City of Saskatoon | GROWING forward! Shaping Saskatoon

ACTIVE TRANSPORTATION PLAN
FINAL REPORT

JUNE 2016

Prepared for the City of Saskatoon by Urban Systems Ltd.

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ATP Public Event, River Landing, Saskatoon, SK, Source: Urban Systems

Broadway Avenue, Saskatoon, SK, Source: City of Saskatoon

Broadway Avenue, Saskatoon, SK, Source: City of Saskatoon

PART 1: Setting the Stage

1.1 Study Purpose

The purpose of Saskatoon's Active Transportation Plan (ATP) is to increase transportation choices within the city and establish a long-term vision for active transportation that complements the City of Saskatoon's (City) existing strategic vision. The ATP is one component of the *Growth Plan to Half a Million (Growth Plan*). With Saskatoon's population expected to double to half a million people over the next 30 to 40 years, change is inevitable. The *Growth Plan* is meant to pro-actively manage this growth and ensure Saskatoon remains a healthy, sustainable, accessible and attractive place to live for future generations.

As shown in **Figure 1**, active transportation includes any form of human-powered transportation, such as walking, jogging, cycling, skateboarding, cross-country skiing and using mobility aids.

Figure 1 - Forms of Active Transportation

The ATP 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 ATP establishes a vision, goals, targets and corresponding directions and actions for improving active transportation policies, standards, infrastructure and programs over the next 30 to 40 years. The ATP also provides a detailed implementation plan and monitoring strategy with short-, medium- and long-term priorities for improvements to walking, cycling and other forms of active transportation throughout the city.

1.2 Study Process

The ATP has been developed over a five phase process. Each phase included various public engagement events and activities to ensure the ATP was developed with broad input from residents and stakeholders representing different perspectives.

PHASE 1: SETTING THE STAGE included a review of background information, analysis of existing conditions, a best practice review and summary of the benefits of walking and cycling to identify the 'why' behind promoting active transportation in Saskatoon.

PHASE 2: FOCUS OUR SHARED VISION involved developing a shared vision for active transportation in Saskatoon, along with supporting goals, objectives and targets for walking and cycling to support the *Growth Plan* and other city-wide plans and strategies.

PHASE 3: WHAT ARE THE POSSIBILITIES? focused on identifying possibilities for active transportation in Saskatoon, including developing options for connectivity improvements, supportive policies, standards and programs.

PHASE 4: WHAT IS THE PREFERRED PLAN? Using public and stakeholder input gathered throughout the process, this phase involved fine tuning the possibilities and actions to develop a preferred ATP.

PHASE 5: HOW DO WE MAKE THIS HAPPEN? involved developing an implementation plan to ensure the ATP is realistic and implementable. The implementation plan includes recommended phasing and prioritization, quick wins, cost estimates and a funding strategy in-line with the City's available resources.

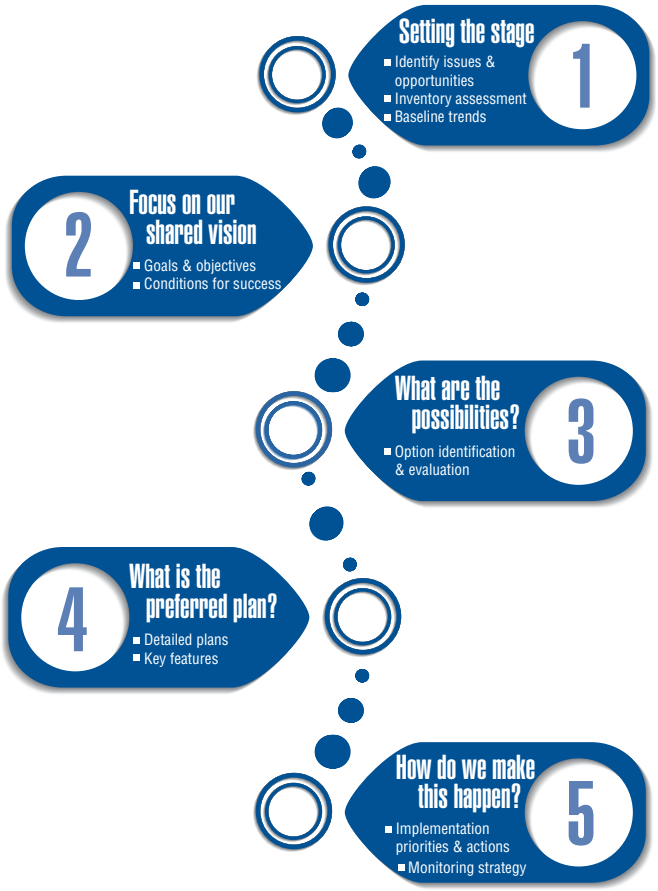


Figure 2 - Active Transportation Process Overview

1.3 Plan Overview

The ATP Final Report has been separated into six parts:

PART 1: SETTING THE STAGE highlights the overall purpose, process and public engagement activities that have taken place to develop the ATP.

PART 2: SHAPING INFLUENCES outlines the analysis and considerations that shaped the ATP's directions and actions. This includes understanding the benefits of active transportation, connections to other relevant plans and policies, land use and demographic trends, existing conditions and the market for active transportation in Saskatoon.

PART 3: FUTURE DIRECTIONS outlines the ATP's vision, goals and targets, which build on the City's overarching plans and policies. The vision and goals will guide active transportation decision-making and actions in Saskatoon over the next 30 to 40 years, while the targets will be used to measure progress in achieving these goals.

PART 4: STRATEGIES AND ACTIONS describes the long-term directions and actions under the ATP's six themes: Connectivity, Safety and Security, Convenience, Maintenance and Accessibility, Land Use and Growth and Education and Awareness.

PART 5: MOVING FORWARD outlines the implementation plan and monitoring strategy for the ATP. The ATP actions have been prioritized over the short-, medium- and long-term and performance measures are identified to monitor implementation.

PART 6: MONITORING STRATEGY identifies a strategy to evaluate and monitor whether the ATP is implemented as intended and to determine whether the ATP is achieving its goals.

21st Street East, Saskatoon, SK, Source: Urban Systems

1.4 Public Engagement

Building on consultation processes undertaken by the City for the *Growth Plan*, a Communications and Engagement Strategy was developed to provide an inclusive, accessible approach to building awareness, seeking input and encouraging participation in the ATP. Representative participation by community stakeholders and residents was immensely important to the overall success of the ATP.

This section provides a snapshot of the three rounds of engagement activities that occurred throughout the development of the ATP. A detailed summary of each round of public engagement can be found in Engagement Summary Report #1, Engagement Summary Report #2 and Engagement Summary Report #3.

TELEPHONE SURVEY

Prior to the formal launch of the ATP public engagement process, Prairie Research Associates (PRA) conducted a statistically representative random sample telephone survey. The telephone survey was designed to understand current travel behaviour, attitudes about walking and cycling and issues and opportunities. The sample was compared to the 2011 Census information and weighted to compensate for any discrepancies (e.g. age, gender). A detailed summary of the telephone survey results can be found in the Telephone Survey Summary Report.

COME-AND-GO PUBLIC EVENTS

Come-and-go public events were held during phases one and four of the ATP process. The purpose of the first public event was to introduce the project to community members and confirm the ATP's goals and objectives. Input was gathered from attendees through an interactive survey (MetroQuest), described further on the following page.

Public Event No. 1, River Landing, Saskatoon, SK, Source: Urban Systems

Pop-up Engagement, River Landing, Saskatoon, SK, Source: Urban Systems

Stakeholder Workshop No. 1, TCU Place, Saskatoon, SK, Source: Urban Systems

Stakeholder Workshop No. 2, Le Rendez Vous, Saskatoon, SK, Source: Urban Systems

The second round of public events were designed to communicate and gather feedback on the preferred directions and actions of the ATP. These events featured display panels, maps, an ATP workbook, interactive activities and feedback stations. Members of the ATP team were available at all events for one-on-one conversations with residents and stakeholders. A public survey was also available online to correspond with the events during the second round of public engagement. For consistency, this online survey included the same set of questions found in the ATP workbook given to those who attended the in-person events. Background information was included within the online survey for those wanting to learn more about the plan and process prior to providing feedback.

STAKEHOLDER WORKSHOPS

Stakeholder workshops were held during phases one and three of the ATP process. Targeted invites were sent to representatives from a broad range of sectors including education and school-aged youth, seniors, local business associations, bus-riders, community associations, persons with disabilities, newcomers and cycling, walking and paddling groups. The first stakeholder workshop included presentations and rotating group discussions on a variety of topics, including how the ATP can help achieve Saskatoon's strategic goals and existing conditions for walking and cycling in Saskatoon. The second workshop included a presentation followed by break-out group discussions centred on 10 topics areas to identify possibilities for improving walking and cycling programs, education and awareness, accessibility, policies and networks. Members of the ATP team were in attendance at both workshops to facilitate discussions with stakeholders.

METROQUEST ONLINE SURVEYS

Two interactive online surveys were available during phases one and five of the ATP process. Both surveys were developed using MetroQuest, an

online public engagement tool. The purpose of the first survey was to understand travel behaviour, walking and cycling issues and challenges and interest in walking and cycling. The purpose of the second survey was to obtain input on implementation priorities. Combined, 2,700 responses were generated.

TARGETED ENGAGEMENT

Targeted engagement was undertaken to understand stakeholder groups' unique perspectives and needs. In addition to inviting under-represented groups from the first round of engagement, including the aboriginal community, newcomers and persons with disabilities to the second workshop, separate targeted engagement sessions were conducted with:

- members of the business community;
- post-secondary students, faculty and staff;
- educators of school-aged youth; and
- community associations volunteers.

STAKEHOLDER ADVISORY COMMITTEE (SAC) & ACTIVE TRANSPORTATION STEERING COMMITTEES (ATSC)

Two committees were formed to guide the development of ATP. The SAC consisted of community reps from a variety of organizations including school divisions, community associations, SGI, local business associations, seniors groups, physical activity groups, environmental groups, newcomers, bus riders and cycling groups. The purpose of the SAC was to ensure balanced input was provided throughout the development of the ATP and that the ATP reflects broad community needs and desires. The ATSC consisted of City staff from various Departments plus representatives from Meewasin Valley Authority, Saskatoon Health Region and University of Saskatchewan. The ATSC ensured broad input was provided from City departments and key external partners.

ONGOING AWARENESS

Several channels were used to promote the ATP and engagement activities, including utility bill inserts, City staff appearances on local morning news shows, print advertising, pop-up booths, personalized stakeholder email invitations and public service announcements.

Information about the ATP was also made available at two come-and-go public events for the *Growth Plan*. During both events, display panels highlighting the ATP were on display and pocket-sized information cards promoting upcoming ATP engagement activities were distributed.

ONLINE ENGAGEMENT

Several online tools were used to enhance the public engagement opportunities, allowing participants to get involved in the ATP at their convenience. Below are other components of the online engagement strategy:

GROWINGFWD.CA | At the launch of the public engagement process, the ATP page on the City's *Growth Plan* website (growingfwd.ca) was updated with new content and updates on the public engagement process.

EMAIL | Emails could be sent to the project team through the 'Contact Us' form on the *Growth Plan* project website.

FACEBOOK | Facebook ads and posts were used to drive traffic to the ATP project page and promote the engagement opportunities.

TWITTER | Residents were engaged through the City's official Twitter account (@cityofsaskatoon), using the hashtag #yxewalkroll. The majority of the Twitter messaging centered on raising awareness for the project and directing stakeholders to the project page as new content became available.

Public Event No. 1, River Landing, Saskatoon, SK, Source: Urban Systems

3rd Avenue South, Saskatoon, SK, Source: City of Saskatoon

Spadina Crescent West, Saskatoon, SK, Source: City of Saskatoon

2nd Avenue South, Saskatoon, SK, Source: City of Saskatoon

PART 2: Shaping Influences

2.1 Benefits of Active Transportation

Investments in walking, cycling and other forms of active transportation in Saskatoon will result in a more balanced transportation system, one that is more accessible, cost-effective and efficient in terms of infrastructure investments. There are also significant quality of life, health, safety and economic benefits associated with investing in active transportation. Investments in, and increased use of, active transportation contributes to a number of the City's strategic goals, as identified in the *Strategic Plan 2013-2023*. In particular, the benefits to supporting an active transportation culture in Saskatoon include:

ECONOMIC BENEFITS

Active transportation can contribute to the development of a healthy and diverse local economy. A balanced, efficient and accessible transportation system is one of the drivers of success for economic diversity and prosperity, as stated in the City's *Strategic Plan 2013-2023*. Walking and bicycle-supportive neighbourhoods, employment areas and other destinations throughout Saskatoon can encourage residents to support local businesses. Neighbourhoods and destinations that are accessible and attractive for active transportation users can attract more visitors, who will in turn be patrons of local services and amenities. For employment areas, active transportation provides more choice for people travelling to work, which is essential for lower income individuals, youth, seniors and others who may not access to a vehicle. Further, having options that support residents who use active forms of transportation in their neighbourhoods and to other destinations can decrease traffic congestion and increase the attractiveness and vibrancy of the area for both locals and visitors.

Active transportation can also support and encourage tourism. Initiatives such as bike share programs and trail development can support and enhance tourism opportunities in Saskatoon. Active transportation can also help to support a high-quality of life and keep Saskatoon competitive as both a place to live and do business.

HEALTH BENEFITS

Research and scientific evidence has found links between local investments in active transportation with supporting more physical activity and better health outcomes at the population health level. Regular physical activity, even at a moderate intensity (which includes walking briskly or cycling for at least 30 minutes, five or more days per week) reduces the risk of early death and numerous chronic diseases[1]. Physical activity has been proven to improve psychological well-being and prevents weight gain and obesity[2]. While the benefits of physical activity on health have been well documented, low levels of physical activity in children and adults are still prevalent throughout the world including Canada and have been rising[3,4].

[1]Southworth, M. (2005). Designing the Walkable City. Journal of Urban Planning and Development, 131(4), 246-257

[2]Transportation Research Board Institute of Medicine of the National Academies. (2005). Does the Built Environment Influence Physical Activity: Examining the Evidence?" Transportation Research Board Special Report 282

[3]Colley, R.C., Garriguet, D., Janssen, I., Craig, C.L., Clarke, J., and Tremblay, M.S. (2011). Physical Activity Levels of Canadian Children and Youth: Accelerometer results from the 2007 to 2009 Canadian Health Measures Survey. Statistics Canada, Catalogue no. 82-003-XPE. Health Reports, Vol. 22, no. 1

[4]Tremblay, M.S., Warbuton, D.E.R., Janssen, I., Paterson, D.h., Latimer, A.E., Rhodes, R.E., Kho, M.E., Hicks, A., LeBlanc, A.G., Zehr, L., Murumets, K., and Duggan, M. (2011). New Canadian Physical Activity Guidelines. Applied Physiol Nutrition Metabolism. 36: 36-46

ENVIRONMENTAL BENEFITS

Cycling and walking have many environmental benefits including reduced reliance on vehicles for moving around, reduced traffic congestion, air pollution and greenhouse gas (GHG). Investments in active transportation can contribute to the City's strategic goal of Environmental Leadership by reducing GHG emissions and reliance on fossil fuels for transportation. Investment in active transportation also demonstrates environmental leadership and can contribute to lowering the overall ecological footprint of Saskatoon.

SOCIETAL BENEFITS

Active transportation provides numerous quality of life benefits and contributes to the City's strategic goal of Quality of Life. Active transportation provides a practical, everyday opportunity for residents to be physically active, which increases mental wellness and social interactions. A high level of active transportation in a community is viewed as a strong indicator of sustainability and liveability. Building active transportation facilities can provide affordable and accessible transportation choices for people of all ages and abilities. In particular, this can help provide mobility options for those who may not have access to a vehicle. For youth, this also encourages sustainable travel patterns at an early age that can continue later in life.

SAFETY

Investments in active transportation contribute to a safer transportation system for everyone. Making active transportation a more visible and viable mode of travel results in reduced risk of collisions and a safer transportation system for all road users. Streets designed for slower vehicle speeds feel safer for vulnerable road users, including people walking, cycling and using other forms of active transportation. Studies have shown that slower vehicle speeds also exponentially increase survival rates for vulnerable road users. Furthermore, when active transportation rates increase, rates of collisions between vulnerable road users and motor vehicles decreases. This is known as the 'safety-in-numbers' principle: places with the highest levels of pedestrian and cyclist activity are also the safest places to walk and cycle. In 2014, the number of traffic collisions in Saskatoon decreased by 3.8% to 7,487 which was the lowest level in three years. In the first six months of 2015, there were 3,934 collisions, a year-over-year increase of 11.7%. Investing in active transportation can contribute to the City's corporate performance target of 5% reduction of traffic collisions annually.

2.2 Policy Context

The ATP is closely linked to, and informed by, a number of key policy and planning documents. There are also a number of other agencies within the Saskatoon region whose plans and policies were taken into consideration in the development of the ATP. The key documents that influenced the development of the ATP include:

- 2013-2023 Strategic Plan
- Growth Plan to Half a Million
- Official Community Plan (Bylaw No. 8769)
- Local Area Plans[5]
- City Centre Plan (2013)
- Parks and Recreation Master Plan (2015)
- Planning for Growth in Saskatoon: Past, Present and Future – Smart Cities, Healthy Kids (2011)
- Naturally Beautiful, Uniquely Ours. A vision for the Meewasin Valley 2014-2024
- Meewasin Trail Study Draft (2014)
- Zoning Bylaw No. 8770 (2016)
- Accessibility Action Plan (2008)
- North Downtown Master Plan Draft (2014)
- New Neighbourhood Design and Development Standards Manual (2016)
- Bicycle Bylaw No.6884 (2011)
- Traffic Control at Pedestrian Crossings Policy (2004)

River Landing, Saskatoon, SK, Source: Urban Systems

[5]Recent Local Area Plans with outstanding active transportation recommendations include: Airport Business Area (2002), City Park (2010), Westmount (2011), Varsity View (2014), The Junction Improvement Strategy (2014).

