained with minimal impacts to lane widths.	Not recommended as traffic volumes are greater than 1,500 vehicles per day and traffic calming measures (speed humps, roadway narrowing. etc.) would likely not reduce volumes enough to make it suitable for a Neighbourhood Bikeway. Traffic diversion would impact transit which currently operates on this section.	41st Street to Circle Drive	Multi-Use Path on East Side and Sidewalk on West Side - A multi-use path provides a suitable level of separation from vehicles. Four travel lanes are maintained; however, the northbound lanes would need to be slightly narrowed. The multi-use path is 3.0 m and raised (as shown). The path replaces the existing sidewalk on the east side since it is shared by both pedestrians and cyclists. It is proposed that the multi-use path be located on the east side due to the presence of light standards adjacent to the curb on the west side.
Circle Drive to Cynthia Street	N/A	N/A	Commercial / Industrial	50	17400	18.5m with 1.5m median	Minimal	commuting, accessing businesses	moderate (two accesses on either side)	Suitable level of separation. Changes to travel lanes are not recommended based on roadway classification and function, therefore, to implement bike lanes and sidewalks an easement or acquisition of property would likely be required. This option was not recommended since an alternative option (multi-use path) would have less property impacts and provide greater separation from traffic.	Suitable level of separation. Changes to travel lanes are not recommended based on roadway classification and function, therefore, to implement bike lanes and sidewalks an easement or acquisition of property would be required. Safety for contraflow cyclists could be an issue. Would have more significant impacts on traffic operations at major intersections, therefore, not recommended.	Enhanced level of separation. Would accommodate both pedestrians and cyclists. Property easement/acquisition would likely be required due to narrow ROW	Not recommended based on high traffic volumes.	Circle Drive to Cynthia Street	Proposed - Multi-Use Path on East Side and Sidewalk on West Side - A multi-use path provides a suitable level of separation given the high traffic volumes on this portion of Avenue C. The multi-use path would be 3.0 m wide and accommodate both pedestrians and cyclists. It is proposed that the multi-use path be located on the east side to be consistent with the proposed multi-use path south of Circle Drive. The path would also be located behind the existing streetlights (which are located 1.0-1.5 m from the road edge) to provide additional separation from traffic which will enhance the pedestrian and cyclist experience, as well as mitigate streetlight relocations. Since the existing boulevard is only 2.5 m wide, approximately 2.3 m of additional property (from the property line) would be required between Circle Drive and Cynthia to construct the multi-use path. A new 2.5 m wide sidewalk is also proposed on the west side of Avenue C within the existing boulevard space and would be exclusive to pedestrians. It is proposed that the sidewalk be located behind the existing streetlights (which are located 1.0-1.5 m from the road edge) to provide additional separation from traffic which will enhance the pedestrian experience, as well as mitigate streetlight relocations. Since the existing boulevard is only 3.0 m wide, approximately 1.3 m of additional property (from property line) would be required between Circle Drive and Cynthia to construct the sidewalk.

Avenue C Segment Limits	Segment Characteristics									Facility Type Options Evaluation				Recommended Facility Options	
	West Side Peak Parking Use	East Side Peak Parking Use	Adjacent Land Use	Speed Limit	ADT	Roadway Width (approximate)	Boulevard Space Available?	Possible cycling route function	Intersection / Driveway Frequency	Unidirectional Protected Bike Lanes	Bidirectional Protected Bike Lanes	Multi-Use Pathways	Neighbourhood Bikeways	Re-Evaluated Road Segment Limits	Facility Options
Cynthia Street to 45th Street	N/A	N/A	Commercial / Industrial	50	14625	13.7m	Moderate	commuting, accessing businesses	high (11 on east side, 12 on west side)	Suitable level of separation. Changes to travel lanes are not recommended based on roadway classification and function, therefore, to implement bike lanes and sidewalks an easement or acquisition of property would likely be required. This option was not recommended since an alternative option (multi-use path) would have less property impacts and provide greater separation from traffic.	Suitable level of separation. Changes to travel lanes are not recommended based on roadway classification and function, therefore, to implement bike lanes and sidewalks an easement or acquisition of property would be required. Safety for contraflow cyclists could be an issue. Would have more significant impacts on traffic operations at major intersections, therefore, not recommended.	Enhanced level of separation. Would accommodate both pedestrians and cyclists. Property easement/acquisition would likely be required due to narrow ROW	Not recommended based on high traffic volumes.	Cynthia Street to 45th Street	Proposed - Multi-Use Path on East Side and Sidewalk on West Side - A multi-use path provides a suitable level of separation given the high traffic volumes on this portion of Avenue C. The multi-use path would be 3.0 m wide and accommodate both pedestrians and cyclists. It is proposed that the multi-use path be located on the east side to be consistent with the proposed multi-use path south of Cynthia Street. It is recommended that a 0.7 m splash strip be provided to provide additional separation from traffic which will enhance the pedestrian and cyclist experience. Since the existing boulevard is only 2.4 m wide, approximately 1.6 m of additional property (from the property line) would be required between Cynthia Street and 45th Street to construct the multi-use path. A new 2.5 m wide sidewalk is also proposed on the west side of Avenue C within the existing boulevard space and would be exclusive to pedestrians. The proximity of the streetlights from the road edge varies in this section, however, there appears to be sufficient width to provide the sidewalk within the existing right-of-way. Property may be required in localized areas (at pinch points) and would be confirmed in the next design phase.

APPENDIX

E PHASE 2 PUBLIC ENGAGEMENT

Connecting Avenue C Walking & Cycling Improvement Project

Phase 2 Public Engagement: What We Heard Report

December 2022

Executive Summary

The City of Saskatoon is committed to promoting active transportation and providing transportation choices that are safe and comfortable for people of all ages and abilities all year round.

Saskatoon's Active Transportation Plan (2016) identified Avenue C as a future All Ages and Abilities (AAA) cycling and walking route to help address community and infrastructure needs for cycling, walking, and other modes of active transportation in Saskatoon.

Three phases of engagement will be conducted as part of the evaluation and design process for cycling facilities on Avenue C from Spadina Crescent to 45th Street. Phase 1 Engagement was complete as of June 2022, Phase 2 Engagement was complete as of December 2022, and Phase 3 Engagement is slated to begin in Winter 2023.

A full breakdown of the first phase of engagement and the themes that emerged can be found in the Phase 1 What We Heard Report, September 2022.

Phase 2

The objectives of the second phase of engagement, conducted November-December 2022, were to:

- Provide information on existing conditions, pertinent background information, and the types of facilities proposed for Avenue C, and
- Gather feedback from stakeholders and the community on preferred facility options for each segment of the Avenue C corridor.

A stakeholder session was held on November 16, 2022 and had 7 attendees. A public engagement session was held on November 17, 2022 and had 20 attendees. An online public survey was open for responses from November 2 – November 30, 2022 and received 346 responses. Paper surveys were available at Mayfair Library and received 3 responses. A total of five emails were received from the public.

Common themes from the stakeholder session included:

- Maintaining, protecting, and adding trees and landscaping wherever possible.
- Sidewalk widths should be widened to enhance comfort and safety for all users.
- The number of pedestrian and cyclist crossovers that occur in some sections, especially school zones, is a concern.
- Concern regarding potential conflicts between pedestrian and cyclists on shared, multi-use paths.

Concern for cyclist safety on shared roadways.

Common themes from the public engagement session included:

- A general desire to prioritize pedestrians and cyclists over vehicular traffic.
- A desire to retain existing green space and trees, as well as a desire to increase the landscaping along the corridor, especially in the industrial area where there is less/non-existent green space.

Common themes from the survey responses included:

- Overall concerns for cyclist safety and concerns regarding sharing the road with vehicle traffic.
- Concerns around the removal of parking on certain segments of Avenue C.
- Desire to become less car-centric and to support active transportation.

1. Contents

2. Figures

3. Appendices

1. Background

This document outlines feedback received from 2022 public engagement events in support of the City of Saskatoon's Connecting Avenue C Walking & Cycling Improvement Project (the "Project"). The Project focuses on the design of All Ages and Abilities (AAA) cycling facilities and improvements to walking facilities on Avenue C from Spadina Crescent to 45th Street in Saskatoon to enhance connectivity, safety, and accessibility.

The route will be designed as a safe and inclusive space for all modes of transportation that connects the people of Saskatoon to each other and to many destinations in the City.

Several key factors will be considered in the planning and design of AAA walking and cycling facilities along Avenue C, including:

2. Stakeholder Groups

A comprehensive list of stakeholders identified as having the potential to be impacted by or interested in the construction of active transportation facilities along Avenue C was developed, including:

Local Residents/ Homeowners

Those who live or own property on or near Avenue C between Spadina Crescent and 45th Street.

Business Owners & Community Service Organizations

Those who own or operate businesses and/or community service organizations on or near Avenue C between Spadina Crescent and 45th Street.

Cyclists, Pedestrians, Drivers and Mobility Device Users

Those who walk, cycle, drive or use mobility devices to travel along Avenue C between Spadina Crescent and 45th Street.

The stakeholder list will be a living resource to be developed and continuously refined to include people who are either directly or indirectly impacted by the project. Concerted efforts were made to identify any vulnerable and marginalized segments of the community, or community organizations who service vulnerable or marginalized segments of the community, to ensure they are invited to share their perspectives. The stakeholder list can be found in **Appendix E-1.**

3. Engagement Activities

Phase 2 Engagement included a virtual targeted stakeholder session and a virtual public engagement session to collect feedback that will inform the final design option selections for All Ages and Abilities (AAA) cycling facilities and improvements to walking facilities on Avenue C.

Both the stakeholder and public sessions ran in conjunction with an online and paper public survey.

Participants	Level of Influence	Objective	Engagement Goal	Engagement activity
Stakeholders	Consult	Share information and obtain feedback and ideas	Phase 2: Receive input on the various active transportation options proposed for Avenue C and address questions and concerns.	Stakeholder session Public survey – online format Engage Page Sent email updates to the stakeholder group / subscribers list
Community/Residents	Consult	Share information and obtain feedback and ideas	Phase 2: Receive input on the various active transportation options proposed for Avenue C and address questions and concerns.	Public session Public survey – online and paper format Engage Page Correspondence with project team via email and phone

4. What We Heard

4.1 Phase 2 Stakeholder Session

4.1.1 Purpose

The purpose of the Phase 2 stakeholder engagement session was to present the options that were developed using the input gathered in the first phase of engagement and to collect feedback, comments, suggestions, answer questions and address concerns related to the proposed options. The stakeholder session was held on November 16, 2022.

4.1.2 Marketing Techniques

Key community groups and partners were directly invited to participate in this session.

4.1.3 Input Received

A total of 7 attendees participated in the virtual stakeholder session. Participants were encouraged to provide their feedback and ask questions/state concerns on the various options proposed for Avenue C. The presentation slide deck for the online stakeholder and public engagement sessions can be found in Appendix E-2.

A series of possible walking and cycling facilities were presented for each segment of Avenue C from Spadina Crescent to 45th Street, and attendees were asked to share their perspectives, thoughts, and concerns on each of the sections noted below:

1. Spadina Crescent to 19th Street
2. 19th Street to 25th Street
3. 25th Street to 38th Street
4. 38th Street to 41st Street
5. 41st Street to Circle Drive
6. Circle Drive to 45th Street

Feedback from session participants is broken down by road segment and theme, as outlined below.

Road Segment: Spadina Crescent to 19th Street – Commercial Area

Safety

- Crossover between pedestrian and cyclist paths – concern that if the bike lane is at sidewalk level without putting in a barrier/distinguishing between the sidewalk and the bicycle lane it will create conflicts.
- Traffic Volume - the volume of traffic and reduced sight lines are a concern during public events, particularly for children residing in this area, because traffic volumes are higher during special events, such as the Victoria Park Jazz Festival, and this is a busier section.

Accessibility

- Sidewalks are too narrow and due to this some areas are not pedestrian friendly.

Road Segment: 19th Street to 25th Street – Commercial/Residential Area

Accessibility

- Traffic volumes should be kept low on Spadina as it is a desirable pedestrian walking area so parking should be retained on the west side of Avenue C to prevent vehicles from parking on Spadina.
- There is a seasonal shortage of accessible parking and on-street parking between 19th Street and 21st Street.
- Snow clearing may be difficult in a narrow unidirectional bike lane with barriers

Safety

- Driveways and intersections pose a potential for conflict between users of the bike facility and vehicular traffic.

Green Space & Tree Preservation

- Desire landscaping improvements in this section and for trees to be protected and added in sections with no trees/vegetation.

Road Segment: 25th Street to 38th Street– Residential Area

Safety

- Concern around the amount of cyclist cross over that will occur in this section due to the location of schools and parks in the area and the various forms of transport used (i.e., scooters, skateboards, bikes, etc.).
- A portion of this roadway goes uphill after the railway crossing and may pose conflict between cyclists and vehicles in a shared bikeway because cyclists need to take more space on the road to retain balance.
- Suggest that speed bumps are added for traffic calming through the school area and at junctions close to the school, especially at 33rd Street.
- The junction of Avenue C north and 33rd Street west has a lot of turns and will therefore be a point of conflict for cyclists. Consider erecting a dedicated bike signal on one side of the street where cyclists can cross.

Green Space & Tree Preservation

- The boulevard trees in this section require maintenance, some of the roots are coming to the surface and removing them will be expensive.

Road Segment: 38th Street to 41st Street – Residential and Commercia/Industrial Area

Accessibility

- Suggest widening the multi-use path at bus stop areas so that there is enough space for people to stand and wait for the bus, because that has been an issue on a lot of multi-use pathways with people blocking the walkway while waiting for the bus.

Safety

- This section has a lot of heavy freight traffic coming through and there is concern that unidirectional bike lanes would be very dangerous for cyclists.
- Some concern that a multi-use pathway would create conflicts between speeding cyclists and pedestrians.
- This section is a high traffic area which makes it a higher safety risk for the more vulnerable. Suggest addressing ease for those vulnerable/poverty populations on this street.
- Rail crossing is a potential conflict point.

Road Segment: 41st Street to Circle Drive – Commercia/Industrial Area

Safety

- High traffic volumes and potential conflicts at the intersections, especially during rush hour, is a concern.
- Concern regarding safe access to the airport for cyclists. Need a safe intersection for cyclists commuting to the airport. Make sure this is appropriately supported.

Road Segment: Circle Drive to 45th Street – Commercia/Industrial Area

Accessibility

- Connect existing pathways to the airport – desire for a multi-use path or a sidewalk that connects these points together or better connectivity for pedestrians, especially the ones close to the airport, because there is a trail going from 45th Street to the back door at the airport that also connects to hotels nearby.
- Desire to see pedestrian and cycling facilities expanded in the future.

Green Space & Tree Preservation

- Enhancing green space and addressing climate change. There is an urgent need for significant enhancements for safer pedestrian access to green space because of climate change. Ensuring and enhancing sidewalk and intersection accessibility and protections on both sides of the street and providing green space access is very critical. The air quality in this area is very poor. Adding concrete sidewalks on both sides will exacerbate the heat for pedestrians/cyclists in the summer. Need landscaping and trees in this area to mitigate climate change, heat, and pollution in this area.

- Critical need for workers to be able to walk safely and access green space with appropriate care from the city. Looking for more care in this area for the pedestrians in such a dangerous environment.

- This is a high traffic industrial zone with no buffering between pedestrians on the sidewalk and the road traffic.

General Comments

- Consider using materials other than concrete for pedestrian paths.
- Concern was expressed about the possible number of transitions that may be implemented on the corridor, depending on the final chosen options, and how this might affect traffic flow.

4.2 Phase 2 Public Engagement Session

4.2.1 Purpose

The purpose of the Phase 2 public engagement session was to present the options that were developed using the input gathered in the first phase of engagement and to collect feedback, comments, suggestions, answer questions and address concerns related to the proposed options. The public engagement session was held on November 17, 2022.

4.2.2 Marketing Techniques

Phase 2 engagement was advertised on the City's Engage page, through Saskatoon's social media feeds, and by direct email to stakeholder groups. Flyers with information about the engagement were delivered to the residents along Avenue C. Four mini billboards were placed along Avenue C to promote the survey at the following locations:

- Cynthia Street & Robin Crescent
- 30th Street West & Avenue D North
- 392 22nd Street
- Avenue C North & Circle Drive

Letters were delivered to businesses near Avenue C in the Riversdale Business Improvement District (BID), 33rd Street BID, and business along Avenue C between Circle Drive and 45th Street. Paper copies of the survey were available at the Mayfair Branch Library. The stakeholder group was encouraged to share the survey with their networks.

4.2.3 Input Received

A total of 20 attendees participated in the virtual public engagement session. Similar to the stakeholder session, participants were encouraged to provide their feedback and ask questions/state concerns via the Q&A function in Zoom on the various options proposed for Avenue C. The presentation slide deck for the online stakeholder and public engagement sessions can be found in Appendix E-2.

A series of possible walking and cycling facilities were presented for each segment of Avenue C from Spadina Crescent to 45th Street, and attendees were asked to share their perspectives, thoughts, concerns and given the opportunity to ask questions on each of the sections below:

1. Spadina Crescent to 19th Street
2. 19th Street to 25th Street
3. 25th Street to 38th Street
4. 38th Street to 41st Street
5. 41st Street to Circle Drive
6. Circle Drive to 45th Street

Feedback from session participants is broken down by road segment and themes, as outlined below:

Road Segment: Spadina Crescent to 19th Street – Commercial Area

Safety

- Option A which proposes a neighbourhood bikeway is similar to what currently exists and is perceived as an unsafe option for cyclists.
- Separated cycling lanes are excellent in between intersections but are more dangerous in the intersection as drivers do not look in these lanes, especially when turning. On street cycling keeps you safer in intersections as drivers can see you. Concern in regard to keeping cyclists safe in the intersections where they are most vulnerable.
- Some support for the idea of 19th Street to Spadina being one way to allow some parking spaces to remain, which is important for parking in front of residential property.

Road Segment: 19th Street to 25th Street – Commercial Area and Residential Area

Accessibility

- Regarding the junction of Avenue C and 23rd Street/Jamieson, consider expanding the existing protected bike lanes on 23rd Street so that it connects with this corridor.

Road Segment: 25th Street to 38th Street – Residential Area

Safety

- Biking or walking 25th Street to 38th Street is incredibly dangerous due to reduced visibility from parking, high speeds of cars, narrow sidewalks and "shared" road space.

- Some portions of Avenue C are one-way only. 36th Street to 37th Street is southbound only, and 37th Street to 38th Street is northbound only. Consider that a neighbourhood bikeway would have to allow cyclists to travel in both directions.

Road Segment: 38th Street to 41st Street – Residential Area and Commercial/Industrial Area

Safety

- Developing cycling facilities north of 38th Street is the most important out of all the options.

Road Segment: 41st Street to Circle Drive - Commercial/Industrial Area

Accessibility

- Concern that parking for businesses will be negatively affected/lost from 41st Street to 45th Street

Road Segment: Circle Drive to 45th Street – Commercial/Industrial Area

Safety

- This area has much higher vehicle speeds and poses more of a safety issue. With this area being industrial it could be less necessary for this this type of connectivity in this corridor.

Accessibility

- Concern regarding connectivity - cycle lanes that do not connect to anything are cycle lanes that do not get used. There should be somewhere for pedestrians and cyclists to go at the 45th Street terminus of the corridor especially since there is a trail from 45th to the Airport and a pedestrian bridge at the end of 45th connecting to Northgate Drive that is pretty useless.
- Consider extending the cycling/walking facilities slightly past 45th Street so that the proposed multi-use path connects to RCAF Memorial Park. People who work at the industrial businesses may want to bike to work.
- Concern that private off-street parking for businesses, as well as parking for customers will be negatively affected/lost
- Cyclists use this route regularly.
- Consider putting a multi-use path on both sides of the corridor so that both cyclists and pedestrians have access to the improved infrastructure and access to businesses on both sides of the street.

Green Space & Tree Preservation

- A sidewalk is needed, but keep in mind that the truck traffic volume here is really high, thus the urban heat island effect, air pollution and impacts of flood will be catastrophic as more concrete is poured. The sidewalk on the west side of Avenue C should not be constructed, instead it should be reserved for trees to mitigate heat and air quality issues.

General Comments

Safety

- User safety and convenience should be the primary concern over parking.
- Consider implementing consistent unidirectional bike lanes to avoid unnecessary and dangerous crossing from one sidewalk to another to meet the correct direction.
- Consider the need for winter plowing and maintenance to protect users from slip and fall incidents.
- Consider a painted buffer instead of a concrete buffer to allow for easier snow removal. This could also be a more cost-effective method of creating a buffer.
- Signs and paint do not influence driver's behaviour, consider more aggressive speed bumps for traffic calming.

Accessibility

- Consider raising the sidewalk through the intersection so there is no dip for the pedestrian (and a bump for the car) to help slow traffic and keep the path accessible.
- Concern that a mix of cycling facilities will lead to confusion and safety issues for cyclists due to uneducated drivers. Standardization would benefit predictability.
- Consider adding bike parking facilities throughout the route.
- Support for raised sidewalks throughout the corridor.
- Prioritize pedestrians and cyclists over vehicles.

Green Space & Tree Preservation

- Plant more trees in the industrial area.
- Consider using green coverage like potted flowers for the barriers of the unidirectional bike lanes.

4.3 Survey: Survey Monkey

4.3.1 Purpose

A survey was prepared in both paper and online format to gather feedback on the proposed cycling facility options. The online version was prepared using SurveyMonkey. The survey was open during the month of November 2022 for a total of 28 days. The survey captured 346 online participants. Paper copies of the survey were available at Mayfair Library and received 3 responses.

Of note, these were self-administered, non-random surveys and thus results cannot be considered to be statistically significant or representative of the opinions of all residents. As with other consultation tools, the survey findings should not be considered in isolation, but instead factored into the context of other community input and assessment methodologies.

4.3.2 Marketing Techniques

The survey was advertised on the City's Engage page, through Saskatoon's social media feeds, by direct email to stakeholder groups, and during the stakeholder and public phase 2 engagement sessions. Flyers with information about the project and survey were delivered to the residents along Avenue C. Mini billboards were placed along Avenue C to promote the survey. The stakeholder group was encouraged to share the survey with their networks.

4.3.3 Input Received

4.3.3.1 Demographics & Supplemental Information

Age Range

Survey respondents largely represented the age cohorts of:

- 35-44 years (31%),
- 25-34 years (21%), and
- 55-64 years (16%).

The three participants that responded via the paper surveys represented the age cohorts of:

- 35-44 years (2)
- 55-64 years (1)

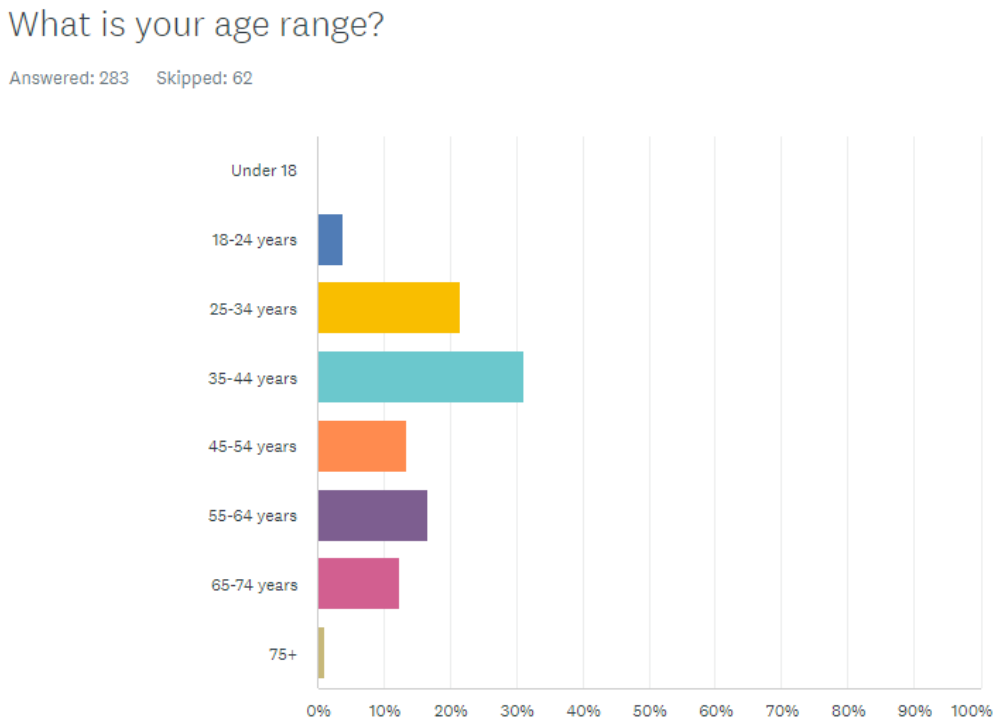


Figure 1 Age Cohort

Gender and Identity

Males represented 57% of participants and females represented 43%. 8% of respondents identified as having a disability. 9% of respondents identify as being part of a visible minority group.

When asked whether participants are Indigenous, 1% identified as First Nations, and 2% identified as Métis.

Of the paper survey responses, 2 respondents are female and 1 is male. None of the respondents identified as being part of a visible minority group. None identified as Indigenous.

Vehicles per Household

The majority of respondents (83%) indicated that they have 1-2 vehicles available in their household, while 12% have 3 or more.

Of the paper survey responses, all respondents have 1 vehicle available in their household.

Travel on Avenue C

The next set of questions focused on how and why participants travel on Avenue C. When asked why participants travel on Avenue C, the top three reasons identified were to access shopping and restaurants (54%), to travel to work (47%), and to access the river (40%).

