

DOWNTOWN ALL AGES AND ABILITIES CYCLING NETWORK STUDY



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Authorization

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1 CONTENTS

1.1	Table of Images	3
1.2	Table of Figures	3
2	Executive Summary	4
2.1	Summary of Assessment	5
3	Introduction	8
3.1	Study Scope	8
4	Bicycle Network Design Principles	9
4.1	City Wide Cycling Network Principles	9
4.2	All Ages and Abilities (AAA) Bicycle Network Principles	10
5	Connections to Wider Cycling Network	11
6	Integration with Key Downtown Projects	12
7	Assessment of Suitable Streets	13
7.1	Bicycle Network	14
7.1.1	Linkages to surrounding areas	14
7.1.2	Linkages with other bicycle facilities	15
7.1.3	Current and potential bicycle traffic	16
7.2	Cyclist Safety	17
7.2.1	Conflict with motor vehicles:	17
7.2.2	Merit of segregation	18
7.3	People Walking	19
7.3.1	Pedestrian improvements	19
7.3.2	Accessibility	19
7.4	Transit	20
7.4.1	Transit stop conflicts	20
7.4.2	Transit Operations	20
7.5	Business	22
7.5.1	On-Street Parking	22
7.5.2	Street environment	22
7.6	People Driving	24
7.6.1	Right-of-Way Width Constraints	24
7.6.2	Potential AAA Street Configurations	25

7.6.3	Motor vehicle traffic flow assessment.....	27
8	Overview of Network Decision Making	30
8.1	Summary of North -South Streets.....	30
8.2	Summary of East-West Streets	30
9	Proposed AAA Network	31
10	Engagement Summary	33
10.1	Stakeholder Identification.....	33
10.2	Engagement Events.....	33
10.2.1	Active Transportation Advisory Group – January 18 th , 2018	33
10.2.2	Open House – January 30 th , 2018	33
10.2.3	Active Transportation Advisory Group – February 15 th , 2018	34
10.2.4	Stakeholder Workshop – March 1 st , 2018	34
10.2.5	Public Open House – March 7 th , 2018.....	34

1.1 TABLE OF IMAGES

Image 1: Proposed AAA Network Configuration	4
Image 2: Downtown AAA Cycling Network Study Area	8
Image 3: Integration with other Downtown Projects	8
Image 4: Downtown AAA Cycling Network Project Timeline	9
Image 5: AAA Cycling Facility Types and Lane Configurations.....	26
Image 6: Overview of Assessment Results for N-S Streets	30
Image 7: Overview of Assessment Results for E-W Streets	30
Image 8: Proposed AAA Network Configuration	31

1.2 TABLE OF FIGURES

Table 1: AAA Cycling Network Principles.....	10
Table 2: Streets Eliminated from Detailed Downtown AAA Cycling Network Assessment	11
Table 3: Integration with Key Downtown Projects	12
Table 4: Bicycle Network - Linkages to Surrounding Areas for N-S streets	14
Table 5: Bicycle Network - Linkages to Surrounding Areas for E-W streets	14
Table 6: Bicycle Network: Linkages with other Bicycle Facilities for N-S streets	15
Table 7: Bicycle Network: Linkages with other Bicycle Facilities for E-W streets.....	16
Table 8: Bicycle Network: Key Destinations Served for N-S streets	16
Table 9: Bicycle Network: Key Destinations Served for E-W streets	16
Table 10: Cyclist Safety: Conflicts with Vehicles for N-S streets.....	17
Table 11: Cyclist Safety: Conflicts with Vehicles for E-W streets.....	17
Table 12: People Walking: Opportunity for Pedestrian Improvements to N-S streets	19
Table 13: People Walking: Opportunity for Pedestrian Improvements to E-W streets	19
Table 14: Transit: Transit Stop Conflicts for N-S streets	20
Table 15: Transit: Transit Stop Conflicts for E-W streets	20
Table 16: Transit: Transit Operations for N-S streets	21
Table 17: Transit: Transit Operations for E-W streets	21
Table 18: Business: Impacts to On-street Parking with Addition of Cycling Facility for N-S streets.....	22
Table 19: Business: Impacts to On-street Parking with Addition of Cycling Facility for E-W streets.....	22
Table 20: Business: Number of Building Entrances for N-S streets	23
Table 21: Business: Number of Building Entrances for E-W streets	23
Table 22: People Driving: Available Right-of-Way and Pavement Width for N-S streets	24
Table 23: People Driving: Available Right-of-Way and Pavement Width for E-W streets.....	25
Table 24: People Driving: Street Configuration with Addition of Cycling Facility for N-S streets.....	27
Table 25: People Driving: Street Configuration with Addition of Cycling Facility for E-W streets.....	27
Table 26: Motor vehicle Level of Service (LOS) Thresholds at Signalized Intersections	28
Table 27: People Driving: Intersection LOS and travel time with the addition of cycling facility for N-S streets.....	28
Table 28: People Driving: Intersection LOS and travel time with the addition of cycling facility for E-W streets.....	29
Table 29: Summary of North-South Street Assessment	32
Table 30: Summary of East-West Street Assessment	32

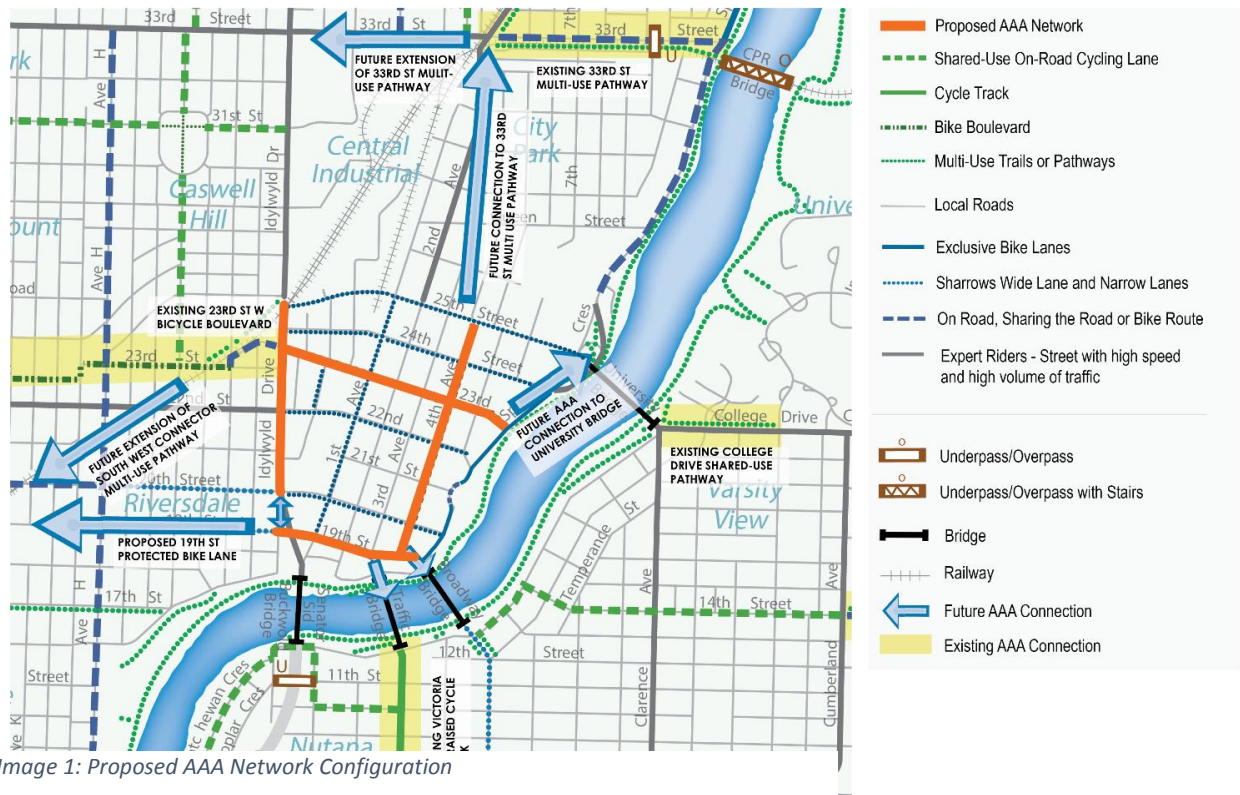
2 EXECUTIVE SUMMARY

Following the conclusion of the Downtown Protected Bike Lane Demonstration in November 2017, the Administration began the Downtown All Ages and Abilities (AAA) Cycling Network study to determine the ‘right streets’ for a complete and connected AAA cycling network in downtown Saskatoon.

To ensure that the most appropriate streets host AAA facilities, the assessment took into consideration how cycling facilities connect to Saskatoon’s wider cycling network, integration with other key downtown projects, and the impacts to all users in the downtown. In total, 12 streets were assessed using 12 factors, which correspond to one of the following six categories: Bicycle Network, Cyclist Safety, People Driving, People Walking, Transit and Business.

Selected Streets:

- North-South streets
 - Idylwyld Drive (consistent with the Imagine Idylwyld project), and
 - 4th Avenue.
- East-West streets:
 - 23rd Street, and
 - 19th Street.



These streets were selected based on a detailed understanding of trade-offs between the variety of users and functions that these downtown streets serve, striving to achieve a balance amongst all users. The network takes into consideration other downtown initiatives, integrating the impacts of those projects where applicable, as well as within the city wide cycling network.

The proposed streets introduce a network of AAA cycling facilities in the downtown, providing an interconnected system of facilities that is comfortable and attractive for all users. The streets chosen achieve the desired coverage of 400m facility spacing, and provide connections to and from downtown with all areas of the city. Improvements to connections outside of the study area have been identified and will be addressed through detailed design to ensure high-quality connections and seamless transitions.

2.1 SUMMARY OF ASSESSMENT

North-South Streets	
Idylwyld Drive 20 th Street to 25 th Street	<ul style="list-style-type: none"> The Imagine Idylwyld project recommends the inclusion of a raised cycle track through the downtown, facilitating connections between major downtown attractions such as TCU, River Landing, Farmers' Market, and major retail destination in Downtown and Riversdale. The Downtown AAA Cycling Network study supports this recommendation, and has included Idylwyld Drive in the downtown AAA network.
1st Avenue 19 th Street to 25 th Street	<ul style="list-style-type: none"> 1st Avenue, while having good connectivity beyond the study area, does not connect well with existing or planned AAA facilities. Adding a AAA facility to 1st Avenue had the largest negative impact to motor vehicles, increasing corridor travel time and decreasing LOS at key intersections such as 22nd Street. This impact to traffic was deemed to be too great a trade-off to consider 1st Avenue for the AAA network.
2nd Avenue Spadina Crescent to 25 th Street	<ul style="list-style-type: none"> 2nd Avenue has excellent connectivity beyond the study area, great downtown coverage, a number of destinations along it, and limited impact to motor vehicle travel time and LOS at intersections. However, 2nd Avenue, being a retail oriented street, also possesses the highest number of parking spaces and therefore would incur the highest number of parking losses (nearly half of the current spaces would be removed) with the inclusion of a cycling facility. This impact to parking was deemed to be too great a trade-off to consider 2nd Avenue for the AAA network.
3rd Avenue Spadina Cr to 25 th Street	<ul style="list-style-type: none"> 3rd Avenue has excellent connectivity beyond the study area, great connections to the Traffic Bridge to the south, excellent coverage through the downtown, and serves a number of destinations. However, 3rd Avenue has been identified as the route through downtown for Bus Rapid Transit (BRT). The cross section being proposed for BRT along 3rd Avenue is centre-running, and does not leave enough space for a AAA facility to be located along this street in conjunction with BRT. The presence of BRT along this street removed 3rd Avenue from consideration for the AAA network.

<p>4th Avenue 19th Street to 25th Street</p>	<ul style="list-style-type: none"> • 4th Avenue has good connectivity beyond the study area, with some challenges noted at the connection to the Broadway Bridge that should be addressed through intersection improvements. • The street is fairly central to downtown providing decent coverage, and there are city-wide destinations along this street. • Adding a AAA facility to 4th Avenue does impact motor vehicles, increasing corridor travel time and decreasing LOS at key intersections such as 22nd Street, however the impact to motor vehicles along this corridor are less than the impacts to motorist vehicles on 1st Avenue. • The addition of a AAA facility does reduce the number of parking spaces, but the impacts to parking are significantly less along 4th Avenue than 2nd Avenue. • In comparing the trade-offs between the available north-south streets, 4th Avenue was selected as a AAA network street as it offered the most balanced impact to all users.
<p>Spadina Cr 20th Street to 25th Street</p>	<ul style="list-style-type: none"> • Spadina Crescent was found to have good connectivity beyond the study area but, due to its location on the edge of downtown, the coverage and destinations served by Spadina Crescent are not as ideal as other streets more central to the downtown. • As Spadina Crescent does not have signalized intersections, impacts to motor vehicle LOS and corridor travel time would be minimal with the addition of a AAA facility. • An additional constraint with Spadina Crescent is the available width from curb-to-curb due to the wide promenade with mature trees. Due to the lack of pavement width, more than 80% of the parking along Spadina Cr would need to be removed. • This impact to parking and lack of available width removed Spadina Crescent from consideration for the AAA network.
<p>East-West Streets</p>	
<p>19th Street Avenue A to Spadina Cr</p>	<ul style="list-style-type: none"> • 19th Street was found to have good connectivity, but limited coverage due to its location at the edge of the study area. • However, the connections to Traffic Bridge and Broadway Bridge make it an excellent candidate to serve the city-wide cycling network. 19th Street west of Avenue A is also proposed to have a AAA cycling facility through the 19th Street Corridor Review Project. • The inclusion of a AAA facility had minimal impact to motor vehicle intersection LOS and corridor travel time. • Additionally, no parking would need to be removed to add a AAA facility to 19th Street. • 19th Street was selected as a AAA network street.
<p>20th Street Idylwyld Drive to Spadina Cr</p>	<ul style="list-style-type: none"> • 20th Street has good connectivity, and ok coverage of the downtown. • The street does not connect directly to any bridges, but does connect to the proposed AAA facility on Idylwyld Dr. • 20th Street has a number of retail shops and restaurants west of Idylwyld Drive, but less though downtown. • 20th Street has been identified as a future transit route (not BRT) and therefore may have conflicts with transit operations or stops in the future. • Adding a AAA facility to 20th Street does impact motor vehicles, increasing corridor travel time and decreasing intersection LOS at all intersections. • Introducing a AAA facility to 20th Street also reduces parking opportunities on the street. • 20th Street was not selected as AAA network street.
<p>22nd Street Idylwyld Drive to Spadina Cr</p>	<ul style="list-style-type: none"> • 22nd Street has decent connectivity and great coverage of the downtown due to its central location. It does not connect directly to any bridges. • Adding a AAA facility to 22nd Street does impact motor vehicles, increasing corridor travel time, however, there were no impacts to intersection LOS, with the exception of 3rd Avenue and 22nd Street (LOS B to LOS C).

	<ul style="list-style-type: none"> • 22nd Street has been identified as a curb-running BRT route (with traffic) west of 3rd Avenue, and BRT stations are proposed along this street, introducing potential conflicts with transit. • 22nd St was not selected as AAA network street.
23rd Street Idylwyld Drive to Spadina Cr	<ul style="list-style-type: none"> • 23rd Street has great connectivity and the highest coverage of downtown. It connects directly with the existing Blairmore Bikeway to the west, and connects indirectly with University Bridge to the east. • Adding a AAA facility to 23rd Street had negligible impact on motor vehicles, with no increases to corridor travel time and no impact to intersection LOS. • Additionally, the inclusion of a AAA facility had minimal impact to parking, with a reduction of 13 spaces. • Transit is currently operating on 23rd Street, but with the implementation of BRT, transit is not expected to stay on 23rd Street, which would remove the existing bus terminal. • Due to the excellent connectivity and coverage, and minimal impact to other downtown users, 23rd Street was selected for the AAA network.
24th Street Idylwyld Drive to Spadina Cr	<ul style="list-style-type: none"> • 24th Street has good connectivity beyond the study area, a better connection to the University Bridge than 23rd Street, and decent coverage of the downtown, though less so than 23rd Street. • Adding a AAA facility to 24th Street does impact motor vehicles, increasing corridor travel time, however, there were no impacts to intersection LOS, with the exception of 4th Avenue and 24th Street (LOS B to LOS C). • Introducing a AAA facility to 24th Street also reduces parking opportunities on the street by nearly 50%. • 24th Street was not selected as AAA network street.
25th St Idylwyld Dr to Spadina Cr	<ul style="list-style-type: none"> • 25th Street has good connectivity on either end of the study area, but has limited coverage due to its proximity on the edge of the study area. It connects directly to the University Bridge to the east, and to the West/Central Multi-Use Corridor at Idylwyld Drive. • 25th Street has been identified as a curb-running BRT route (with traffic) through downtown, and BRT stations are proposed along this street, introducing potential conflicts with transit. • As BRT planning progresses and more information is known about the station locations and cross section, 25th Street may be a good candidate for a city-wide cycling facility connection in the future. • 25th Street was removed from consideration for the downtown AAA network at this time.

3 INTRODUCTION

3.1 STUDY SCOPE

Following the conclusion of the Downtown Protected Bike Lane Demonstration in November 2017, the Administration began the Downtown All Ages and Abilities (AAA) Cycling Network study to determine the 'right streets' for a complete and connected AAA cycling network in downtown Saskatoon.

The study area included all streets within the Central Business District neighbourhood, which is bound by Idylwyld Drive to the west, Spadina Crescent to the east, 25th Street to the north, and 19th Street to the south. All streets within the study area were assessed for suitability for hosting AAA facilities. AAA facilities offer practical route options for people who are interested in cycling, but who may not be comfortable riding on busy streets with high traffic volumes and speeds.



Image 2: Downtown AAA Cycling Network Study Area

The following foundations were established to guide the Downtown AAA Cycling Network study:

- The network must take into consideration how cycling facilities connect to Saskatoon’s wider cycling network;
- The network must integrate with other key downtown projects such as the Bus Rapid Transit plan development along 3rd Avenue and the opening of the Traffic Bridge in fall of 2018; and,
- The network must consider the impacts to all users in the downtown to ensure that the most appropriate streets host AAA facilities.

The study used a three-phase approach to determine suitability:

- Pre-screening to eliminate any street that did not meet the AAA Network Principles and project foundations;
- Detailed assessment of suitable streets to consider the impacts to all users when introducing a AAA facility; and
- Following endorsement of the recommended routes by City Council, detailed design will proceed on each corridor.