2.3 Land Use and Demographic Trends

This section outlines Saskatoon's demographic and land use trends that influence transportation choices and travel patterns. The following trends were important considerations in the development of the ATP:

- **Saskatoon is a rapidly growing city**, which will put increased pressures on the transportation network. The need and importance of providing more transportation choices is clear.
- **Saskatoon is compact**, with an urban land area of 150.13 km^2. This is relatively compact compared to other Canadian cities and allows for shorter walking and cycling distances to many destinations throughout the city.
- **Age-related transportation choices need to be considered.** Approximately 33% of Saskatoon's population is under 30 years of age, while 16% is over 65 years of age. People in these age groups tend to rely more on transit, walking and cycling to access schools or community services.
- **Saskatoon has a large immigrant community.** Newcomers often rely on public transit, walking and cycling as they get settled in a new city. Approximately 7% of Saskatoon's population are new immigrants that have settled in Saskatoon between 2001 and 2011.
- **Concentrated employment areas.** 60% of jobs are currently located in the University of Saskatchewan, downtown and north west industrial areas. High quality active transportation connections to these major employment areas are an important consideration. A future major employment area is Holmwood Suburban Centre. High quality active transportation connections will be needed to fulfill future travel demand to and from this future major employment area, to be located along or adjacent to future Bus Rapid Transit on 8th Street.
- **Trips made by walking and cycling.** Land use and transportation patterns result in significantly higher number of active transportation commute trips inside Circle Drive (13.9%) versus outside Circle Drive (3.2%) (source: 2011 National Household Survey).
- **Distribution of housing and jobs across the river.** As Saskatoon grows to a population of half a million, the distribution of jobs to housing will also change. Saskatoon currently has a relatively balanced housing to jobs ratio on both sides of the river. As Saskatoon grows, approximately 65% of jobs will be located on the west side of the South Saskatchewan River and 35% of jobs on the east side. Meanwhile, 62% of residents will live on the east-side while 38% on the west-side, thus producing more demand for river crossing trips. Therefore, high quality active transportation connections on new and existing bridges are important.

In the first Metroquest online survey, distributed between April 22 and June 1, 2015, respondents were asked to identify on a map places where they walk and cycle. **Figures 3 to 6** illustrate how land use, destination and trip purpose impact travel patterns. For example, respondents are travelling to the river valley and municipal recreation centres for recreational purposes. Travel patterns for work purposes show survey respondents are travelling to major employment centres, including downtown Saskatoon, the University of Saskatchewan and industrial areas.

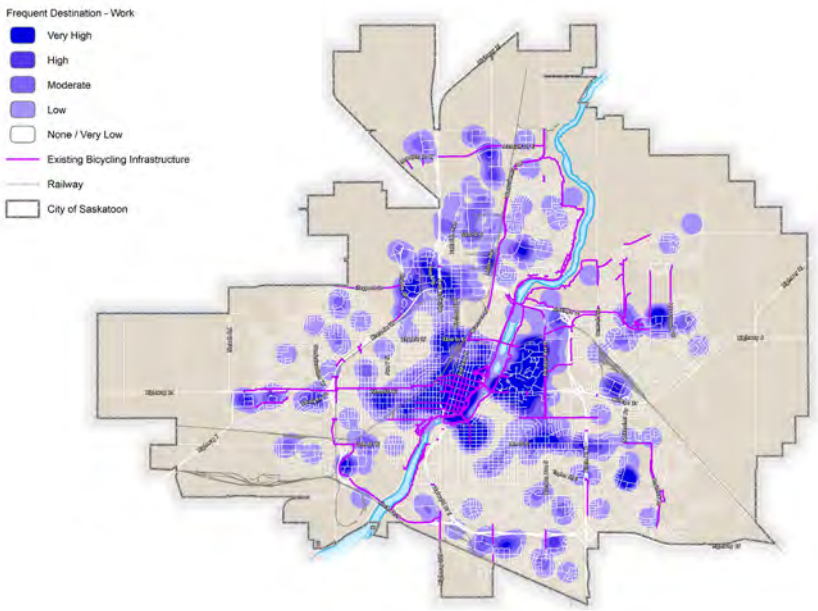


Figure 3 - Where are Survey Respondents Going? (For Work)

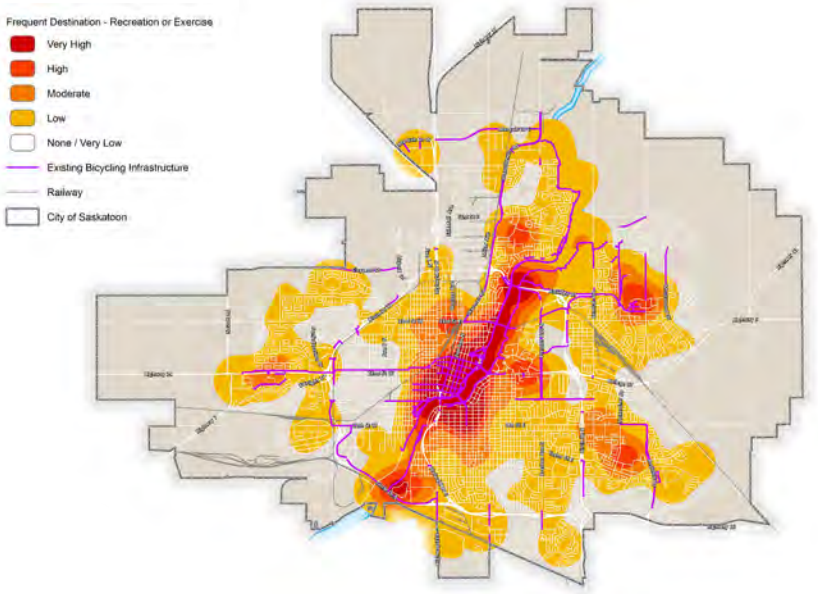


Figure 4 - Where are Survey Respondents Going? (For Recreation)

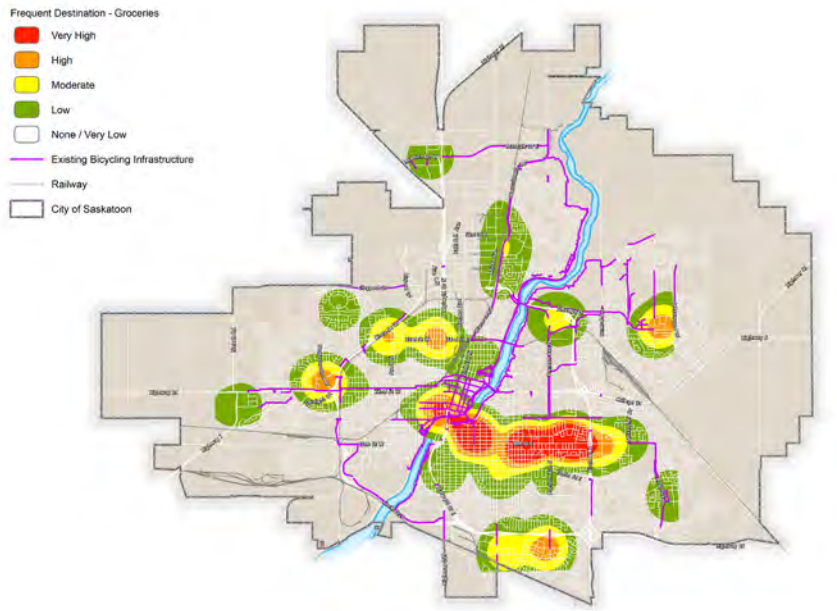


Figure 5 - Where are Survey Respondents Going? (For Groceries)

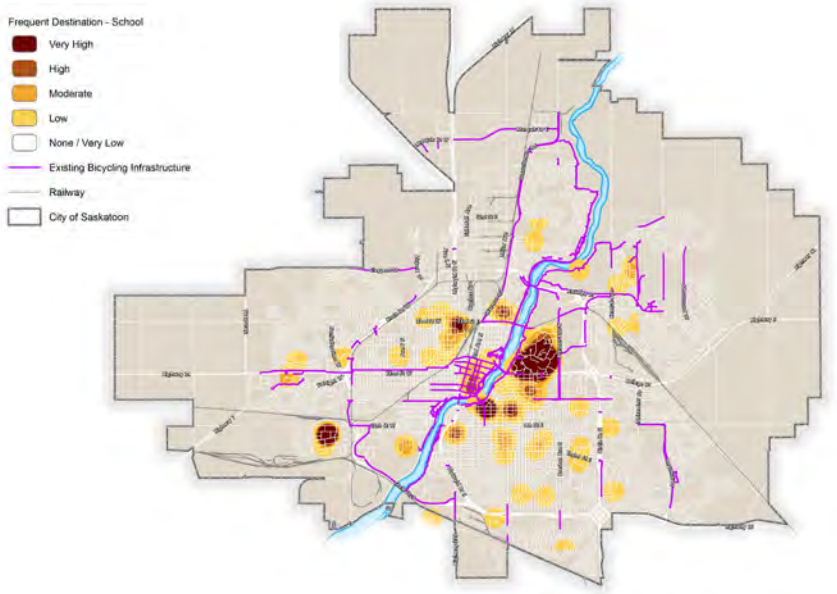


Figure 6 - Where are Survey Respondents Going? (For School)

2.4 The Market for Active Transportation

Different analyses were completed to understand the market for active transportation in Saskatoon. 'Market' refers to the demand and potential for active transportation. A demand analysis was undertaken to understand overall active transportation demand, as well as a potential analysis to identify neighbourhoods with the greatest potential to promote more walking and cycling. 'Demand' is described as existing active transportation usage, whereas 'potential' is referring to future active transportation usage.

An equity analysis was also undertaken examining the distribution of pedestrian and bicycle facilities in relation to under-served populations and finally, an analysis of the Level of Traffic Stress (LTS) was used to understand the appropriateness and comfort of road infrastructure. LTS data was provided by researchers at the University of Saskatchewan. Further ground truthing is recommended to confirm the accuracy of the findings and ensure they reflect technical inputs as well as the experience of people cycling.

DEMAND ANALYSIS

A statistically representative telephone survey involving 600 respondents and an interactive online survey generating 1,400 responses were conducted in the spring of 2015. To understand the market demand for walking, cycling and other forms of active transportation in Saskatoon, input was collected on trip purpose, levels of interest, barriers and ideas to improve active transportation year-round. A summary of the findings is presented below:

- **Nearly half of Saskatoon residents want to walk (48%) or cycle (46%) more, both for moving around and for recreation purposes.** In addition, respondents said walking, cycling and other forms of active transportation, such as cross-country skiing, are important forms of recreation and leisure.
- **Saskatoon residents are walking and cycling throughout the year.** In non-snow months, 93% of residents walk and 50% cycle at least once a month for commuting to work or school, running errands or for recreation and leisure. During snow months, walking and cycling trips decrease, although many residents are still walking or cycling at least once a month.
- **Practical barriers to walking include long distances, personal abilities and time limitations.** Saskatoon residents said improving year-round sidewalk maintenance and accessibility, filling in missing sidewalks and improving intersection crossings would help them walk more often and make walking more accessible for all (**Figure 7**).
- **Saskatoon residents don't like cycling on busy streets without safe bicycle infrastructure.** Developing a network with protected bike lanes on major streets and ensuring on-street bicycle routes and multi-use pathways are cleared in the winter were suggestions for promoting more cycling (**Figure 8**).

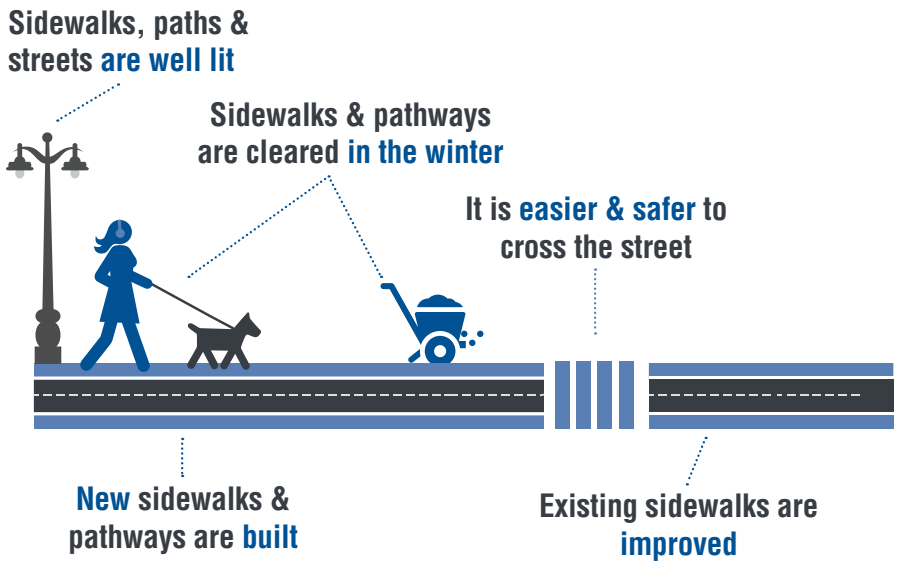


Figure 7 - Opportunities for improving walking in Saskatoon

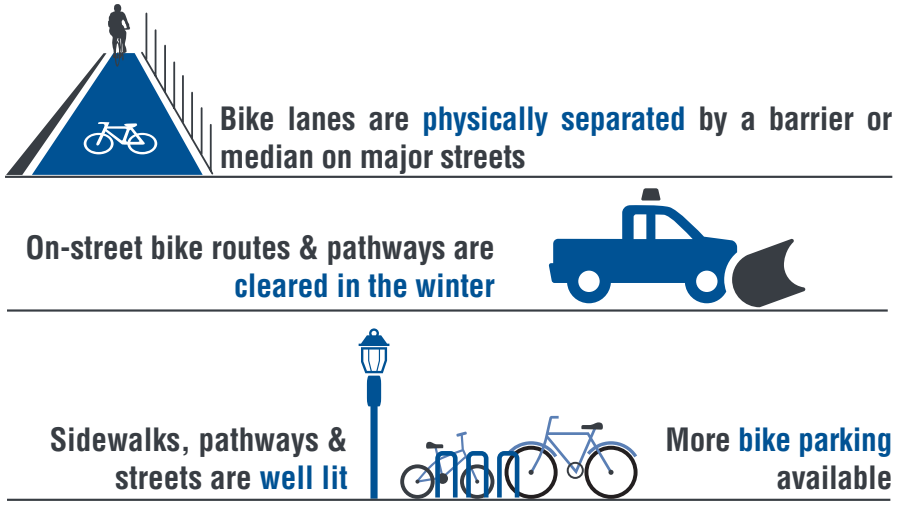


Figure 8 - Opportunities for improving cycling in Saskatoon

POTENTIAL ANALYSIS

Analysis was conducted of the walking and cycling potential throughout the city. 'Potential' refers to opportunities to increase usage in the future. This analysis examined a variety of factors that can help make walking and cycling more attractive, such as road network density, road network connectivity, land use mix, permeability and topography. In this context 'potential' is defined as the opportunity to increase active transportation usage and mode share based on existing built form characteristics.

The results of this analysis, as seen in **Figure 9**, show that the Central Business District neighbourhood has the highest walking and cycling potential due to the dense, well-connected grid street network, higher population and employment densities, mixed land uses and flat topography. Other neighbourhoods with high potential include Lawson Heights, University Heights Suburban Centre and Confederation Suburban Centre. This was used to inform the hub and spoke network discussed in **Part 4**.

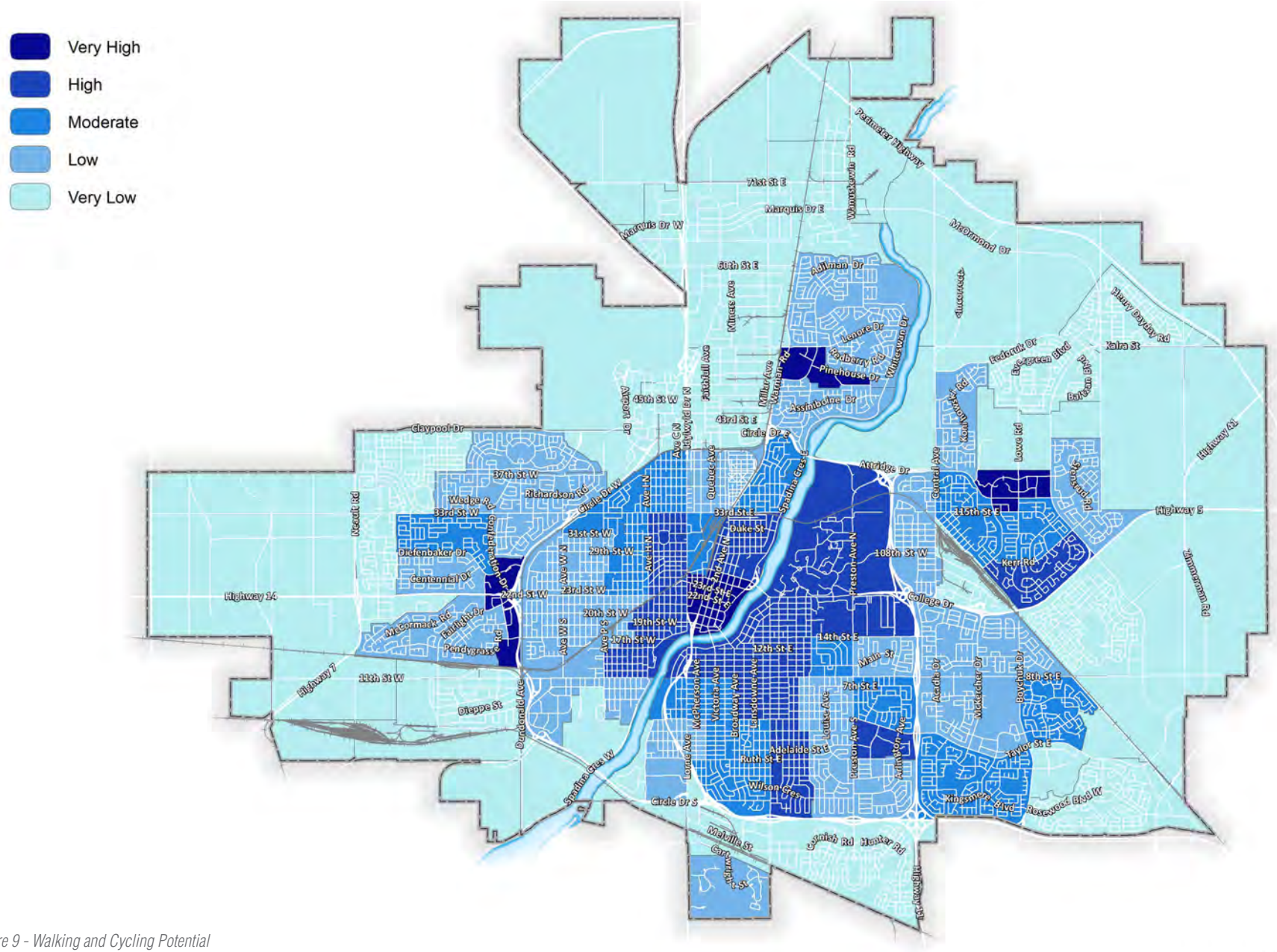


Figure 9 - Walking and Cycling Potential

EQUITY ANALYSIS

One of the aims of the ATP was to develop a well-connected network for walking and cycling that provides equitable access and serves all areas of the city. The equity analysis determines neighbourhoods with higher concentrations of under-served populations and with relatively low levels of existing active transportation facilities. The result of this analysis identifies under-served areas in the city where there is opportunity to strategically invest in areas that have high demand today, the greatest potential to increase future use of active transportation and where there are higher concentrations of people who are more dependent on active transportation for moving around. The equity analysis examined the distribution of pedestrian and bicycle facilities in relation to under-served populations and identified areas where limited access to walking or bicycle facilities is compounded by socio-economic challenges. The results were used as one of the factors to help prioritize the proposed active transportation networks. The neighbourhoods with the highest equity need were identified as a higher priority for implementation and provided with the highest quality of recommended facilities.