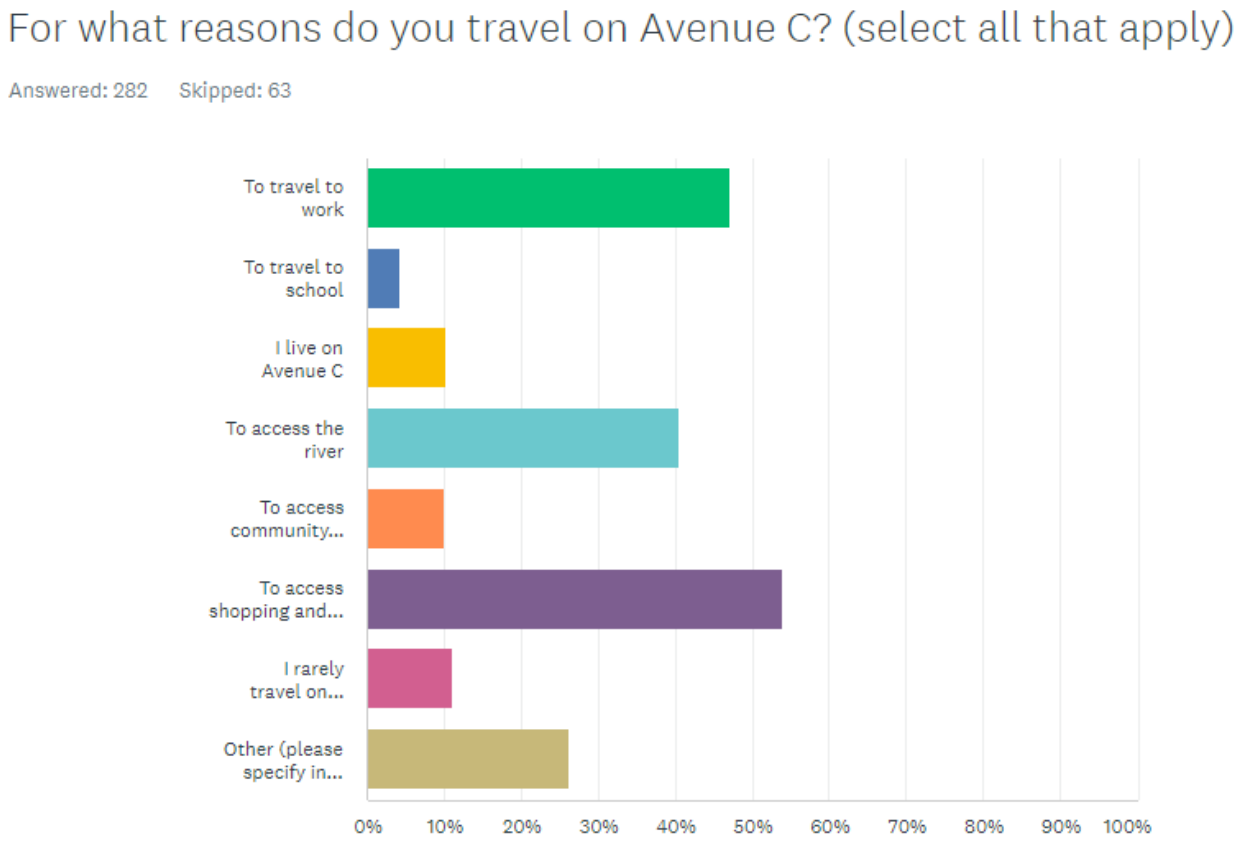


Figure 2 Reasons for Travelling on Avenue C

Other reasons included to access businesses and the airport, live in close proximity to Avenue C, as an access route to other parts of the City, to visit friends, and to avoid traffic on Idylwyld and Circle Drive.

The paper responses indicated that the reasons for travel on Avenue C were:

- I live on Avenue C (2)
- To travel to work (2)
- To travel to school (1)
- To access the river (1)
- To access shopping and restaurants (1)

Modes of Transportation

Participants were asked what mode of transportation they use and how often these modes are used on Avenue C. Travelling via personal vehicle was ranked the highest with at least 30% of respondents traveling by this mode every day or every week. Walking was ranked the second highest for everyday use with 19% followed by biking at 11%. However, biking (16%) ranked slightly higher than walking (15%) for weekly use. In contrast, transit consistently ranked the lowest as a mode of transportation on Avenue C, which may be a result of the few transit routes currently available on Avenue C.

Paper responses included that all three participants walk every day. Two participants bike frequently, one every day and the other every week. All three use a personal vehicle, two drive every week, while the other drives occasionally/seasonally. Two of the respondents indicate that they never use transit.

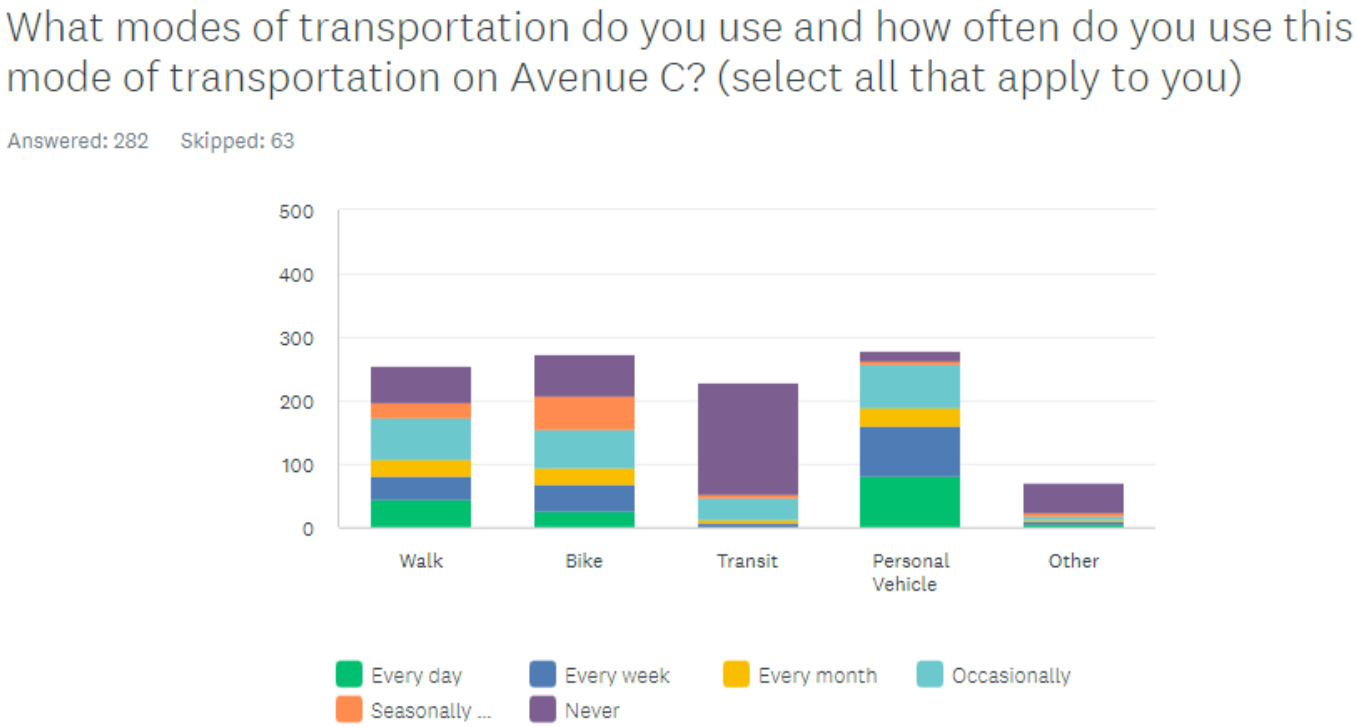


Figure 3 Modes and Frequency of Transportation

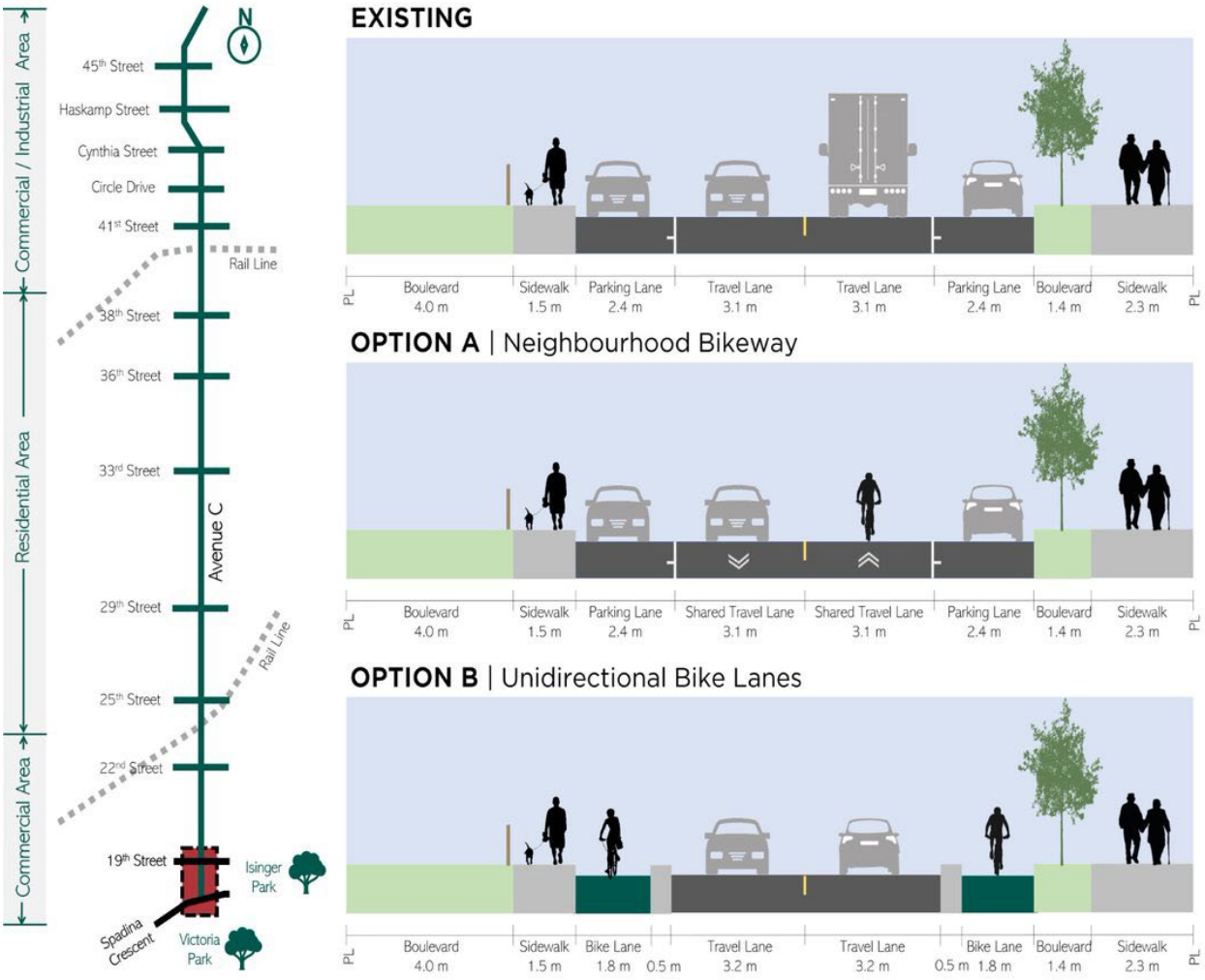
4.3.3.2 Option Rating and Feedback

In this section of the survey, participants were asked to review each of the segment options proposed and provide feedback. The feedback collected is summarized below.

Road Segment: Spadina Crescent to 19th Street – Commercial Area

Proposed Options: Option A - Neighbourhood Bikeway or Option B - Unidirectional Bike Lanes

The first segment proposed two options for cycling facilities along Spadina Crescent to 19th Street. Participants were asked to identify which, if any of the options they preferred and what they liked or disliked about both options.



Option A proposes a neighbourhood bikeway that would unlikely affect on-street parking. Option B proposes unidirectional bike lanes that would provide an enhanced level of separation; however, parking would need to be removed.

Participants were first asked which of the options they thought was most appropriate for this section of the Avenue C corridor. As illustrated in Figure 4, Option B: Unidirectional Bike Lanes was preferred by 181 respondents (53%). In contrast, Option A: Neighbourhood Bikeway was preferred by 74 respondents (21%), while 21% responded neither.

Of the paper survey responses, the preferred options were as such:

- Option A (1)
- Option B (1)
- Not sure/no opinion (1)

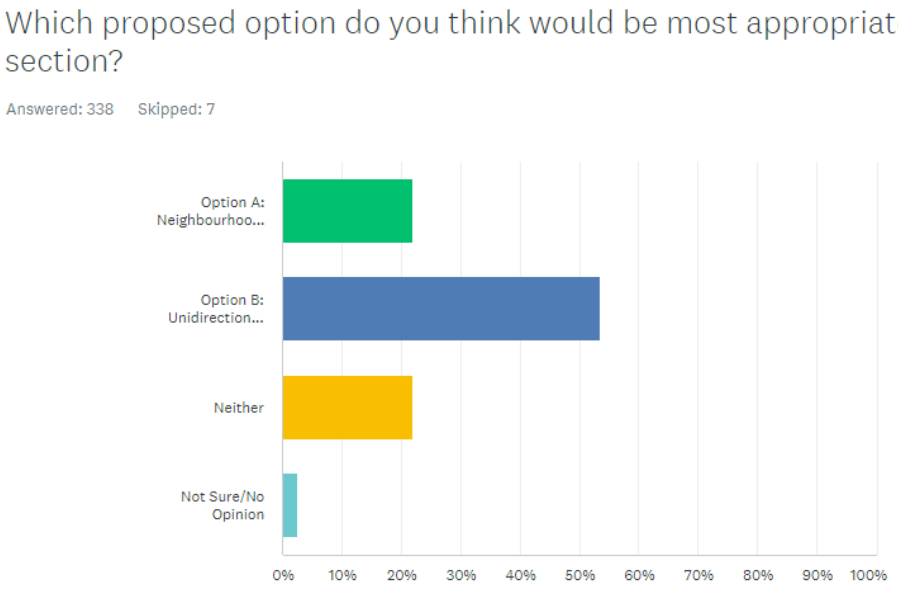


Figure 4: Spadina Crescent to 19th Street Option Selection

The second question asked participants to comment on what they liked and what they disliked about both options in order to gain insight into the perceived pros and cons of each option. The likes and dislikes identified have been categorized into themes below for each option.

The comments below have been categorized, summarized, and abbreviated from the raw data received in the survey.

Option A: Neighbourhood Bikeway:

Likes Identified:

- Least disruptive to parking.
- Reduced speed limits will increase safety for all.
- More cost effective.

Dislikes Identified:

- Lack of separation between cyclists and vehicular traffic doesn't afford sufficient protection for cyclists – need a physical barrier to protect cyclists.
- Cyclists remain vulnerable in this high traffic area.
- With parking on either side, cyclists are at risk of being injured by opening car doors (aka., being 'doored').
- Sidewalks are too narrow and require widening.
- Snow removal is inadequate in this area.
- Option A is too similar to what is there currently.
- Option A doesn't allow two-way traffic.
- This is a high traffic area – dislike disruption to vehicular traffic to accommodate cycling/shared travel lane.

- Discontinuity with bike lanes north.
- Not conducive to all ages and abilities.

Option B: Unidirectional Bike Lanes

Likes Identified:

- Bike lanes are separated from traffic and are therefore much safer for cyclists. This will save lives.
- Increased comfort and safety overall for cyclists.
- Roads remain dedicated to vehicular traffic - drivers not 'inconvenienced' by slower road users.
- Bikes can not travel at the same speed as vehicles and as a result are a safety hazard both to themselves and others.
- Will make cycling a viable option for many, including new cyclists.
- A clear path for everyone, which puts everyone at ease: drivers, cyclists and pedestrians.
- Separate lanes are easier for everyone to manage - sharing the road tends to be stressful for cyclists and cars alike.
- Would provide consistency with other (safer) parts of the network - improved connectivity and flow for users to continue on the unidirectional bike lane north of 19th street rather than having to transition.
- Connects the bike lanes from 19th Street to 25th Street to the Meewasin Trail.
- Family friendly.

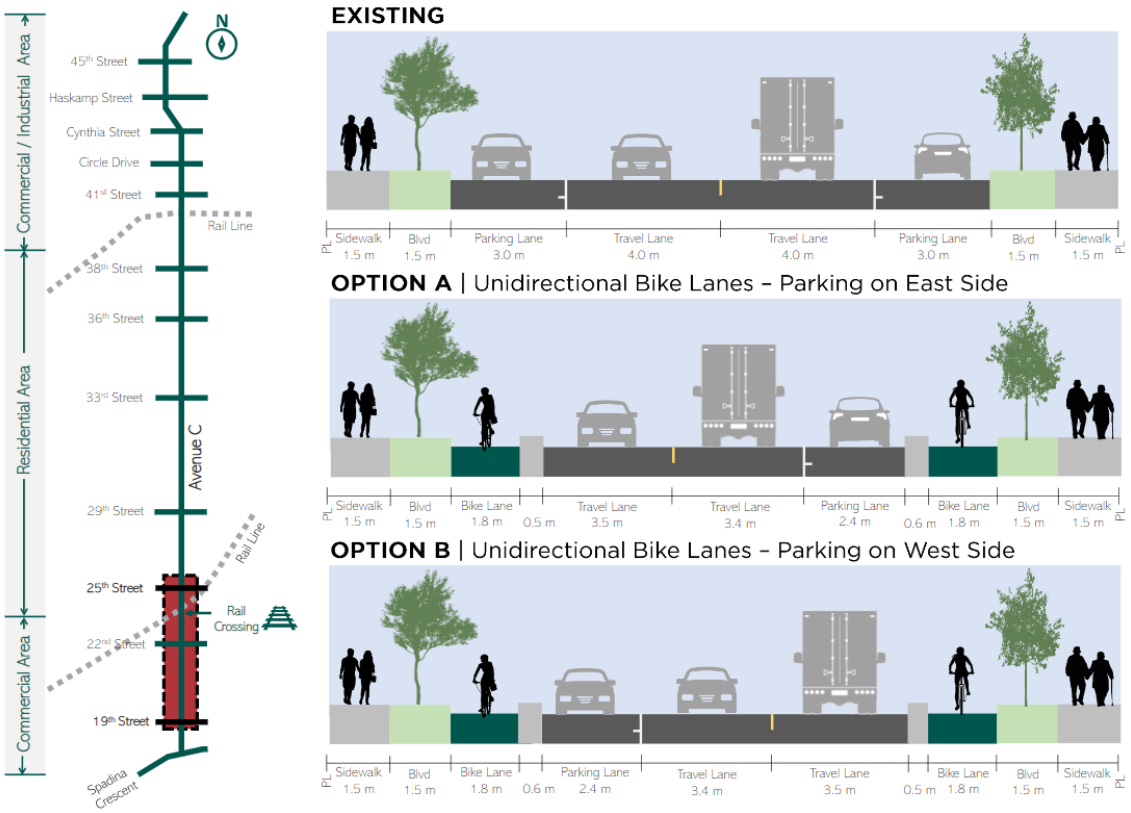
Dislikes Identified:

- Cost.
- Eliminates street/residential/business parking.
- Does not allow for widening of the sidewalks.
- Negative impact on businesses - loss of land to businesses.
- Separating motorists from cyclists does not allow motorists to become familiarized with sharing the road with cyclists - Saskatoon drivers would benefit from re-education on cyclist law and sharing the road.
- Separated bike lanes are dangerous at intersections - need a plan to slow traffic to ensure cyclist safety.
- Removal of parking will upset motorists and will never be approved.

Road Segment: 19th Street to 25th Street – Commercial and Residential Area

Proposed Options: Option A - Unidirectional Bike Lanes or Option B - Parking on East or Parking on West

The second segment proposed unidirectional bike lanes that would provide a suitable level of separation given the traffic volumes and roadway function along 19th Street to 25th Street. One lane of parking would need to be removed in order to implement protected bike lanes. Option A proposes to retain parking on the east side of Avenue C, while Option B proposes to retain parking on the west side. Participants were again asked to identify which, if any of the options they preferred and what they liked or disliked about both options.



Participants were first asked which of the options they thought was most appropriate for this section of the Avenue C corridor. As illustrated in Figure 5, when combined, over half of survey participants (59%) were not sure/had no opinion or chose neither Option A nor Option B. Between the two options; however, Option B: Unidirectional Bike Lanes with parking on the west side received the most favourable response being preferred by 67 respondents (21%). In contrast, Option A was preferred by 56 respondents (18%).

Of the paper survey responses, the preferred options were as such:

- Option B (1)
- Not sure/no opinion (2)

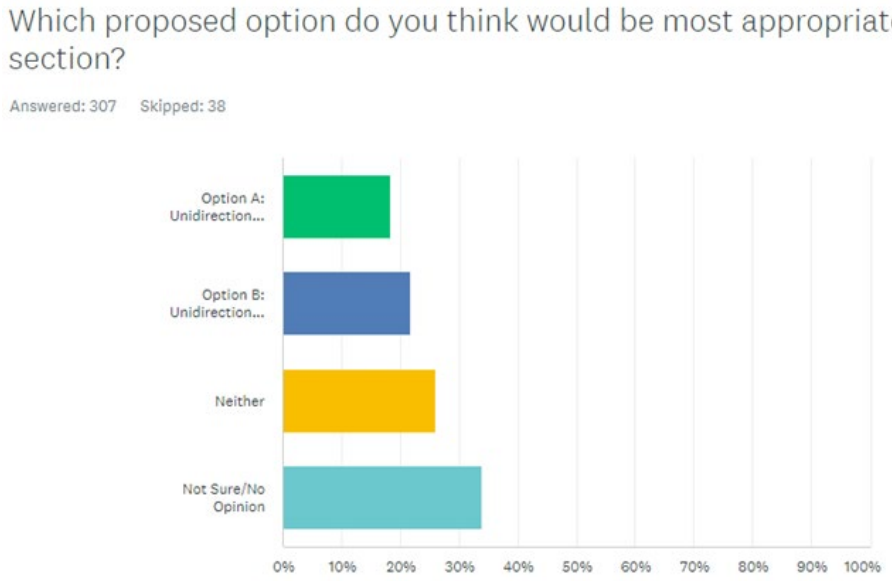


Figure 5: 19th Street to 25th Street Option Selection

The second question again asked participants to comment on what they liked and what they disliked about both options.

Option A: Unidirectional Bike Lanes - Parking on East Side:
Likes Identified:

- Parking is on the side of the food bank; therefore, there is not so many people crossing the road.
- There are more business entry ways/driveways on the east side.
- Least disruptive to traveling and parking.
- Would retain parking in front of some residences.
- Protected bike lanes - provides a safe way for bicycles to travel through the downtown.
- Traffic flows north so parking on east makes more sense.

Dislikes Identified:

- One lane of parking is removed.
- Costly – concern for raised taxes to support the plan.
- Street is too congested for bike lanes especially with the railway tracks.
- Not enough room for pedestrians.
- Snow removal/clearance for road and bike lanes.
- Bike lanes are too narrow, do not allow for passing.
- Concern for opening doors with the parking being adjacent to the bike lane.
- Hiding bikes behind a row of parking means they will suddenly appear to drivers at the intersection.
- Not enough parking, too much space for pedestrians – 2 walking paths on either side is too much – concern that paths will not be well utilized.
- Motorists will not be educated as to how to share the road with cyclists.

Option B: Unidirectional Bike Lanes - Parking on West Side

Likes Identified:

- Between 19th and 20th most traffic turns left off of 20th onto Avenue C so providing parking on the west side might be more appropriate.
- Traffic will be heavier going south on Avenue C, so parking on the west side would have a more protective value.
- Services that may require transportation to access (i.e., OUTSaskatoon, Saskatoon Sexual Health) are on the west side of the street.
- Slightly more businesses on the west side vs. east.
- Historically, parking is used slightly more on the west side.
- Many parking spaces are not utilized so removing one lane of parking will not cause a major disruption.

Dislikes Identified:

- One lane of parking is removed – businesses and residents will be negatively impacted.
- Cost – concern that bike lanes will not be well utilized compared to vehicle traffic, especially in winter.
- Street is too congested to support bike lanes.
- Motorists will not be educated as to how to share the road with cyclists.

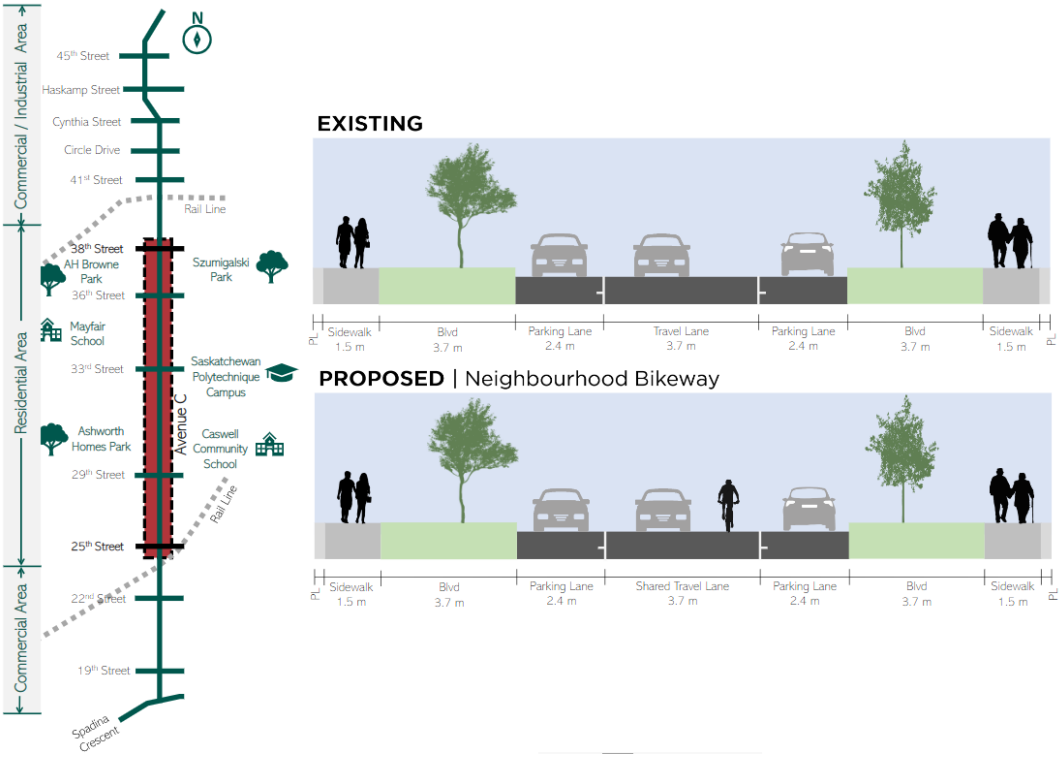
Neutral:

- Many participants indicated that they are neutral and do not feel strongly about which side of the street parking is removed from.
- Options A and B are both good as long as bike lanes are separated and protected, preferably at sidewalk level not street level.
- Enough space needs to be given between the parking lane and the bicycle lane which is sometimes an issue on the 23rd Street bicycle lane with people parking right on the division line or drivers having partially obstructed views when turning right with the cyclists separated from drivers by parked cars.

Road Segment: 25th Street to 38th Street – Residential Area

Proposed Option: Neighbourhood Bikeway

Given the traffic volumes and operating speeds of the residential area along 25th Street to 38th Street, a neighbourhood bikeway was predetermined to be the most appropriate option for this section of the Avenue C corridor. Participants were asked to identify whether a neighbourhood bikeway is a good option for this segment, their likes and dislikes associated with this option, and where traffic calming features may be beneficial.