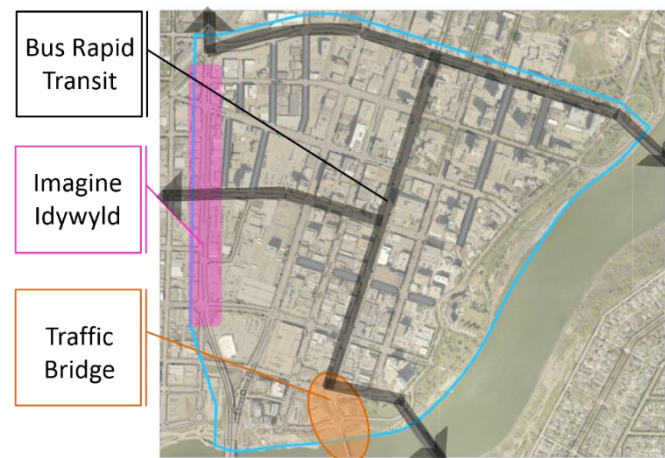


Image 3: Integration with other Downtown Projects

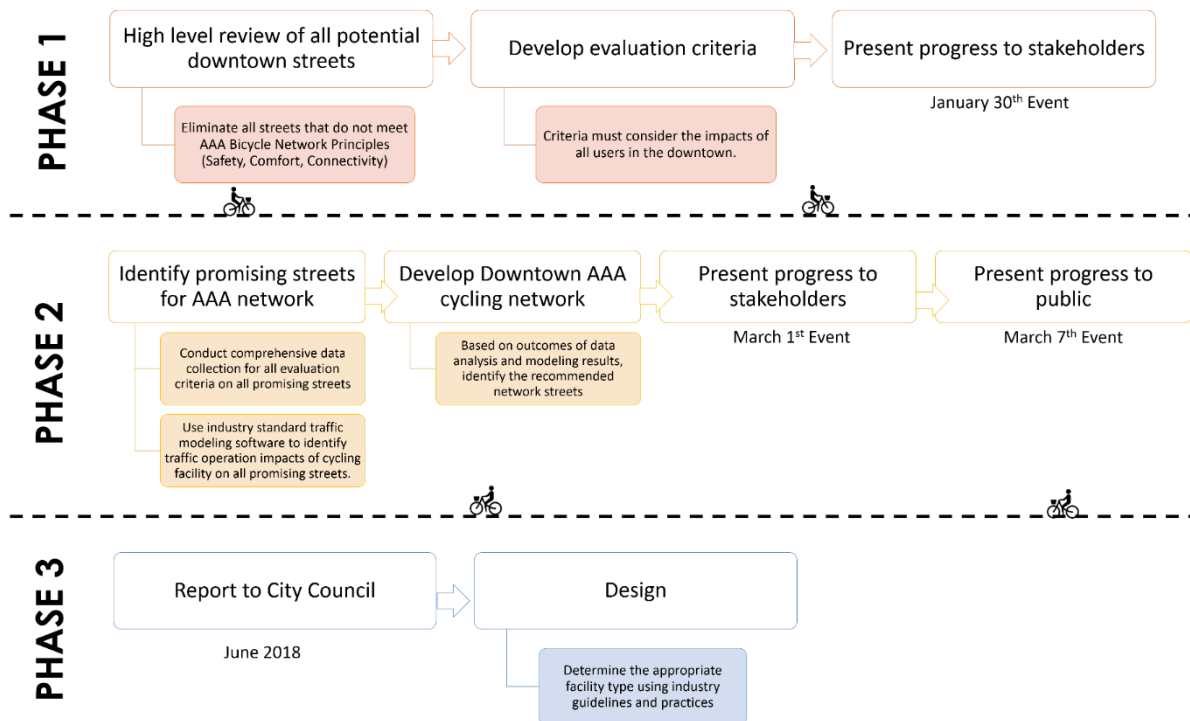


Image 4: Downtown AAA Cycling Network Project Timeline

4 BICYCLE NETWORK DESIGN PRINCIPLES

4.1 CITY WIDE CYCLING NETWORK PRINCIPLES

A well-designed cycling network needs to be visible, intuitive and provide connections between destinations and neighbourhoods.

Ideally, a cycling network serves users of all ages and abilities – in other words, people from age 8 to age 80 – offering practical route options for those who are interested in cycling, but who may not be comfortable riding on busy streets with high traffic volumes and speeds.

The design and development of a long-term bicycle network for Saskatoon is based on five network planning principles:

1. Provide an interconnected system of facilities that is comfortable and attractive for all users.
2. Increase coverage to ensure all residents are within 400m of a designated bicycle route. The designated route may include both AAA and non-AAA facilities.
3. Focus on high-quality connections to and from downtown with all areas of the city and create a downtown network.
4. Provide a network that provides direct access to major shopping centres, key employment areas, schools, and recreational areas/facilities.
5. Improve and connect to existing cycling routes.

4.2 ALL AGES AND ABILITIES (AAA) BICYCLE NETWORK PRINCIPLES

Building on the city-wide cycling network principles, there are three key principles of developing and designing cycling facilities that offer options for people of all ages and abilities: safety, comfort and connectivity. The facility must:

1. **Safety:** Be safe because cyclists are vulnerable road users;
2. **Comfort:** Be comfortable in order to attract new cyclists; and
3. **Connectivity:** Connect not only to other facilities but also to key destinations in order to be practical.

Table 1: AAA Cycling Network Principles

SAFETY	COMFORT	CONNECTIVITY
<ul style="list-style-type: none"> • Minimize and consolidate conflict points between modes (for example, at intersections or driveway crossings). • Reduce speed and enhance visibility at intersections and conflict points. • Provide each mode with a clearly defined space for travel. • Provide consistent treatments to promote predictable behavior for all users. • Ensure facilities are easy to maintain to facilitate safe cycling conditions. 	<ul style="list-style-type: none"> • Separate bicycles from motor vehicles when speeds are over 30 km/hr and traffic volumes exceed 1,500 vehicles per hour. • Ensure the amount of delay for people riding bikes is reasonable and balanced with other users. • Minimize encounters between people riding bikes and those driving vehicles. • Accommodate side by side cycling and passing movements, where feasible. • Provide smooth vertical transitions and pavement surfaces free from obstructions. 	<ul style="list-style-type: none"> • Provide direct and convenient connections that minimize detours. • Connect to local and city-wide destinations. • Integrate into the larger multimodal transportation network. • Provide seamless transitions between different types of cycling facilities. (For example: from a raised cycle track to a multiuse pathway). • Ensure key destinations and regional routes are interconnected with the bicycle network.

5 CONNECTIONS TO WIDER CYCLING NETWORK

As part of the initial phase of the process, six downtown streets were eliminated as they did not integrate to the wider cycling network beyond the study area.

Table 2: Streets Eliminated from Detailed Downtown AAA Cycling Network Assessment

STREETS ELIMINATED	REASON FOR ELIMINATION
5th Avenue between 22nd Street and 25th Street	<ul style="list-style-type: none"> • Does not connect well to the south end of the study area • Highly residential in nature with a low number of city wide destinations
6th Avenue between 24th Street and 25th Street	<ul style="list-style-type: none"> • Only extends for one block within the study area
21st Street E	<ul style="list-style-type: none"> • Low connectivity on east and west ends as it terminates at 1st Avenue and Spadina Crescent
Ontario Avenue, Wall Street, Pacific Avenue	<ul style="list-style-type: none"> • Streets do not connect well to the north and south ends of study area • Potential in the future to serve as a secondary cycling connection to provide local access

These streets have been excluded from the detailed assessment of streets suitable for supporting AAA connections to the city-wide network. The exclusion of these downtown streets does not preclude them from being a part of the local cycling network circulation. The exclusion of these streets from the overall AAA network were presented at the first stakeholder meeting and generally supported by attendees.

6 INTEGRATION WITH KEY DOWNTOWN PROJECTS

The proposed network takes into consideration the Bus Rapid Transit (BRT) route identified through downtown, the recommendations included within the Imagine Idylwyld project, and the Traffic Bridge replacement. Discussions occurred with the respective project managers throughout the development of the Downtown AAA Cycling Network study.

Table 3: Integration with Key Downtown Projects

DOWNTOWN PROJECT	PROJECT DETAILS	IMPACT TO PROPOSED AAA NETWORK
Bus Rapid Transit	19 th Street: Curb running, no stations	BRT along 19 th Street uses the travel lane and does not include stations. Therefore it is compatible with a AAA facility.
	25 th Street: Curb running, stations present	BRT along 25 th Street uses the travel lane and does include stations. 25 th Street is not being proposed as a AAA network street at this time.
	3 rd Avenue: Centre-running, stations present	Centre-running BRT along 3 rd Avenue does not leave enough space for the inclusion of a AAA cycling facility, eliminating 3 rd Avenue as an option for the AAA network.
Imagine Idylwyld	<ul style="list-style-type: none"> • Raised cycle track along Idylwyld Drive from 20th Street to 23rd Street • Multi-Use Pathway (MUP) from 23rd Street to 25th Street E. 	The AAA cycling facilities along Idylwyld Drive have been incorporated into the proposed AAA network.
Traffic Bridge / Victoria Avenue Cycle Track	Contains 3.0m MUP on both sides of the structure and raised cycle track from 8 th Street to Traffic Bridge.	Connections from the MUP along the Traffic Bridge to the proposed facility along 19 th Street and the transitions between the facilities are being included in the detailed design.

7 ASSESSMENT OF SUITABLE STREETS

Downtown streets support a number of different land uses through a variety travel of modes. When assessing the appropriate streets for a AAA cycling facility, it is important to consider the impacts to all users in the downtown. The factors used for the assessment relate to one or more of the Principles outlined earlier. The factors used to complete the assessment and the findings are outlined on the following pages.

SUMMARY OF EVALUATION CRITERIA	
<p>Bicycle Network</p> <ul style="list-style-type: none"> • Linkages to surrounding areas: Corridors providing better linkages across major barriers such as busy streets and river crossings should be preferred. • Linkages with other cycling facilities: Corridors that offer a strong potential for interconnection with existing and planned City bicycle facilities should be preferred. • Current and potential bicycle traffic: Corridors where a large number of existing and potential bicycle trips originate and terminate should be preferred. <p>Cyclist Safety</p> <ul style="list-style-type: none"> • Conflict with motor vehicles: Corridors with fewer number of turning movements at intersections, driveways, and lanes should be preferred. • Merit of segregation: Corridors with higher overall traffic volumes, higher truck traffic volumes, higher traffic speeds, and that have a higher potential for illegal stopping should be strongly preferred. Separation on such corridors will provide the greatest benefit to cyclists. <p>People Walking</p> <ul style="list-style-type: none"> • Pedestrian improvements: Corridors that have potential to improve the pedestrian safety should be preferred. For example, pedestrian separation from motor vehicles and cyclists or changes to crossing distances at intersections improve conditions for people walking. • Accessibility: Corridors where implementation of the bicycle facility will have lowest relative impact on users with mobility needs should be preferred. 	<p>People Driving</p> <ul style="list-style-type: none"> • Automobile travel time: Corridors with the least impact on automobile delay and travel time should be preferred. <p>Transit</p> <ul style="list-style-type: none"> • Transit stop conflicts: Corridors with fewer bus stops and lower frequency of bus service should be preferred because there will be fewer conflicts between cyclists and passengers entering or exiting buses. • Transit operations: Corridors with the least impact on transit travel time should be preferred. <p>Business</p> <ul style="list-style-type: none"> • Parking: Corridors where implementation of the bicycle facility will have the lowest relative impact on the total parking supply should be preferred. • Street environment: Implementation of the cycling facility will increase the distance between the sidewalk and moving automobiles, with likely benefits for street-level commerce. Corridors with a significant amount of street-level commerce should therefore be preferred.

7.1 BICYCLE NETWORK

7.1.1 Linkages to surrounding areas

Corridors providing better linkages across major barriers such as busy streets and river crossings should be preferred. To determine how well each corridor connected to the surrounding area each downtown street was assessed for:

- **Connections beyond downtown:** How well does the street connect beyond the study area?
- **Coverage:** What percentage of downtown falls within 400 m of the street?¹

Table 4: Bicycle Network - Linkages to Surrounding Areas for N-S streets

	Idylwyld Drive	1 st Avenue	2 nd Avenue	3 rd Avenue	4 th Avenue	Spadina Crescent
Connections – North	Extends beyond 25 th Street.	Extends beyond 25 th Street.	Extends beyond 25 th Street.	Extends beyond 25 th Street.	Extends beyond 25 th Street.	Extends north of 25 th Street. Connects with Meewasin Trail system.
Connections - South	Terminates at 20 th Street. Connects through Avenue A to 19 th Street.	Southbound terminates at 19 th Street. Northbound begins at 20 th Street due to Idylwyld Freeway Ramps.	Terminates at Spadina Crescent.	Terminates at Spadina Crescent.	Intersection improvements are planned that will improve the connection to the Broadway Bridge.	Terminates at 2nd Avenue. Connects with Meewasin Trail system.
Coverage	40%	65%	75%	75%	70%	55%

Table 5: Bicycle Network - Linkages to Surrounding Areas for E-W streets

	19 th Street	20 th Street	22 nd Street	23 rd Street	24 th Street	25 th Street
Connections – East	Terminates at 4th Avenue.	Terminates at Spadina Crescent.	Terminates at Spadina Cr, but deflects south at 5th Avenue.	Terminates at Spadina Crescent.	Terminates at Spadina Crescent.	Terminates at Spadina Crescent.
Connections - West	Continues to Avenue M.	Continues to Vancouver Avenue.	Continues to City Limits.	Continues to Vancouver Avenue with a slight deflection at Jamieson Street.	Terminates at Idylwyld Drive.	Terminates at Idylwyld Drive.
Coverage	35%	50%	65%	70%	60%	40%

¹ The AT Plan recommends that cycling facilities be installed at 400 m spacing to provide balanced access to cycling facilities.

7.1.2 Linkages with other bicycle facilities

Corridors that offer a strong potential for interconnection with existing and planned City bicycle facilities should be preferred. To assess how well each corridor connected to existing and future AAA facilities, downtown streets were assessed for:

- **Bridges:** How well does the corridor connect to the existing bridge infrastructure?
- **Existing AAA facilities:** How well does the corridor connect to existing all ages and abilities cycling facilities?
- **Proposed AAA Facilities:** How well does the corridor connect to future all ages and abilities cycling facilities?

Table 6: Bicycle Network: Linkages with other Bicycle Facilities for N-S streets

	Idylwyld Drive	1 st Avenue	2 nd Avenue	3 rd Avenue	4 th Avenue	Spadina Crescent
Bridges	Direct connection to Sid Buckwold Bridge but the link to walkway is challenging.	Direct connection to Sid Buckwold Bridge but the link to walkway is challenging.	Indirect connection to Traffic Bridge and Broadway Bridge by way of 19 th Street.	Direct connection to Traffic Bridge. Connection to Broadway Bridge by way of 19 th Street.	Northbound connection from Broadway Bridge to 4 th Avenue is adequate. (Intersection improvements are planned.)	Direct connection to University Bridge and Traffic Bridge. Does not connect with Broadway Bridge.
Existing AAA Facilities	Connects with Blairmore Bikeway and WC Multi-Use Corridor.	None	2 nd Avenue becomes 3 rd Avenue to connect with 33 rd Street Multi-Use Pathway	Connects with 33 rd Street Multi- Use Pathway to the north. Direct connection to Traffic bridge and Cycle Track on Victoria Avenue.	None	Connects to Meewasin trail system.
Proposed AAA Facilities	Connects through Avenue A to proposed 19 th Street protected bike lane (Avenue A - Avenue H).	None	None	None	None	None

Table 7: Bicycle Network: Linkages with other Bicycle Facilities for E-W streets

	19 th Street	20 th Street	22 nd Street	23 rd Street	24 th Street	25 th Street
Bridges	Direct connection to Traffic Bridge and Broadway Bridge.	No bridge connections.	No bridge connections.	Indirect connection to University Bridge.	Indirect connection to University Bridge	Direct connection to University Bridge.
Existing AAA Facilities	None	None	None	Connects to Blairmore Bikeway	None	Connects to WC Multi-Use Corridor.
Proposed AAA Facilities	Connects to proposed 19th Street protected bike lane (Avenue A - Avenue H).	Connects to proposed raised cycle track on Idylwyld Drive.	Connects to proposed raised cycle track on Idylwyld Drive.	Connects to proposed raised cycle track on Idylwyld Drive.	Connects to proposed multi-use pathway on Idylwyld Drive.	Connects to proposed MUP on Idylwyld Drive.

7.1.3 Current and potential bicycle traffic

Corridors in which a large number of existing and potential bicycle trips originate and terminate should be preferred. To assess the potential for bicycle trips, downtown streets were assessed for:

- **Key destinations served:** How many city-wide destinations would be served by a cycling facility on this corridor?

Table 8: Bicycle Network: Key Destinations Served for N-S streets

	Idylwyld Drive	1 st Avenue	2 nd Avenue	3 rd Avenue	4 th Avenue	Spadina Crescent
Key Destinations Served	<ul style="list-style-type: none"> • Midtown Plaza • TCU Place 	<ul style="list-style-type: none"> • Gov't of Canada Building • Midtown Plaza • Scotia Centre 	<ul style="list-style-type: none"> • Remail Modern • River Landing • Scotia Centre • Lots of retail • Lots of restaurants 	<ul style="list-style-type: none"> • Francis Morrison Library • City Hall • Sturdy Stone • Some retail shops • Some restaurants • Educational intuitions 	<ul style="list-style-type: none"> • Francis Morrison Library • City Hall • Sturdy Stone • More office than retail • Some restaurants 	<ul style="list-style-type: none"> • Remail Modern • River Landing • Court of Queen's Bench • Medical Offices • General Offices

Table 9: Bicycle Network: Key Destinations Served for E-W streets

	19 th Street	20 th Street	22 nd Street	23 rd Street	24 th Street	25 th Street
Key Destinations Served	<ul style="list-style-type: none"> • River Landing • Remail Modern • Farmer's Market • Prov. Court • Midtown Plaza 	<ul style="list-style-type: none"> • Midtown Plaza • Several retail shops west of Idylwyld Drive 	<ul style="list-style-type: none"> • TCU Place • Sturdy Stone • Some office /retail 	<ul style="list-style-type: none"> • Francis Morrison Library • City Hall • Medical Offices 	<ul style="list-style-type: none"> • Kinsmen Park • City Hall 	<ul style="list-style-type: none"> • Kinsmen Park • Police Station

7.2 CYCLIST SAFETY

7.2.1 Conflict with motor vehicles:

Corridors with fewer number of turning movements at intersections, driveways, and lanes should be preferred. Two metrics were used to assess each street:

- **Average Daily traffic volume:** How many vehicles, on average, use this street on a daily basis?
- **Number of driveways and rear lanes per block:** How many potential conflict points are present along each block fact of this street?

Table 10: Cyclist Safety: Conflicts with Vehicles for N-S streets

	Idylwyld Drive		1 st Avenue		2 nd Avenue		3 rd Avenue		4 th Avenue		Spadina Crescent	
Motor Vehicles per Day	28,000 – 31,000 (2016 AADT ²)		13,000 – 22,000 (estimated ³)		5,000 - 16,000 (estimated)		7,000 – 9,000* (estimated)		12,000 – 22,000* (estimated)		6,000 – 9,000 (2016 AADT)	
Number of driveways and lanes per block	TOTAL	19	TOTAL	24	TOTAL	13	TOTAL	22	TOTAL	28	TOTAL	19
	20 th to 22 nd	7	20 th to 21 st	4	19 th to 20 th	2	19 th to 20 th	6	19 th to 20 th	3	19 th to 20 th	3
	22 nd to 23 rd	7	21 st to 22 nd	5	20 th to 21 st	2	20 th to 21 st	4	20 th to 21 st	4	20 th to 21 st	1
	23 rd to 24 th	6	22 nd to 23 rd	3	21 st to 22 nd	2	21 st to 22 nd	4	21 st to 22 nd	4	21 st to 22 nd	4
	24 th to 25 th	3	23 rd to 24 th	5	22 nd to 23 rd	2	22 nd to 23 rd	2	22 nd to 23 rd	3	22 nd to 23 rd	5
			24 th to 25 th	7	23 rd to 24 th	1	23 rd to 24 th	2	23 rd to 24 th	6	23 rd to 24 th	3
				24 th to 25 th	4	24 th to 25 th	4	24 th to 25 th	5	24 th to 25 th	3	

Table 11: Cyclist Safety: Conflicts with Vehicles for E-W streets

	19 th Street		20 th Street		22 nd Street		23 rd Street		24 th Street		25 th Street					
Motor Vehicles per Day	17,000 – 25,000* (estimated)		13,000 – 20,000* (estimated)		15,000 – 30,000* (estimated)		7,000 – 12,000* (estimated)		8,000 – 13,000* (estimated)		23,000 – 43,000 (2016 AADT)					
Number of driveways and lanes per block	TOTAL	8	TOTAL	13	TOTAL	15	TOTAL	16	TOTAL	35	TOTAL	23				
	1 st to 2 nd	3	Idylwyld to 1 st	3	Idylwyld to Pacific	2	Idylwyld to Wall	3	Idylwyld to Wall	3	Idylwyld to Ontario	3				
	2 nd to 3 rd	3	1 st to 2 nd	1	Pacific to 1 st	5	Wall to Pacific	3	Wall to Pacific	1	Ontario to 1 st	5				
			2 nd to 3 rd	0	1 st to 2 nd	2	Pacific to 1 st	3	Pacific to Ontario	4	1 st to 2 nd	3				
	3 rd to 4 th	2	3 rd to 4 th	3	2 nd to 3 rd	2	1 st to 2 nd	0	Ontario to 1 st	5	2 nd to 3 rd	4				
			4 th to Spadina	6	3 rd to 4 th	2	2 nd to 3 rd	4	1 st to 2 nd	3	3 rd to 4 th	1				
					4 th to Spadina	1	3 rd to 4 th	0	2 nd to 3 rd	4	2 nd to 3 rd	4	4 th to 5 th	3		
					4 th to 5 th	2	4 th to 5 th	2	3 rd to 4 th	0	1 st to 2 nd	3	3 rd to 4 th	1	5 th to 6 th	4
					5 th to 6 th	4	4 th to 5 th	2	4 th to 5 th	2	4 th to 5 th	2	4 th to 5 th	3	6 th to Spadina	7
									5 th to 6 th	4	5 th to 6 th	4	5 th to 6 th	4		
								6 th to Spadina	7							

² 2016 Average Annual Daily Traffic (AADT) from City of Saskatoon

³ Estimated based on PM peak hour projections

7.2.2 Merit of segregation

Corridors with higher overall traffic volumes, higher truck traffic volumes, higher traffic speeds, and which have a higher potential for illegal stopping should be strongly preferred. Separation on such corridors will provide the greatest benefit to cyclists.