Five indicators were used to examine equity across neighbourhoods, including the percentage of youth populations, seniors populations, immigrant populations, Aboriginal populations and low income populations. The analysis identifies the following neighbourhoods as areas with the greatest need, as shown in **Figure 15**:

- Riversdale
- Pleasant Hill
- Meadow Green
- College Park
- Massey Place
- Mount Royal
- Westmount

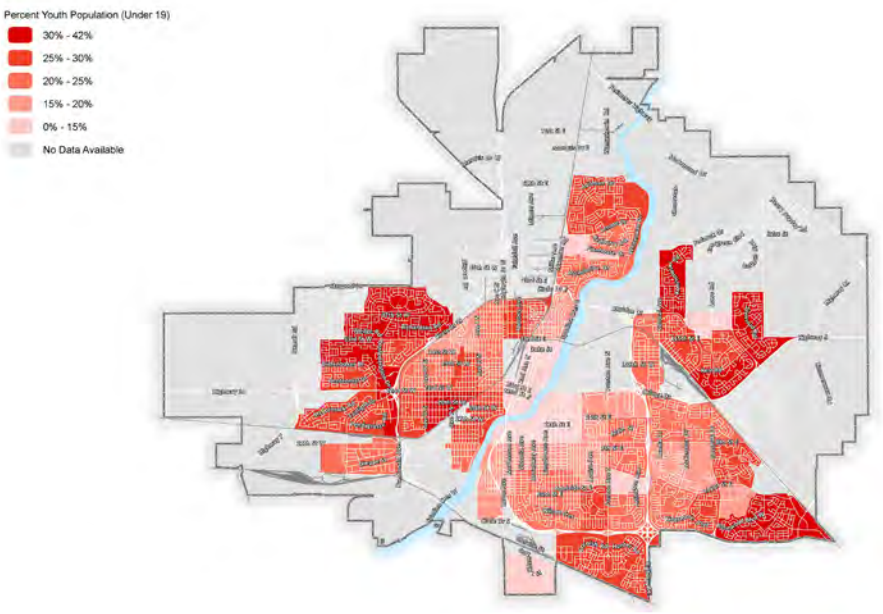


Figure 10 - Youth Population - Equity Analysis

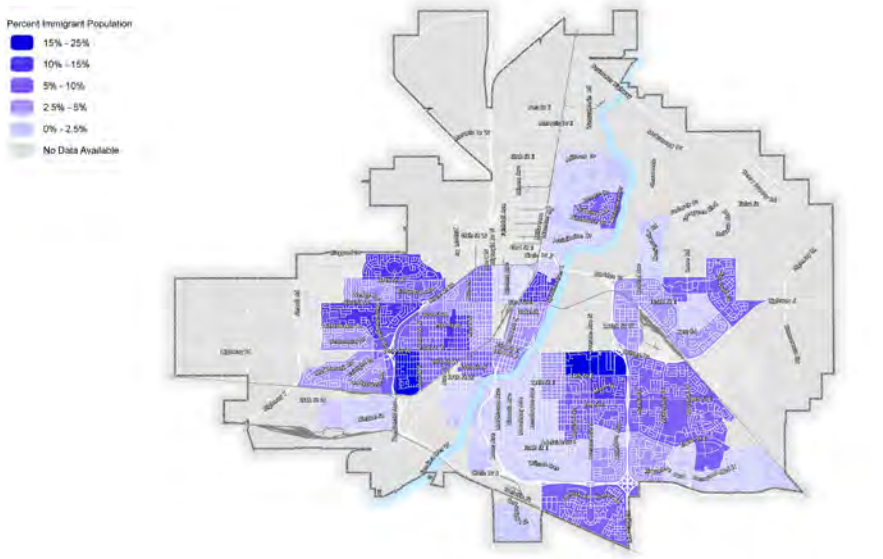


Figure 11 - Immigrant Population - Equity Analysis

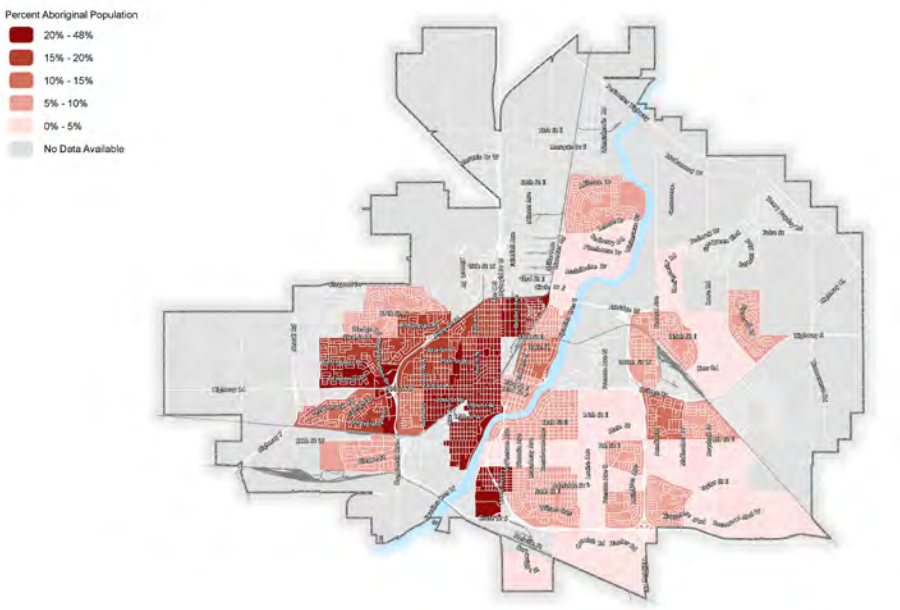


Figure 12 - Aboriginal Population - Equity Analysis

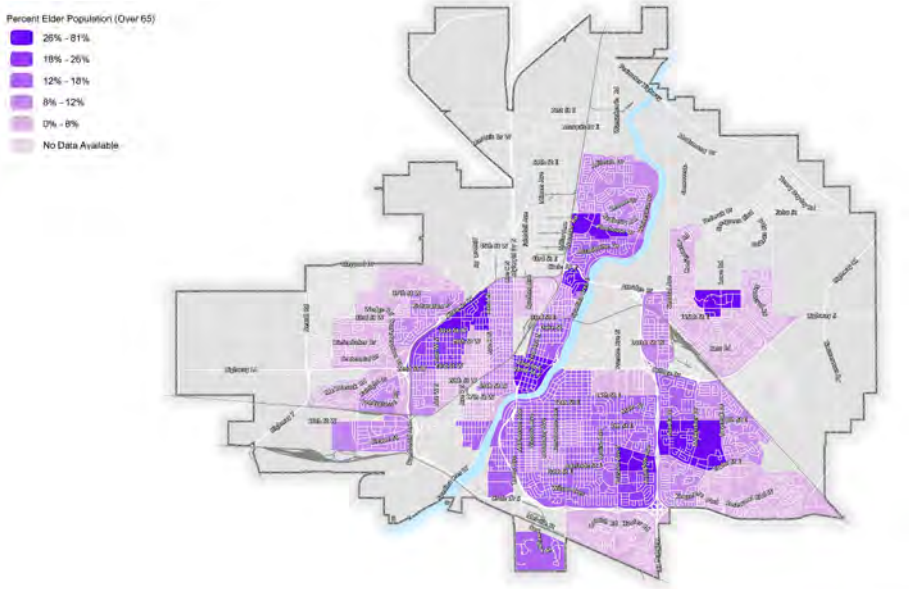


Figure 13 - Senior Population - Equity Analysis

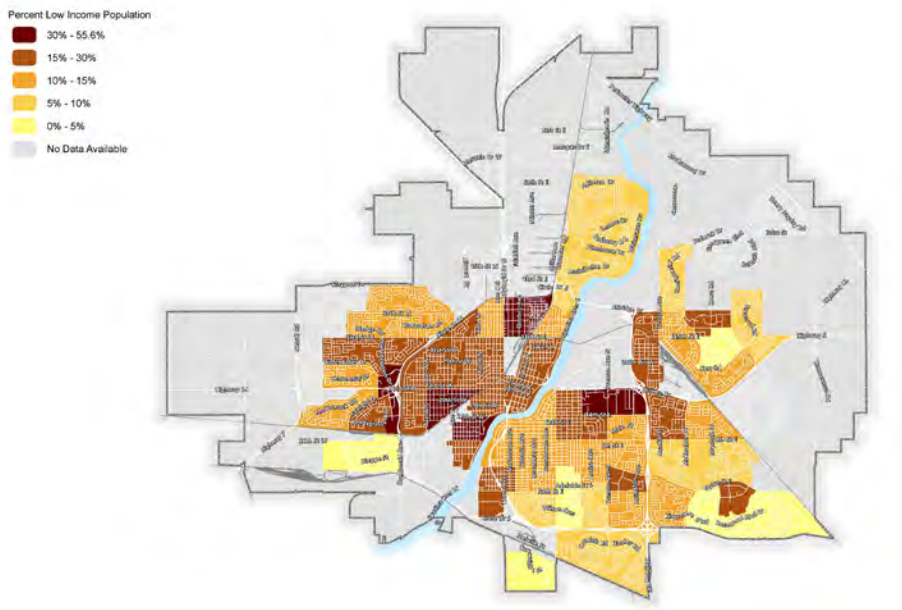


Figure 14 - Low Income Population - Equity Analysis

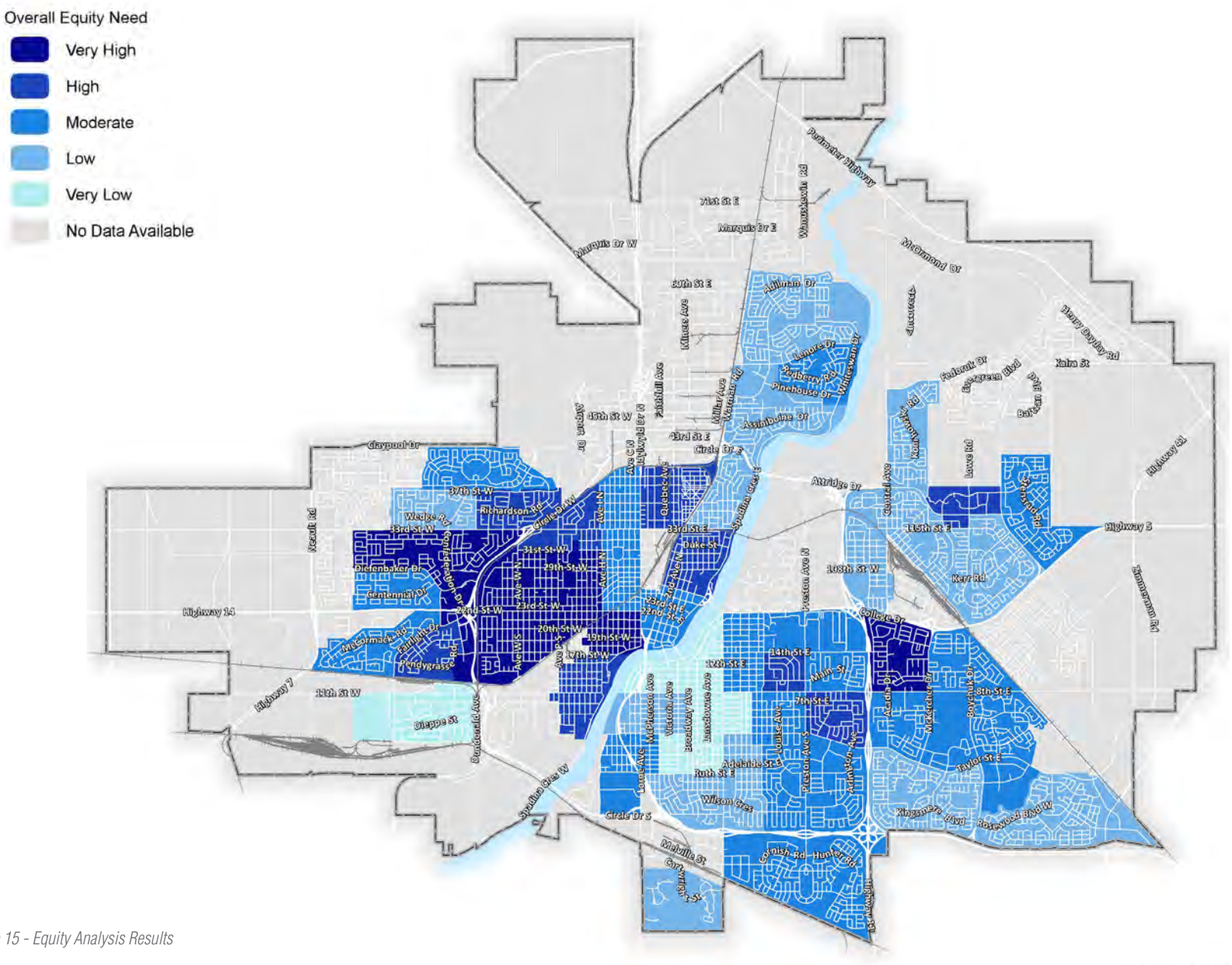


Figure 15 - Equity Analysis Results

LEVEL OF TRAFFIC STRESS (LTS) ANALYSIS

Research is being done to better understand the appropriateness and comfort of road infrastructure based on a cyclist's LTS that is felt when travelling on a road segment. Researchers with the School of Public Health at the University of Saskatchewan have been examining LTS on Saskatoon streets. As noted previously, further ground truthing is recommended to confirm the accuracy of the findings and ensure they reflect technical inputs as well as the experience of people cycling. This presents an opportunity for the City to work with local researchers to build partnerships and work towards improving the safety of cycling throughout Saskatoon.

LTS classifies road segments based on four levels of traffic stress. LTS 1 being the most comfortable where children can play, LTS 2 is tolerated by the adult population, LTS 3 is tolerated by cyclists who are 'enthused and confident' and LTS 4 is tolerated only by those in the 'strong and fearless' cyclist category.

LTS 4 can be seen in the following areas: the downtown has a number of streets with high LTS scores, 8th Street East, 22nd Street West and some parts of 33rd Street also have LTS scores of 4, meaning additional bicycle facilities appear to be needed to make cycling safer and a more viable option for most Saskatoon residents. Some streets with existing bike facilities in the form of sharrows or painted bike lanes have a score of LTS 3 or 4, including downtown bicycle routes, Preston Avenue, 20th Street West, 19th Street West and Broadway. It appears that upgrades to existing bicycle facilities are needed to make cycling a safer and more viable option on these streets.