106 respondents (35%) think that a neighbourhood bikeway is not a good option for this section of Avenue C, while 93 (31%) indicated that it is a good option. 24% of participants chose somewhat and less than 10% are unsure if this is a good option.

When asked if a Neighbourhood Bikeway is a good option, the respondents of the paper survey indicated:

- Yes (1)
- Somewhat (1)
- No (2)

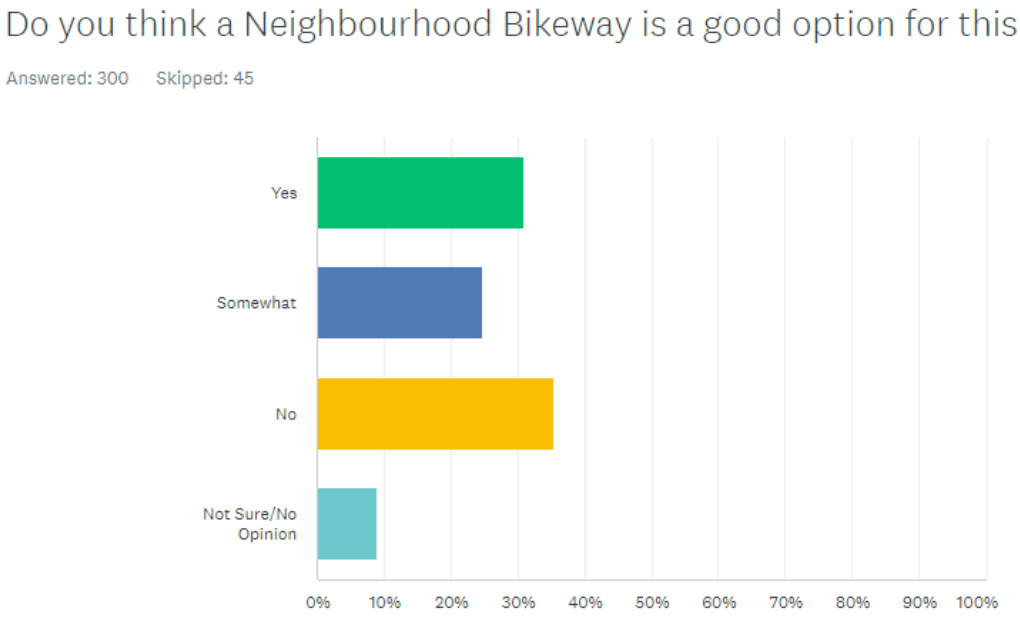


Figure 6 19th Street to 25th Street Option Selection

Participants were then asked what they liked or disliked about this option.

Proposed Option: Neighbourhood Bikeway:
Like Identified:

- Does not disrupt parking.
- Would support travel through the city on a quieter roadway which is a safer alternative for cyclists.
- Provides a north /south access route for commuters.
- Vehicular speed reduction.
- Lower costs associated.
- Green boulevards and protected sidewalks.
- Already use this section as a shared bike lane.
- Familiarizes drivers with sharing the road with cyclists.
- Separates cyclists and pedestrians.
- Would provide a safe north-south cycling path - Idylwyld is dangerous for cyclists.

Dislikes Identified:

- The road is not wide enough to accommodate a dedicated, safe bike lane. Currently, oncoming vehicles have to pull into the parking lane.
- The streets are congested with parking.
- Unsafe for cyclists – no protection against uneducated, careless, or aggressive drivers – puts cyclists at risk.
- Snow will cover/hide painted bike lane lines and motorists will ignore boundaries.
- Cyclists will be at risk of 'dooring' by parked cars.
- Not family friendly – not safe to take children.

- Accessible only to experienced and able-bodied cyclists – not a safe option for newer cyclists, youth, children, or disabled or less-abled cyclists.
- No improvement or differentiation to what is currently there – does not improve safety or active transportation desirability.
- Shared travel lanes are not bike infrastructure.
- Too much of the road is used for car storage and not for active transportation.
- Residents have alleyways, garages, or parking space behind homes that can accommodate parking – on street parking is not necessary.
- Cyclists will slow down traffic flow for vehicles, who will then become agitated and aggressive towards cyclists.
- Lack of continuity for cyclists and inconsistent with the rest of the route facilities.
- Drivers will not care about cyclists on the road – need a separate bike lane.
- Supports car centric planning – is not an AAA solution.
- Will not support or encourage increased cycling.
- Lack of education SGI lacks when implementing more cyclist friendly roadways.

Additional comments:

- Having dedicated signage for the shared bikeway would be helpful.
- Continue unidirectional bike lanes in the south section.
- Should be a shared path with pedestrians. Remove parking lanes, add trees and more space for pedestrians and bikes.

Participants shared ideas of where traffic calming (curb extensions, speed humps, crosswalks, etc.) may be beneficial.

Traffic Calming Ideas Identified:

- Lower speed limit to 30km/hr – enforce with cameras.
- Curb extensions are dangerous.
- Curb extensions should be present at all four lane intersections, and could include raised crosswalks across Ave C.
- Need an area between the curb and the extension large enough to let bikes through.
- Speed bumps to slow vehicular traffic – include gaps so cyclists can travel at speed.
- Don't use traffic calming measures that push cyclists into traffic. For example, curb extensions should have a gap to accommodate cyclists without forcing them into the road.
- Signage to educate motorists and cyclists.
- Diverters are currently working on Avenue C – leave in place.
- Regular snow maintenance of roadways during winter months.
- Provide crosswalks on busier streets.
- Provide traffic lights over yield signs.
- Close the intersection(s) of Ave C and 33rd Street for cars and make it pedestrian and bicycle only.

Traffic Calming Locations Identified:

- Around 29th and 33rd Streets.

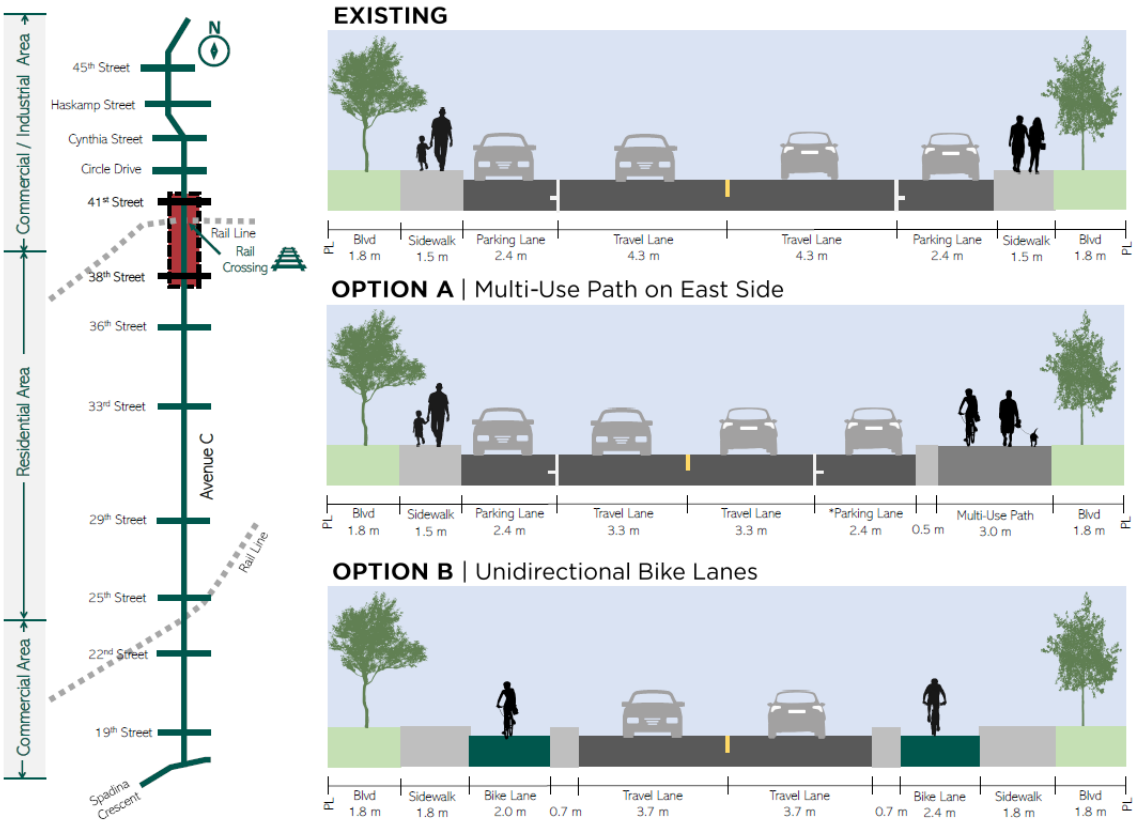
- Curb Extensions and speed humps would be beneficial on 33rd Street. This would provide a safer way for both bicycles and pedestrians to cross 33rd Street.
- 39th Street needs speed bumps.
- Campus area – put sidewalk level bike path.
- Around all school and park areas.
- 22nd Street needs pedestrian/bike flashing crossing signals at intersections.
- Ave C should have right of way at 25th Street.

Road Segment: 38th Street to 41st Street – Residential and Commercial/Industrial Area

Proposed Options: Option A - Multi-Use Path on East Side or Option B - Unidirectional Bike Lanes

Two cycling facility options are proposed for 38th Street to 41st Street. Option A proposes a 3.0 m wide raised multi-use path on the east side of Avenue C which would provide a suitable level of separation from vehicles. Option B proposes a 2.0 m wide unidirectional bike lane with a raised barrier on both sides of the street. Option B would require the removal of parking on both sides of the road in order to accommodate sufficient lane widths.

Participants identified which of the options they thought would be most appropriate for this section and what they liked or disliked about both options.



As illustrated in Figure 7, Option A: Multi-Use Path on East Side received the most favourable response and was preferred by 123 respondents (42%). In contrast, Option B: Unidirectional Bike Lanes was preferred by 99 respondents (34%).

Of the paper survey responses, the preferred options were as such:

- Option A (2)
- Option B (1)

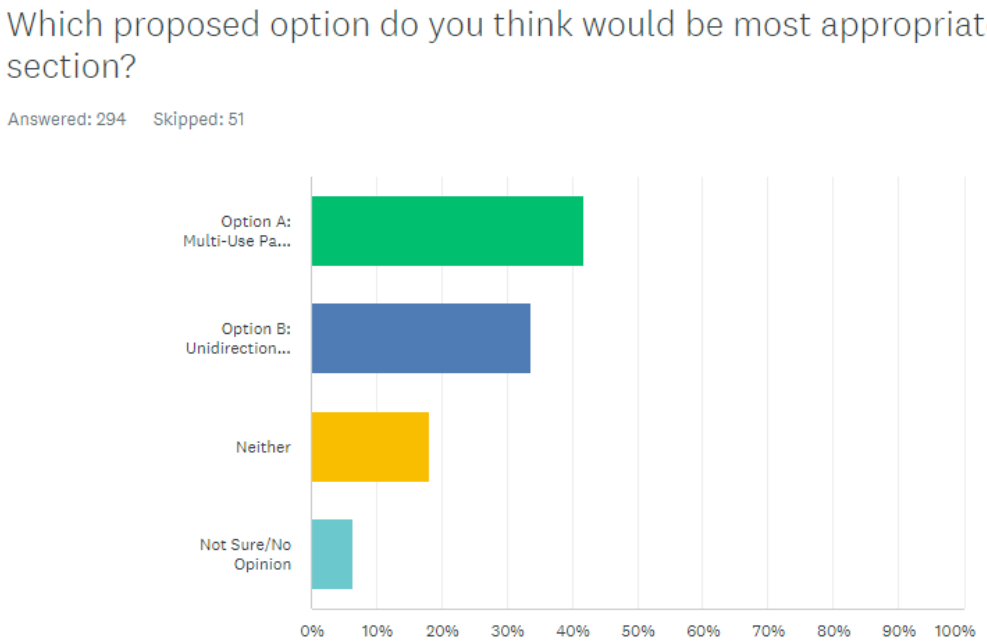


Figure 7 38th Street to 41st Street Option Selection

Participants commented on what they liked and what they disliked about both options.

Option A: Multi-Use Path on East Side

Likes Identified:

- Preserves parking.
- Does not interfere with vehicle traffic.
- Separates cyclists from vehicle traffic.
- Least costly option.

Dislikes Identified:

- Costs associated.
- Cyclists at risk of being “doored” by parked cars.
- Possible conflicts between cyclists traveling in opposite directions on multi-use pathway.
- Cyclists stuck on one side of the street - required to cross street in order to stay on cycling path.
- Non-dedicated cycling route creates safety risk at intersections.
- Concerns for potential conflicts between cyclists and pedestrians.
- Transition from previous facility type – lack of consistency.

Additional Comments

- Educate pedestrians about the cycling path to avoid conflicts.
- Direct cyclists via signage as to how to transition onto and off of multi-use path.
- The railway tracks are dangerous to walk and cycle across.

Option B: Unidirectional Bike Lanes

Likes Identified:

- Safer for cyclists.
- Physical separation of cyclists, pedestrians, and vehicular traffic.
- Cyclists have access to both sides of the road.
- Consistency with the other facility types along the corridor.
- Does not require cyclists to cross lanes through traffic to access biking path.
- Removal of parking to support active transportation – people-centric design.

Dislikes Identified:

- Removal of parking.
- Perception that bike lanes are not needed/necessary along the Avenue C corridor.
- Costs associated and concern for increasing taxes.
- Concern that bicycle lanes will not be utilized.
- Disruption to vehicular traffic flow.

Additional Comments:

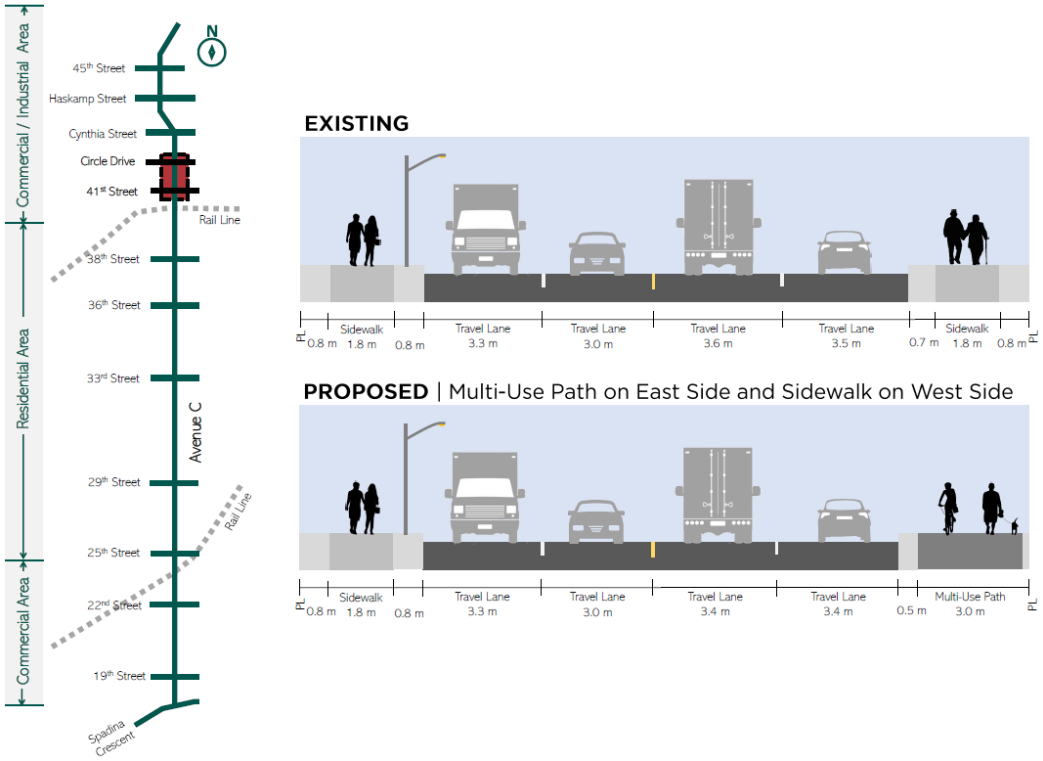
- Concern that the backlash from motorists enraged by the loss of parking will stop the plan.

Road Segment: 41st Street to Circle Drive – Commercial/Industrial Area

Proposed Option: Multi-Use Path on East Side and Sidewalk on West Side

A multi-use path on the east side was pre-determined to be the most appropriate option for the 41st Street to Circle Drive section of Avenue C. The 3.0 m raised multi-use path is located on the east side due to light standards near the curb on the west side and provide a suitable level of separation from vehicles. The path replaces the existing sidewalk since both pedestrians and cyclists share it. Four travel lanes are maintained; however, the northbound lanes need to be narrowed slightly.

Participants were asked to identify whether they think a multi-use path is a good option for this segment, and their likes and dislikes associated with this option.



As illustrated in Figure 8, just over half of respondents (51%) think that a multi-use path is a good option for this section of Avenue C, while 23% do not, and just under 20% of respondents selected somewhat.

When asked if a Multi-Use Path is a good option, the respondents of the paper survey indicated:

- Yes (1)
- Somewhat (1)
- Not sure/no opinion (1)

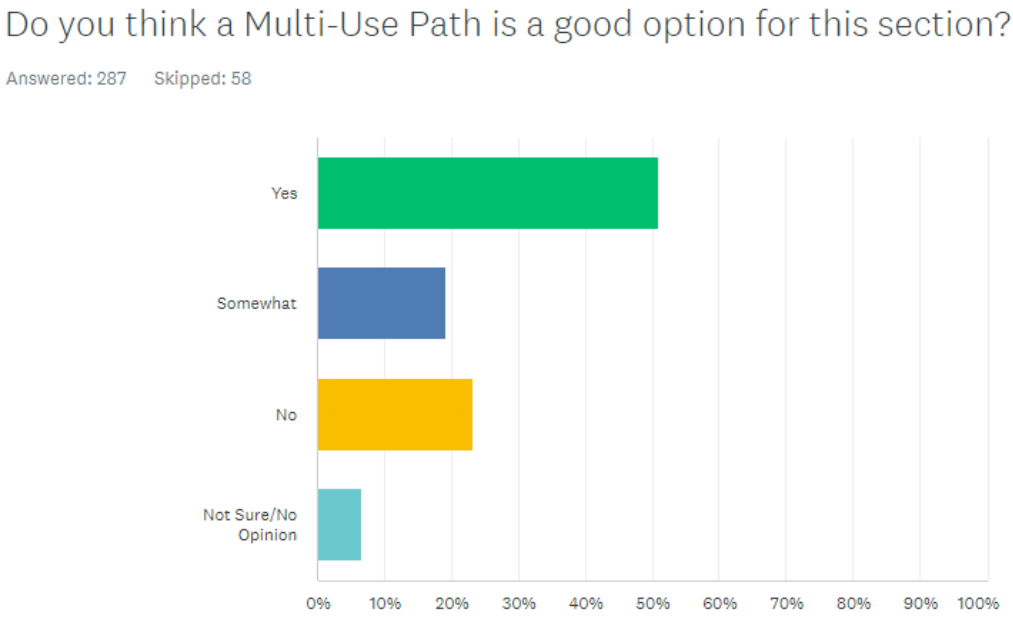


Figure 8 Support for 41st Street to Circle Drive Option

Participants were then asked what they liked or disliked about this option.

Proposed Option: Multi-Use Pathway:
Likes Identified:

- Separation from traffic.
- Progressive design.
- Safe for cyclists without disrupting traffic.
- This is a high traffic area and dangerous for cyclists, so separation is ideal.
- Currently cyclists are not comfortable cycling this area – increasing safety will encourage more use.
- Provides sidewalks which are lacking and needed in this area.
- Foresee more people walking in this area.
- Better option than nothing for cyclists.

Dislikes Identified:

- Cost and concern for tax dollars being spent on non-essential service.
- Too car-centric and not people/active transportation focused.
- Not focused on reducing vehicle traffic and mitigating climate change.
- Lack of consistency with the facilities provided on the rest of the corridor.
- Requires more traffic calming efforts to be considered safe.
- Four lanes of traffic is unnecessary.
- Providing cycling route on only one side of the road – no access to west side of the street.

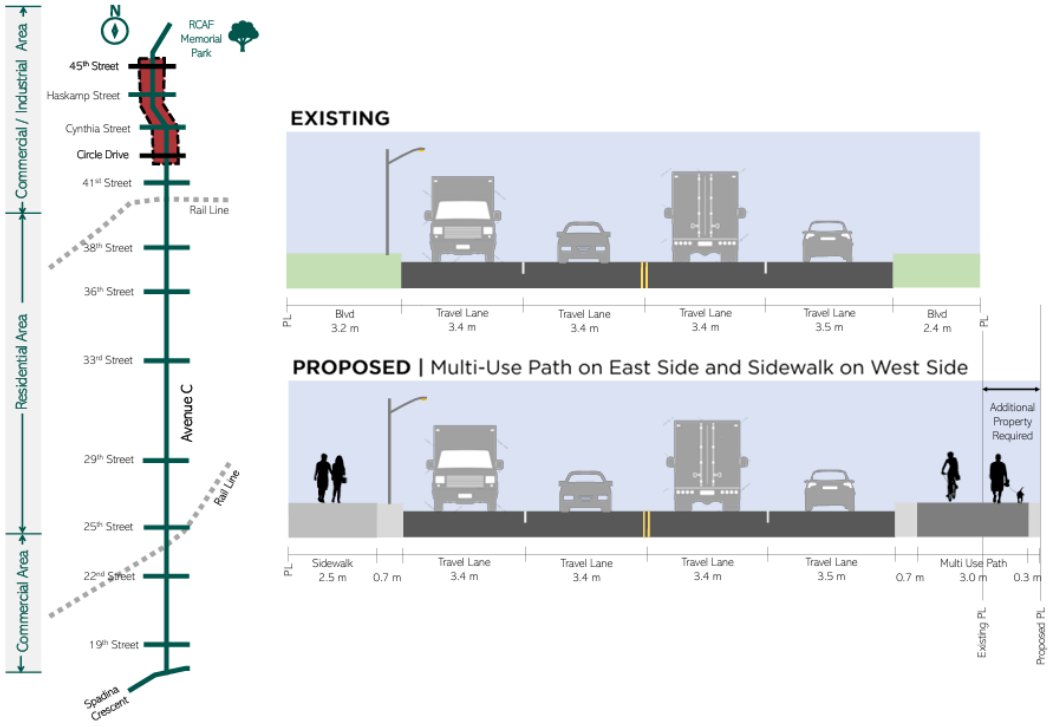
Road Segment: Circle Drive to 45th Street – Commercial/Industrial Area

Proposed Option: Multi-Use Path on East Side and Sidewalk on West Side

A multi-use path was pre-determined to be the most appropriate option along Circle Drive to 45th Street as it provides a suitable level of separation given the high traffic volumes on this portion of Avenue C. The multi-use path is 3.0 m wide to accommodate both pedestrians and cyclists. It is proposed that the multi-use path be located on the east side to be consistent with the proposed multi-use path south of Circle Drive. A new 2.5 m wide sidewalk is also proposed on the west side of Avenue C within the existing boulevard space and would be exclusive to pedestrians.

The multi-use path and sidewalk would be located away from the road edge to provide additional separation from traffic which will enhance the pedestrian and cyclist experience, as well as mitigate streetlight relocations. Additional property would be required on both sides between Circle Drive and Cynthia Street and on the east side between Cynthia Street and 45th Street.

Participants were asked to identify whether they think a multi-use path is a good option for this segment, and their likes and dislikes associated with this option.



The majority of respondents (54%) think that a multi-use path is a good option for this section of Avenue C, while 22% do not, and 20% think it is somewhat a good option.

When asked if a Multi-Use Path is a good option, the respondents of the paper survey indicated:

- Yes (1)
- Somewhat (1)

- Not sure/no opinion (1)

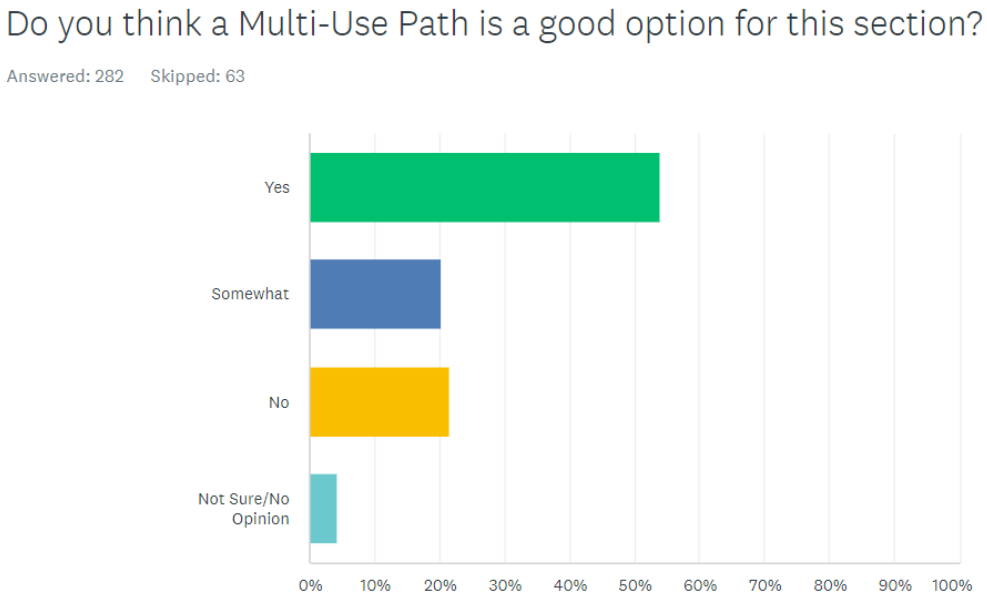


Figure 9 Support for Circle Drive to 45th Street Option

Participants were then asked what they liked or disliked about this option.

Proposed Option: Multi-Use Pathway

Likes Identified:

- Cyclists are separated and therefore protected from traffic in this dangerous, high traffic area.
- Traffic flow is not interrupted.
- Sidewalks and multiuse pathway would be a great benefit to workers and pedestrians in the area. Currently people have to walk in traffic when the boulevards become covered in deep snow.
- A multi-use pathway would make cycling more accessible and viable for many.
- Support for sidewalks in this area where there currently are none.
- Need safe areas for pedestrians and cyclists – which is necessary to a good quality of life.
- Area is currently unsafe for pedestrians – have to navigate through parking lots to get around.
- Saves tax dollars.
- Continues the flow from previous blocks.
- Makes the area more accessible.
- Raised pathway increases visibility for cyclists and pedestrians.
- People-centric - promotes and supports active transportation in the City.
- Will make the area around the airport and businesses more people friendly.

Dislikes Identified:

- Costs associated/rising taxes.
- Concern that bicycle lanes will not be utilized.
- Concern for property loss for businesses.