When speeds are over 30 km/hr and traffic volumes exceed 1,500 vehicles per hour, AAA facilities should be separated from motor vehicles. As was noted previously the downtown streets considered for detailed review exceed this volume and speed, and therefore merit segregation.

7.3 PEOPLE WALKING

7.3.1 Pedestrian improvements

Corridors that have potential to improve the pedestrian safety should be preferred. For example, pedestrian separation from motor vehicles and cyclists or changes to crossing distances at intersections improve conditions for people walking. Downtown streets were assessed for existing pedestrian conditions (such as streetscaping) and whether inclusion of a cycling facility could provide any additional benefit for pedestrians.

- **Opportunity for improvements:** Does adding a cycling facility to this corridor improve conditions for pedestrians?

Table 12: People Walking: Opportunity for Pedestrian Improvements to N-S streets

	Idylwyld Drive	1 st Avenue	2 nd Avenue	3 rd Avenue	4 th Avenue	Spadina Crescent
Opportunity for Improvements	Imagine Idylwyld proposes crossing modifications and streetscape amenities.	Better crossings for pedestrians north of 22nd Street.	Already a pedestrian priority street with significant pedestrian amenities and short crossing distances.	Enhancements possible through BRT project.	Already streetscaped but offer increased buffer from vehicle traffic.	East side has promenade. West side could benefit from sidewalk enhancements.

Table 13: People Walking: Opportunity for Pedestrian Improvements to E-W streets

	19 th Street	20 th Street	22 nd Street	23 rd Street	24 th Street	25 th Street
Opportunity for Improvements	Increased buffer from motor traffic.	Increased buffer from motor traffic.	Increased buffer from motor traffic.	Increased buffer from motor traffic.	Increased buffer from motor traffic.	Already streetscaped but offer increased buffer from motor traffic.

7.3.2 Accessibility

Corridors in which implementation of the bicycle facility will have lowest relative impact on users with mobility needs should be preferred. Accessibility needs are an essential part of ensuring that the needs of all users can be accommodated on downtown streets. Accessibility needs, such as accessible parking or raised curb treatments, can be applied to all of the candidate corridors and will be addressed through detailed design.

7.4 TRANSIT

7.4.1 Transit stop conflicts

Corridors with fewer bus stops and lower frequency of bus service should be preferred as there will be fewer conflicts between cyclists and passengers entering or exiting buses. Downtown streets were assessed for the number of transit stop conflicts:

- **Current number of stops:** How many transit stops exist along this corridor today?
- **Future number of stops:** How many transit stops are planned for this corridor?

Table 14: Transit: Transit Stop Conflicts for N-S streets

	Idylwyld Drive	1 st Avenue	2 nd Avenue	3 rd Avenue	4 th Avenue	Spadina Crescent
Current # of Transit Stops	0	6	2	12	3	0
Future # of Transit Stops	0	0	0	3	0	0

Table 15: Transit: Transit Stop Conflicts for E-W streets

	19 th Street	20 th Street	22 nd Street	23 rd Street	24 th Street	25 th Street
Current # of Transit Stops	5	3	4	9	2	9
Future # of Transit Stops	None Identified	Possibility of future stops	2 BRT Stations	None Identified	None Identified	2 BRT Stations

7.4.2 Transit Operations

Corridors with the least impact on transit travel time should be preferred. Downtown streets were assessed for whether a transit route was present or planned:

- **Current transit route:** Does transit currently operate along this corridor?
- **Future transit route:** Has Transit identified this corridor as a future route?

Table 16: Transit: Transit Operations for N-S streets

	Idylwyld Drive	1 st Avenue	2 nd Avenue	3 rd Avenue	4 th Avenue	Spadina Crescent
Current Transit Route	No	Yes	Yes	Yes	Yes	No
Future Transit Route	Not Identified	Not Identified	Not Identified	Identified center-running BRT route	Not identified	Not identified

Table 17: Transit: Transit Operations for E-W streets

	19 th Street	20 th Street	22 nd Street	23 rd Street	24 th Street	25 th Street
Current Transit Route	Yes	Yes	Yes	Current transit terminal conflict from 2 nd Avenue to 3 rd Avenue	Yes	Yes
Future Transit Route	Identified as curb-running BRT route from 4th Avenue to 3rd Avenue.	Identified as possible high-frequency route west of 3rd Avenue.	Identified as curb-running BRT route.	None identified	None identified	Identified as curb-running BRT route from Spadina to 3 rd Avenue

7.5 BUSINESS

7.5.1 On-Street Parking

Corridors where implementation of the bicycle facility will have the lowest relative impact on the total on-street parking supply should be preferred. Parked cars near intersections and driveways limit motor vehicle driver visibility of approaching cyclists and motor traffic. The number of parking spaces along a street were quantified to understand the number of parking spaces that would be removed by the installation of a cycling facility on the corridor.

The current number of parking spaces identified below are from the 2016 Parking Study.

- **Current number of parking spaces:** How many spaces are currently available along this corridor?
- **Number of parking spaces with cycling facility:** How many spaces are available with a cycling facility along this corridor?
- **Change in number of parking spaces:** How many spaces are removed when a cycling facility is added to this corridor?

Table 18: Business: Impacts to On-street Parking with Addition of Cycling Facility for N-S streets

	Idylwyld Drive	1 st Avenue	2 nd Avenue	3 rd Avenue	4 th Avenue	Spadina Crescent
Current number of Spaces	0	120	322	156	152	92
Number of Spaces with AAA	0	72	146 ⁴	102	94	12 ⁵
Change in Number of Spaces	0	-48	-176	-54	-58	-80

Table 19: Business: Impacts to On-street Parking with Addition of Cycling Facility for E-W streets

	19 th Street	20 th Street	22 nd Street	23 rd Street	24 th Street	25 th Street
Current number of Spaces	17	118	96	103	124	58
Number of Spaces with AAA	17	80	63	90 ⁶	66 ⁷	50
Change in Number of Spaces	0	-38	-33	-13	-58	-8

7.5.2 Street environment

Implementation of a bicycle facility will provide sidewalks with additional buffering from automobiles and improve the pedestrian environment, with likely benefits for street-level commerce. Corridors with a significant amount of street-level commerce should therefore be preferred. Generally speaking, the higher number of building entrances the more active the street level environment will be. The numbers

⁴ Angle parking converted to parallel parking

⁵ Parking on west side removed

⁶ Parking added in transit terminal

⁷ Parking removed on south side between Ontario Avenue & Idylwyld Drive

were outlined below were obtained from inventory gathered in phase one of the City Centre Plan: Public Spaces, Activity + Urban Form Strategic Framework.

- **Number of building entrances:** How much street-level activity is there along each corridor?

Table 20: Business: Number of Building Entrances for N-S streets

	Idylwyld Drive	1 st Avenue	2 nd Avenue	3 rd Avenue	4 th Avenue	Spadina Crescent
Number of building entrances	35 (3.8 per block face)	54 (4.5 per block face)	124 (8.8 per block face)	96 (6.8 per block face)	41 (3.4 per block face)	28 (4.6 per block face)

Table 21: Business: Number of Building Entrances for E-W streets

	19 th Street	20 th Street	22 nd Street	23 rd Street	24 th Street	25 th Street
Number of building entrances	7 (1.2 per block face)	23 (2.3 per block face)	31 (3.1 per block face)	21 (1.5 per block face)	33 (2.0 per block face)	24 (1.6 per block face)

7.6 PEOPLE DRIVING

Corridors with the least impact on automobile delay and travel time should be preferred. Downtown streets were evaluated to determine the streets that have spare existing capacity and could accommodate reducing the number of vehicle lanes and replacing them with protected bike lanes.

For each street in the downtown, two street configurations were compared:

- **Existing street configuration:** Does not include the changes made to 23rd Street 4th Avenue as part of the Downtown Protected Bike Lane Demonstration Project.
- **AAA facility configuration:** Traffic lanes and parking adjusted to make room for a AAA cycling facility.

The traffic volumes used to conduct this analysis are consistent with Saskatoon at a population of 300,000 with Bus Rapid Transit (BRT) implemented. Specific assumptions include:

- Traffic Bridge is open.
- Parcel YY in River Landing is built out (increase in traffic due to development).
- Transit Mall on 23rd Street is no longer present. Through traffic movements along 23rd Street have been added.
- BRT along 3rd Avenue reduces traffic lanes and prohibits turning movements. All analyses consider the changes in travel pattern in the downtown.
- No change in mode share from private motor vehicle toward transit, walking or cycling.
- Idylwyld Drive was not included in this assessment because the Imagine Idylwyld included extensive traffic capacity analysis.

7.6.1 Right-of-Way Width Constraints

Downtown streets have varying Right-of-Way (ROW) widths. As well, the pavement width between curbs are different depending on streetscaping and traffic controls. All downtown streets were determined to have adequate space with the exception of Spadina Crescent, which was ruled out for a AAA facility because of limited available ROW due to the wide promenade on the east side with mature trees and elevation differences between the sidewalk and boulevard on the west side.

Table 22: People Driving: Available Right-of-Way and Pavement Width for N-S streets

	1 st Avenue		2 nd Avenue		3 rd Avenue		4 th Avenue		Spadina	
	Pavement (m)	ROW (m)	Pavement (m)	ROW (m)	Pavement (m)	ROW (m)	Pavement (m)	ROW (m)	Pavement (m)	ROW (m)
19th to 20th	ramp	ramp	22.9	30.2	22.9	30.2	20.7	30.2	13.7	40.0
20th to 21st	22.9	30.2	22.9	30.2	22.9	30.2	20.7	30.2	13.7	40.0
21st to 22nd	22.9	30.2	22.9	30.2	22.9	30.2	20.7	30.2	12.2	22.9
22nd to 23rd	22.9	30.2	22.9	30.2	22.9	30.2	20.7	30.2	12.2	22.9
23rd to 24th	22.9	30.2	22.9	30.2	22.9	30.2	20.4	30.2	12.2	19.1
24th to 25th	22.9	30.2	22.9	30.2	22.9	30.2	16.8	30.2	12.2	40.0

Table 23: People Driving: Available Right-of-Way and Pavement Width for E-W streets

	19 th Street		20 th Street		22 nd Street		23 rd Street		24 th Street	
	Pavement (m)	ROW (m)	Pavement (m)	ROW (m)	Pavement (m)	ROW (m)	Pavement (m)	ROW (m)	Pavement (m)	ROW (m)
Idylwyld to 1st	19.0	31.6	24.1		22.9	30.2	22.9	30.2	13.4	20.1
1st to 2nd	19.0	30.2	23.9	30.2	22.9	30.2	22.9	30.2	22.9	30.2
2nd to 3rd	22.9	30.2	21.4	30.2	22.9	30.2	22.9	30.2	22.9	30.2
3rd to 4th	22.9	30.2	20.1	30.2	22.9	30.2	transit	30.2	16.8	30.2
4th to Spadina			20.1	30.2	22.9	30.2	16.8	30.2	12.2	30.2

7.6.2 Potential AAA Street Configurations

Three types of AAA facilities are typically used in urban settings, such as downtown Saskatoon. Each has different minimum allowable design dimensions.

1. One-way protected bike lane
2. One-way raised cycle track
3. Bi-directional protected bike lane

The minimum design criteria used for AAA facility design were based on guidelines⁸ provided by the Transportation Association of Canada (TAC), Federal Highway Administration (FHWA), National Association of City Transportation Officials (NACTO), and American Association of State Highway and Transportation Officials (AASHTO). Where existing pavement width was too constrained to meet these design criteria, very modest reductions were made to the protected bike lane widths and/or the buffer from parking lane. Minimum recommended widths used were:

- One-way protected bike lane width: 2.1 m
- Two-way protected bike lane width: 3.4 m
- One-way raised cycle track width: 2.6m
- Buffer from traffic lane: 0.5 m
- Buffer from parking lane: 1.0 m
- Buffer from sidewalk (raised cycle track): 0.5 m

Sidewalk widths were to be maintained at existing dimensions or possibly widened to try to achieve the dimensions outlined in the City of Saskatoon’s Complete Streets Design and Policy Guide (2017) as follows:

- Furnishing zone: 0.5 m minimum, 1.75 m recommended
- Sidewalk: 1.8 m minimum, 2.5 m recommended
- Frontage zone: 1.0 m minimum

⁸ Design criteria for the protected bike lanes are based on five main sources:

- TAC Geometric Design Guide for Canadian Roads (2017)
- FHWA Separated Bike Lane Planning and Design Guide (2015)
- NACTO Urban Bikeway Design Guide (2014)
- AASHTO Guide for Development of Bicycle Facilities (2012)

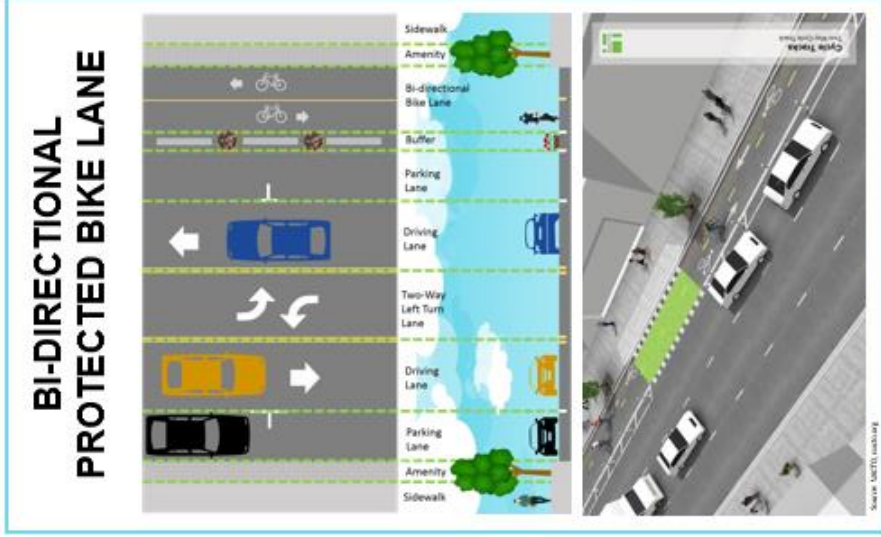
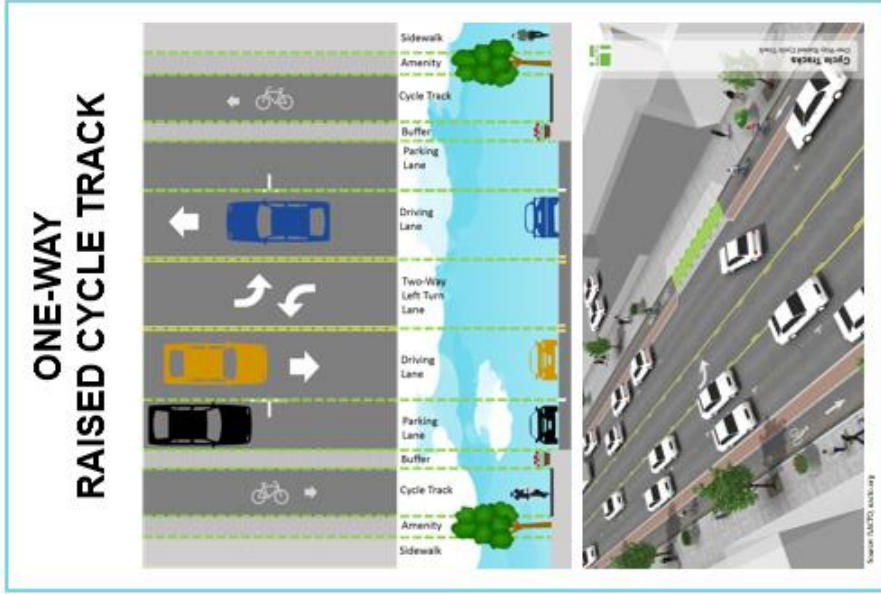


Image 5: AAA Cycling Facility Types and Lane Configurations

The number of lanes could vary depending on available pavement width.

- Traffic Lanes: 3.0 m to 3.6 m depending on presence of transit routes
- Right turn lanes: 2.5 m minimum
- Two-Way Left-Turning Lane (TWLTL): 3.6 m but could vary
- Left Turn Bays (LT bays): 3.0 m to 3.6 m
- Parking Lanes: 2.2 m (plus 0.25 m gutter width if adjacent to a curb)

Table 24: People Driving: Street Configuration with Addition of Cycling Facility for N-S streets

	1 st Avenue		2 nd Avenue		3 rd Avenue		4 th Avenue	
	Existing	AAA	Existing	AAA	Existing	AAA	Existing	AAA
19th to 20th	3	4	2	2 + TWLTL	4 + LT bays	2 + LT bays	4	2 + TWLTL
20th to 21st	4 + TWLTL	2 + TWLTL	2	2 + TWLTL	4 + LT bays	2 + LT bays	4	2 + TWLTL
21st to 22nd	4 + TWLTL	2 + TWLTL	2	2 + TWLTL	4 + LT bays	2 + LT bays	4	2 + TWLTL
22nd to 23rd	4 + TWLTL	2 + TWLTL	2	2 + TWLTL	4 + TWLTL	2 + LT bays	4	2 + TWLTL
23rd to 24th	4 + TWLTL	2 + TWLTL	2 + LT bays	2 + TWLTL	4 + TWLTL	2 + LT bays	4	2 + TWLTL
24th to 25th	4 + TWLTL	2 + TWLTL	2 + TWLTL	2 + TWLTL	4 + TWLTL	2 + LT bays	4	2 + TWLTL

Table 25: People Driving: Street Configuration with Addition of Cycling Facility for E-W streets

	19 th Street		20 th Street		22 nd Street		23 rd Street		24 th Street	
	Existing	AAA	Existing	AAA	Existing	AAA	Existing	AAA	Existing	AAA
Idylwyld to 1st	4	4	4 + LT bays	4	6 + LT bays	4 + LT bays	4	2 + TWLTL	2	2 + TWLTL
1st to 2nd	4 + LT bays	4 + LT bays	4 + LT bays	2 + TWLTL	4 + LT bays	2 + TWLTL	4	2 + TWLTL	4	2 + TWLTL
2nd to 3rd	4 + LT bays	4 + LT bays	4 + LT bays	2 + TWLTL	4 + LT bays	4	transit terminal	2 + TWLTL	4	2 + TWLTL
3rd to 4th	4 + LT bays	4 + LT bays	4 + LT bays	2 + TWLTL	4 + LT bays	4	4	2 + TWLTL	4	2 + TWLTL
4th to Spadina			2	2	2	2	2	2	2	2

7.6.3 Motor vehicle traffic flow assessment

Synchro and SimTraffic traffic analysis software programs were used to model the downtown street network. This program includes traffic information, roadway configuration information, and traffic signal design and timing information as inputs. Program outputs include traffic performance measures and parameters that can be used to set signal timing and change or optimize traffic signal performance. Synchro can be readily used to forecast traffic changes through a change in the street configuration to add a AAA facility or reassign vehicle traffic lanes. It can readily predict changes in traffic performance and may suggest minor changes in signal timing to alleviate potential problems.