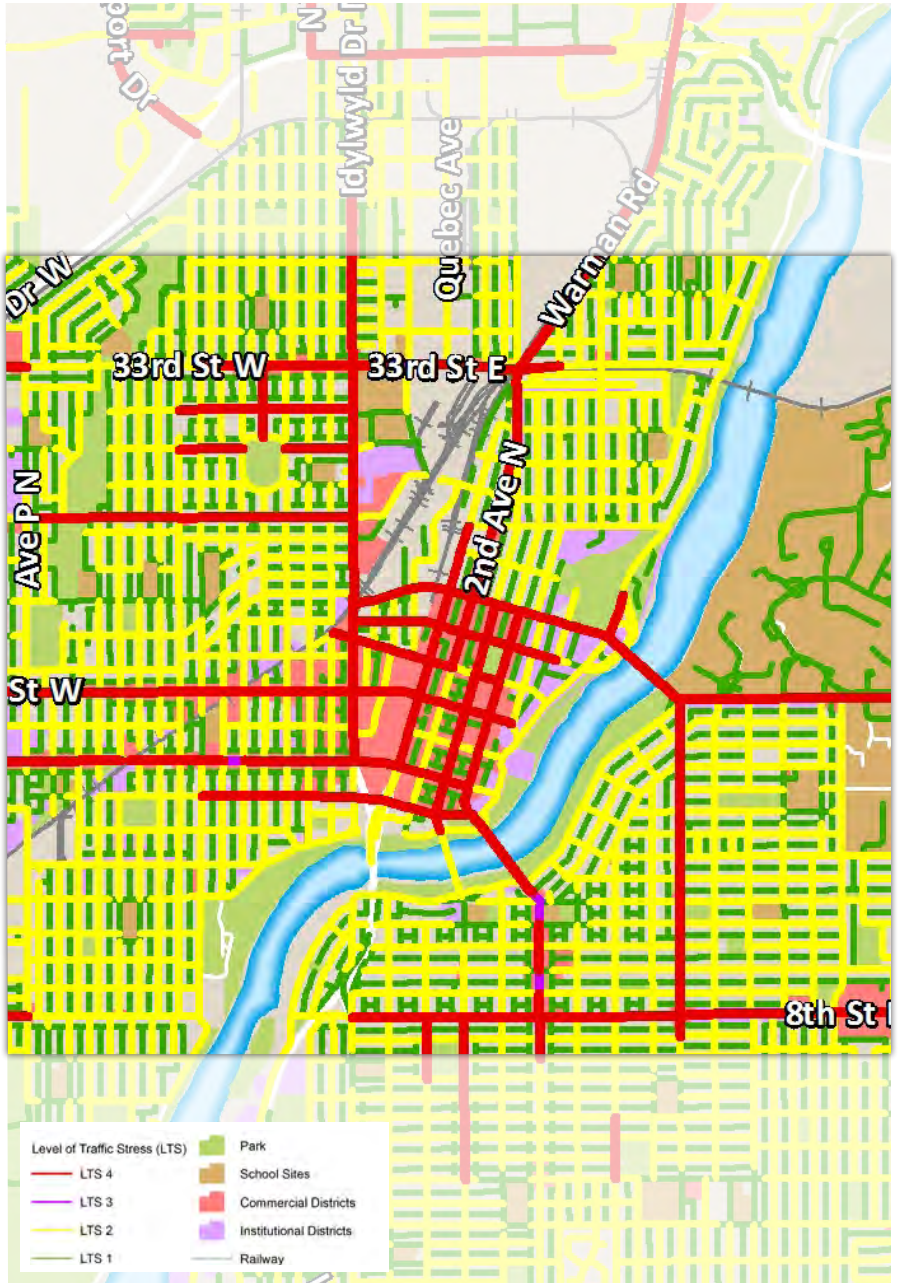


Figure 16 - Level of Traffic Stress

2.5 Active Transportation in Saskatoon Today

According to the Statistics Canada 2011 National Household Survey, over 7% of all trips to work in Saskatoon are made by walking and cycling (**Figure 17**). This is comparable to many other peer cities in North America, although Saskatoon has one of the highest walking and cycling mode shares when compared directly to other Canadian prairie cities.

Walking trips in particular account for over 5% of the daily trips to work within Saskatoon, which account for over 6,000 trips a day. However, the percentage of walking trips within Saskatoon (based on Statistics Canada data) has remained steady over the last 15 years.

In addition, the City's 2013 Household Travel Survey, which took into account all trips, found 12% of all trips in Saskatoon are made by walking and cycling (8% walking, 4% cycling) (**Figure 18**). This indicates that people are walking and cycling for other trip purposes, such as running errands and travelling to neighbourhood destinations.

The following sections summarize the existing conditions for active transportation in Saskatoon, focusing specifically on who, why, when and where people are walking and cycling.

WALKING IN SASKATOON TODAY

Walking is the most common form of transportation. If conditions exist within a community – such as having a complete, connected sidewalk network, safe crossings and major destinations within walking distance of residential areas – walking can be suitable for almost all short trips throughout the year. The city has an extensive pedestrian network that includes approximately 1,200 kilometres of sidewalks, as well as an extensive river valley network of paved and unpaved trails, countdown timers, accommodations for pedestrians on bridges, overpasses and underpasses and accessible infrastructure at many intersections.

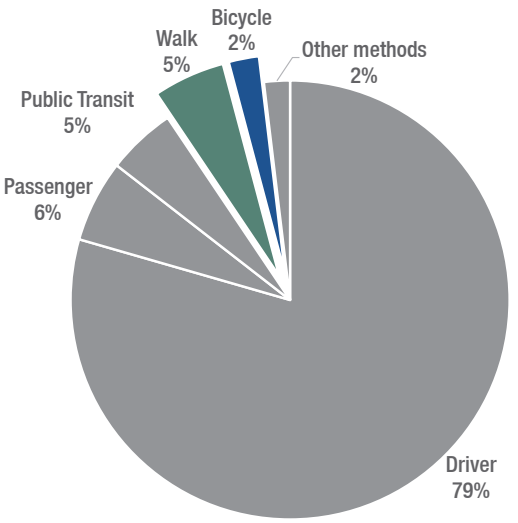


Figure 17 - Commute Trips to Work
Source: National Household Survey 2011

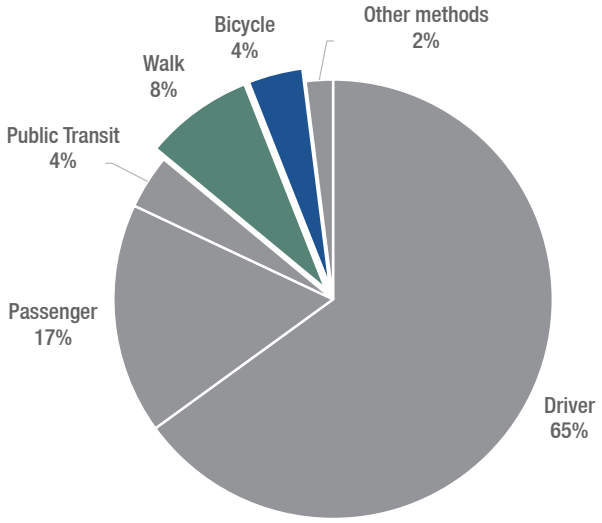


Figure 18 - All Trips Mode Share
Source: Ipsos Reid Household Travel Survey 2013

The following summarizes **WHERE** and **WHY** people are walking, **WHO** is walking and what the top **SAFETY** concerns and issues are for walking in Saskatoon today.

WHERE

- **Downtown and neighbourhoods south of the University of Saskatchewan attract the largest percentage of walking trips.** The Central Business District and the neighbourhoods south of the University of Saskatoon have the highest walking mode share within the city, as more than 25% of trips to work in these neighbourhoods are made by foot (source: 2011 National Household Survey).
- **Most walking trips are relatively short.** The mean distance for trips made by walking (based on the 2013 Household Travel Survey) is 1.5 kilometres, approximately a 20 minute walk.
- **Sidewalks are located on most of Saskatoon's streets.** Based on a review of the existing sidewalk network within the city, the majority of streets (75%) have sidewalks on at least one side of the street and 65% have sidewalks on both sides of the street (**Figure 19**).

Sidewalk coverage based on road classification found that 25% of major and minor arterial streets, 9% of major and minor collectors and 18% of local streets do not have sidewalks on either side.

WHY

- **Most residents in Saskatoon are walking to get to neighbourhood destinations.** Exercise is the next most common reason for walking, whereas travelling to work and school was less common.

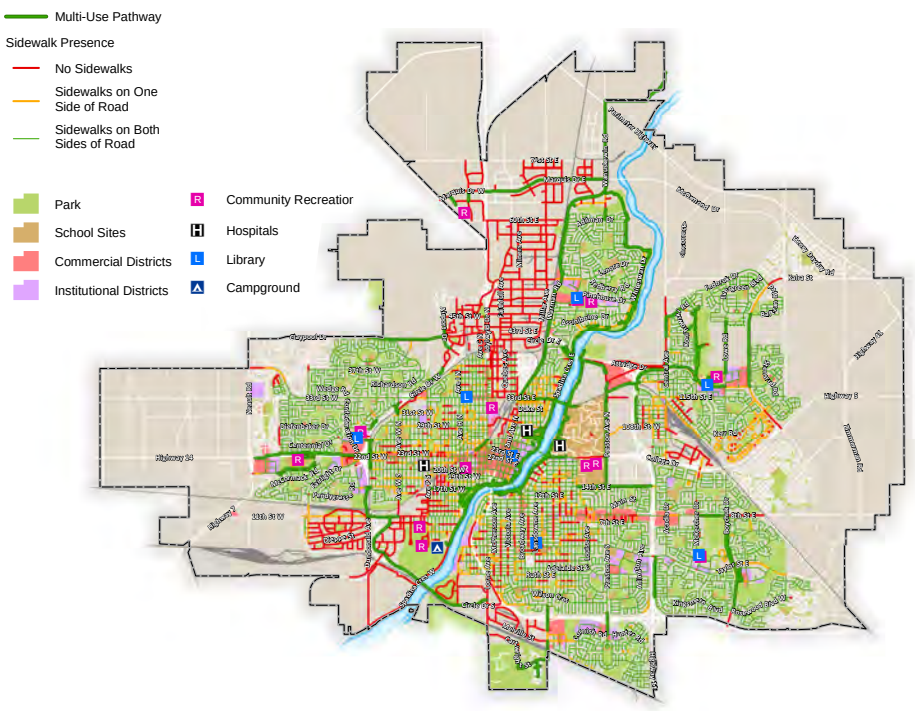


Figure 19 - Current Sidewalk Coverage

ROAD CLASSIFICATION	NO SIDEWALK	ONE SIDEWALK	TWO SIDEWALKS	TOTAL
Major & Minor Arterials	25%	27%	48%	100%
Major & Minor Collectors	9%	10%	81%	100%
Local	18%	9%	73%	100%

Table 1 - City of Saskatoon Sidewalk Coverage (Based on Road Classification)

WHO

- **Age.** Youth and seniors tend to walk proportionally more than adults, often because they are more restricted in their transportation options.

SAFETY

- The safety data presented below highlights the importance of additional facilities and treatments to improve safety and comfort for people walking. The relationship between exposure and collision frequency has not been analyzed here. The results, presented in **Figure 20**, show there are higher concentrations of collisions along busier streets with higher traffic volumes. The data also shows:

- **Traffic Safety.** The highest number of pedestrian collisions were within the Central Business District and along 8th Street East, 22nd Street West, 20th Street West, 33rd Street West and Idylwyld Drive (**Figure 20**).

- **Pedestrian safety and security is inhibited by concerns over crime and personal safety.** Fear of crime has an impact on pedestrian safety and security as it was identified as preventing Saskatoon residents from walking more. The risk of crime is greater in areas with low pedestrian traffic.

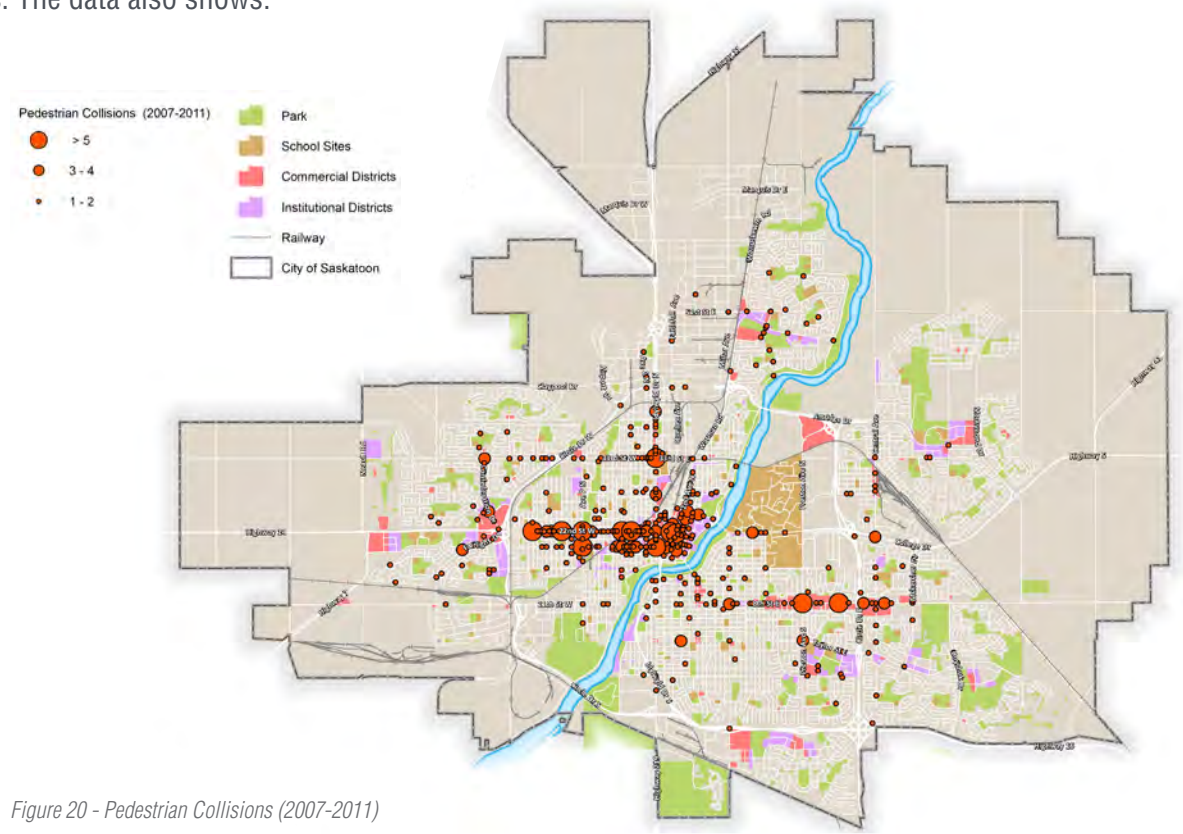


Figure 20 - Pedestrian Collisions (2007-2011)

20th Street, Saskatoon, SK, Source: City of Saskatoon

CYCLING IN SASKATOON TODAY

Saskatoon's cycling network is over 120 kilometres in length and includes protected bicycle lanes (pilot project), conventional bicycle lanes, bicycle boulevards, shared use lanes and paved and unpaved multi-use pathways. The network also consists of bicycle parking, bridges, overpasses and underpasses with accommodations for cyclists.

Cycling can be an attractive transportation option. It is convenient, low cost and, for shorter trips, a practical alternative to driving. With just over 2% commute mode share, Saskatoon has the highest bike-to-work mode share among all Canadian prairie cities; however, the cycling mode share has declined slightly over the last number of years. In addition, the City of Saskatoon Household Travel Survey (2013) found that 4% of all daily trips are made by cycling, indicating that a substantial amount of cycling trips are made for other purposes such as recreation or running errands.

Several factors make the city well suited for cycling. The relatively flat terrain is a positive as topography is not a major barrier here as it is in many other cities. The city's natural beauty and abundance of recreational and commuter multi-use pathways encourage residents to cycle as a form of commuting, exercise and leisure.

Without the integration of existing off-street facilities with the proposed on-street network, usage is likely to remain mainly recreational. By ensuring the proposed bicycle network builds on the already popular recreational routes, these facilities can act as a stepping stone for higher rates of commuter cycling. Expansion of the bicycle network will also increase recreational opportunities for cycling and facilitate cycling for other trip purposes, such as traveling to school or running errands.

Saskatoon has started to implement on-street bicycle facilities that are comfortable for cyclists of all ages and abilities, including the recent implementation of the downtown protected bicycle lane pilot project on 23rd Street and 4th Avenue. The goal of this pilot project is to increase the comfort and attractiveness of accessing downtown using a variety of transportation modes.

The following summarizes **WHERE** and **WHY** people are cycling, **WHO** is cycling and what the top **SAFETY** concerns and issues are for cycling in Saskatoon today.

WHERE

- **Most bicycle trips are relatively short.** The mean distance for trips made by bicycle / longboard (based on the 2013 Household Travel Survey) is 3.4 kilometres, approximately 15 minute bike ride, based on an assumed 15 km/hour cycling speed.

  Figure 21 is an 'as the crow flies' illustration of the approximate distance required to travel to Saskatoon City Hall from different locations within the city.

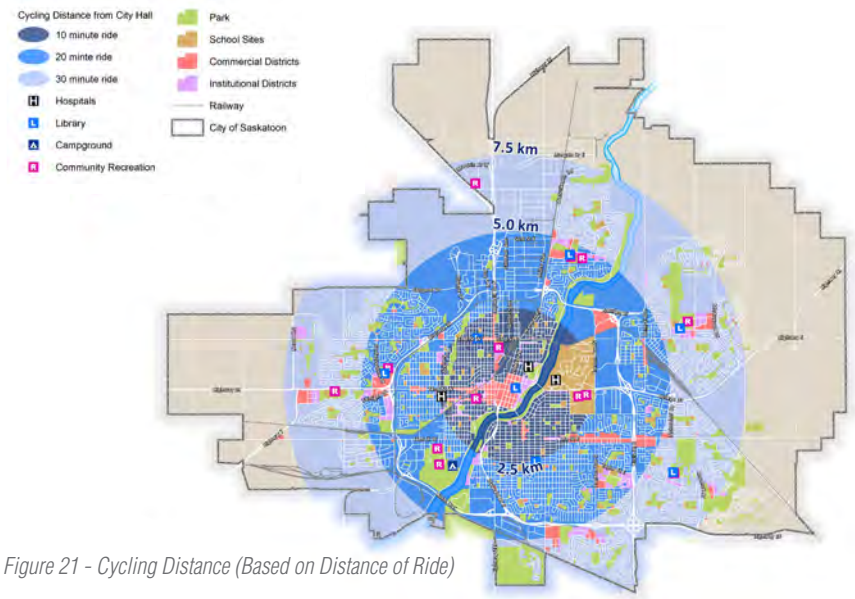


Figure 21 - Cycling Distance (Based on Distance of Ride)

- **A high concentration of cycling activity in established and relatively densely populated neighbourhoods.** There is great variation in cycling levels among Saskatoon's neighbourhoods. Land use and transportation patterns result in higher commute mode share for active modes inside Circle Drive (13.9%) versus outside Circle Drive (3.2%) (source: 2011 National Household Survey). Cycling levels are the highest in Varsity View and other older, well established neighbourhoods in close proximity to downtown businesses, post-secondary campuses and other destinations.

- **Saskatoon's bicycle network consists of both on-street and off-street facilities,** including painted bicycle lanes, bicycle boulevards, shared use lanes, as well as paved and unpaved multi-use pathways (**Figure 22**). The majority of the network is made up of paved multi-use pathways located along the Meewasin River Valley, as shown in **Table 2**.