- Since there are few safe ways to cross the street, destinations on the opposite side are still inaccessible.

Additional Comments:

- Crossing Circle Drive across the merges is dangerous, anyone in a wheelchair wouldn't feel comfortable crossing as drivers don't look both ways.

5. Additional Comments

Participants had the opportunity to provide additional comments at the end of the survey. Comments provided included themes such as:

- Making sure that the proposed facilities are safe for cyclists and pedestrians.
- Support for reducing speed limits along the corridor to 30 km/hr.
- Providing enough time for seniors to cross streets at flashing light-controlled crosswalks.
- Concerns of tax money being used to fund the project.
- Require wider sidewalks.
- Indication that respondents would bike to work, to businesses, and for leisure etc. if it were made safer – support for the project.
- Concerns that the cycling infrastructure would not be utilized.
- Indication that transit needs to be improved in the City.
- Need for increased landscaping and tree cover along pedestrian travel routes.
- Ensure cycling routes are designed bike friendly (i.e., no barriers, speed bumps, etc. that make it difficult for cyclists to use).
- Desire for more information on the project and to be involved in future engagement.

The community also had the opportunity to email comments to the City directly. Comments included themes such as:

- Concern by resident living on Avenue C in regards to the high crime, lack of safety, speeding traffic, and lack of essential services such as quality water, street lighting, roads.
- Concern that the project will have negative impacts on property values, businesses, and customers.
- Concern that removal of parking may negatively affecting business
- Suggestion to add an alternate biking route on Cynthia Street rather than identified route from Circle Drive to 45th Street.

6. Data Limitations

The team utilized interactive online platforms to host stakeholder workshops and gather input from the community. All Phase 2 public and stakeholder feedback was gathered in an online environment. While online engagement tools offer increased flexibility for some participants, responses may be limited to those with access to adequate technology and internet.

7. Next Steps

The feedback received during Phase 2 Engagement will be used to help inform the Connecting Avenue C design options for a walking and cycling facility along Avenue C that will be presented in Phase 3 (Winter 2023). Future engagement activities will include a stakeholder workshop, community survey, and a community session.

Engagement feedback, along with technical analysis and best practices, will be used to prepare the recommendations for the corridor, which will be presented to City Council in Winter 2023.

APPENDIX

E-1

EXTERNAL STAKEHOLDERS
EDUCATION
Applicable school divisions
City of Saskatoon – University of Saskatchewan Students Connection Committee
Mayfair Library Branch
Saskatoon Public Library
Saskatoon Community Youth Arts Programming (SCYAP)
MOBILITY/RECREATIONAL USERS
Bike Doctor - E-Bike Provider
Biktrix - E-Bike Provider
Bridge City Bicycle Co-Op
Saskatoon Cycles
Walking Saskatoon
Jane's Walk Saskatoon
Bus Riders of Saskatoon
EQUITY/ACCESSIBILITY/ADVOCACY
Canadian National Institute for the Blind (CNIB)
SaskAbilities
Saskatoon Accessibility Advisory Committee
Saskatoon Council on Aging
Saskatoon Food Bank and Learning Centre
Salvation Army
OutSaskatoon
Core Neighbourhood Youth Co-op
PAVED Arts
Crocus Cooperative
COMMUNITY ASSOCIATIONS
Caswell Community Association
Kelsey Woodlawn Community Association
Mayfair Community Association
Riversdale Community Association
BUSINESS/ECONOMIC
Business & Property Owners along Avenue C - key sections of corridor along 20th St, 33rd St, 45th St
Riversdale Business Improvement District (BID)

Downtown BID
33rd Street BID
North Saskatoon Business Association
Saskatoon Chamber of Commerce
Tourism Saskatoon
INDIGENOUS
Central Urban Métis Federation Inc. (CUMFI)
Metis Nation Saskatchewan
Saskatoon Tribal Council
ENVIRONMENTAL
Eco Friendly Saskatoon
Climate Justice Saskatoon
Saskatchewan Environmental Society
Meewasin Valley Authority
Saskatoon Youth Climate Committee
SOS Trees Coalition
Wild About Saskatoon
TRANSPORTATION/INFRASTRUCTURE
Airport Business Area/North Industrial

APPENDIX

E-2

Saskatoon TRANSPORTATION MASTER PLAN

Connecting Avenue C

Walking and Cycling Improvements

ABOUT THE PROJECT

The City of Saskatoon is committed to improving active transportation options for residents and visitors. In support of the City's active transportation goals, **Avenue C** has been identified as an **All Ages and Abilities (AAA) cycling route** to be designed as a safe and inclusive space for all modes of transportation that **connects the people of Saskatoon to each other and to many destinations in the City**.

Key goals of the study include:

Designing a **safe, comfortable, and accessible active transportation corridor** along Avenue C

Engaging residents throughout plan development to **understand local priorities and concerns**

Creating a plan that will **consider the needs of all users.**

PROJECT LOCATION

The project is focused on the design **of All Ages and Abilities (AAA) cycling facilities** and **improvements to walking facilities** on Avenue C from Spadina Cresent to 45th Street in Saskatoon. The Avenue C corridor crosses many different types of land uses including commercial, residential, and industrial.

PHASE 1 ENGAGEMENT SUMMARY

Three phases of engagement will be conducted as part of the evaluation and design process for cycling and walking facilities on Avenue C. Phase 1 Engagement (Identifying Opportunities and Challenges) was complete as of June 2022, Phase 2 Engagement (Exploring Options) began in Fall 2022, and Phase 3 Engagement (Presenting Recommendations) is slated to begin in Winter 2023.

Common themes from the Phase 1 feedback include:

- Maintaining trees and creating green space wherever possible should be a priority.
- Facility design needs to be inclusive and consider the needs of all users (walking, wheelchair, etc.)
- Overall concerns for cyclist safety and concerns regarding sharing the road with vehicle traffic.
- The need for street lighting, sidewalk installation or widening of sidewalks to create a safe walking environment for pedestrians.
- High traffic speeds and volumes along Avenue C create safety concerns for pedestrians and cyclists. Improving traffic calming and intersection safety will help alleviate these concerns.
- Concerns around parking loss and disruption to access of local businesses on Avenue C.
- Creating simple and accessible ways for residents to provide feedback on the proposed design.

DESIGNING OPTIONS - OPPORTUNITIES AND CHALLENGES

Findings from the Existing Conditions Review along with input received from Phase 1 Public & Stakeholder Engagement was considered in the identification of opportunities and challenges for the corridor. Examples of key considerations include:


Need for increased safety for cyclists and pedestrians at intersections


Parking, loading and access to businesses


Awareness of high conflict areas near driveways


Maintaining existing boulevard trees


Separation of cyclists and pedestrians from traffic


Addition of curb ramps at intersections to enhance accessibility


Concerns with high vehicle speeds


Addressing gaps in the pedestrian network

IMPROVEMENTS TO WALKING FACILITIES

Decisions on enhancing walking facilities in the project area will be presented in Phase 3 following selection of the cycling facilities for each segment of Avenue C and options to improve the pedestrian environment, which will be explored as part of the functional design phase. Examples of possible improvements to walking facilities include:

Possible improvements to walking facilities


Connected sidewalks


Accessible intersections


Enhanced pedestrian crossings

Pedestrian safety improvements

DESIGN OF AAA CYCLING FACILITIES

Saskatoon TRANSPORTATION MASTER PLAN

The facility selection process resulted in the cycling facility options shown below for use on different segments of Avenue C:

Possible cycling facilities

Protected bicycle lane (Street Level)

Protected bicycle lane (Sidewalk Level)

Neighbourhood Bikeway

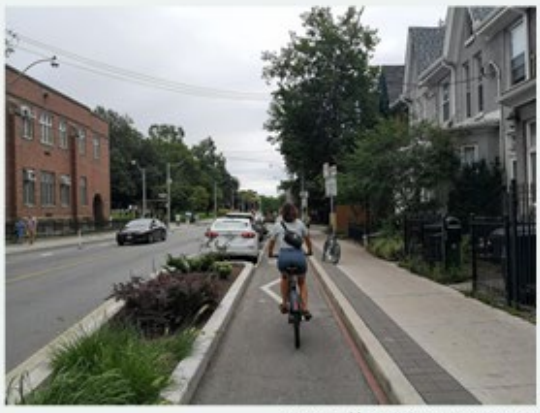
Multi-use Pathway

7

STREET LEVEL AND SIDEWALK LEVEL BIKE LANES

Saskatoon TRANSPORTATION MASTER PLAN

All graphics for protected bike lanes (where this is an option) are shown at street level. A final determination on implementing street level or sidewalk level bike lanes will be made in the next phase. Considerations will include, but not be limited to, the location of boulevard trees, existing utilities, poles and signs, drainage, and cost implications.



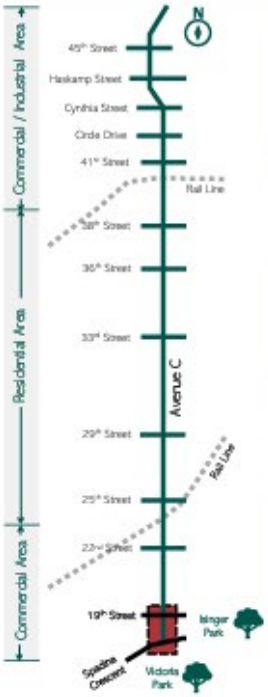
Protected bicycle lane (Street Level)

Protected bicycle lane (Sidewalk Level)

8

POSSIBLE CYCLING FACILITIES
SPADINA CRESCENT TO 19TH STREET

Saskatoon TRANSPORTATION MASTER PLAN



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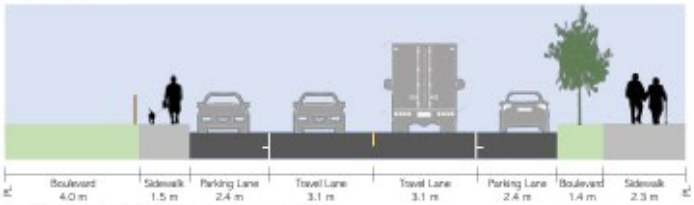
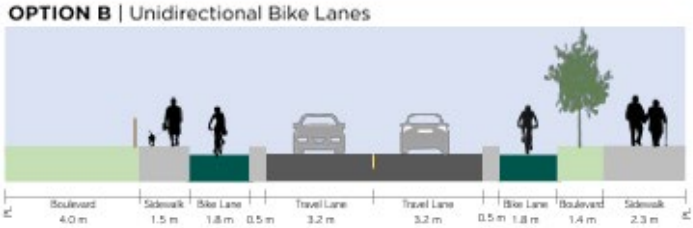


OPTION A | Neighbourhood Bikeway

OPTION B | Unidirectional Bike Lanes



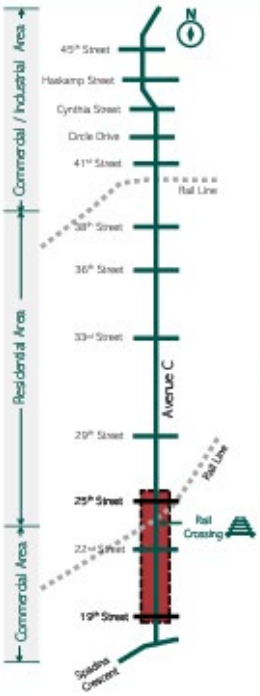
OPTION A
A neighbourhood bikeway could be an appropriate treatment based on the traffic volumes. There is a 30 km/h speed limit playground zone in a portion of this section; the requirement for additional traffic calming measures would be determined at the next phase of design.

OPTION B
Given that a unidirectional bike lane is required north of 19th Street due to the higher traffic volumes, it may be beneficial to continue the bike lane for facility consistency. A bike lane would provide an enhanced level of separation; however, parking would need to be removed.

9

POSSIBLE CYCLING FACILITIES
19TH STREET TO 25TH STREET

Saskatoon TRANSPORTATION MASTER PLAN



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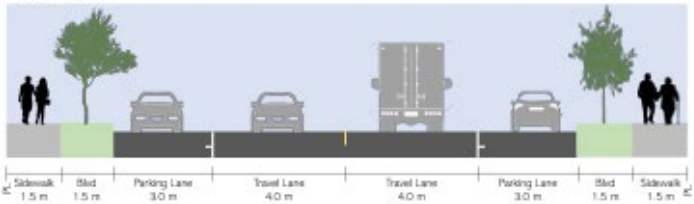

OPTION A | Unidirectional Bike Lanes – Parking on East Side

OPTION B | Unidirectional Bike Lanes – Parking on West Side

NOTE
A neighbourhood bikeway was not considered an appropriate treatment for this section of Avenue C as the traffic volumes are above what is typically desired for a neighbourhood bikeway. A multi-use path was not recommended as there is minimal boulevard space available and it is beneficial to separate pedestrians and cyclists in areas of higher pedestrian activity. A bidirectional facility was not recommended due to the high number of driveways and access points that could reduce safety for counterflow cyclists.

OPTION A
A unidirectional bike lane provides a suitable level of separation given the higher traffic volumes and roadway function (commercial area with parking/loading demand). One lane of parking would need to be removed in order to implement protected bike lanes. Option A retains parking on the east side of Avenue C only.

OPTION B
A unidirectional bike lane provides a suitable level of separation given the higher traffic volumes and roadway function (commercial area with parking/loading demand). One lane of parking would need to be removed in order to implement protected bike lanes. Option B retains parking on the west side of Avenue C only.

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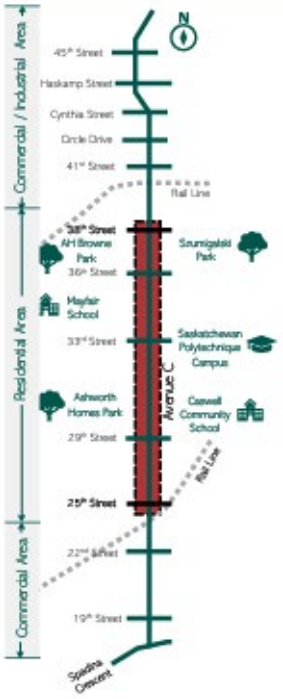
POSSIBLE CYCLING FACILITIES
25TH STREET TO 38TH STREET

Saskatoon TRANSPORTATION MASTER PLAN



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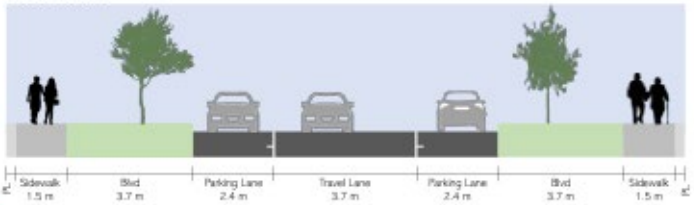

PROPOSED | Neighbourhood Bikeway

PROPOSED
A neighbourhood bikeway is an appropriate treatment based on the traffic volumes; therefore, is the only option proposed for this section. There is a 30 km/h speed limit school zone in a portion of this section; the requirement for additional traffic calming measures would be determined at the next phase of design.

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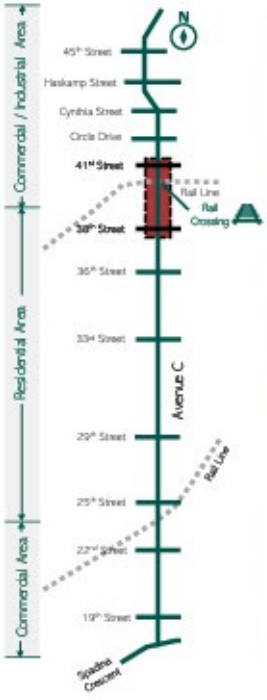
POSSIBLE CYCLING FACILITIES
38TH STREET TO 41ST STREET

Saskatoon TRANSPORTATION MASTER PLAN



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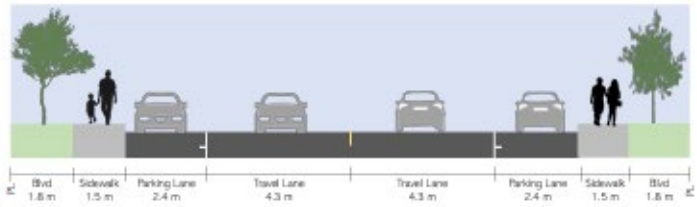
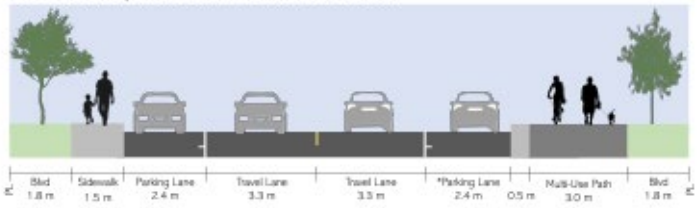


OPTION A | Multi-Use Path on East Side



OPTION B | Unidirectional Bike Lanes

OPTION A
A multi-use path on the east side provides a suitable level of separation from vehicles. It is located on the east side due to the presence of light standards adjacent to the curb on the west side north of the rail line. The multi-use path is 3.0 m and raised (as shown). The path replaces the existing sidewalk since it is shared by both pedestrians and cyclists.

*Between 38th Street and 39th Street, parking would need to be removed on the east side. Between 39th and 41st Street, parking could be maintained on both sides of the street.

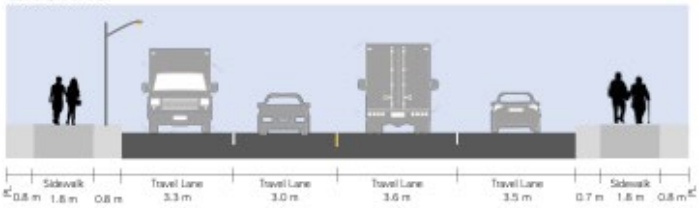
OPTION B
A unidirectional bike lane provides a suitable level of separation given the traffic volumes and roadway function. The bike lane is 2.0 m wide and could be at street-level with a raised barrier (as shown) or raised. Parking would need to be removed on both sides in order to have sufficient lane widths. Sidewalks could also be widened to 1.8 m. This option is not recommended based on the parking impacts.

12

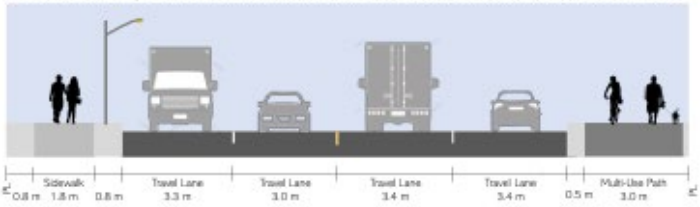
POSSIBLE CYCLING FACILITIES
41ST STREET TO CIRCLE DRIVE

Saskatoon TRANSPORTATION MASTER PLAN

EXISTING



PROPOSED | Multi-Use Path on East Side and Sidewalk on West Side



NOTE
A protected bike lane was not recommended for this section of Avenue C as it is not able to fit within the existing right-of-way.

PROPOSED
A multi-use path on the east side provides a suitable level of separation from vehicles. The multi-use path is 3.0 m and raised (as shown). The multi-use path is located on the east side due to the presence of light standards adjacent to the curb on the west side. The path replaces the existing sidewalk since it is shared by both pedestrians and cyclists. Four travel lanes are maintained; however, the northbound lanes would need to be slightly narrowed.

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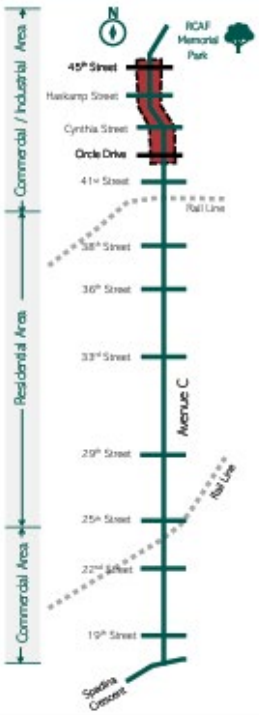
POSSIBLE CYCLING FACILITIES
CIRCLE DRIVE TO 45TH STREET

Saskatoon TRANSPORTATION MASTER PLAN



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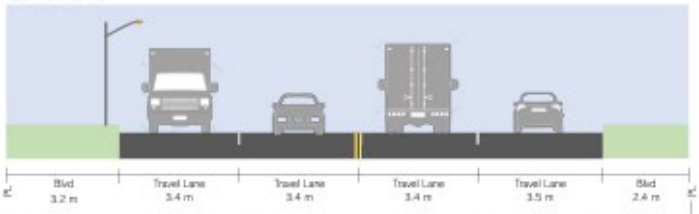

PROPOSED | Multi-Use Path on East Side and Sidewalk on West Side

PROPOSED
A multi-use path provides a suitable level of separation given the high traffic volumes on this portion of Avenue C. The multi-use path would be 3.0 m wide and accommodate both pedestrians and cyclists. It is proposed that the multi-use path be located on the east side to be consistent with the proposed multi-use path south of Circle Drive.

A new 2.5 m wide sidewalk is also proposed on the west side of Avenue C within the existing boulevard space and would be exclusive to pedestrians.

The multi-use path and sidewalk would be located away from the road edge to provide additional separation from traffic which will enhance the pedestrian and cyclist experience, as well as mitigate streetlight relocations.

Additional property would be required on both sides between Circle Drive and Cynthia Street and on the east side between Cynthia Street and 45th Street.

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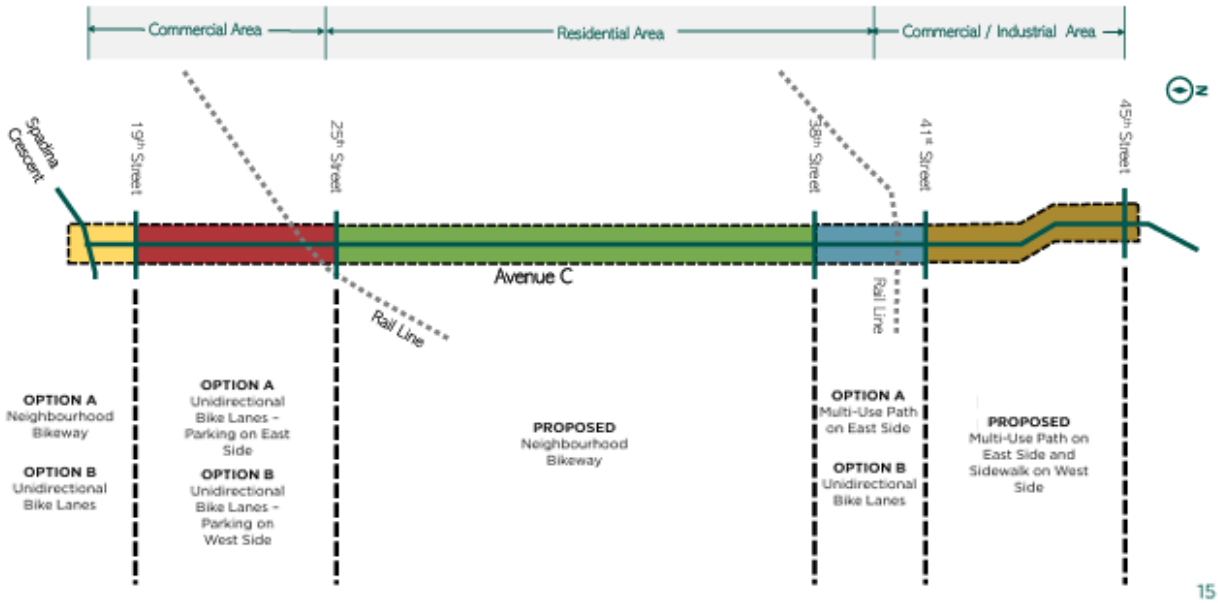
POSSIBLE CYCLING FACILITIES
OPTION SUMMARY

Saskatoon TRANSPORTATION MASTER PLAN



PROJECT TIMELINE & PUBLIC ENGAGEMENT

Saskatoon TRANSPORTATION MASTER PLAN

The project began in Winter 2022 and is set to be completed in Winter 2023 when a final report detailing findings and recommendations will be presented to Standing Policy Committee on Transportation.

Public and stakeholder engagement will be conducted at key points throughout the project, including:

COMPLETED
Phase 1 (Identifying Opportunities and Challenges)
Online Questionnaire
Stakeholder Workshop
SPRING 2022

WE ARE HERE
Phase 2 (Exploring Options)
Online Questionnaire
Stakeholder Workshops
Community Session
FALL 2022

Phase 3 (Presenting Recommendations)
Online Questionnaire
Stakeholder Workshops
Community Session
WINTER 2023

GIVE FEEDBACK

Saskatoon TRANSPORTATION MASTER PLAN

Your input will help create a plan for Avenue C that supports the needs of all users. We look forward to hearing from you!

Complete the project survey to **share your initial thoughts** by November 30, 2022:
https://www.surveymonkey.com/r/ConnectingAveC

Sign up to **receive updates about the project** by visiting the City of Saskatoon's Engage Page at:
Saskatoon.ca/ConnectingAveC

APPENDIX

F PHASE 3 PUBLIC ENGAGEMENT

Connecting Avenue C Walking & Cycling Improvement Project

Phase 3 Public Engagement: What We Heard Report

August 2023

Executive Summary

The City of Saskatoon is committed to promoting active transportation and providing transportation choices that are safe and comfortable for people of all ages and abilities all year round.

Saskatoon's Active Transportation Plan (2016) identified Avenue C as a future All Ages and Abilities (AAA) cycling and walking route to help address community and infrastructure needs for cycling, walking, and other modes of active transportation in Saskatoon.

Three phases of engagement were conducted as part of the evaluation and design process for cycling facilities on Avenue C from Spadina Crescent to 45th Street. Phase 1 Engagement was complete as of June 2022, Phase 2 Engagement was complete as of December 2022, and Phase 3 Engagement was complete as of July 2023.

A full breakdown of the first and second phases of engagement and the themes that emerged can be found in the Phase 1 and the Phase 2 What We Heard Reports.

Phase 3

The objectives of the third phase of engagement, conducted May – July 2023, focused on sharing and collecting feedback on the proposed design before taking the recommended design to Council.

A stakeholder session was held in the afternoon on June 13, 2023 and had approximately 12 attendees. A public engagement session was held in the evening on June 13, 2023 and had 55 to 60 attendees. An online public survey was open for responses from May 29 – June 30, 2023 and received 527 responses. One paper survey was submitted at the public engagement session. A total of four emails were received from the public and four comments were submitted on the project Engage Page.

Common themes / comments from the stakeholder session included:

- General Support for the 30 km/h speed limit.
- Support for proposed bike parking.
- Snow clearing is a concern.
- Support for curb ramps and sidewalk improvements.
- Parking impact is a concern.