The Synchro model was adjusted to remove one vehicle lane or turn lanes and add turn lanes where necessary to accommodate protected bike lanes and manage conflicts. All downtown streets were determined to have spare capacity.

7.6.3.1 Intersection delay (Level of Service)

Delay is defined as “the additional travel time experienced by a driver” in the Highway Capacity Manual (HCM). This includes time spent decelerating, waiting at a signal, and accelerating. Intersection delay is the average control delay for all approaching vehicles based on the amount of volume within each lane approaching the signal. Typically, the Level of Service (LOS) within a central business district during the peak hours should be better than LOS E.

Table 26: Motor vehicle Level of Service (LOS) Thresholds at Signalized Intersections

LOS	Average Delay per vehicle (seconds)
A	≤ 10
B	> 10-20
C	> 20-35
D	> 35-55
E	> 55-80
F	> 80

7.6.3.2 Automobile travel time

Travel time through the signalized corridors of each street was evaluated using SimTraffic to account for accumulated delays and queues between intersections. 3rd Avenue was not reconfigured for the traffic analysis because the evaluation assumes that BRT has been implemented and traffic diversion has occurred through the rest of downtown.

Table 27: People Driving: Intersection LOS and travel time with the addition of cycling facility for N-S streets

	1 st Avenue		2 nd Avenue		4 th Avenue	
	Existing	AAA	Existing	AAA	Existing	AAA
19th	C	E	B	B	B	B
20th	B	E	A	A	B	C
21st	B	C	A	A	B	C
22nd	D	F	B	B	B	C
23rd	B	B	B	B	B	B
24th	B	B	B	D	B	B
Travel time (min)	3.70	7.00	1.90	3.40	2.20	4.50
Change (min)	+ 3.30		+ 1.50		+ 2.30	
Peak direction	Southbound		Northbound		Southbound	

Table 28: People Driving: Intersection LOS and travel time with the addition of cycling facility for E-W streets

	19 th Street		20 th Street		22 nd Street		23 rd Street		24 th Street	
	Existing	AAA	Existing	AAA	Existing	AAA	Existing	AAA	Existing	AAA
Ontario									B	B
Pacific					B	B	A	A	B	B
1st	C	C	B	D	D	D	B	B	B	B
2nd	B	B	A	B	B	B	B	B	B	B
3rd	C	C	B	D	B	C	B	B	B	B
4th	B	B	B	C	B	B	B	B	B	C
Travel time (min)	1.7	2.6	1.8	3.7	2.2	3.8	2.0	2.0	1.7	2.7
Change (min)	+ 0.9		+ 1.9		+ 1.6		negligible		+ 1.0	
Peak direction	Eastbound		Westbound		Westbound		None		Eastbound	

8 OVERVIEW OF NETWORK DECISION MAKING

As illustrated in the assessment, downtown streets support a number of different land uses through a variety travel of modes, and it is important to consider the impacts to all users. The assessment did not weight any category above another, rather, it was used to understand the trade-offs among all road users that could result from the inclusion of a AAA cycling facility.

8.1 SUMMARY OF NORTH-SOUTH STREETS

Cycling Network: All streets provide decent connectivity beyond the study area. 2nd Avenue, 3rd Avenue, and 4th Avenue provide better coverage as they are more central to the downtown.

Impact to Motorists: All streets experienced impacts to LOS and corridor travel time. 1st Avenue had the highest negative impact.

Parking: There are reductions in parking supply for all streets.

Transit: BRT on 3rd Avenue does not provide enough room to include a AAA facility.

	1 st Avenue	2 nd Avenue	3 rd Avenue	4 th Avenue	Spadina Cr
Cycling Network (Linkages & Coverage)	✓	✓	✓	✓	✓
Motor Vehicles (Level of Service & Travel Time)	X	✓	✓	✓	✓
Business (Parking)	X	X	X	X	X
Transit (Future BRT)	✓	✓	X	✓	✓

Image 6: Overview of Assessment Results for N-S Streets

8.2 SUMMARY OF EAST-WEST STREETS

Cycling Network: All streets provide decent connectivity beyond the study area. 23rd Street provides the most coverage of downtown.

Impact to Motorists: all streets experienced impacts to LOS and corridor travel time. 20th Street and 22nd Street had the highest negative impacts.

Parking: There is no impact to parking supply along 19th Street and minimal impact to parking along 23rd Street.

Transit: 22nd Street is not an ideal choice for because BRT stations are planned for this street.

	19 th Street	20 th Street	22 nd Street	23 rd Street	24 th Street
Cycling Network (Linkages & Coverage)	✓	✓	✓	✓	✓
Motor Vehicles (Level of Service & Travel Time)	✓	X	X	✓	✓
Business (Parking)	✓	X	X	✓	X
Transit (Future BRT)	✓	✓	X	✓	✓

Image 7: Overview of Assessment Results for E-W Streets

9 PROPOSED AAA NETWORK

Through conducting the assessment it became clear that certain streets within downtown serve specific functions and possess unique constraints. By reviewing all of the factors and constraints, the Administration arrived at the proposed AAA network configuration:

- North-South streets
 - Idylwyld Drive (consistent with the Imagine Idylwyld project), and
 - 4th Avenue.
- East-West streets:
 - 23rd Street, and
 - 19th Street.

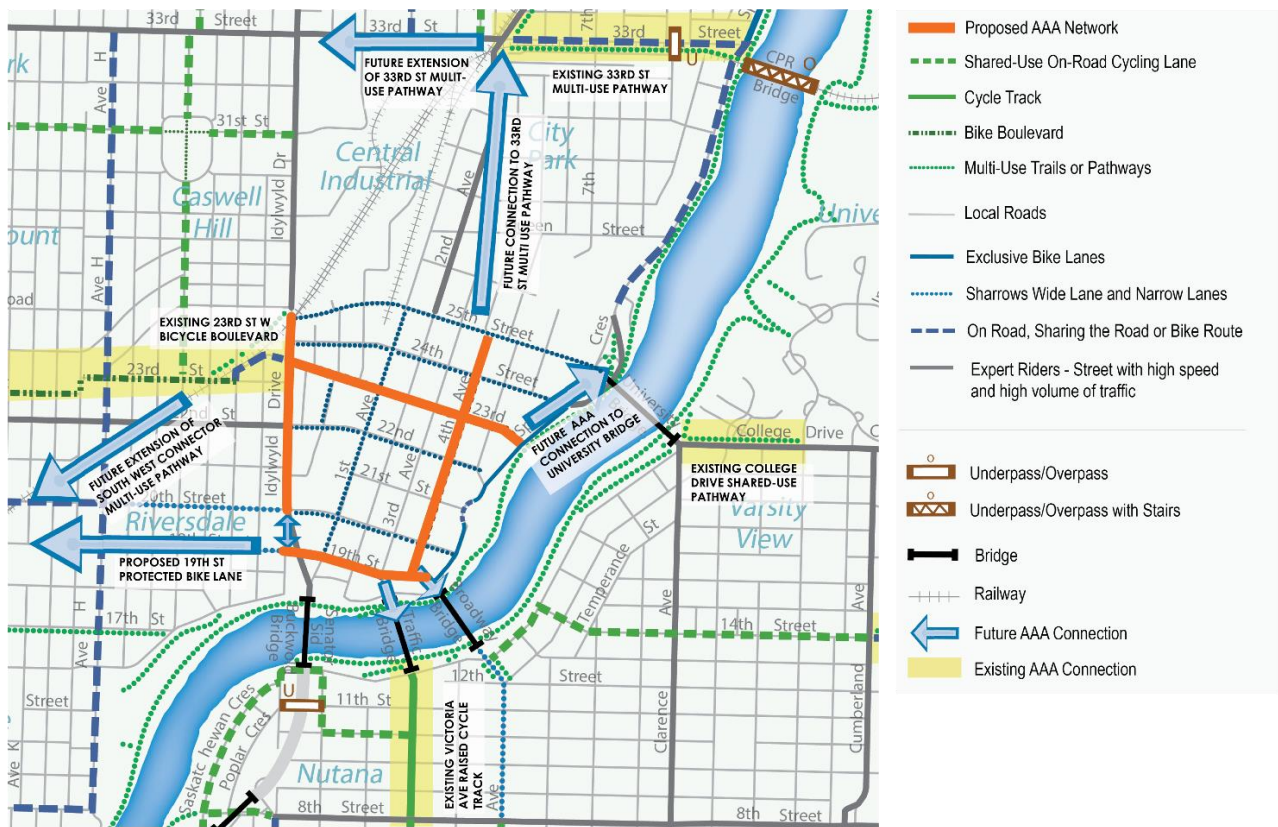


Image 8: Proposed AAA Network Configuration

Below is a summary of the key factors on the streets proposed to host AAA cycling facilities.

Table 29: Summary of North-South Street Assessment

Key Factor	Summary of Assessment	Impact on Proposed AAA Streets
Bicycle Network	All streets provide decent connectivity beyond the study area.	<ul style="list-style-type: none"> 4th Avenue is fairly central to the downtown and connects to Broadway Bridge.
Motor Vehicles	Adding a AAA cycling facility increased motor vehicle travel time along all corridors.	<ul style="list-style-type: none"> Adding a AAA cycling facility to 4th Avenue increases travel time (+2:17). The intersections of 20th Street, 21st Street, and 22nd Street change from LOS B to LOS C. There is no change in LOS at 19th Street, 23rd Street, or 24th Street.
Business	Adding a AAA facility resulted in reduced street parking on all streets.	<ul style="list-style-type: none"> Adding a AAA cycling facility on 4th Avenue reduces parking by 58 spaces (from 152 to 94).
Transit	Streets are not identified as future bus routes, with the exception of 3 rd Avenue which is identified as a BRT route with centre-running BRT.	<ul style="list-style-type: none"> 4th Avenue is not identified as a future BRT route. Presently, there are 3 transit stops.

Table 30: Summary of East-West Street Assessment

Key Factor	Summary of Assessment	Impact on Proposed AAA Streets
Bicycle Network	All streets provide decent connectivity beyond the study area.	<ul style="list-style-type: none"> 23rd Street provides the most coverage of downtown, and connects with the existing Blairmore Bikeway west of Idylwyld Drive. 19th Street connects most directly with existing bridges.
Motor Vehicles	Adding a AAA cycling facility had range of impacts across each street.	<ul style="list-style-type: none"> 23rd Street has negligible impact to travel time and no change to LOS. 19th Street has the second lowest impact to travel time (+0:52) and no change to LOS.
Business	Adding a AAA facility resulted in reduced street parking on most streets.	<ul style="list-style-type: none"> Adding a AAA cycling facility on 23rd Street reduces by 13 spaces (from 103 to 90). Adding a AAA cycling facility on 19th Street results in no loss of parking.
Transit	Most streets are not identified as future bus routes, but all streets do have existing transit stops.	<ul style="list-style-type: none"> 23rd Street is not identified as a future BRT route or secondary route. Presently, there are 9 transit stops and the bus terminal. 19th Street is identified as a future BRT route (curb running), but does not include any future stops. Presently, there are 5 transit stops.

These streets were selected based on detailed understanding of trade-offs between the variety of users and functions that these downtown streets serve, striving to achieve a balance amongst all users. The network takes into consideration other downtown initiatives, integrating the impacts of those projects where applicable, and with the city-wide cycling network.

The network supports the City-Wide Cycling Network Principles discussed in Section 4.0:

- The proposed streets introduce a network of AAA cycling facilities in the downtown, providing an interconnected system of facilities that is comfortable and attractive for all users.
- The streets chosen achieve the desired coverage of 400m, and provide connections to and from downtown with all areas of the city.
- The proposed streets provide good connections beyond the downtown to all areas of the city.
- The proposed streets provide access to a major downtown attractions, key employment areas, and recreational areas.
- Improvements to connections outside of the study area have been identified and will be addressed through detailed design to ensure high-quality connections and seamless transitions.

10 ENGAGEMENT SUMMARY

10.1 STAKEHOLDER IDENTIFICATION

At the beginning of the project, the Administration mailed letters to approximately 1,170 downtown property owners, businesses and other stakeholder organizations introducing the project and asking interested recipients to add their names to a contact list for future project updates. Stakeholders who opted in for updates, as well as several targeted stakeholders such as organizations representing health care professionals, cyclists, pedestrians, and older adults, were invited to attend two separate stakeholder meetings (January 30th and March 1st). Invitations to attend were emailed to more than 120 stakeholders. The Downtown Business Improvement District also shared the invitation with 180 recipients on their contact list.

10.2 ENGAGEMENT EVENTS

Below is a summary of the engagement events that took place for the Downtown AAA Cycling Network Study.

10.2.1 Active Transportation Advisory Group – January 18th, 2018

An overview of the content to be presented to stakeholders on January 30th was provided to ATAG for their comments. The feedback received at this meeting was supportive of the overall approach to the Downtown AAA Cycling Network Study.

10.2.2 Open House – January 30th, 2018

The first stakeholder engagement event comprised two open house sessions at TCU Place, each approximately 90 minutes in length. The format included a brief presentation followed by a series of informational boards and engagements activities. The intention of the event was to:

- Describe the principles that form the basis for the importance of a AAA network;

- Obtain input on the factors used to complete the assessment;
- Hear thoughts about challenges and opportunities for each street.

The sessions were attended by between 40 and 50 stakeholders in total. A detailed summary of the comments received is included in Appendix A.

10.2.3 Active Transportation Advisory Group – February 15th, 2018

The results of the stakeholder workshop on January 30th was presented and an overview of the content to be presented to stakeholders on the March 1st meeting was provided to ATAG for their comments.

10.2.4 Stakeholder Workshop – March 1st, 2018

A second stakeholder workshop was offered in two sessions at Le Relais Hall. The event included a brief presentation, followed by an opportunity to view information boards and ask questions. The purpose of this event was to:

- Describe how the assessment was informed by both the technical analysis and stakeholder input;
- Share the results of the evaluation of the downtown streets; and
- Present the recommended downtown AAA cycling network.

Approximately 20 people attended. Comments from stakeholders were generally positive. Although different people have different preferences for AAA cycling corridors, most participants suggested that the network presented was the best selection given the many trade-offs considered.

10.2.5 Public Open House – March 7th, 2018

The final engagement activity was the public open house held in conjunction with the Plan for Growth Community Open House at the Western Development Museum. The purpose of this event was to present the Downtown AAA Cycling Network and discuss the study's process with the public.

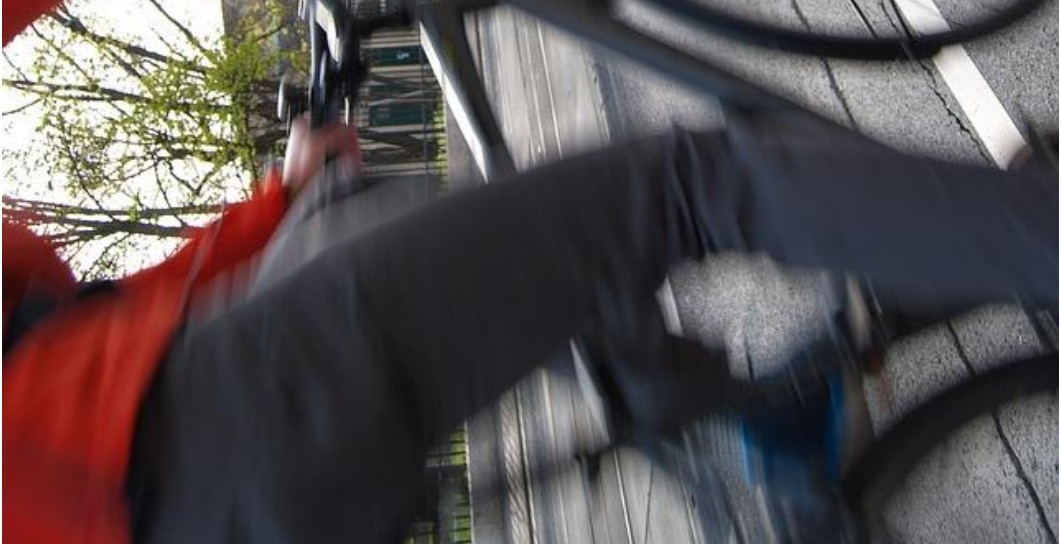
Approximately 400 people attended the Community Open House. Generally speaking, feedback was supportive of a AAA cycling network and of the streets that were selected. Of those who supported the network, many agreed with the streets selected and supported the evaluation process used to arrive at those streets. Some comments were received around improving connections to bridges, ensuring good pavement quality in the lanes, and providing access through the existing transit terminal. Generally, those who were not supportive of the AAA cycling network were not supportive of any protected cycling facility within the downtown, citing negative impacts to motorists and cost implications.

Appendix A

Downtown All Ages and Abilities (AAA) Cycling Network Stakeholder Session

Prepared for:
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Stakeholder Session

Downtown All Ages and Abilities (AAA) Cycling Network – Stakeholder Session

Background

The City of Saskatoon’s Complete Streets Design and Policy Guide is designed to achieve a more balanced approach to street design, one that accommodates the safe movement of people all ages and abilities by multiple modes (i.e. walking, cycling, transit, vehicle). The City’s Active Transportation Plan identifies the importance of providing an interconnected system of bicycle facilities that is comfortable and attractive for users of all ages and abilities.

When the Downtown Protected Bike Lane Demonstration (4th Avenue and 23rd Street) wrapped up in November 2017, City Council directed the City administration to report back on what a complete, connected downtown AAA cycling network would look like in Saskatoon.

The City mailed letters to approximately 1,170 downtown property owners, businesses and other stakeholders (e.g. the cycling community) on January 8th, 2018. The letter described aspects of the AAA initiative, including that it will:

- Take into consideration how cycling facilities connect to Saskatoon’s wider cycling network.
- Determine how to integrate with other key downtown projects, such as the Bus Rapid Transit (BRT) plan along 3rd Avenue and opening of the Traffic Bridge in fall 2018.

- Consider the impacts on all downtown users to ensure that the most appropriate streets host AAA facilities.

A follow-up email was sent on January 15, 2018. Recipients of the letter and email were asked to add their names to a contact list for future project updates. Stakeholders who opted in for updates, as well as several targeted stakeholders such as organizations representing cyclists, pedestrians, older adults, and many more, were invited to attend the open house sessions on January 20, 2018. The sessions were an opportunity for stakeholders to share their knowledge and insights regarding the development of the Downtown All Ages and Abilities (AAA) Cycling Network.

Session Format

There were two stakeholder events, each approximately 90 minutes in length. Each session began with a brief PowerPoint presentation that included an explanation of the Active Transportation Plan and how it integrates with the Complete Streets Design and Policy Guide, the Growth Plan and the City’s



Photo source: City of Saskatoon Active Transportation Plan

Strategic Plan, as well as noting other influencing factors and projects (e.g. BRT, Imagine Idylwyld, Traffic Bridge, 3rd Avenue and 19th Street intersection upgrades).

The presentation referenced the timeline for the Downtown Protected Bike Lane Demonstration Project (2015 – 2017), the provision that protected bike lanes (PBLs) be included in the Downtown AAA Cycling Network, and that the current PBLs on 4th Avenue and 23rd Street be retained until the Downtown network is presented to City Council.