BICYCLE FACILITY	KILOMETRES	%
Bicycle Lane	11.6 km	10%
Bicycle Boulevard	3.9 km	3%
Shared Use Lane	10.3 km	9%
Paved Multi-Use Pathway	88.8 km	73%
Unpaved Multi-Use Pathway	5.5 km	5%
Protected Bicycle Lane*	0.9 km	< 1%

Table 2 - Existing Bicycle Facilities

*Note: 4th Avenue Protected Bike Lane Pilot Project is not included in these calculations.

A review of the existing bicycle network was conducted to identify the location of area gaps. **Figure 23** illustrates a 400 metre buffer around every bicycle route in the city. These buffers represent network coverage; any location not within the buffer is more than 400 metres away from a bicycle route. Research, literature and experience suggests that 400 metres is the ideal distance people are willing to travel to reach a designated bicycle route. It is generally accepted that a bicycle network with designated facilities spaced a minimum of every 400 metres apart should be the goal for urban areas. For a complete bikeway network, these buffers would overlap to cover the entire city, ensuring all residents are within a 400 metre bicycle ride of a designated bicycle facility.

WHY

- **Most residents in Saskatoon are riding their bicycle to get to neighbourhood destinations.** Based on the telephone survey results, cycling to neighbourhood destinations such as community centres, grocery stores and other retail is the top trip purpose. Exercise is the second most common reason for cycling, while travelling to work and school was less common.

WHO

- Based on the 2013 Household Travel Survey, the **highest level of cycling activity among Saskatoon residents is between the ages of 5 and 17** and **25 and 44.** There is a steady decline in cycling trips among people aged 64 and over.

SAFETY

- As shown in **Figure 24**, the highest number of cycling collisions were within the Central Business District and along 8th Street East, 22nd Street West, 20th Street West, 33rd Street West and Idylwyld Drive. It is important to note that level of traffic exposure, which considers vehicle and bicycle volumes, is not addressed in this analysis.

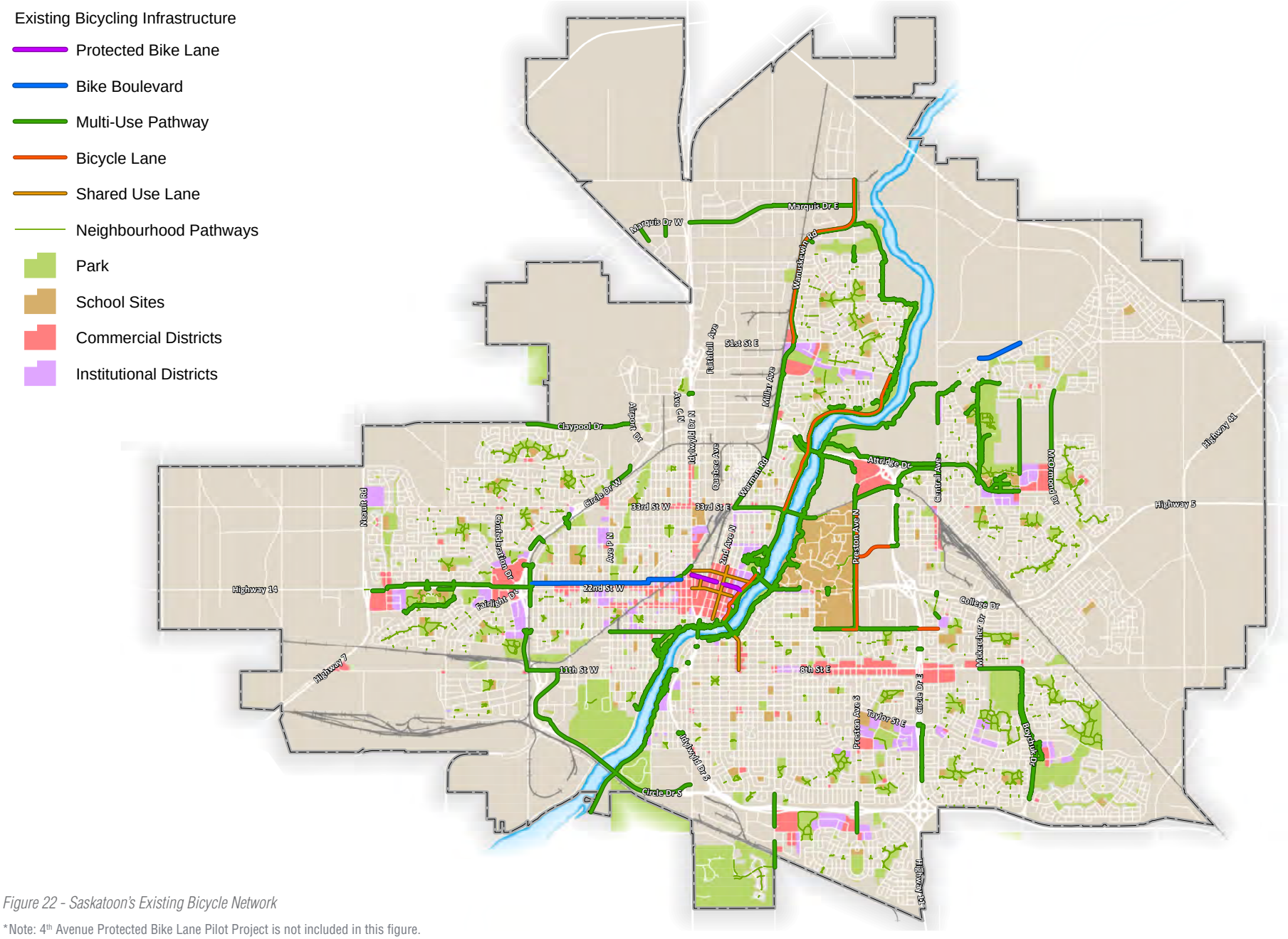


Figure 22 - Saskatoon's Existing Bicycle Network

*Note: 4th Avenue Protected Bike Lane Pilot Project is not included in this figure.

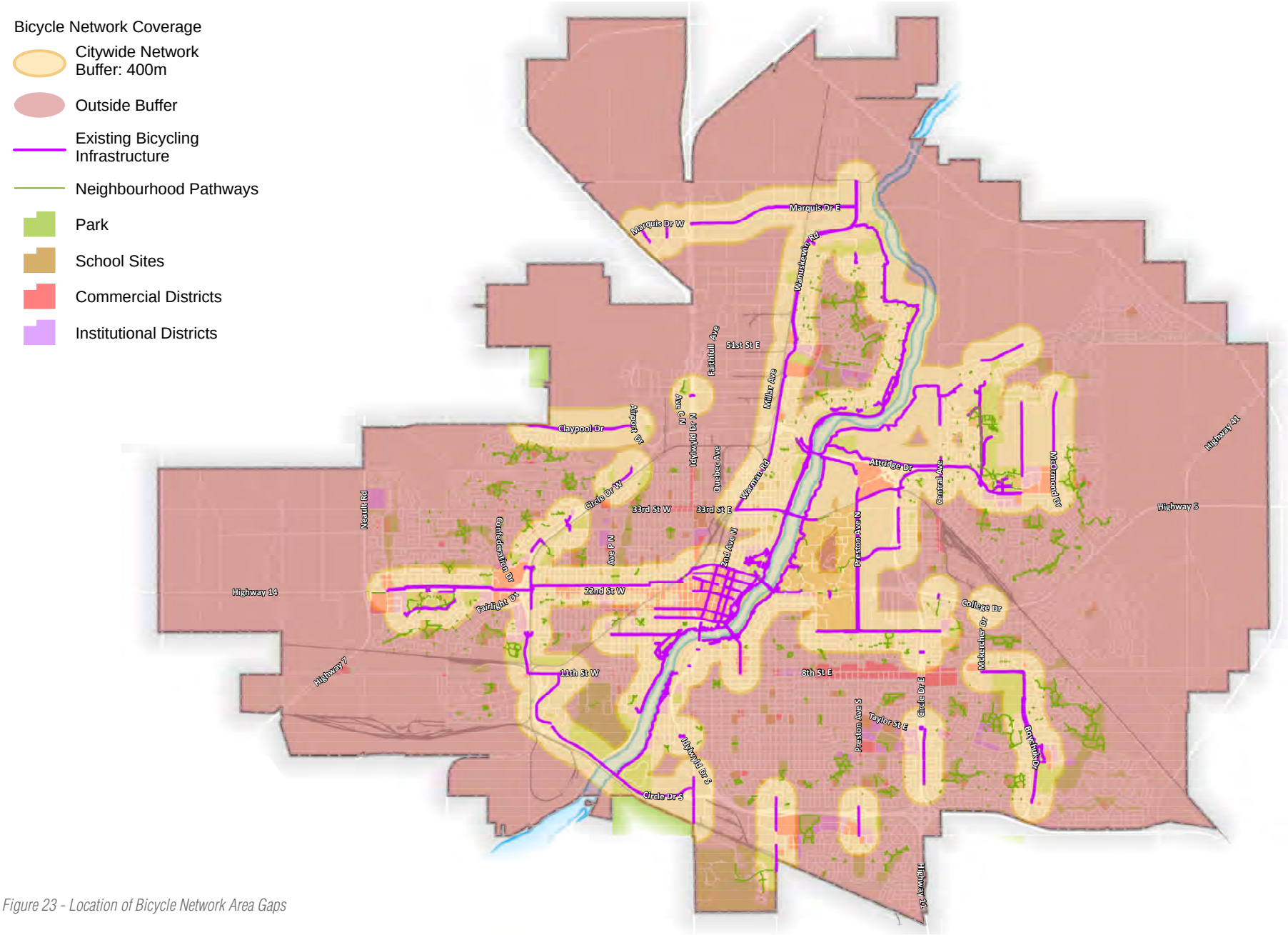


Figure 23 - Location of Bicycle Network Area Gaps

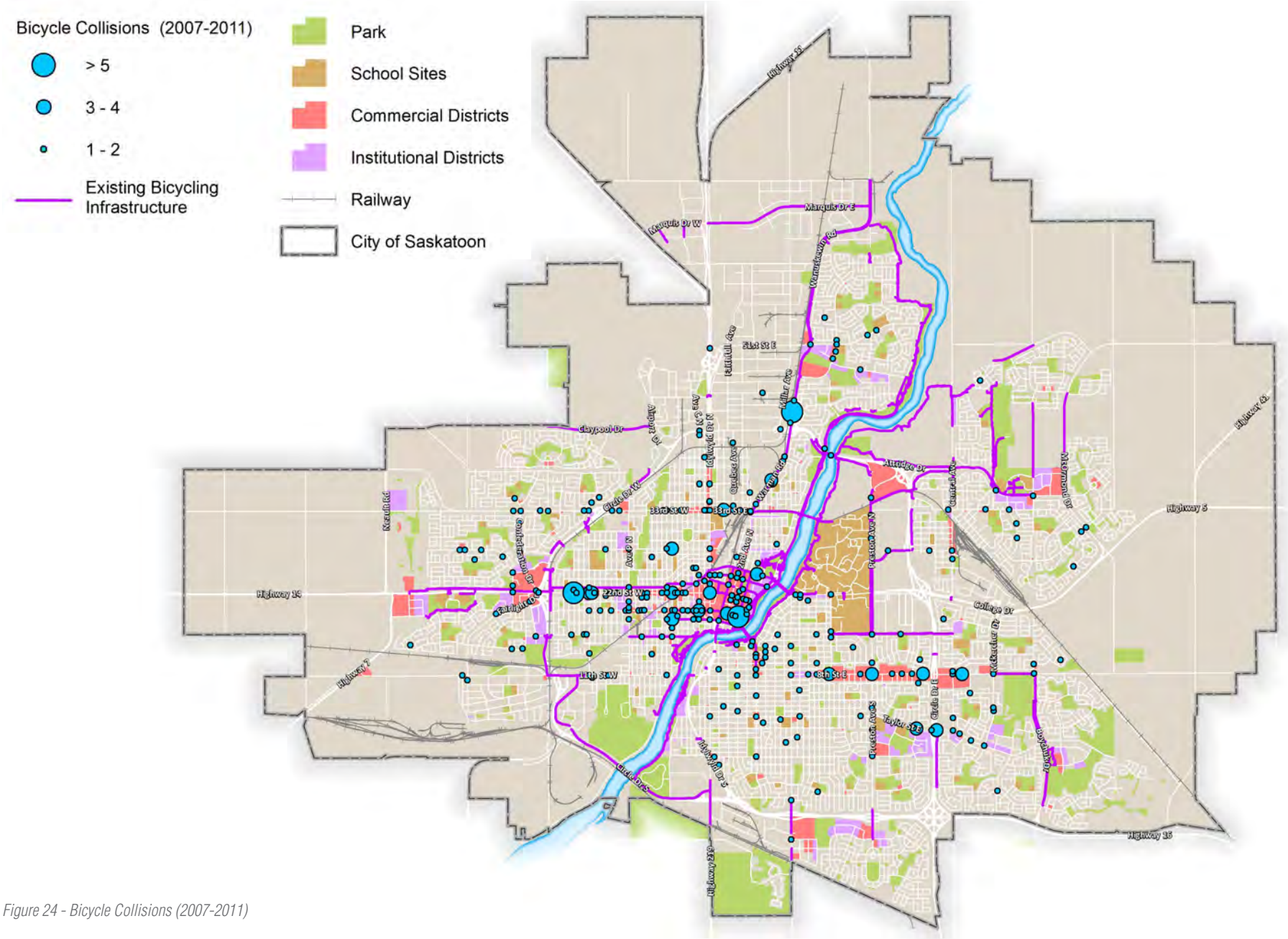


Figure 24 - Bicycle Collisions (2007-2011)

Avenue A South, Saskatoon, SK, Source: Urban Systems

21St Street East, Saskatoon, SK, Source: Urban Systems

Spadina Crescent, Saskatoon, SK, Source: Urban Systems

PART 3: Future Directions

To guide future investments and action, a vision for the future of active transportation in Saskatoon was developed along with goals and targets. The vision, goals and targets were developed based on the City's existing policies and feedback received from stakeholders and residents. They build on the directions in the City's overarching plans and policies, including the 2013-2023 Strategic Plan and *Growth Plan*.

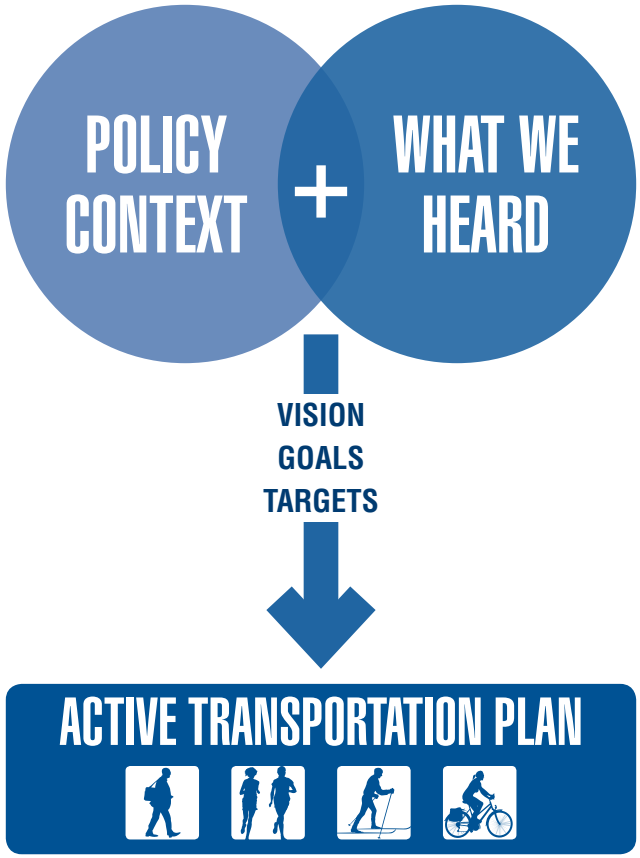


Figure 25 - Process for Developing the ATP's Vision, Goals and Targets

3.1 VISION

A vision statement was developed to describe the broad aspirations for the future of active transportation in Saskatoon. The vision statement builds on the City's commitments as outlined in a number of overarching plans and strategies and reflects input received throughout the development of the ATP. The vision statement sets the overall direction of the ATP and emphasizes Saskatoon as a leader in active transportation focusing on providing transportation choices that are safe and comfortable for people of all ages and abilities and available year-round.

3.2 GOALS

Five supporting goals were developed to provide clear direction on how to achieve the vision for the future of active transportation in Saskatoon. These goals guided the development of directions and actions and are intended to be both achievable and measurable to ensure the implementation of the ATP is successful.

3.3 TARGETS

Targets measure progress towards achieving the goals of the ATP and help to ensure the ATP is implemented as intended. Targets were developed based on input from the public and stakeholder throughout the process. In order to be effective, targets should be:

- **Meaningful.** Targets can be used to point to success in achieving the goals and objectives as well as the broader vision of the ATP.
- **Measurable.** Targets must be based on criteria that is readily measurable and for which data or information can be readily obtained.
- **Manageable.** Targets should be based on measures that take into account the resource limitations of the City and be limited to measures where information is accessible or data is simple to collect.
- **Achievable.** Targets should strike a balance between being bold and ambitious, while also ensuring they are achievable and realistic.

Targets were established for the ATP based on mode share, or the percentage of trips made by each mode of transportation. An important consideration when establishing mode share targets is whether the targets should be based on commute trips to work and school, or based on all trips for all purposes. Targets have been established for both commute trips and all trips.

Walking and cycling are the main forms of active transportation addressed in the ATP. According to the City's 2013 Household Travel Survey, 12% of all daily trips made by residents are made by walking and cycling. According to the 2011 Statistics Canada National Household Survey, approximately 7.5% of all commute trips made by Saskatoon residents were made by walking or cycling. **The ATP target is to double walking and cycling trips to 24% of all daily trips and 15% of all commute trips by 2045.** This target for walking and cycling is consistent with the proposed *Growth Plan* target to double the transit mode share from 4% to 8% of all trips by 2045 and represents an higher target than the City's corporate performance target to increase the commuting mode share of walking, cycling and transit to 20% of all trips by 2023.