Common themes / comments from the public open house included:

- *Suggestion for secure bike parking.*
- *Concerns with personal safety and crime rates.*
- *Accessibility issues are a concern.*
- *Concerns and questions around cost.*
- *Snow clearing was noted as a concern.*
- *Concerns about loss of parking spaces.*
- *Questions about how many people want / would use cycling facilities on Avenue C.*

Common themes / comments from the survey responses included:

- General support for reduced, 30 km/h speed limit.
- Concerns around the removal of parking on certain segments of Avenue C.
- Concerns for cyclist safety in areas without separate and protected cycling lanes proposed.
- Safety in general for cyclists and pedestrians is a recurrent concern / priority.

1. Contents

2. Figures

3. Appendices

1. Background

This document outlines feedback received from 2023 public engagement events in relation to the City of Saskatoon's Connecting Avenue C Walking & Cycling Improvement Project (the "Project"). The Project focuses on the design of All Ages and Abilities (AAA) cycling facilities and improvements to walking facilities on Avenue C from Spadina Crescent to 45th Street in Saskatoon to enhance connectivity, safety, and accessibility.

The route is designed as a safe and inclusive space for all modes of transportation that connects the people of Saskatoon to each other and to many destinations in the City.

Several key factors will be considered in the planning and design of AAA walking and cycling facilities along Avenue C, including:

2. Stakeholder Groups

Representatives from the stakeholder groups were invited to the targeted stakeholder session. A comprehensive list of stakeholders identified as having the potential to be impacted by or interested in the construction of active transportation facilities along Avenue C was developed, including:

Local Residents/ Homeowners

Those who live or own property on or near Avenue C between Spadina Crescent and 45th Street.

Business Owners & Community Service Organizations

Those who own or operate businesses and/or community service organizations on or near Avenue C between Spadina Crescent and 45th Street.

Cyclists, Pedestrians, Drivers and Mobility Device Users

Those who walk, cycle, drive or use mobility devices to travel along Avenue C between Spadina Crescent and 45th Street.

The targeted stakeholder list is a living resource to be developed and continuously refined to include people who are either directly or indirectly impacted by the project. Concerted efforts were made to identify any vulnerable and marginalized segments of the community, or community organizations who service vulnerable or marginalized segments of the community, to ensure they are invited to share their perspectives. The stakeholder list can be found in **Appendix F-1**

3. Engagement Activities

Phase 3 Engagement included an in-person targeted stakeholder session and an in-person public engagement session to collect feedback that will inform the final design for All Ages and Abilities (AAA) cycling facilities and improvements to walking facilities on Avenue C.

Both the stakeholder and public sessions ran in conjunction with an online and paper public survey.

Participants	Level of Influence	Objective	Engagement Goal	Engagement activity
Targeted Stakeholders	Consult	Share information and obtain feedback and ideas	Phase 3: Receive input on the final active transportation facilities proposed for Avenue C and address questions and concerns.	Stakeholder session Public survey – online format Engage Page Sent email updates to the stakeholder group / subscribers list
Community/Residents	Consult	Share information and obtain feedback and ideas	Phase 3: Receive input on the final active transportation facilities proposed for Avenue C and address questions and concerns.	Public session Public survey – online and paper format Engage Page Correspondence with project team via email and phone

4. What We Heard

4.1 Phase 3 Stakeholder Session

4.1.1 Purpose

The purpose of the Phase 3 stakeholder engagement session was to present the proposed walking and cycling improvements that were developed using the input gathered in the first and second phase of engagement to community leaders and key stakeholders and to collect feedback, comments, suggestions, answer questions and address concerns related to the proposed design. The stakeholder session was held on June 13, 2023.

4.1.2 Marketing Techniques

Key community groups and partners were directly invited via email to participate in this session, see Appendix F-1.

4.1.3 Input Received

Approximately 12 attendees participated in the in-person stakeholder session. Participants were encouraged to provide their feedback and ask questions/state concerns on the recommended design proposed for Avenue C. The presentation slide deck for the in-person stakeholder session can be found in Appendix F-2.

Recommended walking and cycling facilities were presented for each segment of Avenue C from Spadina Crescent to 45th Street, and attendees were asked to share their perspectives, thoughts, and concerns on each of the sections.

Feedback from session participants is broken down by street segment and has been summarized by common/recurrent themes, as outlined below.

Road Segment: Spadina Crescent to 19th Street – Commercial Area

- Support for the 30 km/h speed limit.
- Participants noted that this block of Avenue C is very narrow. On garbage days, people put bins in travel lane which essentially narrows the roadway to one travel lane.
- Support for proposed bike parking location at Isinger Park.
- Participants noted that there should be secure bike parking provided at the future Farmer's Market (should be located near Farmer's Market which is not on Avenue C).
- Support for maintaining parking on this block.
- One participant left a note on map: "No R.P.P. (Residential Parking Permit) to accommodate parking near houses."

Road Segment: 19th Street to Jamieson Street – Commercial/Residential Area

- Accessibility concerns for people with visual impairments crossing bike lane. People with visual impairments cannot hear cyclists which increases the conflict potential. It was suggested that the pedestrian crossing area be highlighted to bring more awareness to cyclists that pedestrians will be crossing the bike lane and visual obstructions be minimized so cyclists can better see pedestrians. It was also noted that using a ramp so pedestrians cross the bike lane at street level is better for those with visual impairments as they are able to detect the bike lane; however, this could lead to an issue for those with mobility impairments if there isn't enough space between the bike lane and travel lane to properly ramp up then down.
- It was noted that existing accessible parking spaces should be accommodated.
- There are a lot of people walking to/from the Salvation Army building. It was noted that providing a bike lane will remove cyclists from the sidewalk which could improve safety.
- Future parking needs for the Riversdale area (with future development plans) should be considered with the removal of the east side parking lane on Avenue C between 19th Street and Jamieson Street.
- Support for secure bike parking at Avenue C and 23rd Street with future BRT station.
- Bike parking should be located outside of the sidewalk area.
- Snow clearing of the bike lane is a concern due to lack of snow storage area.
- One participant (BIZ) left a note on map: "Sharrows with 30 km/h speeds and leave parking" and "30 km/h through to 23rd".

Road Segment: Jamieson Street to 33rd Street – Residential Area

- It was recommended that bike parking be provided with proposed bus barn redevelopment site.
- Support for the 30 km/h speed limit.
- Comment that people don't abide by stop signs; however, it was recognized that stop signs slow vehicles more than yield signs.
- Concerns noted regarding the wide driveways between 24th and 25th Street and the lack of curbs/grass edge to guide those with visual impairments.
- Support for curb ramp improvements to help those with visual and mobility impairments. It was noted that some intersections don't have curb ramps, or the existing curb ramps are not currently in the correct location to direct pedestrians to the crosswalk.

Road Segment: 33rd Street to 41st Street – Residential and Commercia/Industrial Area

- It was noted that pedestrians want to cross on both sides of the 33rd Street intersection with Avenue C.
- Cyclists moving through the crosswalk at 33rd Street make crossing tough for the visually impaired community as cyclists are silent.
- It was recommended that parking be provided for cyclists visiting 33rd Street.
- Issue with trucks turning into grocery store at 33rd Street.
- Curb ramps and sidewalk connections as well as tactile pavement should be provided at all intersections.

Road Segment: 41st Street to 45th Street – Commercial/Industrial Area

- It was recommended to quantify impact of any change made at the intersection of Circle Drive and Avenue C in terms of safety and operations. Multiple comments that this is a very busy intersection with a history of high collisions. Some noted that they did not feel it was safe for pedestrians or cyclists to cross at this intersection.
- Personal safety was identified as a concern in this area.
- It was recommended that Cynthia Street be considered for the cycling route, as opposed to Avenue C at the north end. Cynthia Street is much less busy than Avenue C in this area and leads directly to the existing pedestrian bridge over Idylwyld Drive.
- Snow clearing was noted as a concern. Where will snow be stored after the multi-use path and sidewalks are installed?
- It was noted that this is a heavy vehicle route and there could be driveway conflicts.
- Private parking impact was noted as a concern.

4.2 Phase 3 Public Open House

4.2.1 Purpose

The purpose of the Phase 3 public open house was to present the proposed walking and cycling improvements that were developed using the input gathered in the first and second phases of engagement to the general public and to collect feedback, comments, suggestions, answer questions and address concerns. The open house was held on June 13, 2023.

4.2.2 Marketing Techniques

Phase 3 engagement was advertised on the City's Engage page, through Saskatoon's social media feeds, and by direct email to stakeholder groups. Flyers with information about the engagement were delivered to the residents near Avenue C. An email update was sent to project subscribers. Four mini billboards were placed along Avenue C to promote the survey at the following locations:

- Cynthia Street & Robin Crescent
- 30th Street West & Avenue D North
- 302 22nd Street West
- Avenue C North & Circle Drive

Letters were delivered via Canada Post to businesses near Avenue C in the Riversdale Business Improvement District (BID), 33rd Street BID, and business along Avenue C between Circle Drive and 45th Street. The stakeholder group was encouraged to share the survey with their networks.

4.2.3 Input Received

Approximately 55 to 60 attendees participated in the public open house. Similar to the stakeholder session, participants were encouraged to provide their feedback and ask questions/state concerns. The boards for the in-person public engagement session can be found in Appendix F-2.

The proposed walking and cycling facilities were presented for each segment of Avenue C from Spadina Crescent to 45th Street, and attendees were asked to share their perspectives, thoughts, concerns and given the opportunity to ask questions on each of the sections.

Feedback / comments from open house participants are summarized and broken down by road segment as outlined below:

Road Segment: Spadina Crescent to 19th Street – Commercial Area

- Parking utilization during festivals and farmer's market were noted.
- Suggestion for secure bike parking at the farmer's market.

Road Segment: 19th Street to Jamieson Street – Commercial Area and Residential Area

- Concerns with personal safety were noted.
- Some concerns about parking loss along this stretch for the businesses.

Road Segment: Jamieson Street to 33rd Street – Residential Area

- Concerns with personal safety were noted.
- Question was asked about why we did not consider making Avenue C a one-way street and adding two-way bike lanes along the entire corridor.
- Comment that it is safe to bike here now so it is not necessary to add pavement markings and signage.
- Suggestion to add bike parking in the redevelopment area.
- Comment that curb ramp improvements would help people with mobility/visual impairments.
- Comment that the project is not needed for 4 months of the year.

Road Segment: 33rd Street to 41st Street – Residential Area and Commercial/Industrial Area

- Concern regarding safety of 33rd Street and Avenue C intersection and the difficulty of crossing the 33rd Street Intersection.
- Personal safety and crime rates were noted as concerns.
- It was noted that high traffic was moved in front of park on Avenue D with diverter at Avenue C/38th Street.
- Concerns about cost of multi-use path. Is this cost effective?
- Question about data to show that people will use facilities.
- Question as to why Avenue C was chosen for this project?
- Comment that parking for cyclists visiting 33rd Street is needed.
- How many kids need to die on 33rd Street before attention is put here?
- Cannot access 33rd Street intersection.
- Suggestion for pedestrian facilities at intersections.
- Concern regarding City debt and cost.

Road Segment: 41st Street to 45th Street - Commercial/Industrial Area

- Crime rates noted as a concern.
- Perceived low existing pedestrian and cycling use in industrial area.
- Concerns with narrowing the road (south of the rail line) to accommodate multi-use path and safety concerns about getting get out of vehicle when parked.
- Concern regarding City's parking and travel lane width standards. Don't think they are real / sufficient.
- Snow clearing was noted as a concern.
- Questions on how to ensure cyclist safety in industrial area with large trucks and semis.
- Concerns about garbage pick up as there is no room on the road.
- Concerns from adjacent businesses on the impact to their business with the multi-use path and sidewalk implementation on Avenue C north of Circle Drive. They don't think anyone will use the facility and it is not needed for connections to transit stops, as no one uses transit.

General Comments

- Questions about how many people want / would use cycling facilities on Avenue C.
- Questions about why Avenue C is the chosen route.
- Concerned about the loss of 125 parking spaces over the entire length of Avenue C.
- Several people expressed that they wanted this project cancelled and believed that this project is not needed.
- Several people expressed concerns over the funding gap (potential property tax increase) and how much this project would cost.
- Someone noted: "I can't believe this is actually being proposed. How many people have no safe way to bike to Avenue C?" – suggesting that there could be connectivity issues.
- Some people noted crime rates and that they didn't feel safe (personal safety) walking / cycling on Avenue C.
- Note to ensure that bike parking is outside of sidewalk area.
- Given the atmosphere of the room (large group of people in non-support for project), some people that were supportive of project expressed that they didn't feel comfortable adding notes or expressing their support publicly.
- Concerns regarding: "15-Minute Cities" and "UN agenda".
- Concerns about Council not listening to them.

4.3 Survey: Survey Monkey

4.3.1 Purpose

A survey was prepared in both paper and online format to gather feedback on the proposed cycling facility options. The online version was prepared using SurveyMonkey. The survey was open during the months of May and June for a total of 32 days. The survey captured 527 online participants.

Of note, these were self-administered, non-random surveys and thus results cannot be considered to be statistically significant or representative of the opinions of all residents. As with other consultation tools,

the survey findings should not be considered in isolation, but instead factored into the context of other community input and assessment methodologies.

4.3.2 Marketing Techniques

The survey was advertised on the City's Engage page, through Saskatoon's social media feeds, by direct email to stakeholder groups, and during the stakeholder and public Phase 3 engagement sessions. Flyers with information about the project and survey were delivered to the residents along Avenue C. Mini billboards were placed along Avenue C to promote the survey.

4.3.3 Input Received

4.3.3.1 Demographics & Supplemental Information

Age Range

Survey respondents **largely** represented the age cohorts of:

- 35-44 years (27%),
- 45-54 years (21%),
- 25-34 years (20%), and
- 55-64 years (17%).

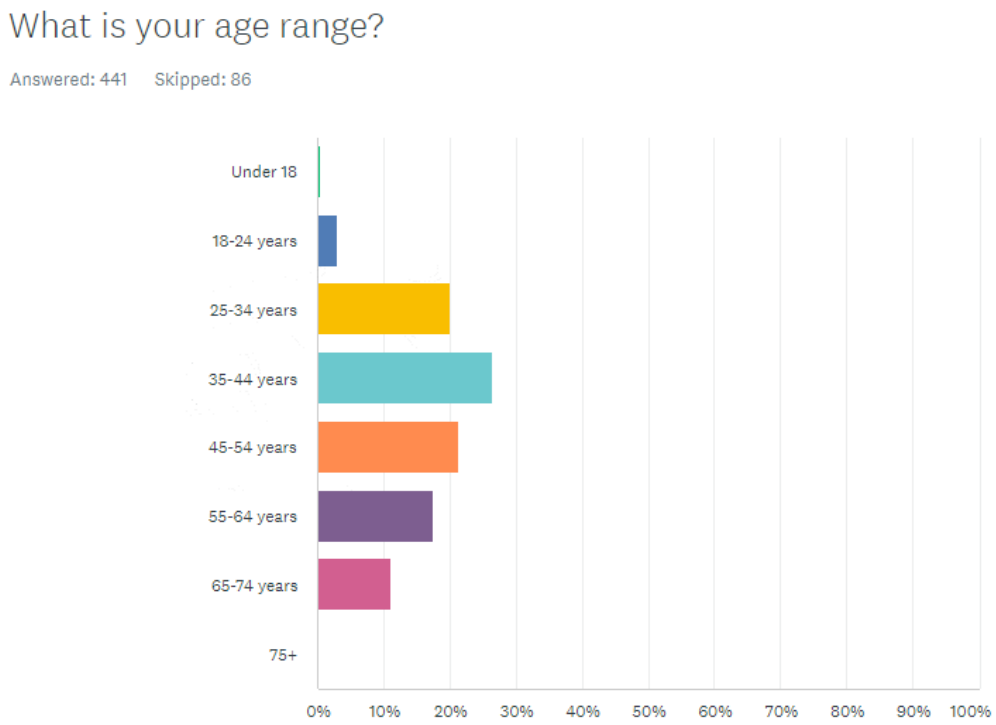


Figure 1 Age Cohort

Gender and Identity

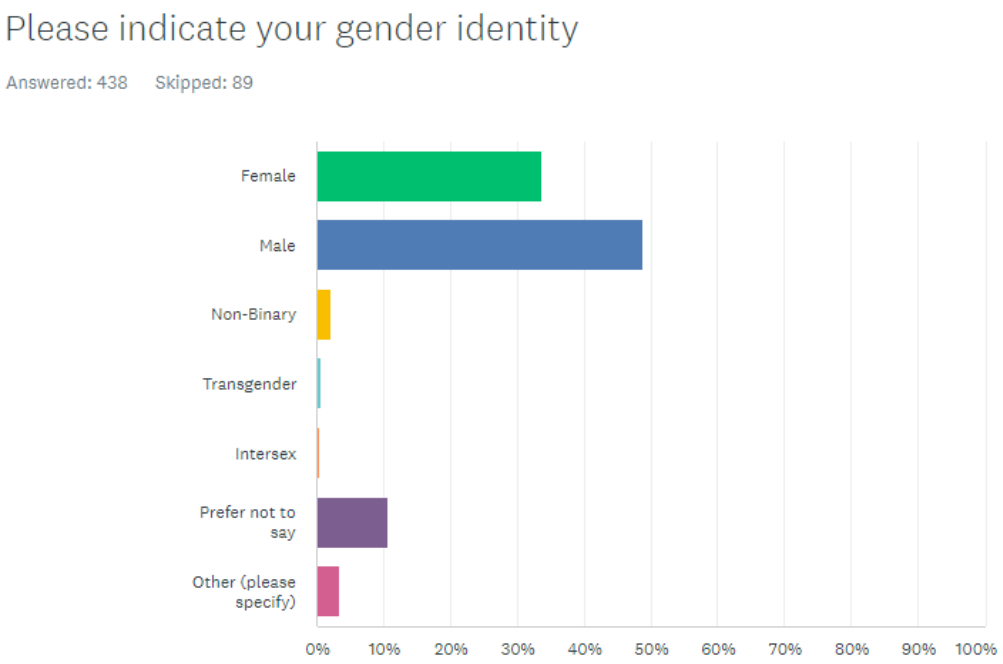


Figure 2 Gender Itentity

Males represented 49% of participants and females represented 34%. 2% of participants identified as non-binary, 0.68% as transgender and 0.46% as intersex.

12% of respondents identified as having a disability.

10% of respondents identify as being part of a visible minority group.

When asked whether participants are Indigenous, 3% identified as First Nations, and 5% identified as Métis.

Vehicles per Household

The majority of respondents (74%) indicated they have 1-2 vehicles available in their household, while 22% have 3 or more. The remaining 4% of respondents do not have a vehicle or did not specify.

Travel on Avenue C

The next set of questions focused on how and why participants travel on Avenue C. When asked why participants travel on Avenue C, the top three reasons identified were to travel to work (49%), to access shopping and restaurants (47%), and to access the river (28%).

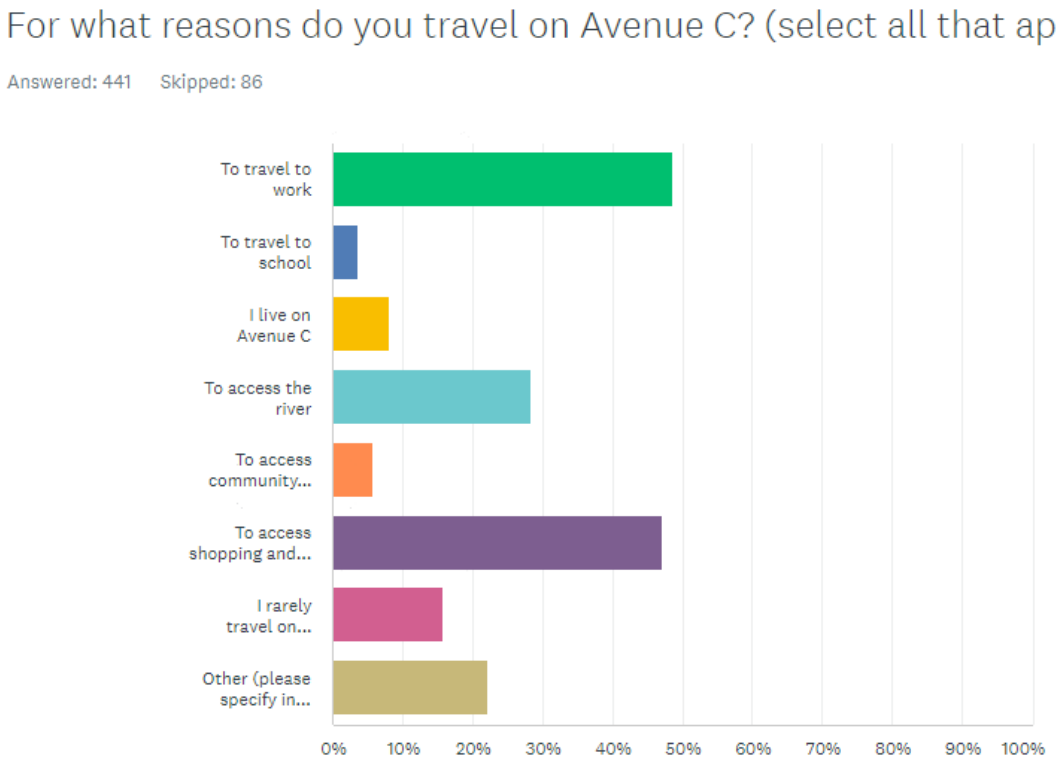


Figure 3 Reasons for Travelling on Avenue C

Other reasons included to connect to downtown bike lanes, access businesses and services, live in close proximity to Avenue C, as an access route to other parts of the City, to visit family and friends, to avoid traffic on Circle Drive, and to walk dog(s) to dog park.

Modes of Transportation

Participants were asked what mode of transportation they use and how often these modes are used on Avenue C. Travelling via personal vehicle was ranked the highest with at least 40% of respondents traveling by this mode every day and 30% every week. Walking was ranked the second highest for everyday use with 22% followed by biking at 13%. In contrast, transit consistently ranked the lowest as a mode of transportation on Avenue C, which may be a result of the few transit routes currently available on Avenue C.

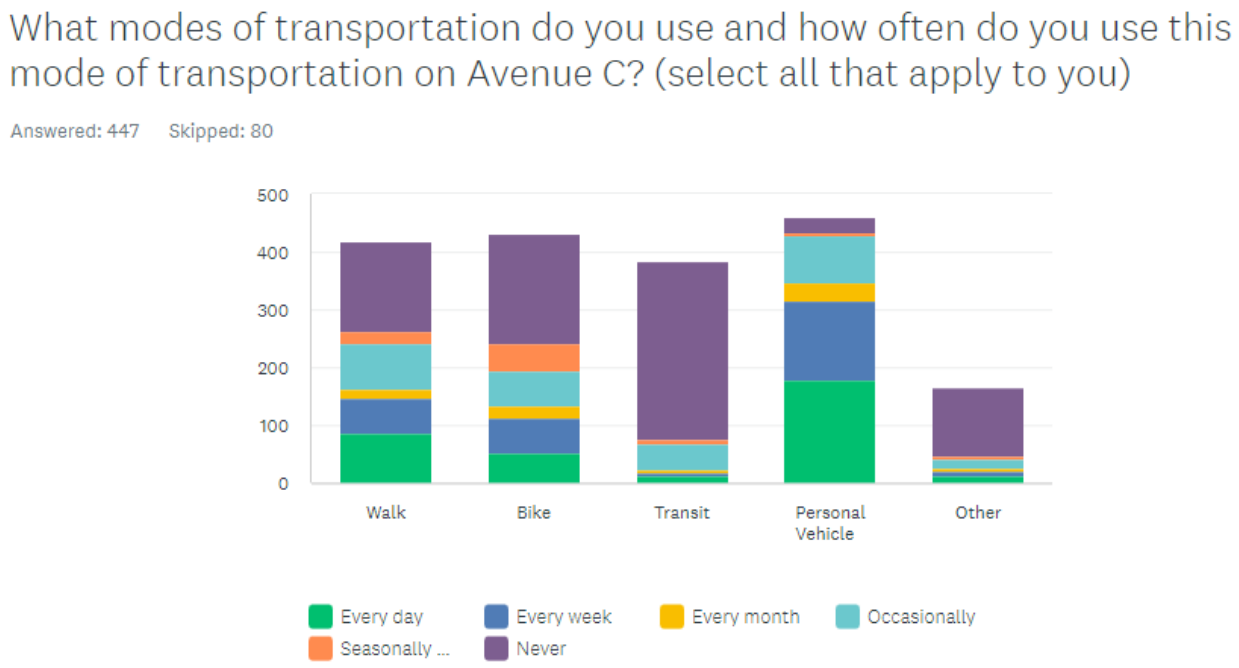


Figure 4 Modes and Frequency of Transportation

4.3.3.2 Option Rating and Feedback

In this section of the survey, participants were asked to review each of the segment options proposed and provide feedback. The feedback collected is summarized below.

Road Segment: Spadina Crescent to 19th Street – Commercial Area

Proposed Facility: Neighbourhood Bikeway

The first segment proposes a neighbourhood bikeway along Spadina Crescent to 19th Street.

Proposed Cycling Facilities - Spadina Crescent to 19th Street

Participants were asked to comment on what they liked and what potential challenges they saw for the proposed cycling facilities. The likes and potential challenges identified have been categorized into themes below.

The comments below have been categorized, summarized, and abbreviated from the raw data received in the survey.

Likes Identified:

- Reduced speed limits / traffic calming measures will increase safety for all.
- Incentivising the concept of the road as a shared space.
- Good connectivity and signage.
- Does not disrupt neighbourhood vehicle access.

"I like the raised crosswalk at 19th that is an excellent idea to slow traffic down that comes onto this street. I would have preferred to see a AAA protected bike lane in this section, but with the raised crosswalk and sidewalk bulbing this isn't a bad compromise. I appreciate that preserving parking adjacent to the park is important."

Challenges Identified:

- Concern that Council will not approve the 30 km/h speed limit.
- Not a drastic enough change from what is currently in place.
- Concern for cyclist safety – need separate bike lanes or multi-use path.

- Cyclists do not feel safe and therefore use of this facility will be low.
- Cost.

"The raised crosswalks must be bike friendly. If they have aggressive "lips" they can cause flat tires."

Road Segment: 19th Street to Jamieson Street – Commercial and Residential Area

Proposed Facility: Unidirectional Bike Lanes

The second segment proposes unidirectional bike lanes that would provide a suitable level of separation given the traffic volumes and roadway function along Avenue C from 19th Street to 25th Street. One lane of parking would need to be removed in order to implement protected bike lanes. Participants were again asked what they liked or thought would be a challenge for this facility.