The presentation defined the downtown study area and highlighted the three guiding principles of the AAA cycling network:

- **Safety** – Cyclists are vulnerable and travel more slowly than motor vehicles.
- **Comfort** – This is an important part of attracting more people to bicycling as a mode of travel.
- **Connectivity** – Cyclists need a network of continuous low-stress routes that provide connections to local and city-wide destinations.

The presentation was followed by discussion and engagement activities between stakeholders and the Active Transportation Program Manager, with four City Transportation Engineers stationed at informational display boards (see Appendix).

Stakeholders were asked to provide input regarding criteria that could be used to assess which downtown streets are best suited for a AAA cycling facility, as well as challenges and opportunities for each street.

Who Attended

The sessions were attended by between 40 and 50 people in total (not everyone signed in). Stakeholders in attendance included individuals who signed on behalf of the Saskatchewan Health Authority, as well as civic facilities such as TCU Place, Saskatoon Fire Department and Saskatoon Public Library. Stakeholders from the Saskatoon Chamber of Commerce, Downtown Business Improvement District, Meewasin Valley Authority, Open Door Society and Partners in Employment also attended. Downtown business people attended, although they appeared to be limited in number. There were also stakeholders from Saskatoon Cycles as well as university students. The City Councillor representing the downtown Saskatoon ward was also in attendance.

Evaluation Criteria

What's more important to stakeholders in terms of where AAA cycling facilities should go? Stakeholders were asked to prioritize the criteria being used by the City in their evaluation of streets on which to locate AAA cycling facilities. Stakeholders did this by allocating dots to the criteria (posted on display boards) they felt should receive priority. Each stakeholder was given six dots, which they could allocate in any manner they chose for the six criteria. This "dotmocracy" is a cumulative voting method used to identify preferences regarding specific criteria.

SUMMARY OF STAKEHOLDER INPUT

The following is a summary of stakeholder input regarding the evaluation criteria. Of the six criteria presented, stakeholders allocated the majority (59%) of dots to two criteria—bicycle network (34% of dots) and cyclist safety (25% of dots).

EVALUATION CRITERIA (DOTMOCRACY)

Bicycle Network (34%)	
Linkages to surrounding areas	17%
Linkages with other bicycle facilities	13%
Current and potential bicycle traffic	4%
Cyclist Safety (25%)	
Merit of segregation	18%
Conflict with vehicles	7%
People Walking (14%)	
Pedestrian improvements	10%
Accessibility	4%
Business (14%)	
Street environment	11%
Parking	3%
People Driving (8%)	
Automobile travel time	8%
Transit (5%)	
Transit operations	3%
Transit stop conflicts	2%
	100%

LINKAGES (BICYCLE NETWORK)

Stakeholders gave priority to bicycle network linkages (30%), including corridors providing linkages to surrounding areas and with bicycle facilities in other parts of Saskatoon. Few stakeholders (4%) prioritize corridors in which large numbers of existing or potential bicycle trips originate and terminate.

CYCLIST SAFETY

This is followed by cyclist safety (25%), with most prioritizing segregation of cyclists from higher overall traffic volumes and the idea that separation on such corridors will provide the greatest benefit to cyclists. Fewer stakeholders (7%) prioritize corridors with fewer turning movements at intersections and driveways.

PEDESTRIANS (PEOPLE WALKING)

Stakeholders allocate priority to evaluation criteria around pedestrian safety or impact on pedestrians with mobility needs (10%). These considerations also come up in discussions.

STREET ENVIRONMENT (BUSINESS)

Some priority (11%) is placed on with additional buffering to improve the pedestrian environment and street level commerce.

PARKING

Stakeholders are less likely to allocate priority to evaluation criteria that involves impact on parking (3%). As a general rule, it appears that most stakeholders agree that AAA facilities cannot exist on streets with angle parking.

IMPACT ON MOTORISTS

Some priority (8%) is placed on criteria that consider corridors with the least impact on travel time of people driving.

TRANSIT

Little priority is allocated by stakeholders for evaluation criteria to consider corridors in terms of their potential to conflict with transit (2%) or the idea that corridors with the least impact on transit travel time should be preferred (3%).



Opportunities and Challenges

Participant Suggestions on Maps

The presentation featured two stations with large maps showing both existing and potential AAA routes. During discussion of opportunities and challenges, participants were asked to write their comments on sticky notes and attach to the maps. Those comments are summarized below. They have been organized into several categories, including bridge access, parking, traffic lights, preferred routes and excluded routes.

Broadway Bridge, Traffic Bridge and Access to AAA Network

- Connectivity via AAA network to Riversdale area on 19th Street. Close outside lanes, make bike path Avenues A to H.
- New Traffic Bridge is going to be nicest bridge for cyclist crossings; connecting it with north/south AAA routes in an appealing way is key.
- Connectivity via the University Bridge between Saskatoon City Hospital and Royal University Hospital and the University of Saskatchewan is important and needed by a large number of year-round cyclists.
- Need improved connections for cyclists and pedestrians coming off bridges.
- The bike lane should be on 3rd Avenue off the Traffic Bridge.
- When Traffic Bridge opens, need excellent way findings to access Farmers' Market via River Landing.
- Route across Broadway Bridge to get to Farmers' Market is challenging if you cross on the south side of the bridge and proceed west; cyclists have to stay on sidewalks.
- The bottom of the Broadway Bridge needs work. Cyclists travelling south on 4th Avenue should be able to get to the

- SW side of the bridge. Cyclists travelling down the north (right) side of the bridge should be able to access 19th Street.
- Better signage on all bridges depicting expectations for pedestrians, cyclists and cars would be helpful.
- Dangerous for pedestrians and cyclists where Broadway Bridge accesses 4th Avenue; this multi-use trail has poor visibility (curved) where it becomes 4th Avenue and is too narrow for shared use by pedestrians and cyclists.

Parking

- There are issues for the PBL on 4th Avenue with the parkade between 21st and 22nd Street. Parkade users need to be informed of the bike lane and potential hazards to cyclists from cars exiting the parkade, particularly during rush hour.
- The parkade on 4th Avenue between 21st and 22nd Streets will be a bottleneck whether there is a PBL there or not. Don't let bad design of parkade bring down an ideal bike lane street.
- Better demarcation of parking stalls would assist with motorists and where they can park.
- City vehicles, taxis, delivery trucks and dumpsters are often parked on the PBL on 4th Avenue, right after 21st Street.

Traffic Lights

- Dedicated lane plus lights would work better for cyclists.
- Would like to see traffic light changes; bike specific lights with different timing for bikes using AAA routes and green lights for right turns for motorists.
- Work needs to be done on traffic lights on existing PBL – need advanced start for cyclists to enable them to enter intersections before motorists and no right turn on red light

for motorists. If right turn is needed for traffic flow, include a green arrow in light sequence.

Preferred Routes

- The natural and best east-west corridor for a bike path is Meewasin Trail along Spadina Crescent. It connects to 4 bridges downtown. Could put separate lane for bikes adjacent to pedestrian path on Meewasin Trail.
- 3rd Avenue is the most logical way to travel north-south across downtown by transit and bicycle. Good connectivity, including to north residential areas. Prioritize bus and bikes before cars on this route.
- BRT could go north on 4th Avenue and south on 3rd Avenue; would provide room for a two-way cycle path on 3rd Avenue.
- 4th Avenue PBL is a great place to bike.
- I'd like to see a second north-south PBL on 1st Avenue from 19th Street to Queen Street.
- 21st Street presents a great opportunity to improve bike safety; a route here would encourage cycling downtown and provide an opportunity for businesses, cyclists and pedestrians to work together. Great route if used properly.
- 23rd Street is a good street for cycling; work on modifying the Bus Mall to better accommodate cyclists.
- For east-west network segments, 25th, 23rd and 19th Street would work well for providing east-west coverage, both for destination stops and commuting through.
- 2nd Avenue does not work due to angle parking, so 3rd and 4th Avenues are best options; 1st Avenue is also very wide.
- Remove 2nd Avenue from consideration for AAA; angled parking and street design create too many restrictions. 21st

Street has same challenges, should also be removed from consideration.

- 2nd Avenue would be good option if angle parking eliminated.
- Transit Mall in the way of PBL on 23rd Street is disruptive.
- PBL should be on 25th Street; provides access from University Bridge, University of Saskatchewan and College Drive. Street is so busy that cyclists use sidewalk.
- Consider moving to one-way streets downtown to open up more options for dedicated bike corridors.
- Split up network in logical east-west, north-south sections equal distances apart: Meewasin Trail, Idylwyld Drive, 23rd Street and Queen Street.
- Response from fireman: No; current street width in front of #1 Fire Station is required to allow truck to back in.

Routes Excluded from Consideration

Several comments were collected at the station identifying downtown streets excluded from consideration (see appendix).

- Four of five notes agree with exclusion of all streets listed, including 5th Avenue between 22nd and 25th Street, 6th Avenue between 24th and 25th Street, 21st Street E., and Ontario Avenue, Wall Street and Pacific Avenue.
- There is particular agreement on the exclusion of 21st Street, as this is a great opportunity for a pedestrian priority street.
- One comment disagrees with excluding 5th Ave between 22nd and 25th Street, because it would provide a good connection between Kinsmen Park and north residential area and possibly to 4th Avenue and the PBL.

Other

- If 19th Street is being considered for cycling facility west of downtown, changes have to be made to 19th in downtown as it's not bike friendly; most cyclists currently use the sidewalk.
- Appreciate the tweaking the City has done, but more needs to be done. At intersections, vehicles need to be stopped further back so they can see the cyclist waiting at the intersection to go forward.
- Separate cyclists and pedestrians at lights.
- If I'm waiting at a red light when cycling, if I'm not on a street that has a PBL, I'm not sure where I should be – in the traffic lane or in the furthest right lane. If I'm in the furthest right lane, I impede motorists trying to turn right.
- Improved snow clearing on bike lanes is important.
- Improved communication to the public about real cost (time and money) of PBLs.
- Would like to see PBLs, but only in summer and by using removable posts and temporary lane markings.
- The narrow bike lane at the corner of Spadina Crescent and 24th Street narrows too much; needs to be widened for safety of cyclists.
- Crossing Wall Street at 24th Street is a challenge for pedestrians – lots of near misses for our staff. A challenge also for cyclists, but less so than for pedestrians.
- Future connection to the rail corridor and North Downtown should be considered.
- The alley north of 5th Avenue (adjacent to the YWCA) should be bought by the City and used as a bike lane.
- Businesses along 4th Avenue are clearing snow into PBLs.
- Buses along 23rd Street currently stop in PBL. Consider raising cycle lane and having bus stop in driving lane.

- Broken posts separating PBL from road lead cars to park in the bike lane.
- Several PBL posts are down along 23rd Street, sometimes lying across the bike lane. What is maintenance schedule? Will maintenance be improved when AAA is built?
- Short-height jersey barriers would help protect cyclists (sticky note re: Spadina Crescent in front of Bessborough Hotel).



Photo source: City of Saskatoon Active Transportation Plan

Overview of Discussion at Stations

In addition to capturing comments stakeholders attached to the maps, notes were made of stakeholder discussions at the two stations. The following is a summary of those discussions.

Safety

Safety is one of the most overheard words in discussions at the sessions, and the most important consideration as it provides context for many of the comments at the stations. Stakeholders primarily talk about safety in terms of cyclists, but often for pedestrians and even motorists as well. Some primary safety concerns include difficulty parking, getting in and out of parking facilities or turning right without endangering cyclists using corridors with PBLs.

There are suggestions that motorists experience limited sightlines and that cyclists run the risk of proceeding with an unwarranted sense of security because they are in a PBL, so they proceed with less caution and awareness of pedestrians and motorists that can intrude into their corridor.

Participants also suggest that safety improvements should not only benefit cyclists but also pedestrians and motorists.

Education

Discussions around safety frequently include comments regarding the importance of education—teaching people how the PBLs work. As one participant notes, “We’re learning now how to

have dedicated bike lanes, so that in the future when it becomes really important for our city to have them, we’ll all know how they work and how to use them, as cyclists, pedestrians and motorists.” The concern is that all people visiting downtown learn how to use AAA facilities responsibly and safely, regardless of whether they are cyclists using AAA facilities or motorists or pedestrians co-existing with them.

Consistency is part of some discussions about the importance of education; some stakeholders suggest that people find the various types of bike lanes (PBLs, sharrows, etc.) confusing.

PBLs and BRT

Some stakeholders wonder why BRT, currently recommended for 3rd Avenue in the downtown area, and PBLs cannot co-exist on the same street. Some stakeholders do not want to lose the parking along 3rd Avenue that this might entail.

Demonstration Project

Some stakeholders wonder whether or not the criteria for measuring the 4th Avenue and 23rd Street Demonstration Project has been met. If it has (as is the understanding of some participants), the success of the project is not being celebrated. Some have the impression that various elements of the demonstration are being cast in a negative light and used to show that it has not been successful.

One suggestion is that communication about AAA facilities should highlight the fact that everyone benefits, not just cyclists. There is a sense that this is not communicated clearly enough. The PBL demonstration project seemed to place too much focus on comments about the infrastructure benefitting a select group

of people and so was not worth of support. Incorporating messaging that AAA facilities such as PBLs are designed to encourage more people to use cycling as an alternative mode of transportation could counterbalance that argument.

Corridor Opportunities

Stakeholders find it easier to point out the challenges as opposed to the opportunities with existing and potential AAA streets. Spadina Crescent is a 'natural' corridor, or 'intuitively' where some stakeholders want to go. 23rd Street is often mentioned as a good corridor, despite challenges with the bus mall interrupting the PBL.

There are mentions of whether Idylwyld, after it is redesigned as part of the Imagine Idylwyld plan, has been considered for PBLs. 1st Avenue or 2nd Avenue are mentioned as possible corridors. Some stakeholders suggest that 21st Street between the Bessborough Hotel on Spadina Crescent and Midtown Plaza on 1st Avenue would be a good corridor; however, most suggest this is more appropriate for pedestrian traffic. Overall, there did not appear to be consensus among stakeholders regarding preference for any specific corridors.

Corridor Challenges

Some of the challenges discussed by stakeholders with the 4th Avenue corridor revolve around too much traffic, restricted sightlines for motorists turning right (and fear of collisions with cyclists they cannot see when doing so), problems with entering and exiting parking facilities because of having to cross the PBL and risks of crossing into motorist lanes for cyclists that want to turn left at intersections along the corridor.

Connectivity is a Challenge

Connecting a potential downtown AAA corridor to other parts of Saskatoon via any of the bridges—Broadway, Traffic, Idylwyld or University—is seen as a major challenge for the network.

Destination

Some people say it's important to know where cyclists are going in terms of destinations in order to design good bike routes, but others respond that cyclists are just like everyone else in that they are going to all sorts of places. They are not necessarily "just going to the library," for example. Some are going through downtown; some are going to destinations downtown.

Downtown Business

DTN YXE (Downtown Business Improvement District) has five principles it wanted to reinforce at the session in terms of the downtown AAA network, including:

- Urban Connectivity – Bike lanes are an opportunity to build links between urban districts.
- Suburban Connectivity – It's important to connect Downtown to the suburbs.
- Car Convenience – Motor vehicles remain an important mode of transportation for downtown, and cycling networks should minimize negative affect on parking and congestion.
- Safety – Network design must create safe environments for cyclists and non-cyclists.

- Destination-driven – The network should take cyclists past major destination businesses downtown to encourage people to stop and enjoy the area.

Some downtown business people suggest that residents from outside of Saskatoon use vehicles to visit the city and will not be likely candidates for cycling. One businessperson says no one comes to their store on a bicycle.

Others point to significant vehicle traffic from people travelling from rural Saskatchewan to medical areas downtown (i.e. Medical Arts building on Spadina Crescent, medical offices on Wall Street).

Considering the Future

Some stakeholders mention that AAA corridors should be thought out, not in terms of current traffic flow, but in light of significant pedestrian, motor vehicle and cyclist traffic changes coming as a result of development along 19th Street from River Landing residential, hotel and office high-rise buildings under way, as well as significant commercial and residential development in the area immediately adjacent to the Farmers' Market and Riversdale.

There are also changes on the horizon from the City Centre, North Downtown and Imagine Idylwyld plans, which should be considered in developing the network. More traffic will also be coming from the City fulfilling its density strategy in core areas around Broadway and the riverbank. Connectivity from the bridges will become an even more important consideration with these developments and plans.

Survey Form Comments

The following are verbatim comments recorded on survey forms completed by stakeholders.

WHAT WENT WELL? WHAT DID YOU APPRECIATE?

- I think the set-up works well; allows for general information and then discussion.
- Nice to have the context set at the beginning.
- The interactive respect of the process.
- Very easy to provide comments and engineers are available for discussion.
- Our group was small so it was easy to provide input and ask questions and discuss with City employees.
- I liked the dots to show which was most important.
- Being part of the process; firsthand knowledge helping shape our city.
- Great to talk directly to engineers, see progress being made.
- Good visuals – maps and boards, people to answer questions.
- The opportunity to give feedback.
- Being able to put formation directly on to the maps.
- The presentation was professional, clear and short.
- Attentive City staff, appeared to genuinely receive and consider comments; provided appropriate feedback/clarification when warranted. Less presentation, more conversation makes sense.

WHAT DIDN'T WORK?

- The maps were vague as to what I should provide on them.
- The evaluation criteria seemed a little repetitive.

- Education should be well understood: cost of maintenance of roads due to cars, low cost of bike lane infrastructure vs. car infrastructure, explain general economic benefits.
- I'm still leery that 'complainers' voice is the one that's focused on; I hope that isn't the case moving forward with decision.
- The questions or input seemed a bit narrow; meaning, there didn't seem to be an option to express that bike lanes should not be pursued.
- Early in process, so still very open-ended; when options are narrowed down, would hope that user groups are more directly engaged as it didn't appear they had been to this point (cyclists in particular) based on responses from City staff.

I UNDERSTOOD WHAT WAS EXPECTED OF ME AS A PARTICIPANT ... HOW CAN WE IMPROVE IN THIS AREA?

- I would have liked to know ahead of time that we would be looking at maps to find/comment on problematic areas. I would have liked to have time before the day to look at the maps on my own and organize my thoughts ahead of time. I apologize if there was an email ahead of time that mentioned this and I missed it.

I FEEL MY INPUT WAS ADEQUATELY CAPTURED AND RECORDED ... HOW CAN WE IMPROVE IN THIS AREA?

- Note-taking by staff was evident. Not sure if "sticky note" concept really works, as people are engaged in conversations, which is what should be expected. Notes taken by City staff listening in are probably more valuable.

I UNDERSTAND HOW MY INPUT WILL BE USED ... HOW CAN WE IMPROVE IN THIS AREA?

- Process from this point forward could have been more clearly explained.

WHAT ELSE WOULD YOU LIKE US TO KNOW?

- I heard one person complain that nobody used bicycles before lanes were implemented, but I personally would not bike without them because I felt unsafe. But with protected lanes would be 100% more likely to bike downtown.
- Poor bike parking facilities at the venue – one hidden bike rack that is too wide for a u-lock.
- I am generally very supportive of what you are doing. Be courageous, you are doing the right thing.
- Keep in mind that if AAA facility is not 100% safe, it is not a failure. It's not realistic to remove all/any risk – but improve, make it as safe as physically possible. In communication efforts, it's safer than current options (e.g. painted bike lanes, sparrows, nothing). With current PBL, because there are still safety/sightline issues at driveways, etc., there was dissenting voice that they were unsafe, needed to go. But they are markedly safer than the previous 4th Avenue painted bike lane. You are challenging the status quo and there is bound to be pushback in the community. Courage and political leadership is key to stay the course. Thanks for all your efforts at changing both our physical environment for the better as well as the social normative environment.
- The integration of plans (cycling / transit / pedestrian) is an important aspect of this process.
- It was great to hear from others with their concerns.