Figure 26 - Active Transportation Targets for All Trips

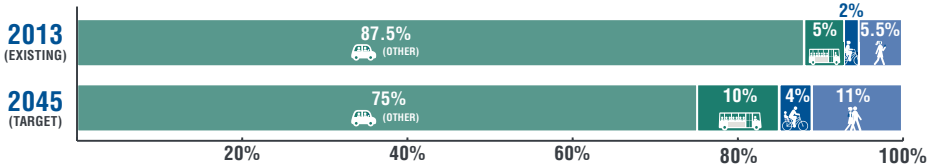
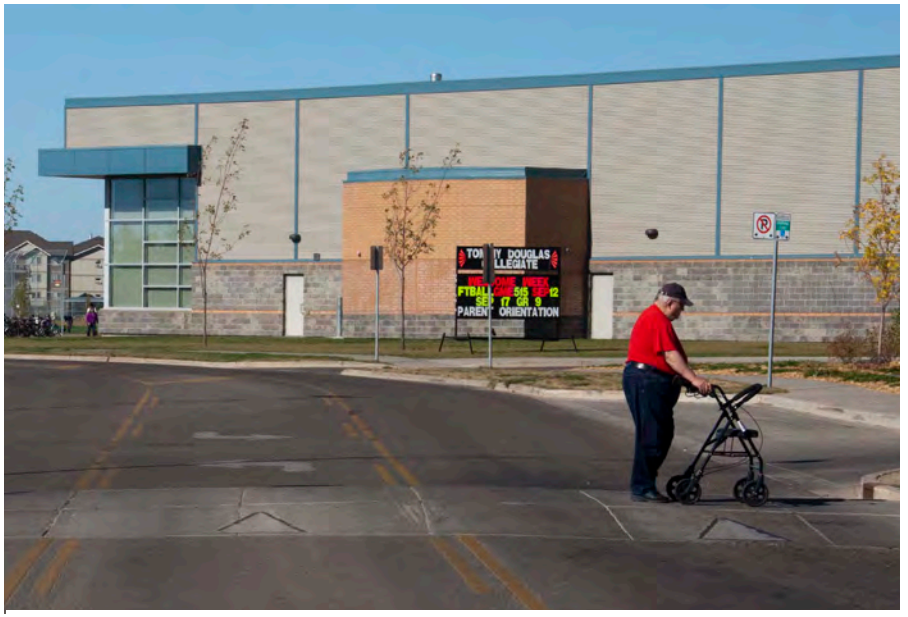


Figure 27 - Active Transportation Targets for Commute Trips

Doubling the walking and cycling mode share will require significant investment and effort. When put in historic context, the mode share for active transportation commute trips in Saskatoon has remained relatively stable at approximately 8-9% of all commute trips over the past 20 years. In addition, when compared with other communities across North America, a target that 15% of all commute trips be made by walking and cycling would be higher than many other comparable cities have achieved in North America to date and would place Saskatoon as a leading city in North America for active transportation.

Farmer's Market, Saskatoon, SK, Source: Urban Systems

River Landing, Saskatoon, SK, Source: City of Saskatoon



Shaw Centre, Saskatoon, SK, Source: Urban Systems

20th Street West, Saskatoon, SK, Source: City of Saskatoon

PART 4: Themes, Directions and Actions

The framework for the ATP consists of six themes. Recommended directions and action items under each theme address a variety of identified strengths, opportunities, challenges and concerns regarding active transportation infrastructure, policies, standards and support programs.

THEME 1: CONNECTIVITY

Recommendations under Connectivity are aimed at establishing a complete, connected and convenient network of active transportation facilities throughout Saskatoon. The following directions were identified to improve Connectivity:

1A. Expand and Enhance the Sidewalk Network
1B. Expand and Enhance the Bicycle Network
1C. Address Physical Barriers
1D. Improve the Meewasin Trail and Other Pathways
1E. Enhance Opportunities for Other Forms of Active Transportation

THEME 2: SAFETY AND SECURITY

Safety and Security are important factors that influence whether people choose to walk, bike or use other forms of active transportation for moving around. People using active transportation are considered 'vulnerable road users', as they are subject to higher risk of injury from traffic collisions than people driving or riding transit. Personal safety concerns arising from insufficient lighting, visibility or poor design of public spaces can also deter people from using active transportation. The following directions were identified to improve Safety and Security:

2A. Improve Road Safety
2B. Improve Personal Safety

THEME 3: CONVENIENCE

Recommendations under Convenience focus on integrating transit, walking and cycling facilities, and providing amenities to make walking, cycling and other forms of active transportation more practical and convenient. The following directions were identified to improve Convenience:

3A. Provide Bicycle Parking and End-of-Trip Facilities

3B. Improve Connections to Transit

THEME 4: LAND USE AND GROWTH

Recommendations under Land Use and Growth are aimed at creating land-use and development patterns that support moving around using active transportation. Land Use and Growth also ensures adequate infrastructure is provided in new neighbourhoods, infill areas and along growth corridors. The following directions were identified to improve Land Use and Growth:

4A. Enhance Streetscapes and Public Realm

4B. Enhance New Neighbourhood Connections

4C. Support Infill Development Considerations

THEME 5: MAINTENANCE AND ACCESSIBILITY

To support and encourage active transportation, winter cities like Saskatoon need effective strategies for maintaining sidewalks, trails and bicycle infrastructure year-round. Active transportation facilities should also be universally accessible by all, including seniors, children and people with limited mobility. The following directions were identified to improve Maintenance and Accessibility:

5A. Maintain the Sidewalk and Pathway Network

5B. Maintain the Bicycle Network

5C. Provide Accessible Infrastructure

THEME 6: EDUCATION AND AWARENESS

Increasing awareness, educating residents about sharing the road and providing wayfinding and information can encourage more people to use active transportation more often and build a culture for active transportation. Education and awareness can also enhance bylaw compliance among all road users. The following directions were identified to improve Education and Awareness:

6A. Enhance Wayfinding, Signage and Trip Planning

6B. Improve Education and Awareness

6C. Increase Marketing and Communications

Meewasin Valley Trail, Saskatoon, SK, Source: Stephane Daoust

Aerial View, Saskatoon, SK, Source: City of Saskatoon

4.1 CONNECTIVITY

BACKGROUND

Establishing a complete, connected and convenient network of pedestrian and cycling facilities throughout the city is critical to encouraging more active transportation trips. Saskatoon's active transportation network includes 1,200 kilometres of sidewalks, nearly 30 kilometres of on-street bicycle routes and nearly 100 kilometres of paved and unpaved multi-use pathways.

Many Saskatoon residents enjoy walking, cycling and other forms of active transportation for both recreation and transportation. However, there are a number of gaps and barriers in the existing active transportation network. There are opportunities to provide infrastructure that is comfortable for people of all ages and abilities. A more integrated network of both on- and off-street facilities can significantly improve the ease of moving around Saskatoon, provide more recreation opportunities and make traveling by walking and cycling safer and more practical alternatives to driving.

The theme of Connectivity also builds on the policy directions outlined in the City's Strategic Plan, *Growth Plan* and Official Community Plan. Saskatoon has made recent investments in on-street bicycle and pedestrian facilities, including the City's first protected bicycle lane pilot project in the downtown. The ATP builds on this direction to create a connected active transportation network that can be used by all residents and visitors.

DIRECTION 1A - EXPAND AND ENHANCE THE SIDEWALK NETWORK

Expanding and enhancing the sidewalk network supports the goals of creating more places for walking, safer walking and making walking a more convenient and attractive choice for moving around. Saskatoon has an extensive pedestrian network that includes approximately 1,200 kilometres of sidewalks, as well as an extensive network of paved and unpaved trails along the Meewasin Valley and throughout the city, pedestrian crosswalk countdown timers, accommodations for pedestrians on bridges and accessible infrastructure at many intersections.

There are still gaps in the sidewalk network, particularly in industrial areas, many of which also have commercial and institutional land uses that generate walking trips. A lack of sidewalks can discourage people from walking as they are forced to walk on the street or on unpaved areas beside the street. This is not only less accessible and desirable, it is also unsafe. Connectivity for walking focuses on both expanding the sidewalk network and addressing barriers.

ACTION | Update sidewalk requirements for new developments.

The City's sidewalk requirements for new developments are outlined in the New Neighbourhood Development Standards Manual. Depending on land use and neighbourhood plans, sidewalks are currently required on:

- one side of arterial streets;
- both sides of collector streets; and
- one or both sides of local streets.

These guidelines do not provide requirements for sidewalks on industrial roadways or considerations for sidewalk standards in existing neighbourhoods.

The following key changes to the City's sidewalk requirements are recommended:

- Sidewalks should be generally required on both sides of new arterial streets.
- Sidewalks should be required on both sides of new local streets.
- In industrial areas, the requirement of sidewalks should be based on the road classification. The City should ensure this update is reflected in the standard cross-section.
- Based on current national guidelines, the recommended sidewalk width for new developments on collector and local roads should be increased from 1.5 metres to 1.8 metres to ensure the sidewalk is accessible.
- Standards should be provided for retrofitting neighbourhoods with sidewalks.

Table 3 summarizes the recommendations for new sidewalk requirements. The City should update the sidewalk requirements in the New Neighbourhood Development Standards Manual to reflect these recommendations.

ROAD TYPE	EXISTING STANDARDS	NEW ROADS PROPOSED STANDARDS	RETROFIT PROPOSED STANDARDS	PROPOSED SIDEWALK WIDTH
Expressway / Freeway	As per transportation plan (3.0 metres)	Active transportation facility plan required as part of the overall functional planning process.		3.0 metres
Arterial	One side (2.5 metres)	Both sides	Both sides (Exceptions: One side in cases where land use does not support both sides such as along roads located across agricultural land and where there are no plans to increase density and if no transit route exists or is planned.)	2.5 metres
Collector	Both sides (1.5 metres)	Both sides	Both sides (Exceptions: One side in cases where land use does not support both sides such as along roads located across agricultural land and where there are no plans to increase density and if no transit route exists or is planned.)	1.8 metres
Local	One or both sides (1.5 metres)	Both sides	Both sides. However, the City should focus on filling gaps in the sidewalk network rather than on areas with no sidewalks at all. The City should prioritize filling in gaps adjacent to land use generators for pedestrian activity, such as parks, schools, community centres, commercial areas and other neighbourhood destinations.	1.8 metres
Industrial*	None required	Both sides, prioritizing on transit routes and where land use generates walking trips.	Both sides on arterial and collector roads and on designated transit routes.	As per road classification
Lanes	None required	None required	None required	None required

Table 3 - Proposed Sidewalk Requirements for New and Existing Developments

Note: At locations where a multi-use pathway is already located on one side of the street, one sidewalk is required on the other side.
*This is a road type and not a road classification. The City uses a standard cross-section for new industrial roads that does not require sidewalks on either side.

ACTION | Eliminate gaps in the sidewalk network on major roads.

Major roads are arterial or collector streets and industrial roads that function as either arterial or collector streets. These streets typically have higher vehicle volumes and speeds, which can create challenges to pedestrian safety, accessibility and comfort. The City should eliminate gaps in the sidewalk network on all major roads and transit routes. As per recommendations for retrofitting existing roads presented in **Table 3**, a key recommendation of the ATP is that all major roads and transit routes should have sidewalks on both sides of the street. **Figure 28** identifies recommended sidewalk locations on major streets.

ACTION | Improve the City's sidewalk infill program to address gaps in the sidewalk network on local roads.

While sidewalks on major roads are a priority, several other important areas of Saskatoon have gaps in the sidewalk network or no sidewalks at all. On local roads, the City should work to strategically implement new sidewalks in areas of higher pedestrian demand, including along streets that provide access to schools, seniors centres, community centres, parks, hospitals and other neighbourhood destinations. **Figure 29** identifies local roads with gaps in the sidewalk network on either one or both sides of the street. The purpose of this map is to identify gaps in the sidewalk network. The City should conduct a more detailed review to determine where the installation of infill sidewalks on local roads is appropriate. The City should revise its current sidewalk infill program to prioritize sidewalk installation on local roads and determine the best way to allocate funding and resources to ensure that new sidewalk installation is well planned and connected to the existing network.

In addition, infill should occur in other areas of a neighbourhood to address overall walkability. Examples include ensuring trails through the parks system connect to surrounding areas and that walking generators such as schools, commercial and employment areas, parks, churches, community centres and daycares have adequate places for walking.

ACTION | Develop a sidewalk improvement program to widen sidewalks that do not meet minimum standards or in areas of current or future high pedestrian activity.

The City should work towards developing a formal city-wide program to prioritize sidewalk improvements to ensure all sidewalks meet or exceed the City's minimum width requirements and are in good condition. The sidewalk improvement program should build on the existing Neighbourhood Traffic Review process and prioritize the widening of sidewalks, where feasible, in areas of current or future high pedestrian activity, such as existing or future transit hubs, community centres and schools.

ACTION | Seek opportunities to implement new sidewalks in conjunction with other projects, plans or developments.

Ensure considerations for pedestrian facilities are made through the design and implementation of all infrastructure projects within the city. This will require different City departments and agencies, as well as external partners, to work collaboratively and share information on appropriate opportunities to incorporate different components of the ATP.

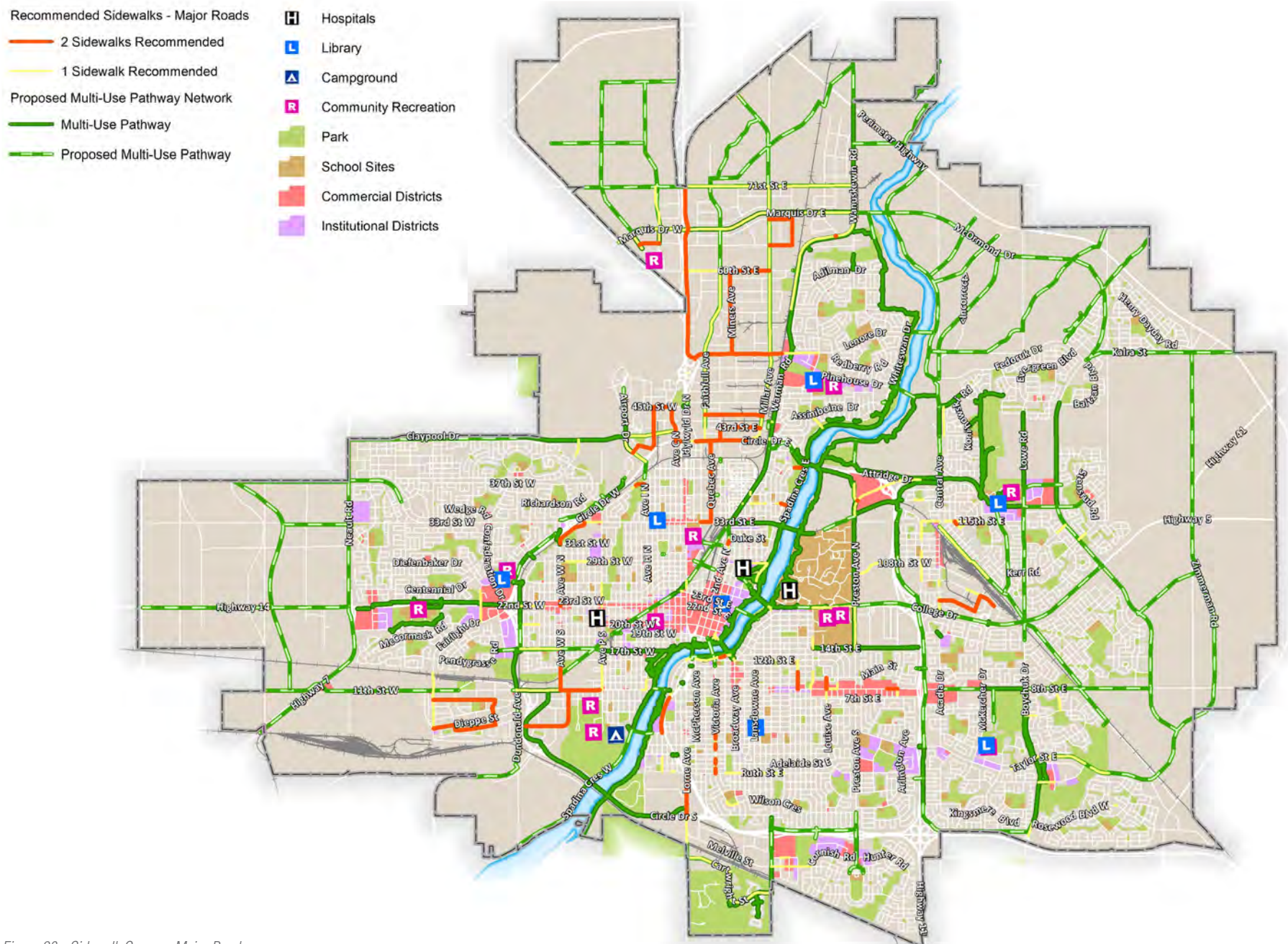


Figure 28 - Sidewalk Gaps on Major Roads

Sidewalks are recommended in the Montgomery Place neighbourhood only on streets identified as transit routes to enhance accessibility for all users and enhance access to transit.