Proposed Cycling Facilities – 19th Street to Jamieson Street

Likes Identified:

- General agreement that this is a good design overall and would greatly improve safety.
- Clearly indicated bike lanes – support for the differentiation using a bright green color.
- Protected bike lanes – physical separation is safer for cyclists – support for the raised curb.
- Improvements at rail crossing.

"Providing a clearly defined, protected space for cyclists will make it so much easier to cycle, especially with my kids. As a long time neighbourhood resident who has also leased commercial

property in this area, this will be a huge benefit, making the area more attractive and easy to access for residents, visitors and employees."

Potential Challenges Identified:

- Concern for visibility at intersections and ensuring vehicles yield when turning across the path of the bike lanes.
- Concern that bike lanes won't be kept clear in winter and will therefore not be useable during that time.
- Loading/unloading passengers block bike lanes.
- Separated bike lanes should be extended to 25th Street in order to reach a safer neighborhood street.
- Concern for opening car doors into the cycling lane.
- Concern that people will park vehicles and constantly walk across bike lane which will surprise cyclists.
- Drivers claiming that cyclists "came out of nowhere" because they were obstructed from view by parked cars.
- Loss of parking.

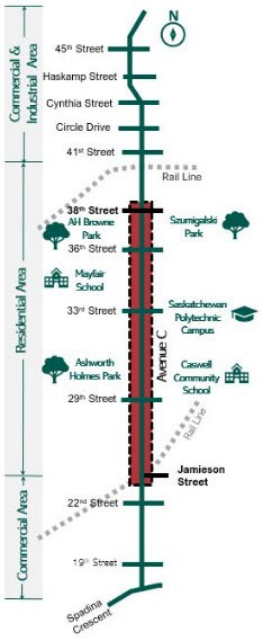
"Consistent winter infrastructure. I feel that if the bike lanes are not consistently cleared, people will not be able to use them and it will feed into the narrative that cycling isn't a valid form of winter transportation."

Road Segment: Jamieson Street to 38th Street – Residential Area

Proposed Facility: Neighbourhood Bikeway

Given the traffic volumes and operating speeds of the residential area along Avenue C from Jamieson Street to 38th Street, a neighbourhood bikeway was determined to be the most appropriate option for this section of the Avenue C corridor.

Proposed Cycling Facilities – Jamieson Street to 38th Street



Likes Identified:

- Does not disrupt parking.
- Support for 30 km/h speed reduction (as long as it is properly enforced).
- Curb ramps benefit others like parents with strollers and persons using wheelchairs.
- Connectivity with other cycling infrastructure.
- More trees being planted.
- Gets riders close to Saskatchewan Polytechnic Campus.
- Quickest to implement.
- Proximity / access to important landmarks / services (e.g., schools and parks).
- No interruptions in cycling routes by pedestrians.

"I love the 30 km/h speed limit. It feels like a 30 zone there anyway (even as a driver, I couldn't imagine going much faster on that road), and it would make the street safer."

Potential Challenges Identified:

- Does not help protect cyclists from drivers – potential for conflict.
- Concern that Council will not approve 30 km/h speed limit.
- General concern that drivers will not obey 30 km/h posted speed limit which will put cyclists in danger.
- Cost.
- Not family friendly – concern for cycling on roads with children.
- Concern that it might be cancelled.
- Concern for sharing the roads in winter conditions – safety of cyclists.
- Not enough of a change from current design.

- Concern for cyclists getting "doored" by parked cars because they're pressured to keep out of cars' way.

"Lack of clearly defined space for cyclists means that it may not be as comfortable having kids bike through this area."

"Shared lanes are still at the mercy of drivers; a little driver education re safe passing distance etc. would help a lot."

Road Segment: 38th Street to 41st Street – Residential and Commercial/Industrial Area

Proposed Facility: Multi-Use Path

A 3.0 m wide raised multi-use path on the east side of Avenue C is proposed for 38th Street to 41st Street, which would provide a suitable level of separation from vehicles.

Proposed Cycling Facilities – 38th Street to 41st Street

Likes Identified:

- Separated and dedicated lane - bike lane is separated from the vehicles.
- A multi-use pathway will provide safety for cyclists, skateboarders, and people on scooters.
- General agreement that this is an improvement from the current design – reasonable compromise.
- Strategically removing parking.

- Provides safe cycling route to the north end.

"I like the multi use path and that it serves as a safe space for active transportation of all types. Glad to keep the sidewalk as well."

Potential Challenges Identified:

- Pedestrian and cyclist path within multi-use pathway is not labeled.
- Concern that it may be cancelled.
- Ramps are sometimes quite rough and tough to bike on.
- Segregated to one side of street, difficult to access other side, difficulty in making turns to opposite side.
- Cost.
- Loss of parking.
- Not really necessary in this area.

"Transitions from previous sections of bike lanes to this could be problematic and confusing especially as both bike lanes on same side. I would not cross over to bike lane for two blocks."

Road Segment: 41st Street to 45th Street – Commercial/Industrial Area

Proposed Facility: Multi-Use Path on East Side and Sidewalk on West Side

A multi-use path on the east side was determined to be the most appropriate option for 41st Street to 45th Street. The 3.0 m raised multi-use path is located on the east side due to light standards near the curb on the west side and provides a suitable level of separation from vehicles. The path replaces the existing sidewalk since both pedestrians and cyclists share it. Four travel lanes are maintained; however, the northbound lanes need to be narrowed slightly from 41st Street to Circle Drive. Modifications at the Circle Drive intersection are included to improve safety for pedestrians and cyclists crossing at the intersection.

Proposed Cycling Facilities – 41st Street to 45th Street

Likes Identified:

- Cyclist separation / protection from traffic.
- General agreement that this is better than current design.
- Like that it is a bi-directional MUP.
- Grade separation increases safety and access to businesses along this stretch for cyclists.
- Continuity of east side shared path.
- New sidewalk being added for pedestrians.
- Allows non-vehicle users to access services and facilities.
- Increases safety in an area that is very dangerous for cyclists and pedestrians.
- Good upgrade for employees who work in this area.
- Helps to create a more walkable/rideable area that is safer and more enjoyable.

"This would make cycling possible on a stretch that I would never consider using otherwise."

Potential Challenges Identified:

- Preference is for a dedicated, separate cycling lane.
- There is no shade for pedestrians or cyclists.
- No wind protection due to lack of trees.
- Not on both sides of the road making it less safe for cyclists who need to cross - learning curve for traffic turning right.
- Difficulty entering/exiting the multi-use path.

- Concern of unpleasant interactions between cyclists and pedestrians.
- Electric bikes that speed on multi use paths.
- Perceived as not being needed.
- General cost and cost of extra land.

"Almost all of the development is on the west side of Ave C in that section. So, as a cyclist, there's no way to access most of that area. Crossing Avenue C in that section is dangerous in a small car, let alone on a bike or on foot."

5. Additional Comments

Participants had the opportunity to provide additional comments at the end of the survey:

- General support for proposed improvements and hope that it goes ahead.
- Concern that facility options will never be built – project will be cancelled.
- Frustrations and questions as to why gender, race, minority status was asked / and how it is relevant to the project.
- City in need of AAA Active Transportation infrastructure – Admin must educate the public and Council on this issue.
- Sidewalks need to be improved for people in wheelchairs.
- Frustrations that facility option votes from previous survey not influencing final proposed design.
- Concerns around financial deficit and cost of project.
- Timing of project is not ideal given the economical state of the world.
- Suggest that option costs are included in survey.
- Too many open answered questions on this survey.

The community also had the opportunity to email comments to the City directly or enter comments on the project Engage Page, which are summarized below:

- *Support for the Avenue C project and the benefits it will provide the community such as:*
  - benefits many residential areas where there are lots of families, pedestrians, schools, and community amenities
  - goes through a number of shopping and business areas (benefitting both those shopping and working at those destinations)
  - provides access to the river
  - provides a good north-south route for AT in the west
  - reduces the speed limit
  - adds some new sidewalk infrastructure
  - includes some sections of dedicated protected paths

  "I hope that the work doesn't get bogged down by financial and political concerns as the plans are very encouraging."

- *Concern over City adding to City debt and cost on taxpayers for building bike lanes for usage 4 months of the year.*

- *Concern about snow clearing and maintenance of the bike lanes during the winter months.*

6. Next Steps

The feedback received during Phase 3 Engagement will be used to help finalize the Connecting Avenue C design for walking and cycling facilities along Avenue C.

APPENDIX

F-1

EXTERNAL STAKEHOLDERS
EDUCATION
University of Saskatchewan Students' Union
Caswell Community School
Mayfair Library Branch
EcoQuest school program
Saskatchewan Polytechnic
Saskatoon Community Youth Arts Programming (SCYAP)
MOBILITY/RECREATIONAL USERS
Bridge City Bicycle Co-Op
Saskatoon Cycles
Walking Saskatoon
Bus Riders of Saskatoon
EQUITY/ACCESSIBILITY/ADVOCACY
Canadian National Institute for the Blind (CNIB)
SaskAbilities
Vision Loss Rehabilitation Saskatchewan
Saskatoon Council on Aging
Saskatoon Food Bank and Learning Centre
Salvation Army
OutSaskatoon
Core Neighbourhood Youth Co-op
Inclusion Saskatchewan
Renters of Saskatoon and Area
Crocus Cooperative
COMMUNITY ASSOCIATIONS
Caswell Community Association
Hudson Bay Park Mayfair Kelsey Woodlawn Community Association
Riversdale Community Association
BUSINESS/ECONOMIC
Riversdale Business Improvement District (BID)
Downtown BID
33rd Street BID
North Saskatoon Business Association

INDIGENOUS
Central Urban Métis Federation Inc. (CUMFI)
Gabriel Dumont Institute
ENVIRONMENTAL
Eco Friendly Saskatoon
Climate Justice Saskatoon
Saskatchewan Environmental Society
Meewasin Valley Authority
Saskatoon Youth Climate Committee
SOS Trees Coalition
Wild About Saskatoon
TRANSPORTATION/INFRASTRUCTURE
Airport Business Area/North Industrial
HEALTH
Saskatoon Health Authority

APPENDIX

F-2

Saskatoon
TRANSPORTATION
MASTER PLAN

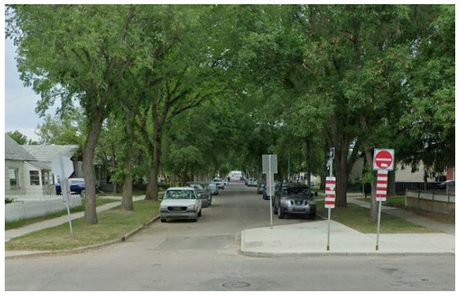
Connecting Avenue C

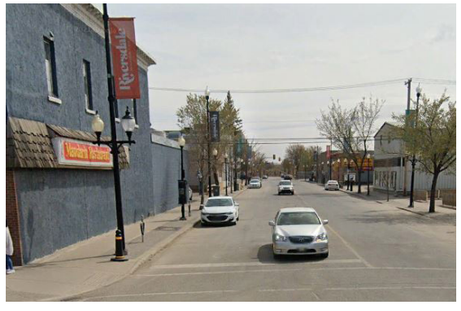
Walking and Cycling Improvements

ABOUT THE PROJECT

Saskatoon TRANSPORTATION MASTER PLAN

The City of Saskatoon is committed to improving active transportation options for residents and visitors. In support of the City's active transportation goals, **Avenue C** has been identified as an **All Ages and Abilities (AAA) cycling route** to be designed as a safe and inclusive space for all modes of transportation that **connects the people of Saskatoon to each other and to many destinations in the City**.





Key goals of the study include:

Designing a **safe, comfortable, and accessible walking and cycling corridor** along Avenue C

Engaging residents throughout plan development to **understand local priorities and concerns**

Creating a plan that will **consider the needs of all users.**

PROJECT LOCATION

Saskatoon TRANSPORTATION MASTER PLAN

The project is focused on the design **of All Ages and Abilities (AAA) cycling facilities** and **improvements to walking facilities** on Avenue C from Spadina Cresent to 45th Street in Saskatoon. The Avenue C corridor crosses many different types of land uses including commercial, residential, and industrial.

LEGEND

- Study Corridor
- Future AAA Cycling Network
- Future Multi-Modal Corridor
- Existing Off-Street Pathway
- Existing Neighbourhood Bikeway
- Existing Protected Bikeway

PROJECT TIMELINE & PUBLIC ENGAGEMENT

Saskatoon TRANSPORTATION MASTER PLAN

This round of engagement will be focused on us sharing and collecting feedback on the proposed designs before a final report detailing the findings and recommendations will be presented to the Standing Policy Committee on Transportation (SPCT) in Fall 2023.

Public and stakeholder engagement will be conducted at key points throughout the project, including:

COMPLETED

Phase 1
Online Questionnaire
Stakeholder Workshop

SPRING 2022

Identifying Opportunities and Challenges

COMPLETED

Phase 2
Online Questionnaire
Stakeholder Workshops
Community Session

FALL 2022

Exploring Options

WE ARE HERE

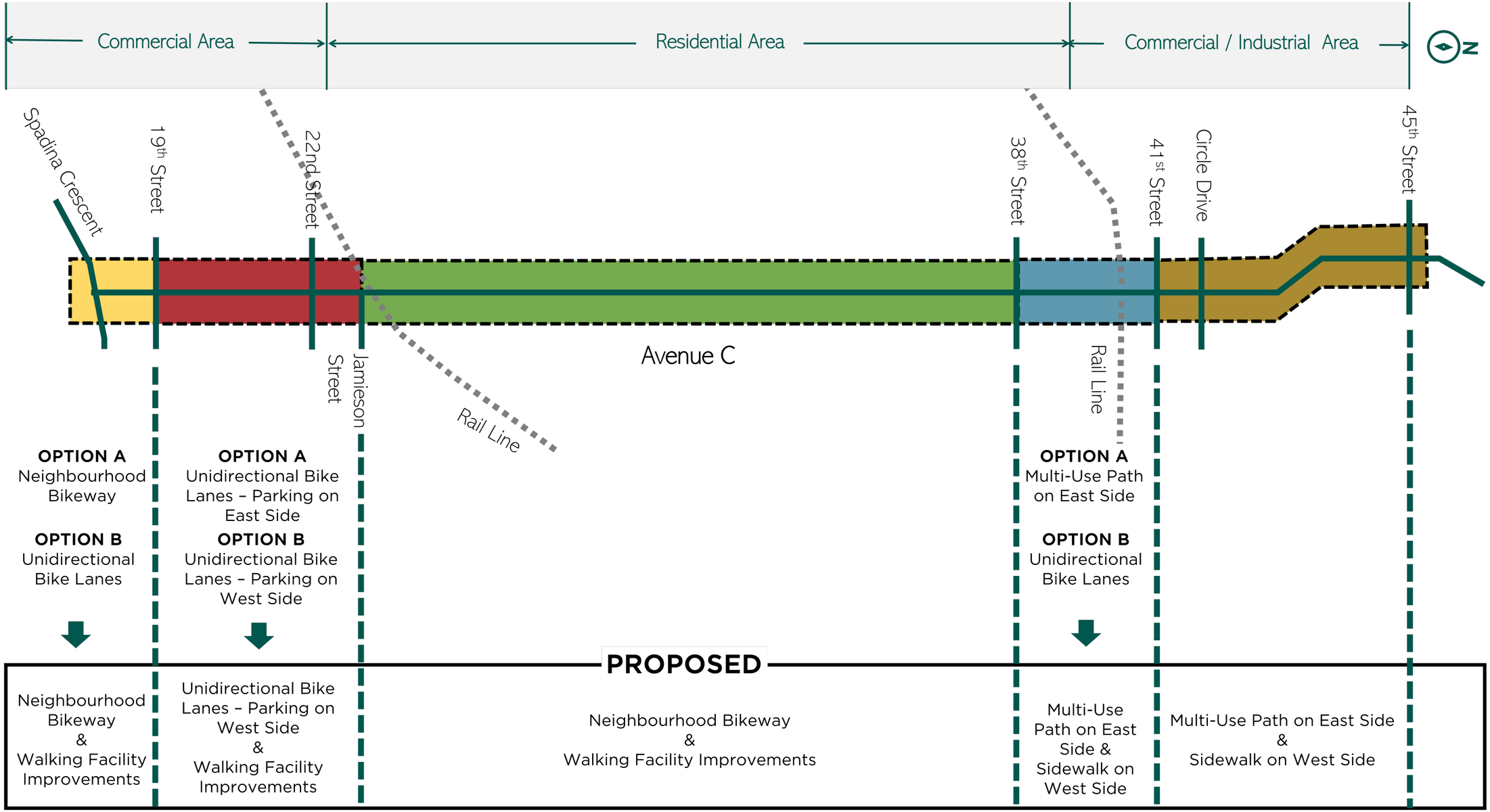
Phase 3
Online Questionnaire
Stakeholder Workshops
Community Session

LATE SPRING 2023

Proposed Design

POSSIBLE CYCLING & WALKING FACILITIES
OPTION SUMMARY

Saskatoon TRANSPORTATION MASTER PLAN



PHASE 2 ENGAGEMENT SUMMARY

Common themes from the Phase 2 feedback include:

- Desire to widen sidewalks to enhance comfort and safety for all users.
- Concern with the number of pedestrians and cyclists crossing Avenue C, especially in school zones.
- Desire to prioritize pedestrians and cyclists over vehicular traffic.
- Concerns around the removal of parking on certain segments of Avenue C.
- Desire to increase landscaping along the corridor and to retain existing green space and trees.
- Concerns for cyclist safety and concerns regarding sharing the road with vehicle traffic.
- Concern regarding potential conflicts between pedestrian and cyclists on shared, multi-use paths.

PROPOSED CYCLING FACILITIES
SPADINA CRESCENT TO 19TH STREET

Saskatoon TRANSPORTATION MASTER PLAN

Neighbourhood bikeways are on-street routes designed to move cyclists, pedestrians, and vehicles comfortably and safely. Neighbourhood bikeways typically include a range of treatments such as signage, pavement markings and traffic calming.

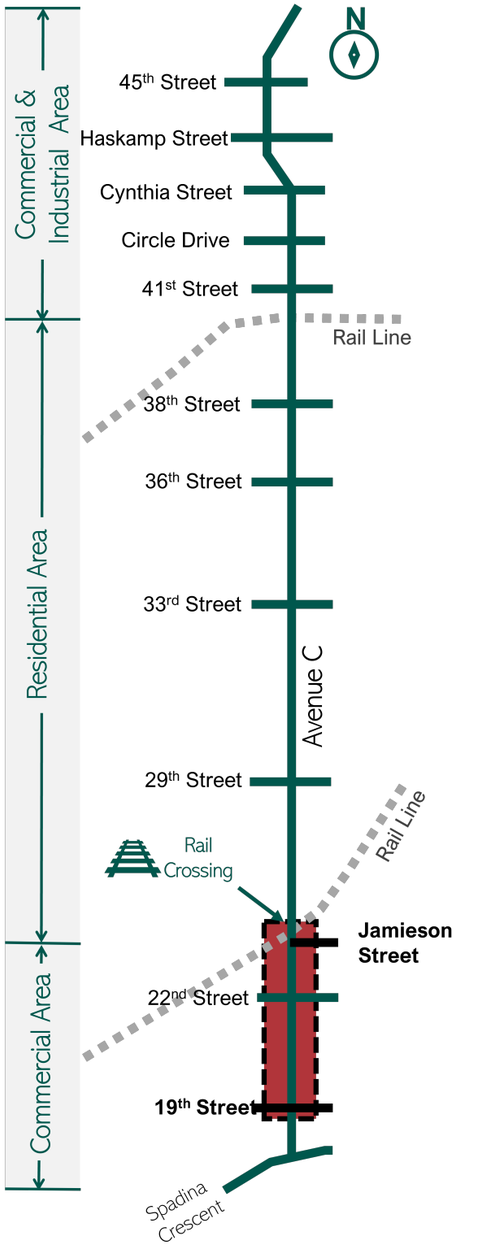
The proposed design includes:

- Neighbourhood bikeway on Avenue C from Spadina Crescent to 19th Street.
- Parking on both sides of Avenue C.
- Retaining existing sidewalks on both sides of Avenue C.

Sample cross section of neighbourhood bikeway on Avenue C. Recommended posted speed 30 km/h pending Council approval.

PROPOSED CYCLING FACILITIES
19TH STREET TO JAMIESON STREET

Saskatoon TRANSPORTATION MASTER PLAN



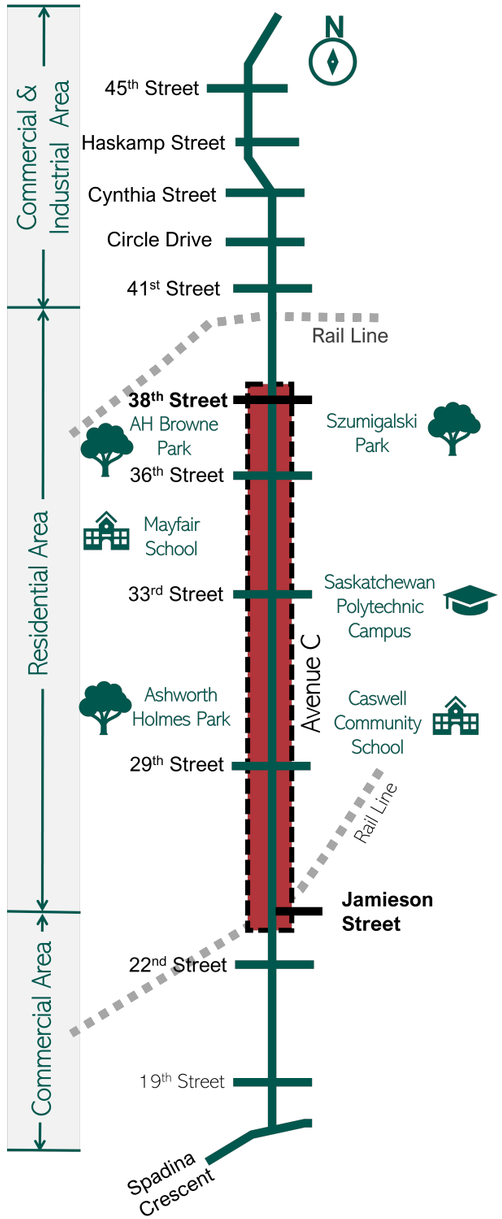
Unidirectional bike lanes are physically separated, on-street lanes designated exclusively for one-way bike travel. Cyclists will be physically separated from vehicles by a raised curb. Cyclists can enter/exit at intersections and vehicles are blocked from entering the bike lane.

The proposed design includes:
- Street level unidirectional bike lanes on Avenue C from 19th Street to Jamieson Street.
- Parking on the west side of Avenue C.
- Retaining existing sidewalks on both sides of Avenue C.

Sample cross section of unidirectional bike lanes on Avenue C.

PROPOSED CYCLING FACILITIES
JAMIESON STREET TO 38TH STREET

Saskatoon TRANSPORTATION MASTER PLAN



Neighbourhood bikeways typically include a range of treatments such as signage, pavement markings and traffic calming.

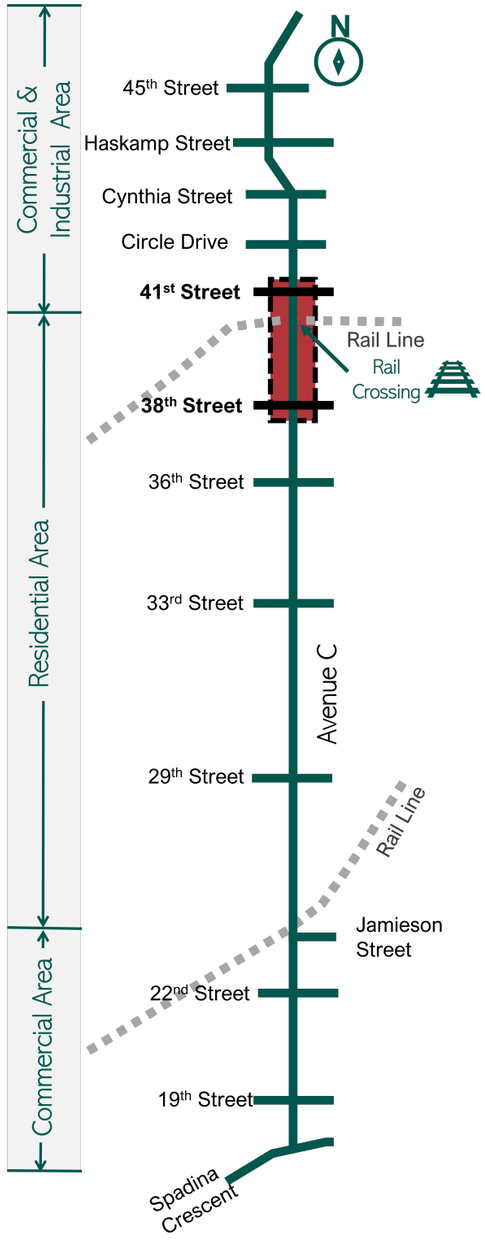
The proposed design includes:

- Neighbourhood bikeway on Avenue C from Jamison Street to 38th Street with parking on both sides.
- Installing missing curb ramps along Avenue C.
- Retaining existing sidewalks on both sides of Avenue C.

Sample cross section of neighbourhood bikeway on Avenue C. Recommended posted speed 30 km/h pending Council approval.

PROPOSED CYCLING FACILITIES
38TH STREET TO 41ST STREET

Saskatoon TRANSPORTATION MASTER PLAN



Multi-use paths are off-street facilities that are physically separated from vehicles and run alongside or nearby roadways. These paths allow for two-way travel and are shared by pedestrians, cyclists and other non-motorized users.

The proposed design includes:

- Sidewalk level multi-use pathway on the east side of Avenue C from 38th Street to 41st Street.
- Retaining the sidewalk on the west side of Avenue C.
- Removing parking on the east side of Avenue C from 38th Street to 39th Street and retaining parking on the west side only.
- Parking would be retained on both sides of the street north of 39th Street.

Sample cross section of multi-use pathway on Avenue C.

PROPOSED CYCLING FACILITIES
41ST STREET TO 45TH STREET

Saskatoon TRANSPORTATION MASTER PLAN

Multi-use paths allow for two-way travel and are shared by pedestrians, cyclists and other non-motorized users.

The proposed design includes:

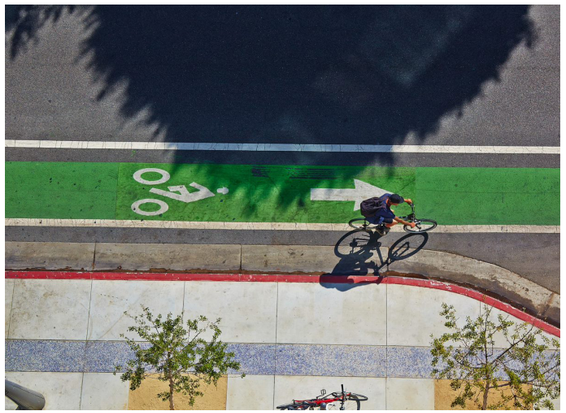
- Sidewalk level multi-use pathway on the east side of Avenue C from 41st Street to 45th Street.
- Retaining the sidewalk on the west side of Avenue C between 41st Street and Circle Drive.
- A new sidewalk on the west side of Avenue C, north of Circle Drive.