- I do not believe bike lanes are necessary in this city due to the time we spend in freezing weather and the imposition it puts on vehicle traffic. Just building bike lanes in my opinion will not mean that more people will cycle to work. I do not feel that streetscaping that involves reducing the number or size of traffic lanes improves the downtown area; it may keep people from travelling downtown.
- This event was well thought out and clearly presented, I appreciated being invited.
- Very important to consider keeping the primary designated street for each "mode" separate; biggest concern of those attending was safety, and this would lead to the least likelihood of conflict.



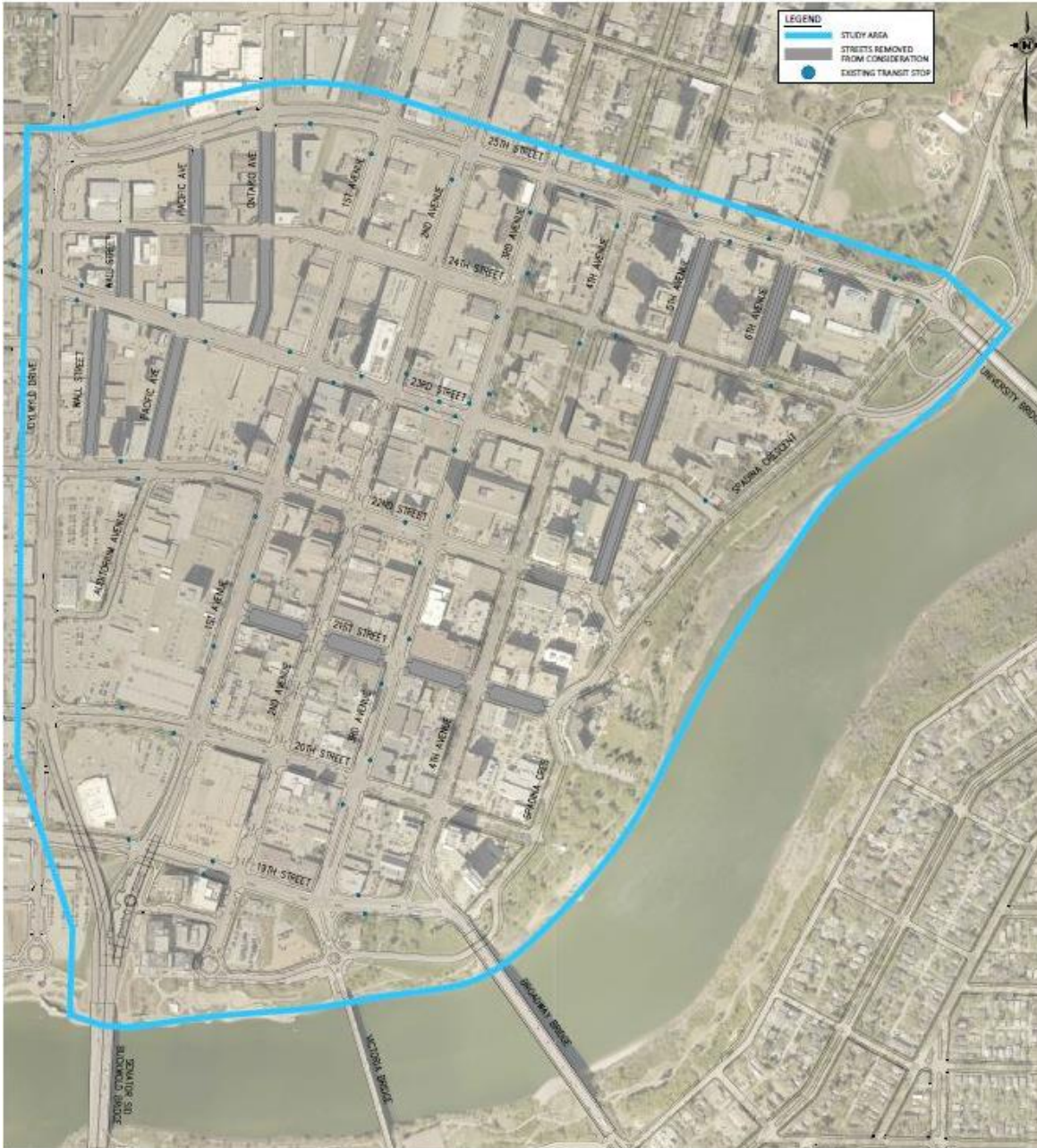
Appendix



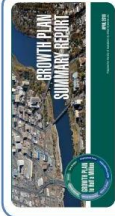
Session Display Boards

Downtown Bicycle Network | Tell Us About Your Street

As a stakeholder, your local knowledge about our downtown streets is important. What challenges and opportunities need to be considered when designing a cycling corridor on downtown streets? Tell us by placing a sticky note on the map!



Active Transportation in Saskatoon



The Growth Plan for Half a Million (Growth Plan) is a five-phase public engagement process called Growing Forward! Shaping Saskatoon. The Growth Plan is made up of several themes that were pieced together, from a new growth model for Saskatoon.

- Corridor Growth – Encouraging growth and development along major corridors.
- Transit – Making our public transit system more people as we grow.
- Core Area Bridges – Making the most of our downtown.
- Employment Areas – Ensuring we have the right amount of employment in the right areas.
- Financing Growth – Planning ahead for the costs of growth.

Adopted in principle by City Council on April 25, 2016, the Growth Plan is about making choices to grow, creating a city that is vibrant and attractive to future generations. A vibrant Saskatoon has a variety of opportunities that are universally accessible by all modes of transportation, including walking, cycling, transit, and driving.



The purpose of Saskatoon's Active Transportation Plan is to provide a long-term vision for active transportation that complements the City of Saskatoon's existing strategic vision.

The AT Plan identified five key goals for improving walking and cycling in Saskatoon:

1. MORE walking and cycling
2. SAFER walking and cycling
3. More PLACES for walking and cycling
4. Build a CULTURE for active transportation
5. ENCOURAGE other forms of active transportation

Adopted in principle by City Council on June 27, 2016, the AT Plan will contribute to increased transportation options by improving the accessibility, safety, and attractiveness of walking and cycling in Saskatoon, so the city grows to half a million people over the next 30 to 40 years.



The City of Saskatoon is committed to providing safe and healthy options for all modes of travel. The Complete Streets Policy and Design Guide, was developed to help achieve that goal and to ensure that all modes of travel are supported and accommodated the safe movement of people by multiple modes and of all ages and abilities.

- The principles of Complete Street design include:
- Support, encourage and planned land use and built form that supports walking, cycling, and transit.
 - Encourage people to travel by walking, bicycling, and transit.
 - Provide transportation options for people of all ages and abilities.
 - Enhance the safety and security of urban streets; streets that offers mobility options for all users.
 - Provide opportunities for improved health and well-being for all users.
 - Promote the economic well-being of both businesses and residents.
 - Create public spaces within the street corridor.

Adopted in principle by City Council on October 22, 2017, the Complete Streets Policy and Design Guide will ensure that all modes of travel are supported and accommodated the safe movement of people of all ages and levels of mobility.

Active Transportation (AT) Plan | Bicycle Network Principles

City Wide Cycling Network Principles

A well-designed cycling network needs to be visible, intuitive and provide connections between destinations and neighbourhoods.

Ideally, a cycling network serves users of all ages and abilities – in other words, people from age 8 to age 80 – offering practical route options for those who are interested in cycling, but who may not be comfortable riding on busy streets with high traffic volumes and speeds.

The design and development of a long-term bicycle network for Saskatoon is based on five network planning principles:

1. Provide an interconnected system of facilities that is COMFORTABLE and attractive for all users.
2. Increase COVERAGE to ensure all residents are within 400m of a designated bicycle route. The designated routes may include both AAA and non-AAA facilities.
3. Focus on high-quality CONNECTIONS to and from downtown with all areas of the city and create a downtown network.
4. Provide a network that provides direct ACCESS to major shopping centres, key employment areas, schools, and recreational areas/facilities.
5. IMPROVE and connect to existing cycling routes.

AT Plan Network Facility Types

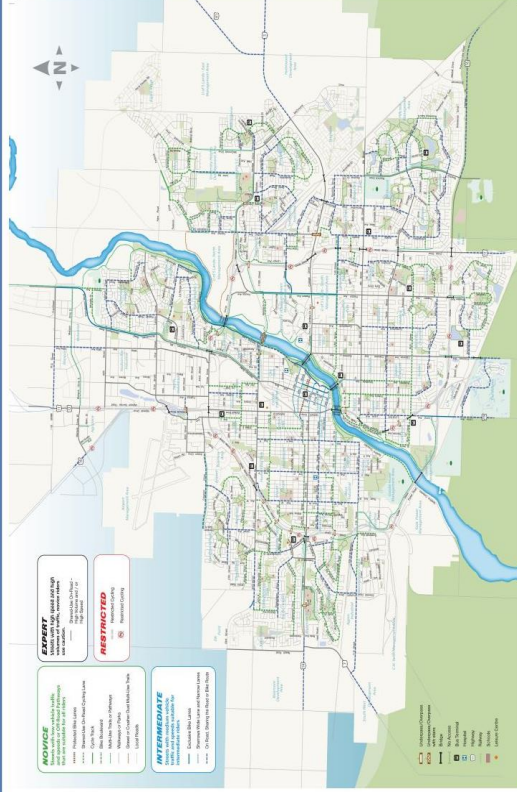
All Ages & Abilities (AAA)



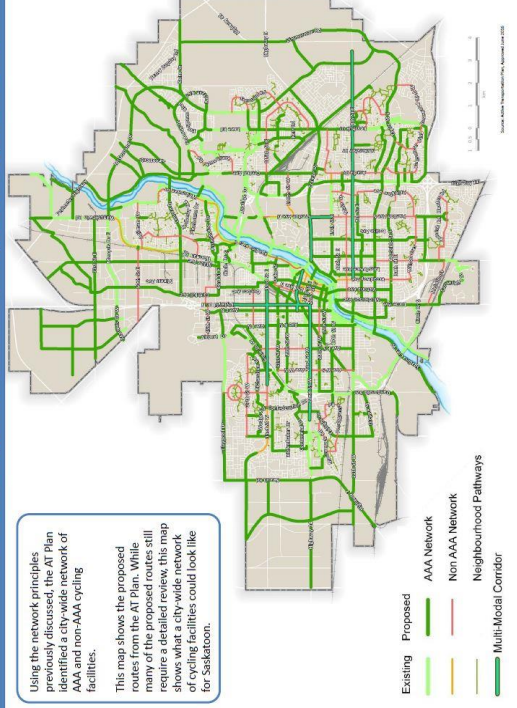
Secondary (non-AAA)



Existing Bicycle Network



Active Transportation Plan | Proposed Bicycle Network



All Ages and Abilities (AAA) Bicycle Network Principles

SAFETY

People riding bicycles are vulnerable road users because they have less protection and travel more slowly than motor vehicles.

- An All Ages and Abilities Network should:
- ✓ Minimize and consolidate conflict points, intersections and conflict points, at intersections or driveway crossings).
 - ✓ Reduce speed and enhance visibility at intersections and conflict points.
 - ✓ Provide each mode with a clearly defined space for travel.
 - ✓ Provide consistent treatments to promote predictable behavior for all users.
 - ✓ Ensure facilities are easy to maintain to facilitate safe cycling conditions.

COMFORT

Attention to user comfort is an important part of attracting more people to bicycling as a mode of travel.

- An All Ages and Abilities Network should:
- ✓ Separate bicycles from motor vehicles when speeds are over 30 km/hr and traffic volumes exceed 1,500 vehicles per hour.
 - ✓ Ensure the amount of delay for people riding bikes is reasonable and balanced with other users.
 - ✓ Minimize encounters between people riding bikes and those driving vehicles.
 - ✓ Accommodate side by side cycling and passing movements, where feasible.
 - ✓ Provide smooth vertical transitions and pavement surfaces free from obstructions.

CONNECTIVITY

People who ride bicycles need a network of continuous low-stress routes that provide connections to local and city-wide destinations.

- An All Ages and Abilities Network should:
- ✓ Provide direct and convenient connections that minimize detours.
 - ✓ Connect to local and city-wide destinations.
 - ✓ Integrate into the larger multimodal transportation network.
 - ✓ Provide seamless transitions between different types of cycling facilities (for example: from a raised cycle track to a multi-use pathway).
 - ✓ Ensure key destinations and regional routes are interconnected with the bicycle network.

Downtown All Ages and Abilities (AAA) Bicycle Network

Using the AAA Network Principles as a pre-screening tool, a few Downtown streets have been excluded from detailed consideration. This board identifies the eliminated streets and reason why.

What do you think?
Do you agree with these initial exclusions from the network?

Write your thoughts on a sticky note and place it in the corresponding box.

Street	Reason for Exclusion	Merits Consideration?
5th Avenue, between 22 nd Street and 25 th Street	<ul style="list-style-type: none"> • does not connect well to the south end of the study area • highly residential in nature • low number of city-wide destinations 	
6th Avenue, Between 24 th Street and 25 th Street	<ul style="list-style-type: none"> • only extends for one block within the study area 	
21st Street E	<ul style="list-style-type: none"> • low connectivity on east and west ends as it terminates at 1st Avenue and Spadina Crescent 	
Ontario Avenue, Wall Street, Pacific Avenue	<ul style="list-style-type: none"> • streets do not connect well to the north and south ends of study area • potential in the future to serve as a secondary cycling connection to provide local access 	

Evaluation Criteria



Bicycle Network

- Linkages to surrounding areas**
Corridors providing better linkages across major barriers such as busy streets and river crossings should be preferred.
- Linkages with other bicycle facilities**
Corridors that offer a strong potential for interconnection with other bicycle facilities and interconnections should be preferred.
- Current and potential bicycle traffic**
Corridors in which a large number of existing and potential bicycle types originate and terminate should be preferred.



Cyclist Safety

- Merit of segregation**
Corridors with higher overall traffic volume, higher truck traffic volume, higher traffic speeds, and which have a higher number of intersections, driveways, and lanes should be preferred. Separation on such corridors will provide the greatest benefit to cyclists.
- Conflict with vehicles**
Corridors with fewer numbers of turning movements at intersections, driveways, and lanes should be preferred.



People Driving

- Automobile travel time**
Corridors with the least impact on automobile travel time should be preferred.

When assessing the appropriate streets for a AAA cycling facility, it is important to consider the impacts to all users in the Downtown. To assess these impacts, 12 criteria are being considered.

What do you think?
Tell us which of the 12 are most important to you by placing a dot in the corresponding box.

You may put as many dot votes on each item as you think important.

Are there any criteria missing? Write down your suggested criteria on a sticky note!



Transit

- Transit stop conflicts**
Corridors with fewer bus stops and lower frequency of bus service should be preferred as there will be fewer conflicts between cyclists and passengers waiting or exiting buses.
- Transit operations**
Corridors with the least impact on transit travel time should be preferred.



People Walking

- Pedestrian improvements**
Corridors that have potential to improve the pedestrian safety through the implementation of measures such as: sidewalks, crosswalks, vehicle/bicycles or changes to crossing distances at intersections.
- Accessibility**
Corridors in which implementation of the bicycle facility will have the least impact on users with mobility needs should be preferred.



Business

- Parking**
Corridors in which implementation of the bicycle facility will have the lowest relative impact on the total parking supply should be preferred.
- Street environment**
Implementation of the bicycle facility will provide sidewalks with additional buffering from automobiles and improve the pedestrian environment. Corridors with a significant amount of street-level commerce should therefore be preferred.

Evaluation Criteria

When assessing the appropriate streets for a AAA cycling facility, it is important to consider the impacts to all users in the Downtown. To assess these impacts, 12 criteria are being considered.

What do you think?
Tell us which of the 12 are most important to you by placing a dot in the corresponding box.

You may put as many dot votes on each item as you think important.

Are there any criteria missing? Write down your suggested criteria on a sticky note!

Satisfaction with Session

					
Overall, how was your experience	42%	58%			
This was a valuable use of my time and energy.	33%	58%	8%		
It was easy for me to participate in the process.	42%	58%			
The information was clear and understandable.	33%	58%	8%		
I understood what was expected of me as a participant.	67%	25%	8%		
The facilitator kept us engaged and focused.	42%	42%	8%	8%	
All participants were given the opportunity to contribute.	75%	17%	8%		
I believe that my voice mattered in this conversation.	33%	58%	8%		
I understand how my input will be used.	33%	50%	8%		8%
I will likely accept the outcome of this process, regardless of what decision that is made.	25%	25%	42%	8%	

All Ages and Abilities (AAA) Cycling Network: Stakeholder Event #2

1 Engagement Objectives

- Provide an overview on the project and Saskatoon's wider cycling network;
- Describe how the technical analysis and stakeholder input informed the development of the downtown AAA cycling network;
- Share the results of the evaluation of the downtown streets; and
- Present the recommended downtown AAA cycling network.

1.1 What We Asked

Approximately 14 display boards were set up and manned by project staff. Staff discussed the content of the boards with attendees and answered questions. The boards contained the following information:

- Why Active Transportation is important in Saskatoon, including information on the Council endorsed plans supporting cycling initiatives: Growth Plan, Active Transportation Plan, and Compete Streets Design and Policy Guide.
- What types of cycling facilities are considered when planning a cycling network, including what types of facilities are considered All Ages and Abilities, and which are not, and a description of what makes a facility appropriate for people of all ages and abilities.
- The results of the evaluation of all streets considered for AAA facilities was communicated, including consideration for other users and uses along these corridor such as transit, people driving, and businesses. A rationale for why the recommended streets were selected was also provided.
- A map of the proposed AAA downtown cycling network was provided, as well as how this network would connect to existing and future AAA facilities beyond the downtown.

1.2 What We Heard

Approximately 20 people attended one of two sessions (presentations at 4:30pm and 6:00pm) for the proposed AAA cycling network, on March 1, 2018 at the Le Rais Hall in downtown Saskatoon. Feedback and comments from participants was generally positive; although different people have different preferences for bike lane corridors, most participants suggested that the corridor presented at the session is the best selection that could be done given all of the things that the City had to weigh in the balance in terms of network planning, design consideration and other evaluation and decision-making criteria. Some people attending the session had suggestions around messaging that the City could consider, including messages around equity (not everyone in Saskatoon has a motor vehicle) and the importance of options for safe cycling for the quality of life of citizens. There is confidence among from participants that the popularity of PBLs will continue to increase as they are adopted and used by more and more residents.

1.2.1 Summarized Comments

Design

- Like the design, including the ‘design bends’ at intersections along 4th Ave to help cyclists be more visible to motor vehicles turning right from their lanes across the bike paths.
- I’d like to see a curb between the bike lane and the cars

Positive

- Great east west corridor route selection, especially 19th Street, which brings the PBL alongside the new River Landing development, the Remai Modern Art Gallery, the Farmer’s Market and the new condo developments there.
- There is bike parking in the City of Saskatoon parkade under the Art Gallery alongside 19th Street corridor.
- Like that we are not losing motor vehicle lanes along 19th Street because it is already wide enough to accommodate PBL’s, lanes for motor vehicles and parking.
- Like that Idylwyld was selected for north south corridor – makes good sense for this newly redesigned and repurposed Idylwyld corridor, from a highway running through the centre of downtown, to a more bike and pedestrian friendly corridor (under the ‘Imagine Idylwyld’ initiative/strategy), even though the planners will have to figure something out for the connection between 19th St and Idylwyld via Avenue A.
- We’re spending money on redeveloping Idylwyld anyway under the new plan for this corridor, so selecting it for the north south corridor of the PBL makes a lot of sense.
- I like the connections and am excited about the improvements to the connections that are part of the cycling corridor presented today.
- It will be important to make connections to transit work for cyclists.
- I think more people bike downtown than downtown businesses realize – they might be getting customers who walk into their stores, but after they cycled to work at their office.
- Good connectivity.