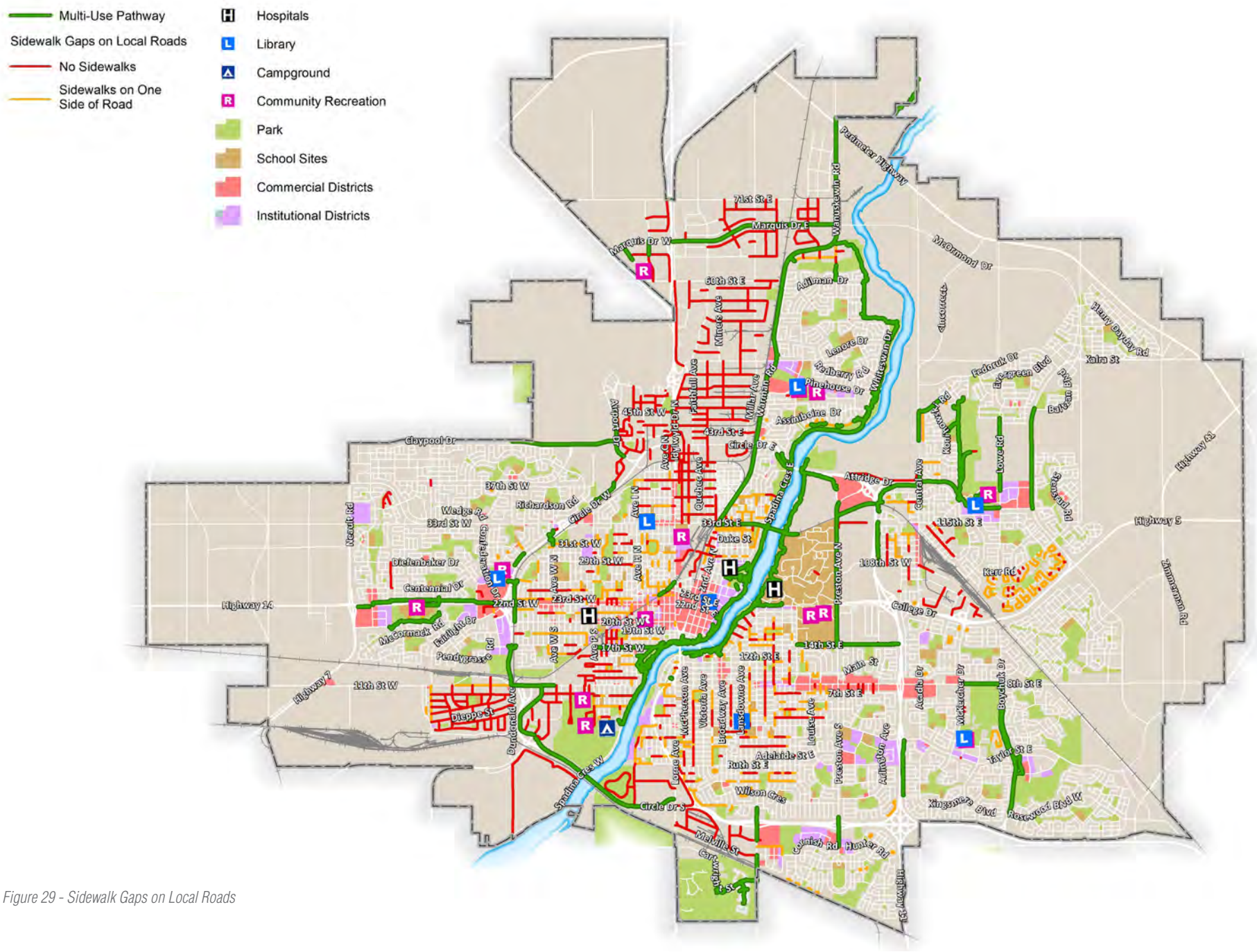


Figure 29 - Sidewalk Gaps on Local Roads

DIRECTION 1B - EXPAND AND ENHANCE THE BICYCLE NETWORK

Providing a complete and interconnected network of bicycle facilities throughout Saskatoon is critical to supporting and encouraging more cycling. As outlined in **Part 2**, Saskatoon's existing bicycle network is over 120 kilometres in length and made up of protected bicycle lanes, conventional bicycle lanes, bicycle boulevards, shared use lanes and paved and unpaved multi-use pathways. However, there are significant gaps in the existing bicycle network as well as many areas with no bicycle facilities. Expanding and enhancing Saskatoon's bicycle network will require a combination of strategies, including upgrading existing facilities to address safety concerns, ensuring that new neighbourhoods and infill areas have adequate places for cycling and addressing gaps in the existing bicycle network.

ACTION | Develop a complete and connected bicycle network for all ages and abilities throughout Saskatoon.

Developing a complete and connected network of bicycle facilities for all users is an important component of encouraging more cycling. 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, 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 long-term bicycle network proposed for Saskatoon was based on a series of network planning principles as described in the following five points:

1. **A Network for All Ages and Abilities (AAA).** The purpose of a AAA network is to provide an interconnecting system of bicycle facilities that is comfortable and attractive for all users. A AAA bicycle network is designed to be suitable for persons aged 8 to 80 years old and is comfortable for most cyclists regardless of ability and experience.

   Developing a AAA bicycle network was identified by Saskatonians during ATP engagement process as one of the top ways to encourage more cycling trips. The AAA bicycle network includes three types of bicycle facilities that are most effective at increasing ridership: multi-use pathways, protected bicycle lanes and bicycle boulevards. These facilities, described in detail on **page 49**, are the most preferred types of facilities by all users and also the safest types of facilities. Developing a AAA network that provides multi-use pathways, protected bicycle lanes and bicycle boulevards, where possible, will ensure that the highest standards of safety and comfort are provided throughout the network.

   While a major guiding principle of Saskatoon's planned bicycle network is to provide AAA facilities, it is important to note that there is still a place for complementary, non-AAA facilities such as painted bicycle lanes.

2. **A Minimum Grid.** Another guiding principle of the ATP is to increase city-wide bicycle network coverage. Developing a minimum grid network that ensures that all residents are within 400 metres of a designated bicycle route. The proposed bicycle network for Saskatoon strived for a minimum network spacing of 400 metres in areas with the highest demand based on the Cycling Potential Analysis and 800 metres elsewhere. The minimum grid network includes the AAA network and the non-AAA network.

3. **A Hub and Spoke Network.** The long-term bicycle network was developed based on a 'hub and spoke' concept. As the overall network planning philosophy, this concept ensures the bicycle network provides high quality connections to and from downtown from all areas of the city. It focuses on providing a dense network of bicycle facilities within the downtown 'hub'. Downtown is a major destination for employment, commercial retail, tourism and cultural activities. The Cycling Potential Analysis identified downtown as the neighbourhood with the highest potential for active transportation and the Equity Analysis ranked downtown moderate based on overall equity need. As a result, a 'hub' with a dense network of AAA bicycle facilities has been proposed for downtown Saskatoon. Extending out from the 'hub' are the 'spokes' (**Figure 30**). This network of AAA bicycle facilities would connect the downtown and surrounding neighbourhoods.
4. **Connecting to key destinations.** Providing direct routes to key destinations on a complete network is important to making cycling a viable transportation option. It is critical that the bicycle network provides direct access to key destinations, such as commercial destinations (including major shopping areas), key employment areas, parks, community centers, recreational facilities, existing multi-use pathways and Meewasin Trails, and schools and post-secondary institutions.
5. **Enhancing existing facilities.** The city has a number of existing on-street and off-street bicycle facilities. One of the important components of improving the connectivity of the network is ensuring that these existing facilities are high quality and well integrated into the proposed network. Investigating successes and failures in past projects is key to ensuring that new facilities are successful. Careful monitoring and applying 'lessons learned' are also critical to improving existing facilities.

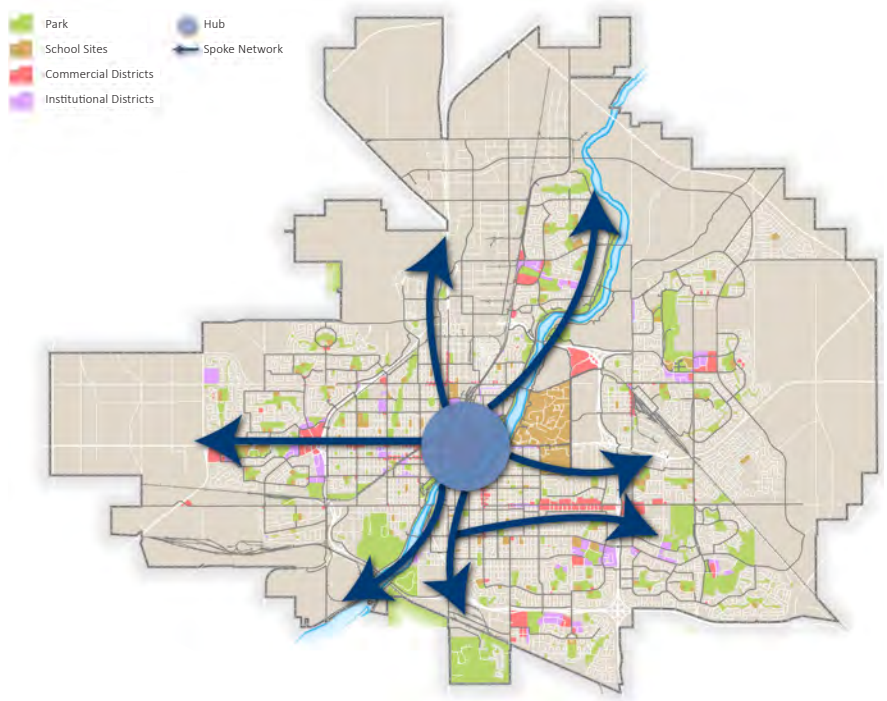


Figure 30 - 'Hub and Spoke' Concept

Based on these guiding principles, the proposed long-term bicycle network for Saskatoon was developed. **Figure 31** presents the proposed bicycle network with suggested facility types, including AAA and non-AAA routes. The suggested bicycle facilities identified on the network map in this report are based on road classification, neighbourhood context and existing conditions, including right-of-way width, number of motor vehicle lanes, traffic volumes and on-street parking. Design and implementation of each proposed bicycle facility would require a more detailed assessment of facility type and consultation with adjacent land owners.

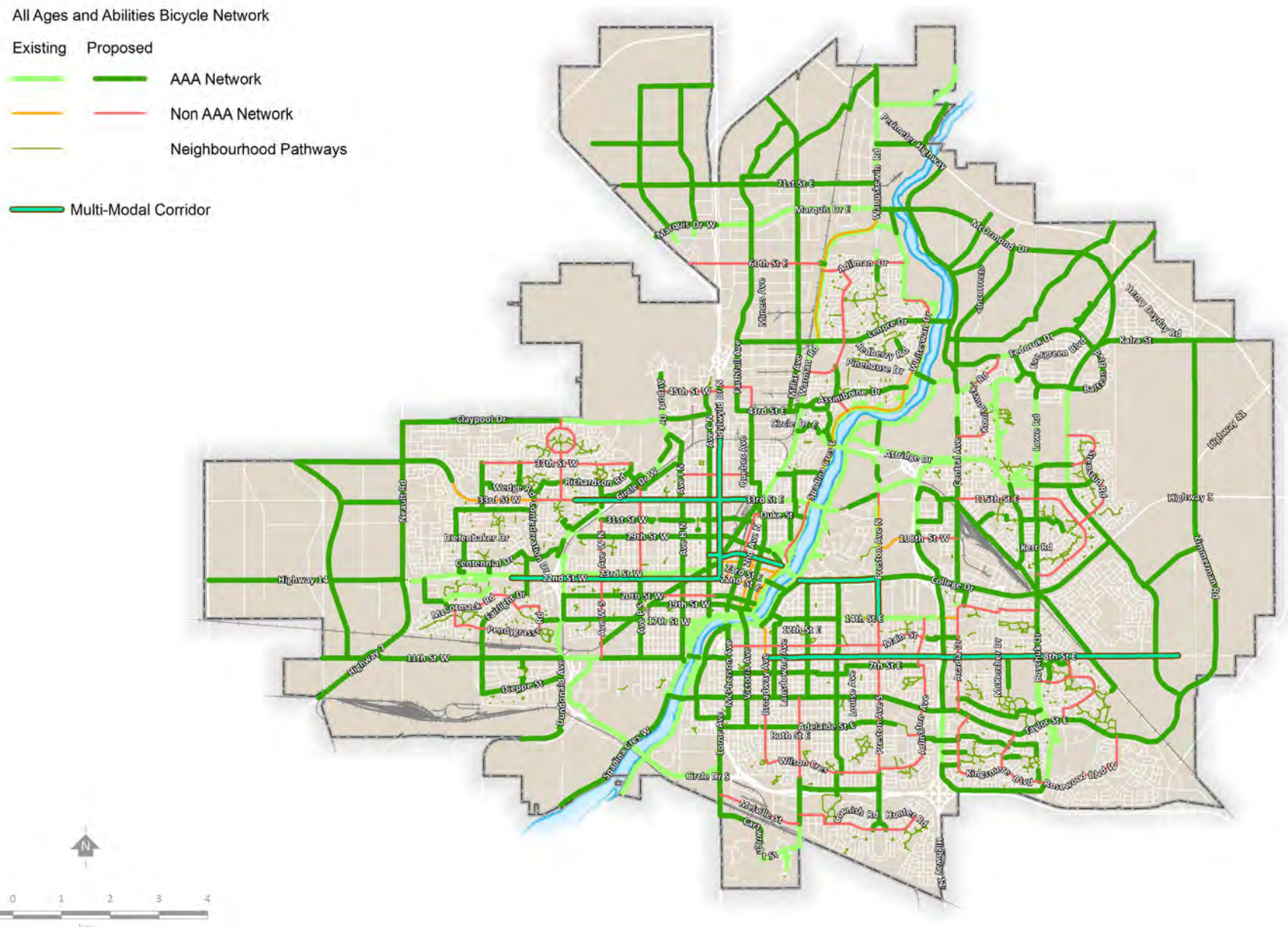


Figure 31 - Proposed All Ages and Abilities (AAA) Network

AAA BICYCLE CORRIDOR TREATMENTS

- **Multi-Use Pathways** have been suggested at locations and along corridors where sufficient right-of-way is available, that are parallel to major arterial streets and have minimal driveway access or intersection crossings. Proposed multi-use pathways identified in the Meewasin Trail Study are also presented on the proposed long-term bicycle network.
- **Protected Bicycle Lanes** have been suggested in areas with high cycling demand and potential and where vehicle speeds and volumes are high. It is recommended that a dense network of protected bicycle lanes be focused within the downtown core, as this will accommodate the high demand and cycling potential within the area. Protected bicycle lanes are also identified on a number of the spoke corridors that provide direct access to downtown Saskatoon and other commercial centres and destinations throughout the city.
- **Bicycle Boulevards** are most suitable for roads classified as local or internal neighbourhood connections. Bicycle boulevards have signs, pavement markings, traffic calming measures and specialized crossing treatments that calm traffic and discourage through-trips by motor vehicles. Bicycle boulevards also provide an alternative route where bicycle facilities on a parallel arterial street may not be appropriate.


MULTI-USE PATHWAY


PROTECTED BICYCLE LANE

BICYCLE BOULEVARD

BICYCLE LANE

BUFFERED BICYCLE LANE

SHARED USE LANE

NON-AAA BICYCLE CORRIDOR TREATMENTS

- **Bicycle Lanes** are suggested on secondary routes that provide connections through neighbourhoods on direct collector roads. In many cases, the routes identified as bicycle lanes support and complement the AAA network by providing additional connections and direct access to destinations. Bicycle lanes can also have a painted buffer, which can be located between the bicycle lane and other traffic lanes. Buffered bicycle lanes are believed to be more comfortable than conventional painted bicycle lanes as there is a spatial separation between people cycling and adjacent traffic lanes. Buffered bicycle lanes are distinguished from Protected Bicycle Lanes, as the former does not provide physical barrier, such as bollards, curbs or planters.
- **Shared Use Lanes** use sharrow pavement markings to indicate a shared space between bicycles and other vehicles. Shared use lanes can help foster a mutual respect between people driving and people cycling and were initially installed in Saskatoon as part of the City's cycling program for this reason. Currently, this type of facility exists on most streets downtown and on several other major streets throughout the city. No new shared use lanes have been identified in the proposed bicycle network plan. The existing shared use lanes in downtown Saskatoon should be considered for upgrades and enhancements as opportunities arise. In some cases, shared use lanes may be appropriate in areas where there are space constraints or other facility types are not possible. However, the ATP does not recommended that the City add any additional shared use lanes. It is important to note that, regardless of pavement markings, every street in Saskatoon has shared use space for people driving, riding transit or cycling.

MULTI-MODAL CORRIDORS

The bicycle network includes several multi-modal corridors, which are major streets that need further review to consider how they will accommodate active transportation given other competing priorities. Multi-modal corridors are what the *Growth Plan* has identified as corridors within the city that have the potential to support redevelopment and bus rapid transit over the next 30 to 40 years. Multi-modal corridors are portions of 22nd Street, Idylwyld Drive, 8th Street, College Drive and a portion of Preston Avenue. These corridors will require further studies and consultation that considers all modes and competing needs when implementing bicycle facilities. These streets are some of Saskatoon's main travel corridors, serving a variety of vehicle types and modes while playing an important role in the city's transportation system.

Multi-modal corridors will require more in-depth analysis through specific corridor studies. Recognizing that these corridors serve desire lines within the bicycle network, these studies can determine whether bicycle facilities can be accommodated on the corridor or on adjacent streets. It is important to note that as growth occurs within Saskatoon, additional corridors, or segments of identified corridors, may be designated as multi-modal corridors requiring additional study.