Sample cross section of multi-use pathway on Avenue C. Additional property would be required.

INTERSECTION IMPROVEMENTS

Saskatoon TRANSPORTATION MASTER PLAN

Pavement markings



Pavement markings (I.e., green paint) will be used to indicate the path for cyclists through intersections and driveways. This treatment improves the safety of the intersection by increasing the visibility of the bicycle lane and helps to reinforce that cyclists have priority in these areas.

Two-stage turn boxes

Two-stage turn boxes provide a safe waiting area for left-turning cyclists at some intersections.

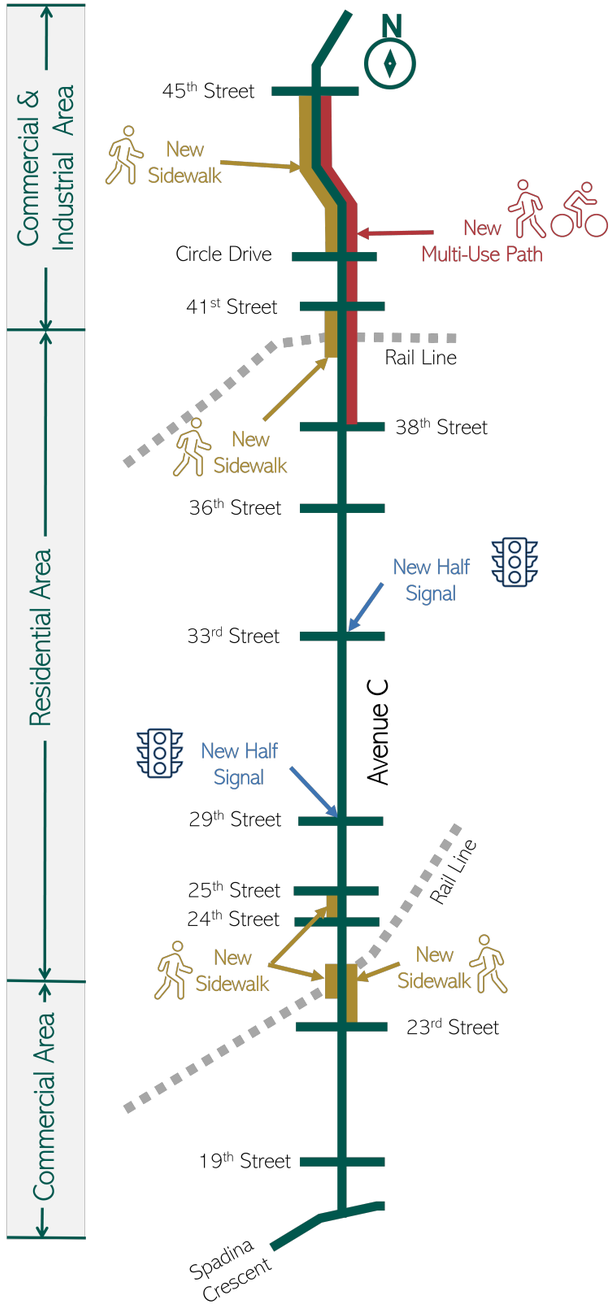
Curb extensions

Curb extensions will be added at some intersections to reduce the speed of vehicles.

Bicycle signals

Bicycle signals provide direction to cyclists when crossing a street.

IMPROVEMENTS TO WALKING FACILITIES



The proposed design includes enhancements to walking facilities in the project area:

- **New sidewalks** and **multi-use paths** will be added to improve the connectivity of walking facilities.
- **Curb extensions** will be added at some intersections to decrease the pedestrian crossing distance and reduce the speed of vehicles.
- **Zebra pavement markings** will be added to some pedestrian crossing locations to enhance the crosswalk visibility.
- **Curb ramps** will be added at intersections to improve accessibility.
- **Pedestrian and cyclist actuated half signals** will be added on Avenue C at 29th Street and 33rd Street to improve safety for pedestrians and cyclists.
- **Formalized rail line crossings** will be added.

Example of Typical Sidewalk

Example of Zebra Pavement Markings

PARKING IMPACTS

The proposed design maintains existing parking for much of the corridor; however:

- On Avenue C between 19th Street and Jamieson Street adding unidirectional bike lanes would require that 85 parking spaces be removed on the east side and 18 parking spaces be removed on the west side, resulting in the loss of 103 parking spaces.
- On Avenue C between 38th Street and 39th Street adding a multi-use path would require that parking is removed on the east side, resulting in the loss of 22 parking spaces.

Avenue C - 19th and 20th Street

Avenue C - 20th and 21st Street

Avenue C - 21st and 22nd Street

Avenue C - 22nd and 23rd Street

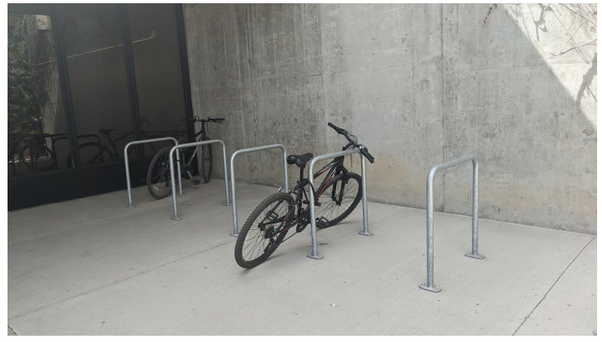
Avenue C - 38th and 39th Street

LANDSCAPING AND AMENITIES

- The proposed design maintains existing landscaping and amenities for much of the corridor as most of the proposed changes are within the curb-to curb space and do not impact the existing boulevard areas.
- Potential new locations for bicycle parking have been identified throughout the corridor.
- North of 38th Street a multi-use path is proposed on the east side and a sidewalk is proposed on the west side of Avenue C in the existing boulevard space.
- Some trees and landscaping may be impacted where new sidewalks and multi-use paths are proposed.

Proposed location for bike parking
Isinger Park

Example of bike rack



Example of bike rack

NEXT STEPS

The next steps for Connecting Avenue C Walking and Cycling improvements include:

Finalize the proposed design

SUMMER 2023

Prepare final report

SUMMER 2023

Present to Standing Policy Committee on Transportation

FALL 2023

GIVE FEEDBACK

Saskatoon TRANSPORTATION MASTER PLAN

Your input will help create a plan for connecting Avenue C that supports the needs of all users. We look forward to hearing from you!

SCAN ME

Complete the project survey to **share your initial thoughts** by June 30th 2023:

https://www.surveymonkey.com/r/AvenueC

Sign up to **receive updates about the project** by visiting the City of Saskatoon's Engage Page at:

https://www.saskatoon.ca/engage

APPENDIX

G FUNCTIONAL DESIGN DRAWINGS

See Sheet 2

LEGEND:

- SHARROW STENCIL
- BICYCLE LANE
- CYCLIST CROSSING
- SIDEWALK IMPROVEMENTS
- RAISED CONCRETE
- RAISED BICYCLE LANE
- RAISED CROSSWALK
- PARKING AREA
- SIGNALIZED INTERSECTION
- CYCLIST STOP SIGN
- STOP SIGN
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- SPEED LIMIT SIGN
- RAISED BARRIER CURB
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- BICYCLE PUSH BUTTON
- NO PARKING ALLOWED
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- PROPOSED PAVEMENT

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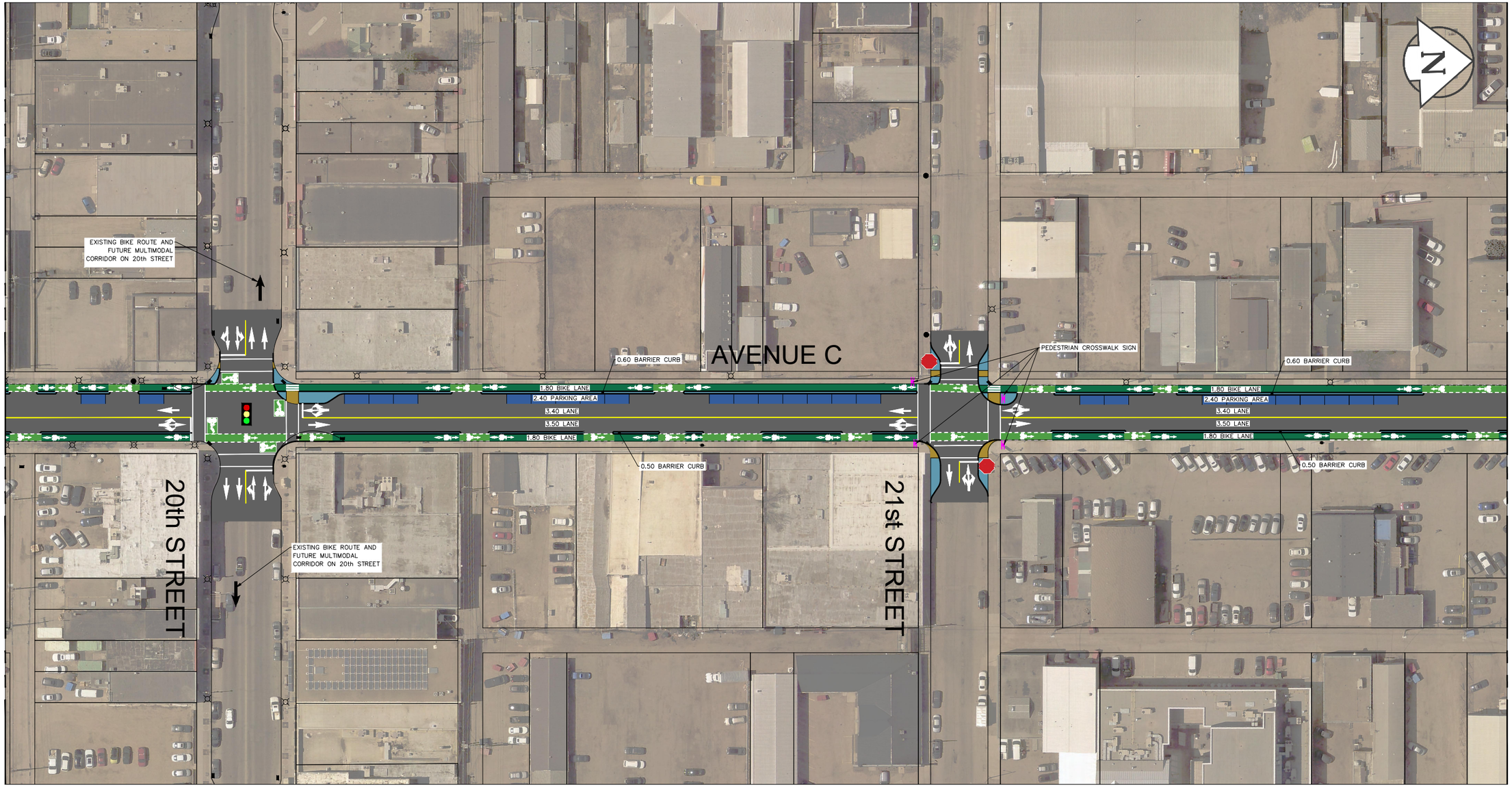
See Sheet 1



See Sheet 3

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See Sheet 2

See Sheet 4

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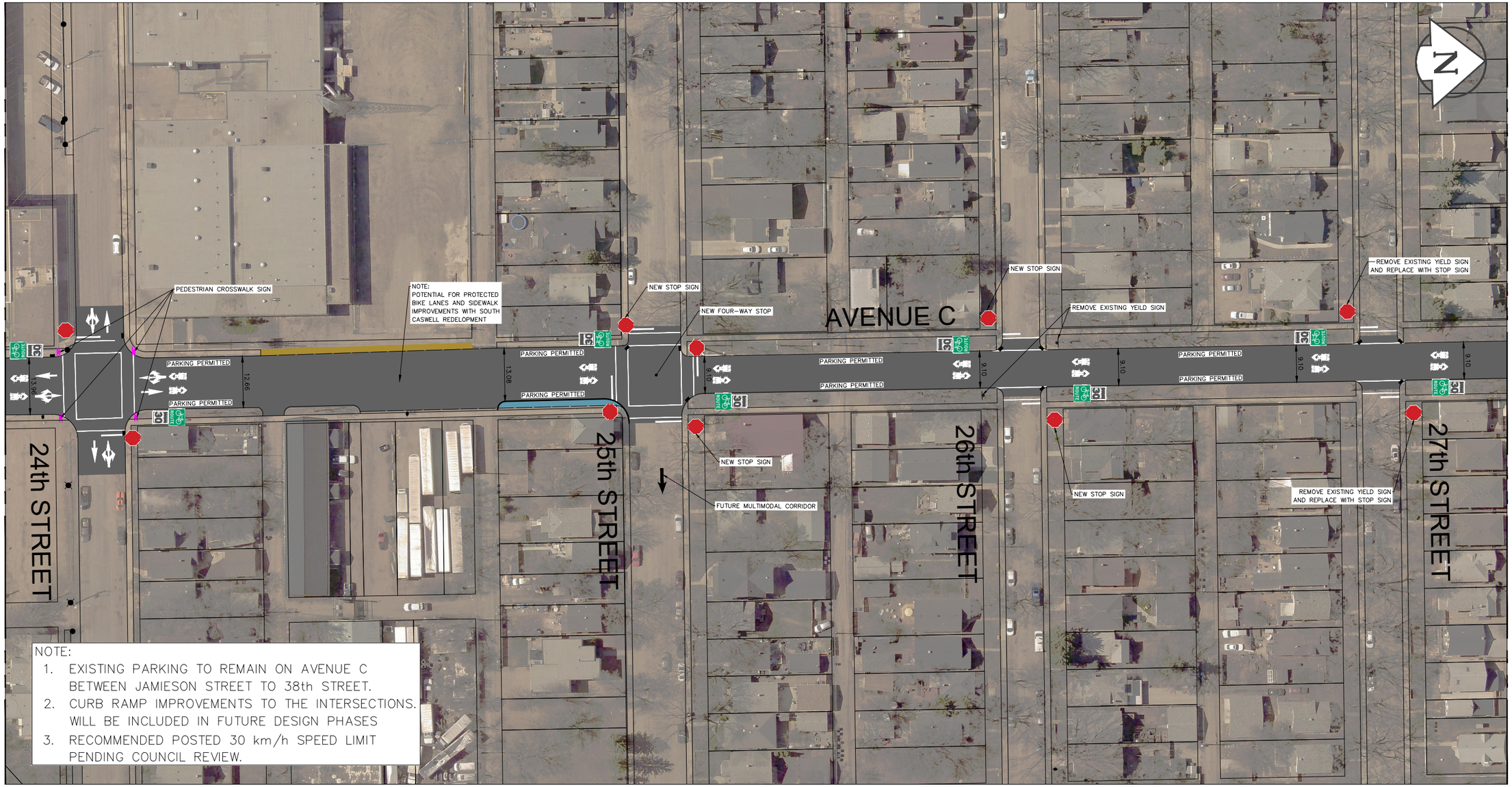

NOTE:
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See Sheet 4

See Sheet 6

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See Sheet 5

See Sheet 7

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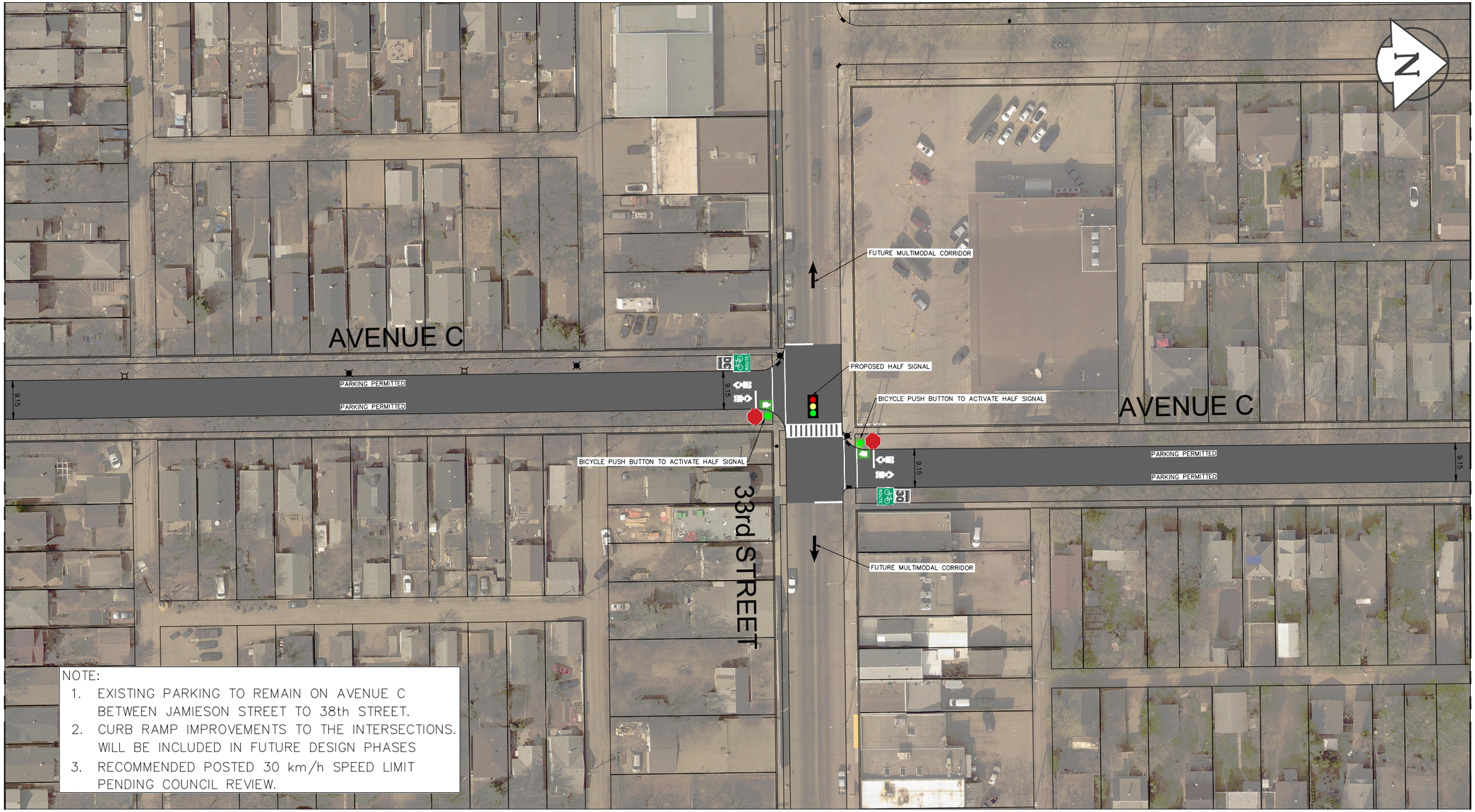
See Sheet 6



See Sheet 8

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See Sheet 7

See Sheet 9

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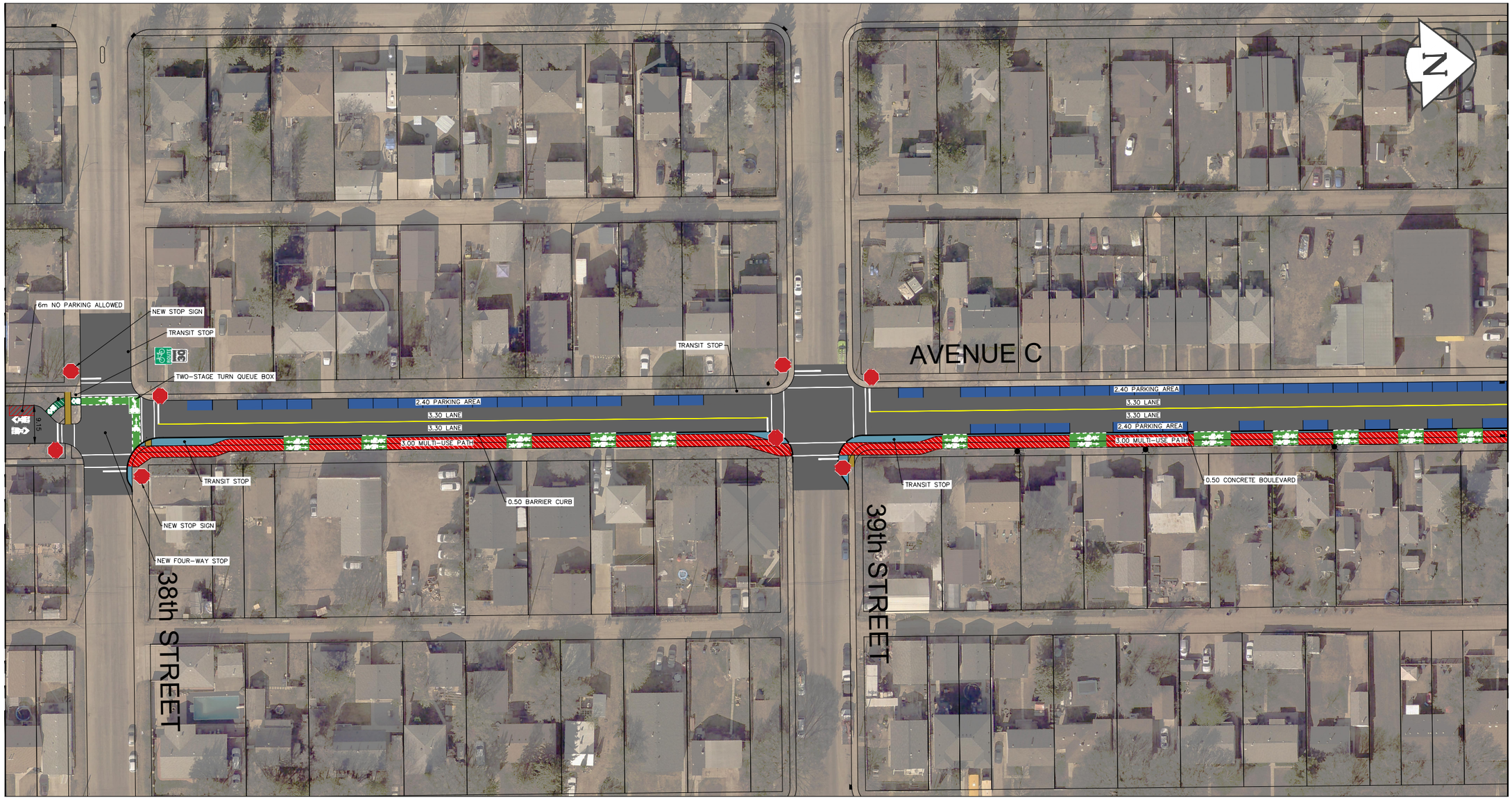

See Sheet 11

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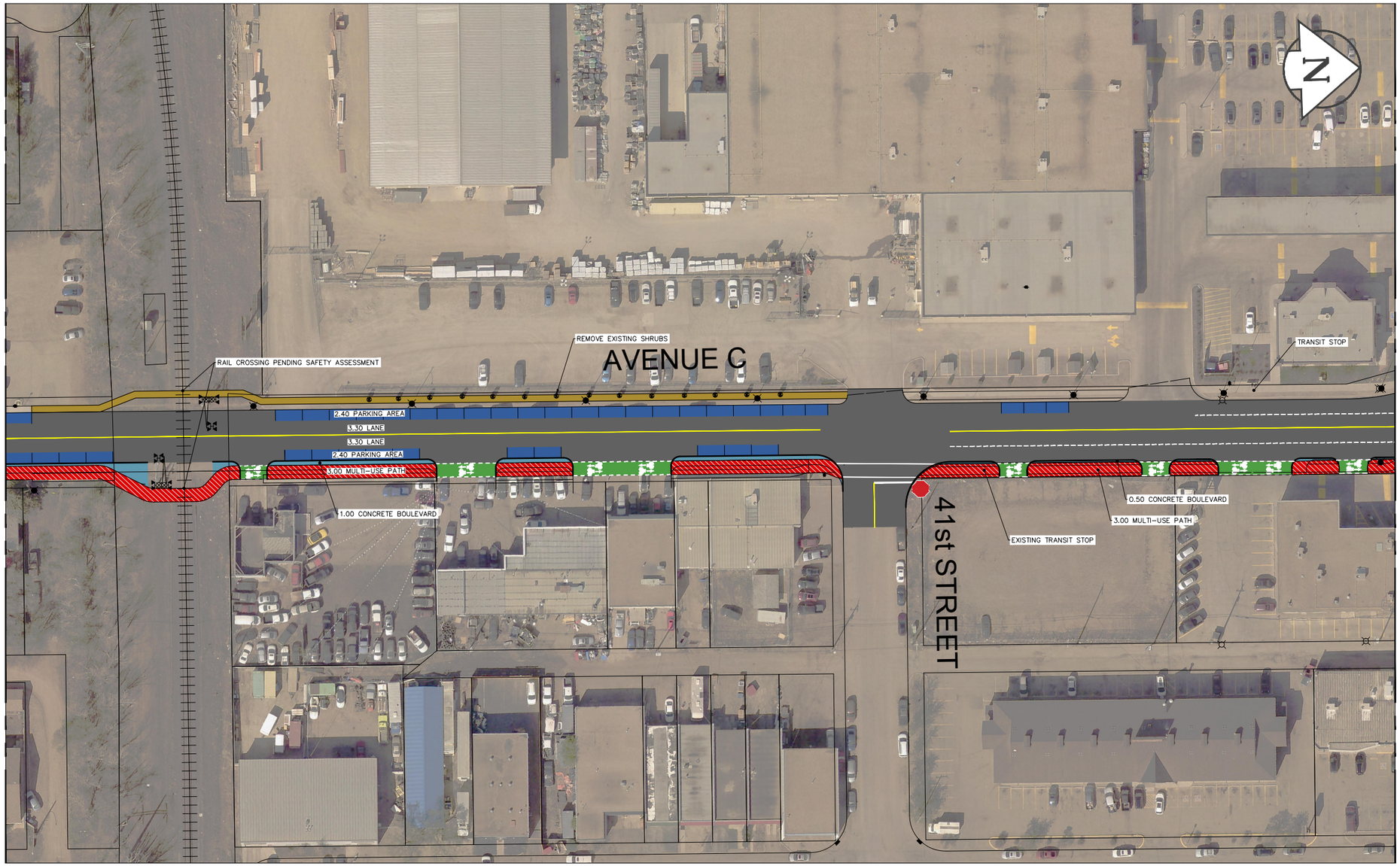