Other Options

- I would have preferred 1st Ave, but I’m also ok with the corridor selected by the consultants on the basis of the decision-making criteria that they used.
- I would have preferred 3rd Ave to 4th Ave – understand that the City took this option out of the mix because of the BRT potentially going there, but don’t agree that this is the way to go. I’m not optimistic that we can build the necessary critical mass of residents choosing to use transit to make BRT a positive thing for our city – I think it will be very disruptive.
- I would have preferred the PBL be located on Spadina, which does not have any of the traffic lights at intersections that interrupt east-west travel.
- Important to ensure accessible transit stops are provided

Maintenance is Important

- The City seemed to do a great job of keeping the pilot PBLs along 4th Ave and 23rd St clear of snow on a regular/continual basis.

Appendix A: Engagement Event Summary

- Some businesses along 4th Ave are clearing the snow from their sidewalks, as required by law, but moving it into the PBLs alongside the sidewalk, which then makes it difficult for bikes to use the lanes. Snow can be moved from sidewalks to the road where it is then moved by the City, but businesses should be reminded not to put it into the PBLs after they have already been cleared by the City.
- The exact details of the new PBL do not matter to me – it's just great to have it.
- Snow clearing at night makes noise and disrupts downtown residents.

Messaging


- Citizens should be reminded that the cost of the PBL is very small compared to the cost of road building and maintenance – that it is a great investment for citizens relative to its cost and the benefits that it brings to Saskatoon.
- Initiatives like the PBL are important to attract people to our city and keep them here – having these types of amenities are important for the quality of life of people living here and keeps us competitive with other cities such as Calgary that have PBL networks to help people without motor vehicles move around.
- PBLs are criticized for slowing traffic in the downtown core and other corridors with high traffic. But bikes can legally use motor lanes, so what if messages that were developed that show that PBLs actually help traffic flow by keeping cyclists out of motor vehicle lanes?
- The presentation today indicates that traffic delays for motorists at peak times as a result of PBLs for cyclists are nominal – a few minutes at worst. Can this be messaged to public?
- We need the type of cyclist counters used in Calgary and we need to celebrate usage milestones to reflect back to residents of Saskatoon the positive aspects of having PBLs.
- COS employees, especially planners, should be encouraged to forgo using motor vehicles to commute to their workplace downtown and use the PBLs.

Future Considerations

- May have to start posting and enforcing speed limits in the PBLs as the popularity of electric bikes, most of which travel at speeds exceeding 40kms per hour, seems to be taking off in Saskatoon.
- Biking of all forms is significantly less costly than owning and operating motor vehicles, and cycling will become more and more popular in the future as a result.
- I'd like to see bicycle signals added for safety

2 Boards

Active Transportation in Saskatoon



The Growth Plan to Half a Million (Growth Plan) was developed over two and a half years through a five-phase public engagement process called Growing Forward Shaping Saskatoon.


The Growth Plan is made up of several themes that when placed together, form a new growth model for Saskatoon:

- **Corridor Growth** – Encouraging growth and development near our existing major corridors.
- **Transit** – Making transit more attractive to more people as we grow.
- **Core Area Buildings** – Making the most of our existing road infrastructure.
- **Employment Areas** – Ensuring we have the right amount of employment in the right areas.

• **ACTIVE TRANSPORTATION** – Providing more choices for how people move around the city.

• **Financing Growth** – Planning ahead for the costs of growth.

Adopted in principle by City Council on April 25, 2018. The Growth Plan is about making choices to proactively manage the changes associated with growth, creating a city that is vibrant and attractive to future generations. A vibrant Saskatoon has a diverse mix of housing, commercial, social, cultural, and recreational opportunities that are universally accessible by all modes of transportation, including walking, cycling, transit and driving.




The purpose of Saskatoon's Active Transportation Plan (AT Plan) is to increase transportation choices within the city and establish a long-term vision for active transportation that complements the City of Saskatoon's existing strategic vision.

The AT Plan identified five key goals for improving walking and cycling in Saskatoon:

- 1 **MORE** walking and cycling
- 2 **SAFER** walking and cycling
- 3 **More PLACES** for walking and cycling
- 4 **Build a CULTURE** for active transportation
- 5 **ENCOURAGE** other forms of active transportation

Adopted in principle by City Council on June 27, 2016. The AT Plan will contribute to increased transportation options by improving the accessibility, comfort, convenience and safety of active transportation in Saskatoon as the city grows to half a million people over the next 30 to 40 years.



The City of Saskatoon is committed to providing safe streets for users of all ages, abilities, and modes of travel. The Complete Streets Policy and Design Guide was developed to help achieve that goal through a more balanced approach to street design that accommodates the safe movement of people by multiple modes and of all ages and abilities.

The principles of Complete Street design include:


- Serve and support existing and planned land use and built form context.
- Encourage people to travel by walking, bicycling, and transit.
- Provide transportation options for people of all ages and abilities.
- Enhance the safety and security of urban streets.
- Create a network of streets that offers mobility options for all users.
- Provide opportunities for improved health and recreation to people in the community.
- Promote the economic well-being of both businesses and residents.
- Create public space within the street corridor.

Adopted in principle by City Council on October 22, 2017. The Complete Streets Policy and Design Guide will help Saskatoon to plan, design, operate and maintain existing and new streets to effectively support movement of people of all ages and levels of mobility.


Active Transportation (AT) Plan | Bicycle Network Principles

AT Plan Network Facility Types


All Ages & Abilities (AAA)



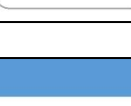
Multi-Use Pathway



Bicycle Boulevard




Protected Bicycle Lane




Raised Cycle Track


Secondary (non-AAA)




On-Street Bicycle Lane



Buffered Bicycle Lane



Shared Use Lanes (sharrows)



Local Street

City Wide Cycling Network Principles

A well-designed cycling network needs to be visible, intuitive and provide connections between destinations and neighbourhoods.

Ideally, a cycling network serves users of all ages and abilities – in other words, people from age 8 to age 80 – offering practical route options for those who are interested in cycling, but who may not be comfortable riding on busy streets with high traffic volumes and speeds.

The design and development of a long-term bicycle network for Saskatoon is based on five network planning principles:

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- 3 Focus on high-quality **CONNECTIONS** to and from downtown with all areas of the city and create a downtown network.
- 4 Provide a network that provides direct **ACCESS** to major shopping centres, key employment areas, schools, and recreational areas/facilities.
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All Ages and Abilities (AAA) Bicycle Network Principles

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An All Ages and Abilities Network should:

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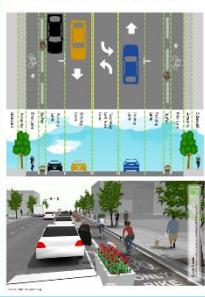
EXAMPLES OF AAA FACILITY TYPES

An all ages and abilities (AAA) facility is typically used on streets where:


- volume of vehicles is greater than 1,500 vehicles per hour, and
- operating speeds are over 30km per hour.

The following are three types of AAA facilities that are typically used in urban settings, such as downtown Saskatoon.


ONE-WAY PROTECTED BIKE LANE



ONE-WAY RAISED CYCLE TRACK



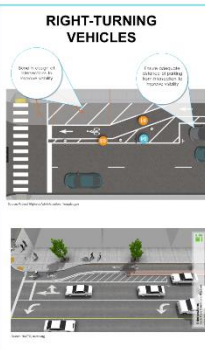
BI-DIRECTIONAL PROTECTED BIKE LANE




EXAMPLES OF DESIGN CONSIDERATIONS

Integration with other users of the street is important to the successful function of the street. Conflicts between users are inevitable, but design treatments can be applied to ensure all users can safely navigate the space.

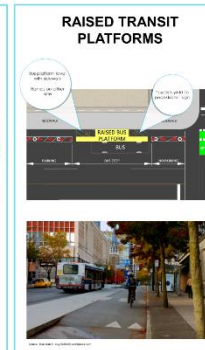
RIGHT-TURNING VEHICLES



LOADING ZONES / ACCESSIBLE PARKING SPACES



RAISED TRANSIT PLATFORMS



PROJECT TIMELINE

PHASE 1

- High level review of all potential downtown streets
- Develop evaluation criteria
- Present progress to stakeholders
- January 30th Event
- Eliminate all streets that do not meet AAA Bicycle Network Principles (Safety, Comfort, Connectivity)
- Criteria must consider the impacts of all users in the downtown.

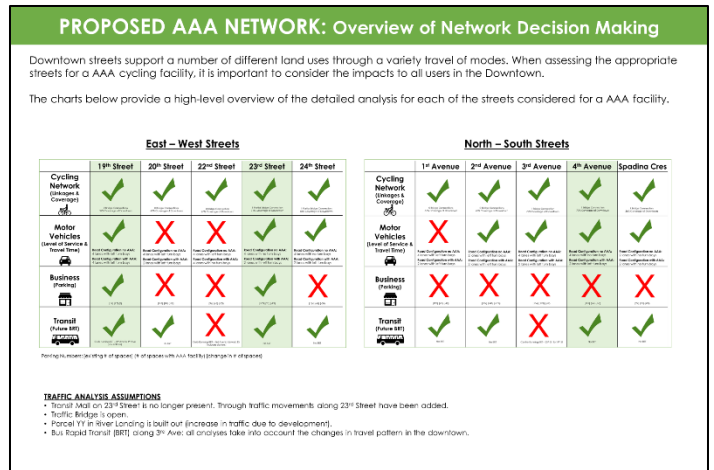
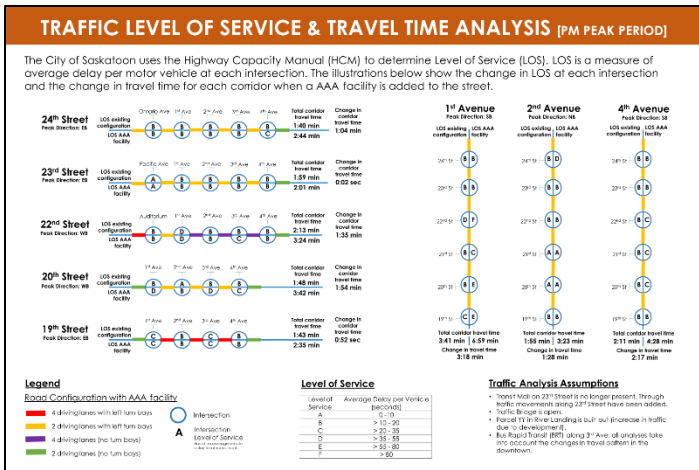
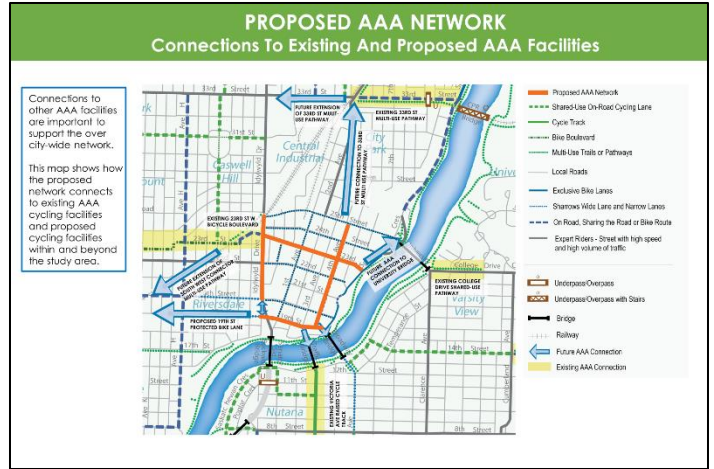
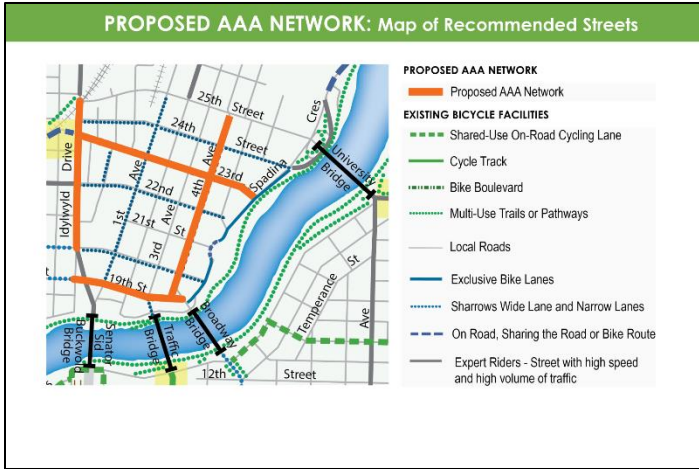
PHASE 2

- Identify promising streets for AAA network
- Develop Downtown AAA cycling network
- Present progress to stakeholders
- Present progress to public
- March 1st Event
- March 7th Event
- Conduct comprehensive data collection for all evaluator criteria on all promising streets
- Use industry standard traffic modeling software to quantify traffic operation impacts of cycling facility on all promising streets
- Based on outcomes of data analysis and modeling results, identify the recommended network streets

PHASE 3

- Design
- Report to City Council
- June 2018
- Determine the appropriate facility type using industry guidelines and practices

Appendix A: Engagement Event Summary



Appendix A: Engagement Event Summary

AAA EVALUATION CRITERIA: COMPARISON OF NORTH-SOUTH STREETS

Streets Recommended for Downtown AAA Network: Great/Good, Neutral, Poor

	Idylwyld Drive	1st Avenue	2nd Avenue	3rd Avenue	4th Avenue	Spadina Cres
BICYCLE NETWORK						
Linkages to Surrounding Areas						
Connectivity North	Great. Extends beyond 25th St.	Good. Extends beyond 25th St. with a slight deflection at Duke St.	Great. Extends beyond 25th St.	Great. Extends beyond 25th St.	Good. Extends beyond 25th St. (4th Ave in a one-way street N of 25th)	Good. Extends north of 25th St. Connects with Meowain trail system
Connectivity South	Ok. Terminates at 20th, connection through Ave A to 19th St	Ok. Southbound. Terminates at 19th Street. Northbound begins at 20 th due to Idylwyld Freeway Ramps.	Great. Terminates at Spadina Cres	Great. Terminates at Spadina Cres	Intersection improvements are planned that will improve the connection to the Broadway Bridge	Good. Terminates at 2nd Ave. Connects with Meowain trail system
Coverage (% of Downtown within 400m of Proposed Facility)	40%	65%	75%	75%	70%	55%
Linkages to Existing & Proposed AAA Facilities						
Bridges	Poor. Road connects directly to Sid Buckwold Bridge but the connection to Sid Buckwold Bridge walkway is challenging.	Poor. Road connects directly to Sid Buckwold Bridge but the connection to Sid Buckwold Bridge walkway is challenging.	Ok. Connects to 19th St which connects to Traffic Bridge and Broadway Bridge	Great. Connects directly to Traffic Bridge	Good. Northbound connection from Broadway Bridge to 4th on East side is OK. Intersection improvements are planned that will improve the connection to the Broadway Bridge	Good. Connects with University Bridge. Down 1 connect with Broadway Bridge. Connects with Traffic Bridge
Existing AAA Facilities	Connects with Baltimore Bikeway. Connects with South West Connector Multi Use Pathway	None	2nd Ave becomes 3rd Ave which connects with 33rd Street Multi-Use Pathway	Connects with 33rd Street Multi-Use Pathway. Connects with Cycle Track on Victoria Avenue	None	Connects to Meowain trail system
Proposed AAA Facilities	None	None	None	None	None	None
Current and Potential Bicycle Traffic						
Key Destinations Served	Midtown Plaza TCU Place	Government of Canada Building Midtown Plaza Scotia Centre	Royal Modern River Landing Scotia Centre Lots of retail Lots of restaurants	Francis Morrison Library City Hall Sturdy Stone Some retail shops Some restaurants Educational institutions	Francis Morrison Library City Hall Sturdy Stone More office than retail Some restaurants	Royal Modern River Landing Court of Queen's Bench Medical Offices General Offices
PEOPLE WALKING						
Pedestrian Improvements						
Opportunity for Improvements	Yes. Opportunity to make improvements through Imagine Idylwyld project	Yes. Opportunity to improve crossings for pedestrians north of 22nd St	Already a pedestrian priority street with significant pedestrian amenities & short crossing distances	Yes. Possible opportunity to make improvements through BRT	Yes. Increases separation of pedestrians from traffic	East side has great pedestrian amenities. West side could benefit from improved pedestrian facilities

AAA EVALUATION CRITERIA: COMPARISON OF NORTH-SOUTH STREETS

Streets Recommended for Downtown AAA Network: Great/Good, Neutral, Poor

	Idylwyld Drive	1st Avenue	2nd Avenue	3rd Avenue	4th Avenue	Spadina Cres
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Current and Potential Bicycle Traffic						
Key Destinations Served	Midtown Plaza TCU Place	Government of Canada Building Midtown Plaza Scotia Centre	Royal Modern River Landing Scotia Centre Lots of retail Lots of restaurants	Francis Morrison Library City Hall Sturdy Stone Some retail shops Some restaurants Educational institutions	Francis Morrison Library City Hall Sturdy Stone More office than retail Some restaurants	Royal Modern River Landing Court of Queen's Bench Medical Offices General Offices
PEOPLE WALKING						
Pedestrian Improvements						
Opportunity for Improvements	Yes. Opportunity to make improvements through Imagine Idylwyld project	Yes. Opportunity to improve crossings for pedestrians north of 22nd St	Already a pedestrian priority street with significant pedestrian amenities & short crossing distances	Yes. Possible opportunity to make improvements through BRT	Yes. Increases separation of pedestrians from traffic	East side has great pedestrian amenities. West side could benefit from improved pedestrian facilities

AAA EVALUATION CRITERIA: COMPARISON OF EAST-WEST STREETS

Streets Recommended for Downtown AAA Network: Great/Good, Neutral, Poor

	19th Street	20th Street	22nd Street	23rd Street	24th Street	25th Street
BICYCLE NETWORK						
Linkages to Surrounding Areas						
Connectivity East	Good. Terminates at 4th Avenue	Great. Terminates at Spadina Cres	Ok. Terminates at Spadina Cres, but deflects south of 3rd Ave	Great. Terminates at Spadina Cres	Great. Terminates at Spadina Cres	Great. Terminates at Spadina Cres
Connectivity West	Great. Continues west to Ave M	Great. Continues west to Vancouver Ave	Great. Continues west to City Limits	Good. Continues west to Vancouver Ave, slight deflection at Jamison St	Ok. Terminates at Idylwyld Drive	Ok. Terminates at Idylwyld Drive
Coverage (% of Downtown within 400m of Proposed Facility)	35%	50%	65%	70%	60%	40%
Linkages to Existing & Proposed AAA Facilities						
Bridges	Great connection to Traffic Bridge & Broadway Bridge	No bridge connections	No bridge connections	Ok connection to University Bridge	Ok connection to University Bridge	Great connection to University Bridge
Existing AAA Facilities	None	None	None	Connects to Baltimore Bikeway	None	Connects to SW Connector MUP
Proposed AAA Facilities	Connects to proposed 19th St protected bike lane (Ave A - Ave H)	Connects to proposed rated cycle track on Idylwyld Ave	Connects to proposed rated cycle track on Idylwyld Drive	Connects to proposed multi-use pathway on Idylwyld Drive	Connects to proposed multi-use pathway on Idylwyld Drive	Connects to proposed multi-use pathway on Idylwyld Drive
Current and Potential Bicycle Traffic						
Key Destinations Served	River Landing Rental Modern Farmer's Market Prov. Court Midtown Plaza	Midtown Plaza Several retail shops west of Idylwyld Dr	TCU Place Sturdy Stone Some office/retail	Francis Morrison Library City Hall Medical Offices	Kinmen Park City Hall	Kinmen Park Police Station
PEOPLE WALKING						
Pedestrian Improvements						
Opportunity for Improvements	Yes. Increased separation from traffic	Yes. Increased separation from traffic	Yes. Increased separation from traffic	Yes. Increased separation from traffic	Yes. Increased separation from traffic	Somewhat. Already separated from traffic

AAA EVALUATION CRITERIA: COMPARISON OF EAST-WEST STREETS

Streets Recommended for Downtown AAA Network: Great/Good, Neutral, Poor

	19th Street	20th Street	22nd Street	23rd Street	24th Street	25th Street
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Conflict with Vehicles						
Motor Vehicles per Day (Average Annual Daily Traffic)	17,000 - 25,000* *estimated	13,000 - 20,000* *estimated	15,000 - 30,000* *estimated	7,000 - 12,000* *estimated	8,000 - 13,000* *estimated	23,000 - 43,000 2016 CCS AADT
PEOPLE DRIVING						
Automobile travel time (PM Peak Period)						
Peak Direction of Travel	Eastbound	Westbound	Westbound	Eastbound	Eastbound	Not completed as this street was removed from consideration for an AAA facility at this time.
Travel Time (existing configuration)	1:43 min	1:48 min	2:13 min	1:59 min	1:40 min	
Travel Time (AAA facility)	2:35 min	3:42 min	3:24 min	2:01 min	2:44 min	
Change in Travel Time	0:52 sec	1:54 min	1:35 min	0:02 sec	1:04 min	
TRANSIT						
Transit Stop Conflicts						
Current # of Stops	5	3	4	9	2	9
Future # of Stops	None identified	Possibility of future stops	2 BRT stops	None identified	None identified	2 BRT Stations
Transit Operations						
Current Transit Route	Yes	Yes	Yes	Current transit terminates at conflict point 2 nd Ave to 3 rd Ave	Yes	Yes
Future Transit Route	BRT proposed as curb running from 4th Ave to 3rd Ave	Identified as possible high frequency transit west of 3rd Ave	Identified as future centre running BRT route	None identified	None identified	BRT proposed as curb running from Spadina to 3 rd Ave
BUSINESS						
Street Environment	Low activity: 7 building entrances (1.8 per block face)	Average activity: 23 building entrances (2.8 per block face)	Average activity: 31 building entrances (3.9 per block face)	Low activity: 21 building entrances (1.6 per block face)	Average activity: 33 building entrances (2.8 per block face)	Low activity: 24 building entrances (1.8 per block face)
Parking						
Current # of Spaces	17	118	96	103	124	58
# of Spaces with AAA	17	80	63	90	66	50
Change in # of Spaces	0	-38	-33	-13	-58	-8

TRAFFIC ANALYSIS ASSUMPTIONS

- Transit MUP on 23rd Street is no longer present. Through traffic movements along 23rd Street have been added.
- Traffic Bridge is open.
- Force YR in River Landing is built out (increase in traffic due to development).
- Bus Rapid Transit (BRT) along 3rd Ave: all analyses take into account the changes in travel pattern in the downtown.