See Sheet 12

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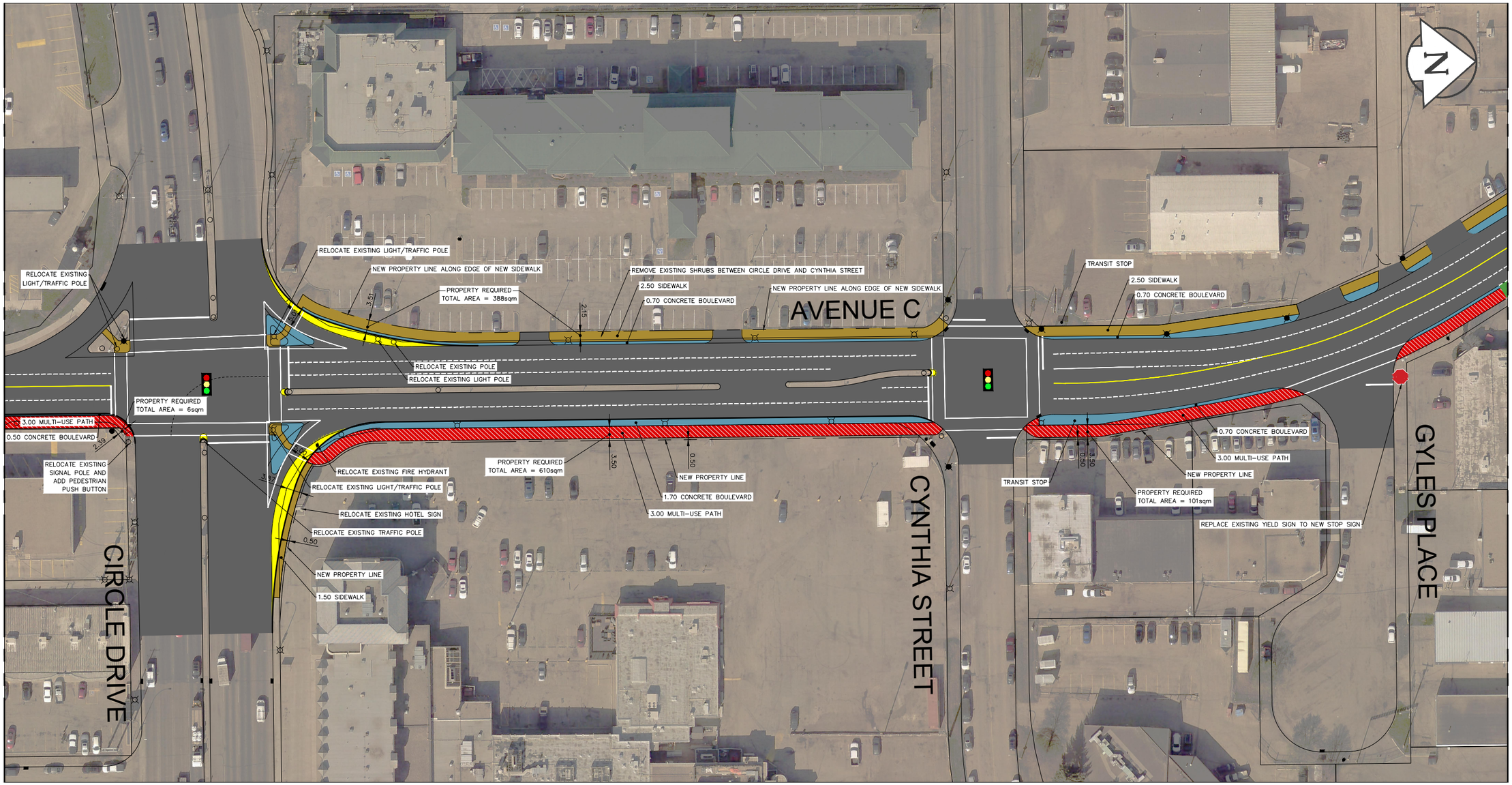

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- SIGNALIZED INTERSECTION
- CYCLIST STOP SIGN
- STOP SIGN
- EXISTING ROAD PAVEMENT
- PEDESTRIAN CROSSWALK SIGN
- SPEED LIMIT SIGN
- RAISED BARRIER CURB
- BICYCLE ROUTE SIGN
- BICYCLE PUSH BUTTON
- NO PARKING ALLOWED
- MULTI-USE PATH
- PROPOSED PAVEMENT

NOTE:
These design documents are prepared solely for the use by the party with whom the design professional has entered into a contract and there are no representations of any kind made by the design professional to any party with whom the design professional has not entered into a contract.

FOR REVIEW ONLY

METRIC
DECIMALIZED NUMBERS INDICATE METRES

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1600 Buffalo Place
Winnipeg, MB R3T 6B8
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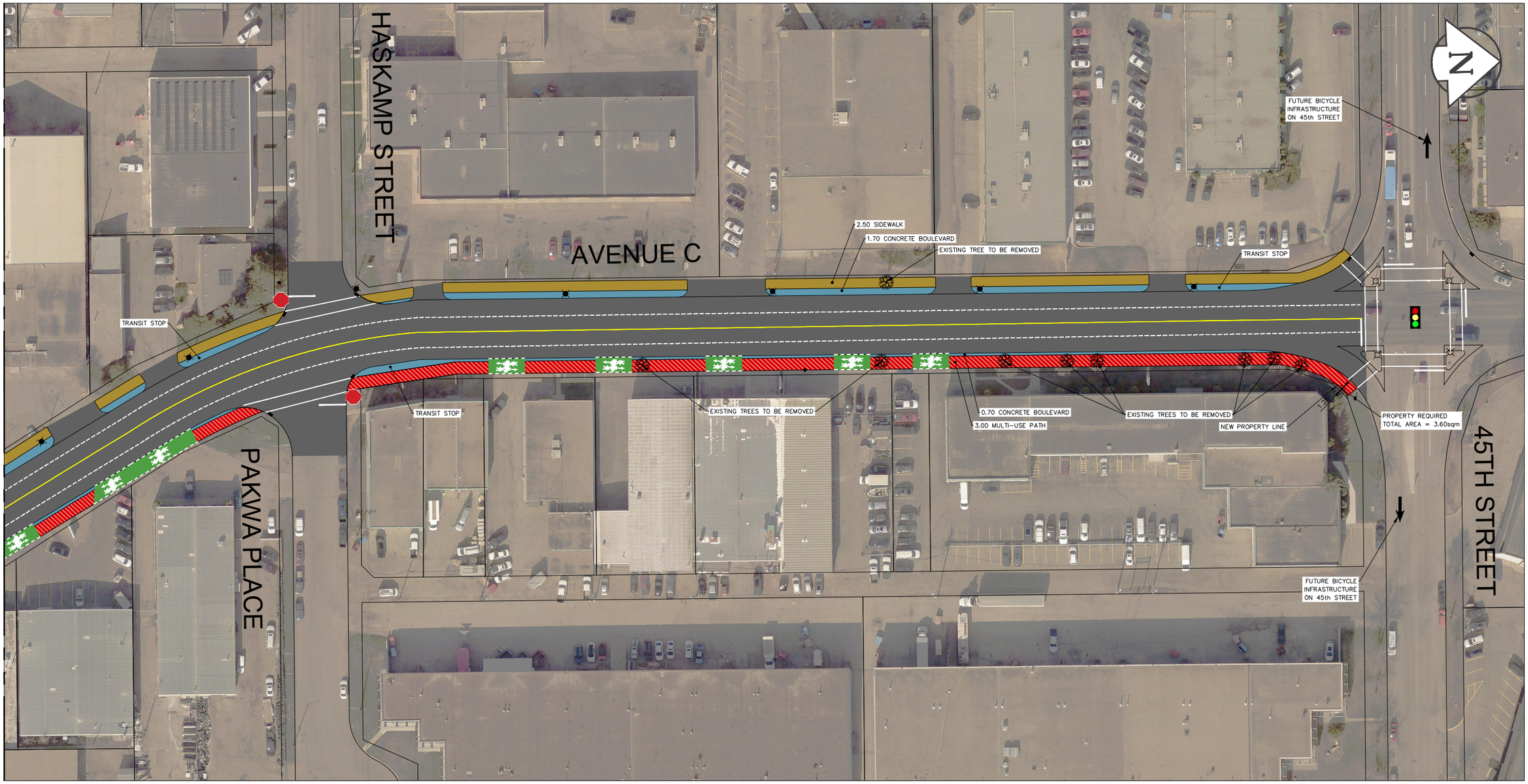
THE CITY OF SASKATOON
AVENUE C ACTIVE TRANSPORTATION CORRIDOR
FUNCTIONAL DESIGN

SCALE:	DATE:	DWG. No.
1:1000	5/31/2023	Sheet 12

See Sheet 12



LEGEND:

- SHARROW STENCIL
- BICYCLE LANE
- CYCLIST CROSSING
- SIDEWALK IMPROVEMENTS
- RAISED CONCRETE
- RAISED BICYCLE LANE
- RAISED CROSSWALK
- PARKING AREA
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SCALE:	DATE:	DWG. No.
1:1000	5/31/2023	Sheet 13

APPENDIX

H TRAFFIC MODEL RESULTS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	420	1356	98	59	558	289	58	125	21	228	77	313
Future Volume (vph)	420	1356	98	59	558	289	58	125	21	228	77	313
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	175.0		0.0	105.0		0.0	0.0		0.0	135.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	20.0			16.0			7.6			13.0		
Lane Util. Factor	1.00	0.86	0.86	1.00	0.91	0.91	1.00	1.00	1.00	1.00	0.95	0.95
Ped Bike Factor		1.00						1.00				
Frt		0.988			0.948			0.976			0.883	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1659	5918	0	1659	4520	0	1659	1701	0	1659	2930	0
Flt Permitted	0.141			0.088			0.497			0.278		
Satd. Flow (perm)	246	5918	0	154	4520	0	868	1701	0	486	2930	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			92			5			344	
Link Speed (k/h)		70			50			50			50	
Link Distance (m)		385.2			461.1			267.9			199.6	
Travel Time (s)		19.8			33.2			19.3			14.4	
Confl. Peds. (#/hr)			10	10								
Confl. Bikes (#/hr)									1			
Peak Hour Factor	0.84	0.75	0.65	0.70	0.88	0.86	0.76	0.87	0.75	0.85	0.80	0.91
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	500	1808	151	84	634	336	76	144	28	268	96	344
Shared Lane Traffic (%)												
Lane Group Flow (vph)	500	1959	0	84	970	0	76	172	0	268	440	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	9.0	15.0		9.0	15.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	14.5	21.6		14.5	23.6		16.5	24.5		16.5	35.5	
Total Split (s)	36.0	68.0		19.0	51.0		25.0	25.0		38.0	38.0	
Total Split (%)	24.0%	45.3%		12.7%	34.0%		16.7%	16.7%		25.3%	25.3%	
Yellow Time (s)	3.0	3.5		3.0	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.5	2.1		2.5	2.1		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.5	5.6		5.5	5.6		6.5	6.5		6.5	6.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	86.4	70.5		55.8	45.4		28.9	17.9		51.6	34.1	
Actuated g/C Ratio	0.58	0.47		0.37	0.30		0.19	0.12		0.34	0.23	
v/c Ratio	1.05	0.70		0.53	0.68		0.34	0.83		0.71	0.47	
Control Delay	93.3	34.0		38.3	44.0		38.5	92.6		48.3	12.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	93.3	34.0		38.3	44.0		38.5	92.6		48.3	12.3	
LOS	F	C		D	D		D	F		D	B	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		46.1			43.6			76.0			25.9	
Approach LOS		D			D			E			C	
Queue Length 50th (m)	~152.7	137.6		11.7	84.7		14.7	48.3		59.1	11.4	
Queue Length 95th (m)	#197.1	121.9		16.8	97.6		22.0	#82.1		79.1	17.9	
Internal Link Dist (m)		361.2			437.1			243.9			175.6	
Turn Bay Length (m)	175.0			105.0						135.0		
Base Capacity (vph)	474	2788		196	1432		308	219		413	962	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	1.05	0.70		0.43	0.68		0.25	0.79		0.65	0.46	

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Offset: 22.5 (15%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 115			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.05			
Intersection Signal Delay: 44.0		Intersection LOS: D	
Intersection Capacity Utilization 81.6%		ICU Level of Service D	
Analysis Period (min) 15			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

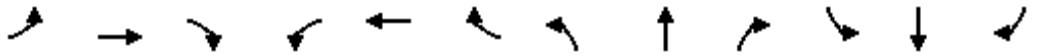
Splits and Phases: 1: Avenue C & Circle Dr

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	420	1356	98	59	558	289	58	125	21	228	77	313
Future Volume (vph)	420	1356	98	59	558	289	58	125	21	228	77	313
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	175.0		0.0	105.0		0.0	0.0		0.0	135.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	20.0			16.0			7.6			13.0		
Lane Util. Factor	1.00	0.86	0.86	1.00	0.91	0.91	1.00	1.00	1.00	1.00	0.95	0.95
Ped Bike Factor		1.00		1.00				0.99		0.99		
Frt		0.988			0.948			0.976			0.883	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1659	5918	0	1659	4520	0	1659	1695	0	1659	2930	0
Flt Permitted	0.139			0.089			0.379			0.337		
Satd. Flow (perm)	243	5918	0	155	4520	0	662	1695	0	580	2930	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			83			6			344	
Link Speed (k/h)		70			50			50			50	
Link Distance (m)		385.2			461.1			267.9			199.6	
Travel Time (s)		19.8			33.2			19.3			14.4	
Confl. Peds. (#/hr)			10	10					15	15		
Confl. Bikes (#/hr)									1			
Peak Hour Factor	0.84	0.75	0.65	0.70	0.88	0.86	0.76	0.87	0.75	0.85	0.80	0.91
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	500	1808	151	84	634	336	76	144	28	268	96	344
Shared Lane Traffic (%)												
Lane Group Flow (vph)	500	1959	0	84	970	0	76	172	0	268	440	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	9.0	15.0		9.0	15.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	14.5	21.6		14.5	23.6		16.5	35.5		16.5	35.5	
Total Split (s)	51.0	73.5		17.9	40.4		16.6	35.6		23.0	42.0	
Total Split (%)	34.0%	49.0%		11.9%	26.9%		11.1%	23.7%		15.3%	28.0%	
Yellow Time (s)	3.0	3.5		3.0	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.5	2.1		2.5	2.1		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.5	5.6		5.5	5.6		6.5	6.5		6.5	6.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	93.4	77.8		55.3	45.1		31.6	21.6		44.5	28.0	
Actuated g/C Ratio	0.62	0.52		0.37	0.30		0.21	0.14		0.30	0.19	
v/c Ratio	0.90	0.64		0.53	0.68		0.37	0.69		0.92	0.53	
Control Delay	55.2	28.0		46.5	46.7		42.8	72.4		81.4	13.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	55.2	28.0		46.5	46.7		42.8	72.4		81.4	13.9	
LOS	E	C		D	D		D	E		F	B	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		33.5			46.6			63.3			39.5	
Approach LOS		C			D			E			D	
Queue Length 50th (m)	110.9	113.3		10.6	88.7		17.0	48.3		68.2	12.9	
Queue Length 95th (m)	#149.9	113.6		20.2	109.2		23.1	66.8		#90.8	18.1	
Internal Link Dist (m)		361.2			437.1			243.9			175.6	
Turn Bay Length (m)	175.0			105.0						135.0		
Base Capacity (vph)	585	3076		184	1417		206	333		290	956	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.85	0.64		0.46	0.68		0.37	0.52		0.92	0.46	

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 115			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 39.2		Intersection LOS: D	
Intersection Capacity Utilization 87.8%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: Avenue C & Circle Dr



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	208	1065	79	93	1175	201	155	114	38	378	152	687
Future Volume (vph)	208	1065	79	93	1175	201	155	114	38	378	152	687
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	175.0		0.0	105.0		0.0	0.0		0.0	135.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	20.0			16.0			7.6			13.0		
Lane Util. Factor	1.00	0.86	0.86	1.00	0.91	0.91	1.00	1.00	1.00	1.00	0.95	0.95
Ped Bike Factor		1.00		1.00	1.00		1.00	1.00			0.98	
Frt		0.985			0.976			0.962			0.875	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1659	5893	0	1659	4632	0	1659	1674	0	1659	2845	0
Flt Permitted	0.062			0.152			0.216			0.196		
Satd. Flow (perm)	108	5893	0	265	4632	0	376	1674	0	342	2845	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21			31			9			215	
Link Speed (k/h)		70			50			50			50	
Link Distance (m)		385.2			461.1			267.9			199.6	
Travel Time (s)		19.8			33.2			19.3			14.4	
Confl. Peds. (#/hr)	2		11	11		2	8					8
Confl. Bikes (#/hr)									1			
Peak Hour Factor	0.88	0.91	0.62	0.89	0.88	0.79	0.76	0.73	0.73	0.88	0.95	0.86
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	236	1170	127	104	1335	254	204	156	52	430	160	799
Shared Lane Traffic (%)												
Lane Group Flow (vph)	236	1297	0	104	1589	0	204	208	0	430	959	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	9.0	15.0		9.0	15.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	14.5	21.6		14.5	23.6		16.5	16.5		16.5	35.5	
Total Split (s)	22.0	67.0		20.0	65.0		25.0	25.0		38.0	38.0	
Total Split (%)	14.7%	44.7%		13.3%	43.3%		16.7%	16.7%		25.3%	25.3%	
Yellow Time (s)	3.0	3.5		3.0	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.5	2.1		2.5	2.1		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.5	5.6		5.5	5.6		6.5	6.5		6.5	6.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max		None	None		None	Ped	
Act Effct Green (s)	81.0	65.4		70.0	59.4		35.7	18.5		56.5	32.8	
Actuated g/C Ratio	0.54	0.44		0.47	0.40		0.24	0.12		0.38	0.22	
v/c Ratio	1.03	0.50		0.47	0.86		0.86	0.97		1.06	1.65dr	
Control Delay	110.7	31.0		24.7	46.3		73.2	116.1		102.4	145.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	110.7	31.0		24.7	46.3		73.2	116.1		102.4	145.7	
LOS	F	C		C	D		E	F		F	F	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		43.3			45.0			94.9			132.3	
Approach LOS		D			D			F			F	
Queue Length 50th (m)	~60.1	78.3		14.6	154.9		44.8	60.1		~122.3	~159.2	
Queue Length 95th (m)	#111.7	92.6		24.3	169.2		57.6	#77.8		#181.7	#201.6	
Internal Link Dist (m)		361.2			437.1			243.9			175.6	
Turn Bay Length (m)	175.0			105.0						135.0		
Base Capacity (vph)	229	2580		265	1852		250	214		405	789	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	1.03	0.50		0.39	0.86		0.82	0.97		1.06	1.22	

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Offset: 22.5 (15%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 115			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.22			
Intersection Signal Delay: 72.7		Intersection LOS: E	
Intersection Capacity Utilization 94.5%		ICU Level of Service F	
Analysis Period (min) 15			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			
dr Defacto Right Lane. Recode with 1 though lane as a right lane.			

Splits and Phases: 1: Avenue C & Circle Dr

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	208	1065	79	93	1175	201	155	114	38	378	152	687
Future Volume (vph)	208	1065	79	93	1175	201	155	114	38	378	152	687
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	175.0		0.0	105.0		0.0	0.0		0.0	135.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	20.0			16.0			7.6			13.0		
Lane Util. Factor	1.00	0.86	0.86	1.00	0.91	0.91	1.00	1.00	1.00	1.00	0.95	0.95
Ped Bike Factor		1.00		1.00	1.00			0.99		0.99	0.98	
Frt		0.985			0.976			0.962			0.875	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1659	5893	0	1659	4632	0	1659	1665	0	1659	2845	0
Flt Permitted	0.061			0.148			0.136			0.353		
Satd. Flow (perm)	107	5893	0	258	4632	0	238	1665	0	609	2845	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21			31			10			172	
Link Speed (k/h)		70			50			50			50	
Link Distance (m)		385.2			461.1			267.9			199.6	
Travel Time (s)		19.8			33.2			19.3			14.4	
Confl. Peds. (#/hr)	2		11	11		2	8		15	15		8
Confl. Bikes (#/hr)									1			
Peak Hour Factor	0.88	0.91	0.62	0.89	0.88	0.79	0.76	0.73	0.73	0.88	0.95	0.86
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	236	1170	127	104	1335	254	204	156	52	430	160	799
Shared Lane Traffic (%)												
Lane Group Flow (vph)	236	1297	0	104	1589	0	204	208	0	430	959	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	9.0	15.0		9.0	15.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	14.5	21.6		14.5	23.6		16.5	35.5		16.5	35.5	
Total Split (s)	20.0	69.8		17.2	67.0		19.0	36.0		27.0	44.0	
Total Split (%)	13.3%	46.5%		11.5%	44.7%		12.7%	24.0%		18.0%	29.3%	
Yellow Time (s)	3.0	3.5		3.0	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.5	2.1		2.5	2.1		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.5	5.6		5.5	5.6		6.5	6.5		6.5	6.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max		None	Ped		None	Ped	
Act Effct Green (s)	80.3	65.7		71.7	61.4		42.0	29.5		56.5	37.5	
Actuated g/C Ratio	0.54	0.44		0.48	0.41		0.28	0.20		0.38	0.25	
v/c Ratio	1.14	0.50		0.48	0.83		1.10	0.62		1.16	1.62dr	
Control Delay	144.3	30.7		24.7	43.5		134.4	61.5		133.1	118.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	144.3	30.7		24.7	43.5		134.4	61.5		133.1	118.5	
LOS	F	C		C	D		F	E		F	F	

4:15 p.m. - 5:15 p.m. Crossing added to east leg of intersection

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		48.2			42.3			97.6			123.1	
Approach LOS		D			D			F			F	
Queue Length 50th (m)	~66.9	78.3		14.6	151.2		~53.7	54.6		~130.1	~153.9	
Queue Length 95th (m)	#118.3	90.8		24.3	165.2		#77.8	63.8		#208.8	#196.3	
Internal Link Dist (m)		361.2			437.1			243.9			175.6	
Turn Bay Length (m)	175.0			105.0						135.0		
Base Capacity (vph)	207	2592		235	1914		185	335		372	840	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	1.14	0.50		0.44	0.83		1.10	0.62		1.16	1.14	

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 125			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.16			
Intersection Signal Delay: 71.0		Intersection LOS: E	
Intersection Capacity Utilization 103.9%		ICU Level of Service G	
Analysis Period (min) 15			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			
dr Defacto Right Lane. Recode with 1 though lane as a right lane.			

Splits and Phases: 1: Avenue C & Circle Dr

APPENDIX

I COST ESTIMATE

Item	Units	Quantity					2023
		Area 1 (Spadina to 19th)	Area 2 (19th to Jamieson)	Area 3 (Jamieson to 38th)	Area 4 (38th to 41st)	Area 5 (41st to 45th)	Unit Price
New Consctuction							
Sidewalk	sq.m.	10	245	95	295	1365	$ 105.00
Conc Median	sq.m.	160	335	45	220	1295	$ 110.00
Curb	m.	120	2470	40	435	490	$ 125.00
Asphalt Path	sq.m.	0	0	0	1175	1780	$ 150.00
Raised Crosswalk	sq.m.	60	0	0	0	0	$ 100.00
Road	sq.m.	0	40	0	0	180	$ 350.00
Relocations/Modification							
Catch Basin	Each	2	13	2	0	0	$ 8,000.00
Hydrant	Each	0	1	2	0	0	$ 15,000.00
Signal							
New Half Signal c/w Bike Push Button	Each	0	0	2	0	0	$ 250,000.00
Add Advaced Bike Signal to Existing Signals	Each	0	3	0	0	0	$ 100,000.00
Circle Drive Signal Modifications	Each	0	0	0	0	1	$ 500,000.00
Relocate Signal Pole	Each	0	1	0	0	0	$ 50,000.00
Signage							
STOP	Each	2	7	36	8	12	$ 250.00
Cyclist STOP	Each	1	0	0	0	0	$ 250.00
30 MAX	Each	1	1	29	1	0	$ 250.00
Bike Route	Each	1	1	29	1	0	$ 250.00
Ped Crosswalk (Double Sidded)	Each	6	6	6	0	0	$ 250.00
No Parking	Each	0	0	2	0	0	$ 250.00
Transit Stop	Each	0	0	0	6	6	$ 250.00
Paint							
Sharrow - Stencil	Each	6	2	58	2	0	$ 100.00
Bike Lane - Stencil	Each	2	102	6	0	0	$ 100.00
MUP - Stencil	Each	0	0	0	10	10	$ 100.00
Bike Box	Each	0	8	0	0	0	$ 500.00
Green Road Paint	sq.m.	10	885	30	435	390	$ 50.00
Dashed White - Road	m.	0	0	0	0	1630	$ 0.75
Dashed White - Bike Lane	m.	0	950	0	280	240	$ 0.75
Solid Yellow	m.	190	690	0	360	590	$ 0.75
Solid White (Stop Bars)	m.	10	115	200	45	140	$ 1.50
Ped Crossings	m.	30	20	60	0	0	$ 25.00
Railway							
Rail Crossing Upgrades	Each	0	1	0	1	0	$ 1,000,000.00
Property							
Property Acquisition	sq.m.	0	0	0	0	1108	TBD

AVE C AT - FD Cost Estimate		Area 1 (Spadina to 19th)	Area 2 (19th to Jamieson)	Area 3 (Jamieson to 38th)	Area 4 (38th to 41st)	Area 5 (41st to 45th)	Total
Sub Total		**$ 60,607.50**	**$ 1,918,627.50**	**$ 601,125.00**	**$ 1,313,297.50**	**$ 1,204,080.00**	**$ 5,097,737.50**
Contingency	**50%**	**$ 30,303.75**	**$ 959,313.75**	**$ 300,562.50**	**$ 656,648.75**	**$ 602,040.00**	**$ 2,548,868.75**
Engineering	**15%**	**$ 13,636.69**	**$ 431,691.19**	**$ 135,253.13**	**$ 295,491.94**	**$ 270,918.00**	**$ 1,146,990.94**
Total		**$ 104,547.94**	**$ 3,309,632.44**	**$ 1,036,940.63**	**$ 2,265,438.19**	**$ 2,077,038.00**	**$ 8,793,597.19**
Rounded		**$ 0.11 M**	**$ 3.31 M**	**$ 1.04 M**	**$ 2.27 M**	**$ 2.08 M**	**$ 8.8 M**
		Phase 1		**Phase 2**	**Phase 3**		
		$ 3,414,180.38		$ 1,036,940.63	$ 4,342,476.19		