A. Due to removal of parking at intersections and on each side of driveways to improve visibility/signlines.

All Ages and Abilities (AAA) Cycling Network: Community Open House Engagement Summary

1 Engagement Objectives

- Provide an overview on the project and Saskatoon's wider cycling network;
- Describe how the technical analysis and stakeholder input informed the development of the downtown AAA cycling network;
- Share the results of the evaluation of the downtown streets; and
- Present the recommended downtown AAA cycling network.

1.1 What We Asked

Approximately 14 display boards were set up and manned by project staff. Staff discussed the content of the boards with attendees and answered questions. The boards contained the following information:


- Why Active Transportation is important in Saskatoon, including information on the Council endorsed plans supporting cycling initiatives: Growth Plan, Active Transportation Plan, and Compete Streets Design and Policy Guide.
- What types of cycling facilities are considered when planning a cycling network, including what types of facilities are considered All Ages and Abilities, and which are not, and a description of what makes a facility appropriate for people of all ages and abilities.
- The results of the evaluation of all streets considered for AAA facilities was communicated, including consideration for other users and uses along these corridor such as transit, people driving, and businesses. A rationale for why the recommended streets were selected was also provided.
- A map of the proposed AAA downtown cycling network was provided, as well as how this network would connect to existing and future AAA facilities beyond the downtown.

1.2 What We Heard

Generally speaking, many attendees were supportive of an all ages and abilities network and of the streets that were selected. Of those who supported the network, many agreed with the streets selected and supported the evaluation process used to arrive at those streets. Some comments were received around improving access at key entry points such as the bottom of the Broadway Bridge, ensuring good pavement quality in the lanes, and providing access through the existing transit terminal. Generally, those who were not supportive of the network were not supportive of any protected cycling facility within the downtown, citing negative impacts to motorists and cost implications.

2 Boards

Active Transportation in Saskatoon



The Growth Plan to Half a Million (Growth Plan) was developed over two and a half years through a five-phase public engagement process called Growing Forward Shaping Saskatoon.


The Growth Plan is made up of several themes that when placed together, form a new growth model for Saskatoon:

- **Corridor Growth** – Encouraging growth and development near our existing major corridors.
- **Transit** – Making transit more attractive to more people as we grow.
- **Core Area Buildings** – Making the most of our existing road infrastructure.
- **Employment Areas** – Ensuring we have the right amount of employment in the right areas.

• **ACTIVE TRANSPORTATION** – Providing more choices for how people move around the city.

- **Financing Growth** – Planning ahead for the costs of growth.

Adopted in principle by City Council on April 25, 2018. The Growth Plan is about making choices to proactively manage the changes associated with growth, creating a city that is vibrant and attractive to future generations. A vibrant Saskatoon has a diverse mix of housing, commercial, social, cultural, and recreational opportunities that are universally accessible by all modes of transportation, including walking, cycling, transit and driving.




The purpose of Saskatoon's Active Transportation Plan (AT Plan) is to increase transportation choices within the city and establish a long-term vision for active transportation that complements the City of Saskatoon's existing strategic vision.

The AT Plan identified five key goals for improving walking and cycling in Saskatoon:

1. **MORE** walking and cycling
2. **SAFER** walking and cycling
3. **More PLACES** for walking and cycling
4. **Build a CULTURE** for active transportation
5. **ENCOURAGE** other forms of active transportation

Adopted in principle by City Council on June 27, 2016. The AT Plan will contribute to increased transportation options by improving the accessibility, comfort, convenience and safety of active transportation in Saskatoon as the city grows to half a million people over the next 30 to 40 years.



The City of Saskatoon is committed to providing safe streets for users of all ages, abilities, and modes of travel. The Complete Streets Policy and Design Guide was developed to help achieve that goal through a more balanced approach to street design that accommodates the safe movement of people by multiple modes and of all ages and abilities.

The principles of Complete Street design include:


- Serve and support existing and planned land use and built form context.
- Encourage people to travel by walking, bicycling, and transit.
- Provide transportation options for people of all ages and abilities.
- Enhance the safety and security of urban streets.
- Create a network of streets that offers mobility options for all users.
- Provide opportunities for improved health and recreation to people in the community.
- Promote the economic well-being of both businesses and residents.
- Create public space within the street corridor.

Adopted in principle by City Council on October 22, 2017. The Complete Streets Policy and Design Guide will help Saskatoon to plan, design, operate and maintain existing and new streets to effectively support movement of people of all ages and levels of mobility.


Active Transportation (AT) Plan | Bicycle Network Principles

AT Plan Network Facility Types


All Ages & Abilities (AAA)




Multi-Use Pathway



Bicycle Boulevard




Protected Bicycle Lane




Raised Cycle Track


Secondary (non-AAA)




On-Street Bicycle Lane



Buffered Bicycle Lane



Shared Use Lanes (sharrows)



Local Street

City Wide Cycling Network Principles

A well-designed cycling network needs to be visible, intuitive and provide connections between destinations and neighbourhoods.

Ideally, a cycling network serves users of all ages and abilities – in other words, people from age 8 to age 80 – offering practical route options for those who are interested in cycling, but who may not be comfortable riding on busy streets with high traffic volumes and speeds.

The design and development of a long-term bicycle network for Saskatoon is based on five network planning principles:

1. Provide an interconnected system of facilities that is **COMFORTABLE** and attractive for all users.
2. Increase **COVERAGE** to ensure all residents are within 400m of a designated bicycle route. The designated route may include both AAA and non-AAA facilities.
3. Focus on high-quality **CONNECTIONS** to and from downtown with all areas of the city and create a downtown network.
4. Provide a network that provides direct **ACCESS** to major shopping centres, key employment areas, schools, and recreational areas/facilities.
5. **IMPROVE** and connect to existing cycling routes.

All Ages and Abilities (AAA) Bicycle Network Principles

SAFETY

People riding bicycles are vulnerable road users because they have less protection and travel more slowly than motor vehicles.

An All Ages and Abilities Network should:

- Minimize and consolidate conflict points between modes (for example, at intersections or driveway crossings).
- Reduce speed and enhance visibility at intersections and conflict points.
- Provide each mode with a clearly defined space for travel.
- Provide consistent treatments to promote predictable behavior for all users.
- Ensure facilities are easy to maintain to facilitate safe cycling conditions.

COMFORT

Attention to user comfort is an important part of attracting more people to bicycling as a mode of travel.

An All Ages and Abilities Network should:

- Separate bicycles from motor vehicles when speeds are over 30 km/hr and traffic volumes exceed 1,500 vehicles per hour.
- Ensure the amount of delay for people riding bikes is reasonable and balanced with other users.
- Minimize encounters between people riding bikes and those driving vehicles.
- Accommodate side-by-side cycling and passing movements, where feasible.
- Provide smooth vertical transitions and pavement surfaces free from obstructions.

CONNECTIVITY

People who ride bicycles need a network of continuous low-stress routes that provide connections to local and city-wide destinations.

An All Ages and Abilities Network should:

- Provide direct and convenient connections that minimize detours.
- Connect to local and city-wide destinations.
- Integrate into the larger multimodal transportation network.
- Provide seamless transitions between different types of cycling facilities (for example: from a raised cycle track to a multi-use pathway).
- Ensure key destinations and regional routes are interconnected with the bicycle network.

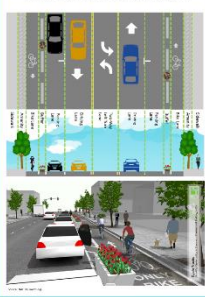
EXAMPLES OF AAA FACILITY TYPES

An all ages and abilities (AAA) facility is typically used on streets where:


- volume of vehicles is greater than 1,500 vehicles per hour, and
- operating speeds are over 30km per hour.

The following are three types of AAA facilities that are typically used in urban settings, such as downtown Saskatoon.


ONE-WAY PROTECTED BIKE LANE



ONE-WAY RAISED CYCLE TRACK



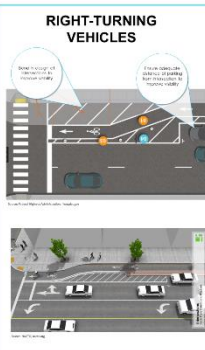
BI-DIRECTIONAL PROTECTED BIKE LANE




EXAMPLES OF DESIGN CONSIDERATIONS

Integration with other users of the street is important to the successful function of the street. Conflicts between users are inevitable, but design treatments can be applied to ensure all users can safely navigate the space.

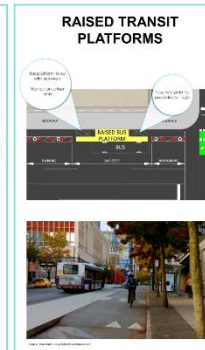
RIGHT-TURNING VEHICLES



LOADING ZONES / ACCESSIBLE PARKING SPACES



RAISED TRANSIT PLATFORMS



PROJECT TIMELINE

PHASE 1

- High level review of all potential downtown streets
- Develop evaluation criteria
- Present progress to stakeholders
- January 30th Event
- Eliminate all streets that do not meet AAA Bicycle Network Principles (Safety, Comfort, Connectivity)
- Criteria must consider the impacts of all users in the downtown.

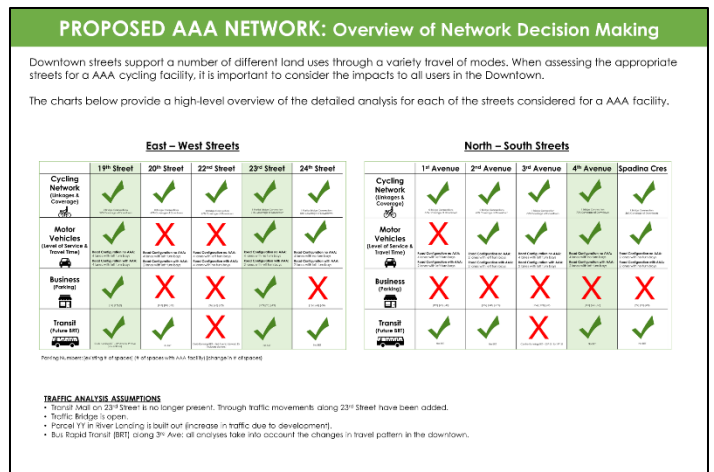
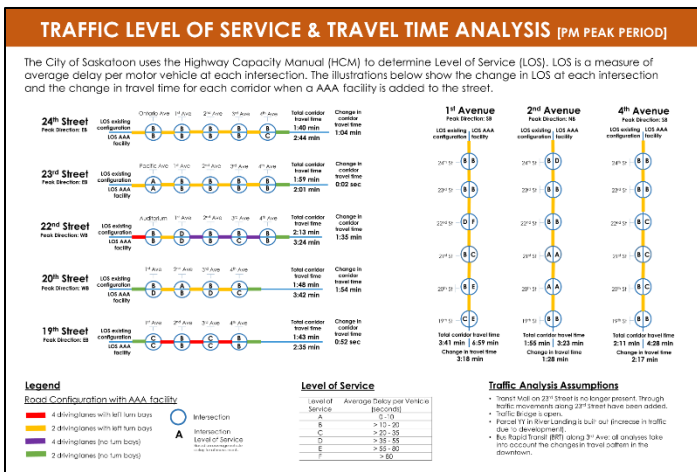
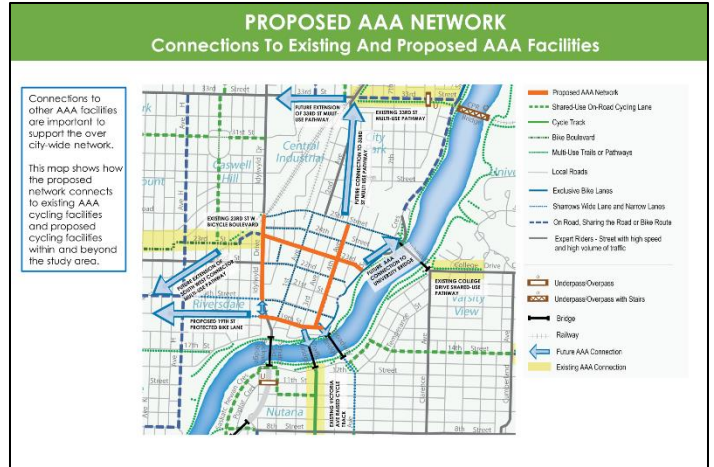
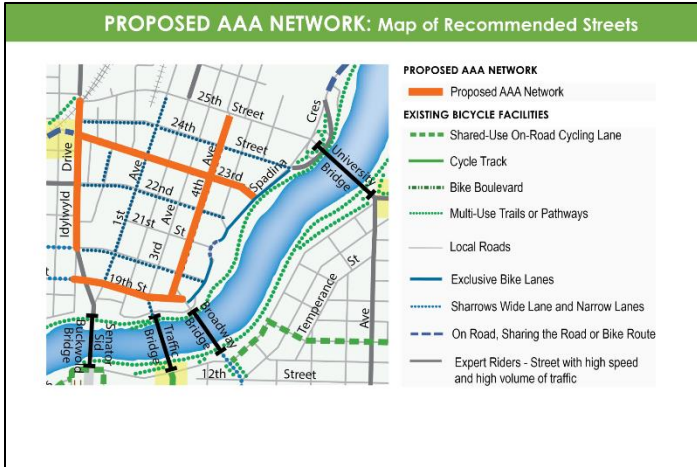
PHASE 2

- Identify promising streets for AAA network
- Develop Downtown AAA cycling network
- Present progress to stakeholders
- Present progress to public
- March 1st Event
- March 7th Event
- Conduct comprehensive data collection for all evaluator criteria on all promising streets
- Use industry standard traffic modeling software to quantify traffic operation impacts of cycling facility on all promising streets
- Based on outcomes of data analysis and modeling results, identify the recommended network streets

PHASE 3

- Design
- Report to City Council
- June 2018
- Determine the appropriate facility type using industry guidelines and practices

Appendix A: Engagement Event Summary



Appendix A: Engagement Event Summary

AAA EVALUATION CRITERIA: COMPARISON OF NORTH-SOUTH STREETS

Streets Recommended for Downtown AAA Network: Great/Good, Neutral, Poor

	Idylwyld Drive	1st Avenue	2nd Avenue	3rd Avenue	4th Avenue	Spadina Cres
BICYCLE NETWORK						
Linkages to Surrounding Areas						
Connectivity North	Great. Extends beyond 25th St.	Good. Extends beyond 25th St. with a slight deflection at Duke St.	Great. Extends beyond 25th St.	Great. Extends beyond 25th St.	Good. Extends beyond 25th St. (4th Ave in a one-way street N of 25th)	Good. Extends north of 25th St. Connects with Meowain trail system
Connectivity South	Ok. Terminates at 20th, connection through Ave A to 19th St	Ok. Southbound. Terminates at 19th Street. Northbound begins at 20 th due to Idylwyld Freeway Ramps.	Great. Terminates at Spadina Cres	Great. Terminates at Spadina Cres	Intersection improvements are planned that will improve the connection to the Broadway Bridge	Good. Terminates at 2nd Ave. Connects with Meowain trail system
Coverage (% of Downtown within 400m of Proposed Facility)	40%	65%	75%	75%	70%	55%
Linkages to Existing & Proposed AAA Facilities						
Bridges	Poor. Road connects directly to 3rd Buckwold Bridge but the connection to 3rd Buckwold Bridge walkway is challenging.	Poor. Road connects directly to 3rd Buckwold Bridge but the connection to 3rd Buckwold Bridge walkway is challenging.	Ok. Connects to 19th St which connects to Traffic Bridge and Broadway Bridge	Great. Connects directly to Traffic Bridge	Good. Northbound connection from Broadway Bridge to 4th on East side is OK. Intersection improvements are planned that will improve the connection to the Broadway Bridge	Good. Connects with University Bridge. Down 1 connect with Broadway Bridge. Connects with Traffic Bridge
Existing AAA Facilities	Connects with Baltimore Bikeway. Connects with South West Connector Multi Use Pathway	None	2nd Ave becomes 3rd Ave which connects with 33rd Street Multi-Use Pathway	Connects with 33rd Street Multi-Use Pathway. Connects with Cycle Track on Victoria Avenue	None	Connects to Meowain trail system
Proposed AAA Facilities	None	None	None	None	None	None
Current and Potential Bicycle Traffic						
Key Destinations Served	Midtown Plaza TCU Place	Government of Canada Building Midtown Plaza Scotia Centre	Royal Modern River Landing Scotia Centre Lots of retail Lots of restaurants	Francis Morrison Library City Hall Sturdy Stone Some retail shops Some restaurants Educational institutions	Francis Morrison Library City Hall Sturdy Stone More office than retail Some restaurants	Royal Modern River Landing Court of Queen's Bench Medical Offices General Offices
PEOPLE WALKING						
Pedestrian Improvements						
Opportunity for Improvements	Yes. Opportunity to make improvements through Imagine Idylwyld project	Yes. Opportunity to improve crossings for pedestrians north of 22nd St	Already a pedestrian priority street with significant pedestrian amenities & short crossing distances	Yes. Possible opportunity to make improvements through BRT	Yes. Increases separation of pedestrians from traffic	East side has great pedestrian amenities. West side could benefit from improved pedestrian facilities

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Transit Stop Conflicts						
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