College Drive, Saskatoon, SK, Source: Urban Systems

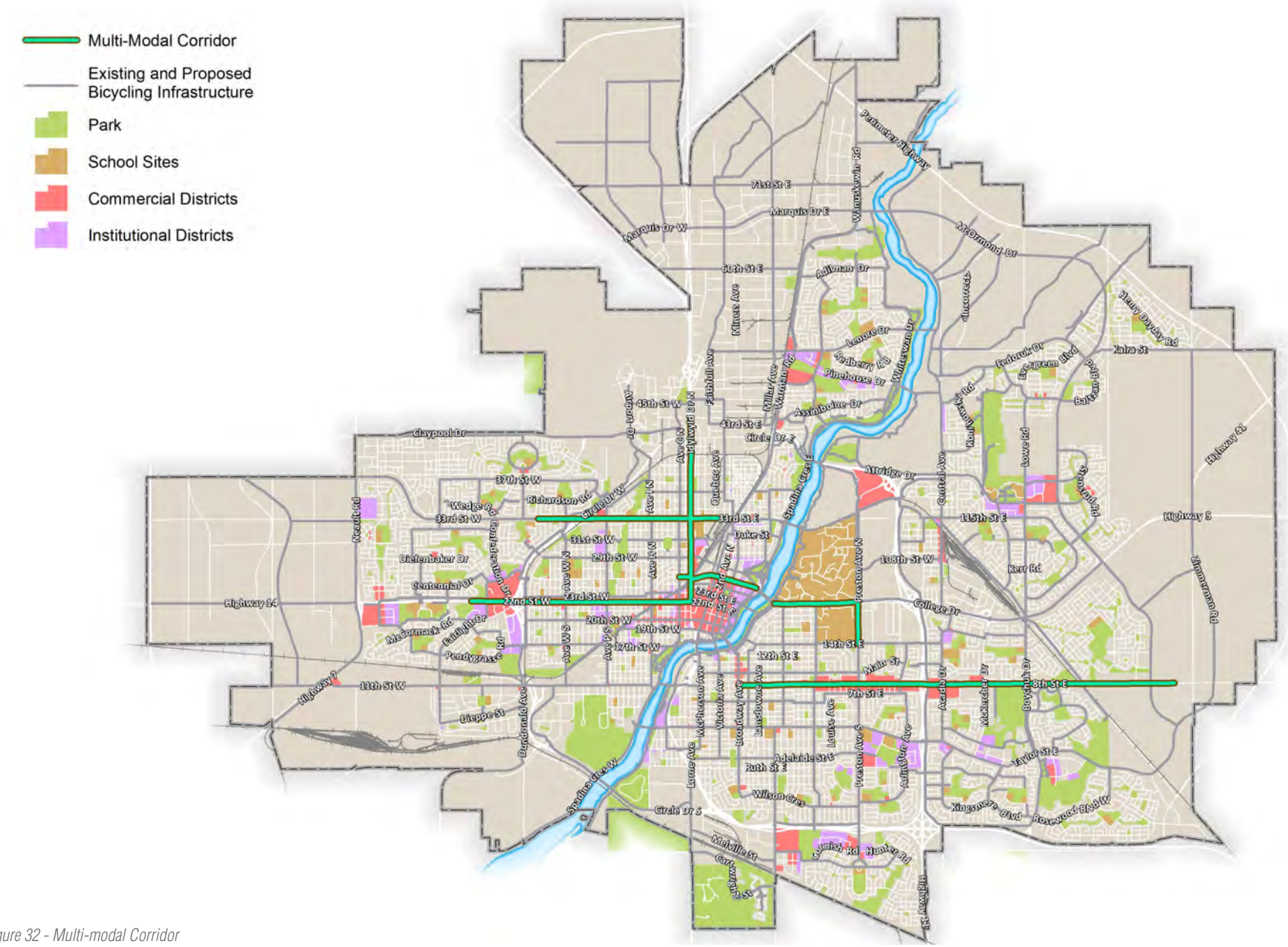


Figure 32 - Multi-modal Corridor

CROSSING TREATMENTS

Special considerations are needed when designing and installing crossing treatments at locations where bicycle routes intersect with other roads, especially at major roads. These areas need treatments that distinguish cyclists and separate bikeways at intersections. As an intersection is the connection point between people driving, riding transit, walking and cycling, it is important to have treatments to reduce conflict between all road users. Treatment should serve to increase the level of visibility, denote clear right-of-way and facilitate eye contact and awareness with other modes. Intersection treatments can improve cyclist movements and be coordinated with timed or specialized signals.

Crossing treatments can include elements such as colour, signage, medians, signal detection and pavement markings. The type of treatment required depends on the bicycle facility, whether there are intersecting bicycle routes, street function and land uses.

COLOURED CONFLICT ZONE MARKINGS

DASHED BICYCLE LANE MARKINGS

ENHANCED BICYCLE SIGNAL CROSSING

CROSSBIKES

TWO-STAGE MEDIAN CROSSING

BICYCLE PUSH BUTTON

BICYCLE BOX

PROTECTED INTERSECTION

ACTION | Develop a downtown network of all ages and abilities bicycle facilities.

AAA bicycle facilities have been recommended in locations with the highest cycling demand and potential future ridership, including downtown Saskatoon. The protected bicycle lane on 23rd Street opened in July 2015 as a pilot project and City Council has approved a second downtown protected bicycle lane to open in the summer of 2016 on 4th Avenue as a pilot project. The ATP proposes additional AAA bicycle facilities on 1st Avenue, 20th Street and 19th Street downtown to provide connections to surrounding neighbourhoods and commercial areas.

ACTION | Support regional connections to surrounding communities.

The City is part of a larger partnership of neighbouring municipalities, including the Rural Municipality of Corman Park, City of Martensville, Town of Osler and the City of Warman. The City should continue to support regional active transportation connections to these surrounding communities.

ACTION | Develop and adopt bicycle facility design guidelines.

The City should develop design guidelines for bicycle facilities based on national and international best practices. These guidelines should focus on providing design standards for high quality bicycle facilities, both on-street and off-street, including facilities for people of all ages and abilities and crossing treatments.

The City should install and upgrade designated cycling routes using a consistent standard that meets or exceeds local and national design guidelines as well as design options that have been successfully implemented elsewhere. These guidelines can also include recommendations for facility type selection based on the characteristics and context of a given street.

ACTION | Update bicycle facility requirements for new developments.

The City's New Neighbourhood Design and Development Standards Manual provides guidance on the development of bikeways within new developments in Saskatoon. This document does not provide guidance on facilities such as protected bicycle lanes and bicycle boulevards. Upon the completion of bicycle facility design guidelines, New Neighbourhood Design and Development Standards should be updated to reflect these changes.

ACTION | Ensure that all new and upgraded roads have bicycle facilities.

Ensure considerations for bicycle facilities are made through the design and implementation of new and upgraded roads and other infrastructure projects within the city. This will require different City departments and agencies, as well as external partners, to work collaboratively and share information on appropriate opportunities to incorporate different components of the ATP.

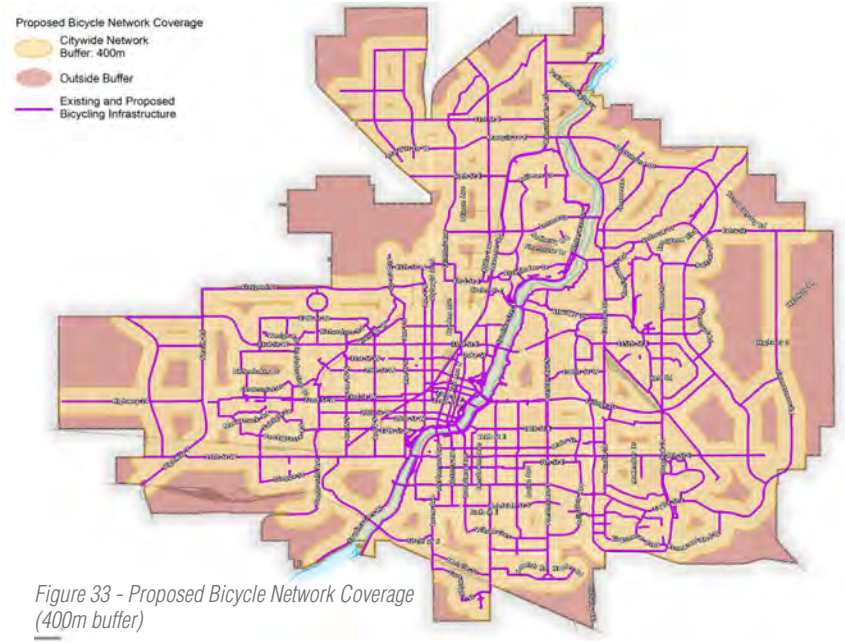


Figure 33 - Proposed Bicycle Network Coverage (400m buffer)

CRP Rail Bridge, Saskatoon, SK, Source: Urban Systems

DIRECTION 1C - ADDRESS PHYSICAL BARRIERS

There are a number of barriers to safe and convenient use of active transportation in Saskatoon, such as limited safe crossings on interchanges and railway corridors, lack of safe crossings on portions of highways and major roads, limited or inconvenient access to existing bridges and limited river crossings.

ACTION | Improve walking and cycling access to existing bridges, underpasses and overpasses.

Although there are facilities for people walking and biking on many existing bridges, underpasses and overpasses, the active transportation facilities themselves can be challenging to access due to poor connectivity. For example, some overpasses do not have accessible access (i.e. stairs only). In addition, there are locations were access to bridges is challenging due to conflicts with other road users, such as transitioning from an on-street facility onto a bridge crossing. Recommendations include improving access on existing crossings, providing pavement markings at crossings to make it clear to all road users how to access crossings and making sure crossings are universally accessible. **Appendix B** includes maps outlining recommended improvements to existing bridges, underpasses and overpasses as well as new active transportation bridges, underpasses or overpasses that are part of larger projects or as stand-alone active transportation facilities. Proposed improvements include new dedicated active transportation river crossings in three general areas: north, downtown and south. In all cases, the type and location of new crossings are subject to further study.

ACTION | Provide safer, convenient walking and cycling access on new bridges, underpasses and overpasses.

The South Saskatchewan River, Circle Drive and railway corridors create barriers within the active transportation network. New crossings improve

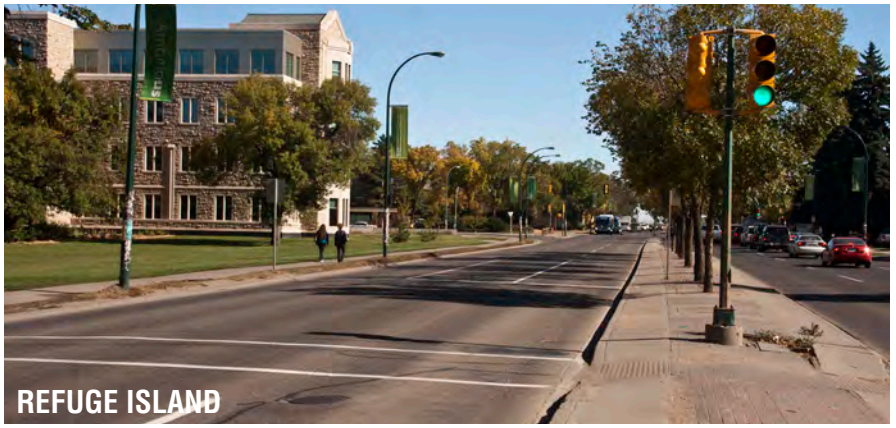
connectivity throughout the city for pedestrians and cyclists and can support natural desire lines. New crossings are proposed for active transportation users across the South Saskatchewan River, Circle Drive and railway corridors to address barriers between neighbourhoods and destinations. New recommended crossing locations are shown in **Appendix B**. It is important to note that these locations are recommendations and would be based on network implementation as well as growth and future development projects, not all proposed crossings need to be built at the exact location proposed. The locations have been suggested based on the proposed network routes, network spacing, land use patterns and the location of other road network projects. In all cases, the type and exact location of all new crossings requires further study.

ACTION | Update the City's Traffic Control at Pedestrian Crossings Policy and provide enhanced pedestrian crossing locations as warranted based on the revised policy.

Intersections and crossings are a key part of any network. There are opportunities to increase accommodations for pedestrians at street crossings to make the environment safe and comfortable for all and to help encourage more people to walk. The City's Traffic Control at Pedestrian Crossings Policy establishes guidelines for the selection and installation of appropriate traffic control devices at pedestrian crossings. The City should update its current warrant process to reflect current recommendations in the Traffic Control at Pedestrian Crossings Policy and provide enhanced pedestrian crossings based on the updated warrant process.

ACTION | Provide enhanced crossings at pedestrian priority intersections, such as those serving high frequency transit.

Enhanced crossings should be prioritized at locations where there are currently high levels of pedestrian activity or where more walking trips are anticipated. These locations include corridors that have high frequency

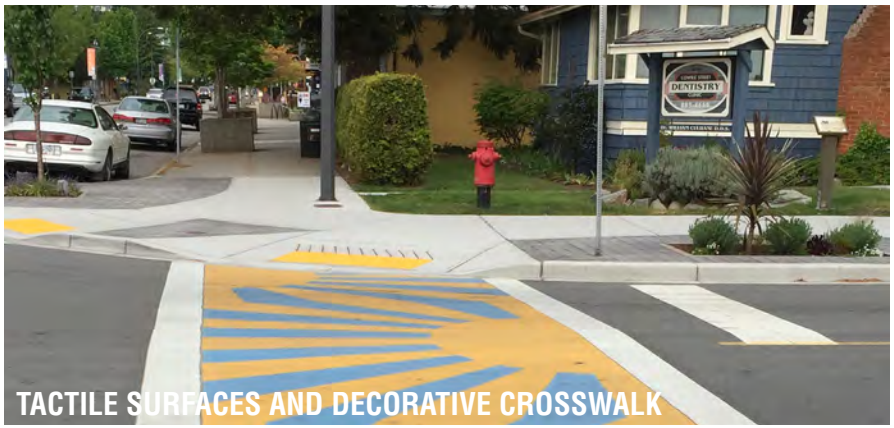

REFUGE ISLAND

MARKED CROSSWALK


SIDEWALK RAMP AND EXTENSION

ACCESSIBLE PEDESTRIAN SIGNAL

PEDESTRIAN ACTIVATED CROSSING



TACTILE SURFACES AND DECORATIVE CROSSWALK

transit, downtown and around schools and other community destinations. The City currently uses a variety of pedestrian crossing controls, including crosswalks, active pedestrian corridors, pedestrian activated signals and grade separated crossings. In addition, a number of other enhancements can be used to create a safer, more comfortable environment for crossing major intersections, including pedestrian refuge islands, curb extensions, accessible pedestrian signals and pedestrian countdown timers. The City should explore options to integrate new crossing enhancements for pedestrians at key intersections.

ACTION | Provide enhanced bicycle crossings where bicycle facilities intersect with arterial streets.

The critical locations along bicycle routes, particularly routes designed for all ages and abilities, are where the route intersects with an arterial street. Crossing treatments, such as coloured conflict zone markings, dashed bicycle lane markings and bicycle boxes (shown in pages 53 and 54), can be used to minimize potential conflicts with motor vehicles. The type of crossing treatment depends on the width of the intersecting road, the volume of motor vehicle traffic and the number of cyclists using the crossing. The City should develop guidelines on when to use bicycle crossing treatments.

ACTION | Install enhanced bicycle signal crossings on bicycle routes at existing signals.

Signalized crossings that use a red-signal indication to stop conflicting motor vehicle traffic provide the most protection for cyclists trying to cross the street at existing signals. These locations can be especially dangerous as they require people cycling to navigate through several lanes of traffic. Providing bicycle detection at these locations can facilitate safer and more convenient crossings at signalized intersections. There are currently no bicycle activated signals in Saskatoon. As the City installs

new bicycle routes and upgrades existing facilities, providing enhanced bicycle crossings, especially where routes intersect arterial streets is recommended.

DIRECTION 1D - IMPROVE THE MEEWASIN TRAIL AND OTHER PATHWAYS

Trails and multi-use pathways are an important component of Saskatoon's existing and proposed AAA cycling network and overall active transportation network. These facilities are used for both transportation and recreational purposes and provide important connections to the network.

A number of the city's pathways are in the Meewasin Valley. Through the Meewasin Valley Authority Act of 1979, the Meewasin Valley Authority (Meewasin) was developed as a partnership between the City, the Province of Saskatchewan and the University of Saskatchewan. Meewasin's jurisdiction includes trail planning, network expansion, refurbishment, landscaping, interpretative centres, educational programing, animation and, above all, conservation. The land area under Meewasin's jurisdiction extends along the South Saskatchewan River Valley from Pike Lake to Clarke's Crossing, through the City of Saskatoon and the Rural Municipality of Corman Park.

ACTION | Support implementation of the recommendations in the Meewasin Trail Study.

Meewasin has focused on promoting the use of the river valley year-round and the ongoing maintenance of river valley recreation facilities. Future plans for Meewasin, as identified in their draft 2014 Meewasin Trail Study, include additional trail connections throughout the Meewasin Valley, such as the Northeast Swale, as well as changes to its jurisdictional boundary. The City will continue to work with Meewasin as a partner and support the implementation of the recommendations in the Meewasin Trail Study. New pathways identified in the Meewasin Trail Study are also identified as part of the ATP's proposed bicycle network.

ACTION | Utilize existing utility and rail rights-of-way and surplus road rights-of-way to provide pathways for all active transportation users.

There are opportunities for the City to take advantage of decommissioned rail right-of-way to develop active transportation greenways. When the City obtains decommissioned rail rights-of-way, it should review the proposed active transportation network plans and determine how the corridor would fit into the existing and proposed network. If the rights-of-way can provide an important connection or an alternative route to an on-street active transportation facility, then the City should consider purchasing or holding onto the land. To aid in this decision making process, the City should develop a formal evaluation process to obtain rights-of-way. In cases of on-road corridors with surplus right-of-way, the City should consider opportunities to provide off-street active transportation facilities within the right-of-way if the land use and context is appropriate.

ACTION | Preserve and enhance walkways through neighbourhoods.

Walkways are identified by the City as a public right-of-way established to facilitate pedestrian movement. They add to the walkability of neighbourhoods by shortening walking distances and providing important connections to parks, schools and community centres. These walkways are an important asset to the active transportation network. They should be preserved and enhanced to ensure they remain accessible and open to the public; the City should avoid closing walkways wherever possible. These walkways should be evaluated for their role in the overall active transportation network and be assigned a category to prevent closures that would impact the network.

DIRECTION 1E - ENHANCE OPPORTUNITIES FOR OTHER FORMS OF ACTIVE TRANSPORTATION

The ATP addresses walking and cycling as the main forms of active transportation. However, there are other types of active transportation, including running, using a wheelchair, skating, snowshoeing, skiing, kayaking and even paddle boarding. The climate, geography and topography of Saskatoon offers a great opportunity to promote and encourage other types of active transportation.

ACTION | Explore opportunities to encourage snow-based active transportation.

The City and partners are already doing a lot to promote winter recreation activities throughout the city. The City should explore more opportunities to encourage snow-based active transportation, such as cross-country skiing, snowshoeing, or kicksleding to and from destinations within the city. The City is currently developing a Winter City Strategy which is an opportunity to develop further actions to encourage snow-based forms of active transportation.

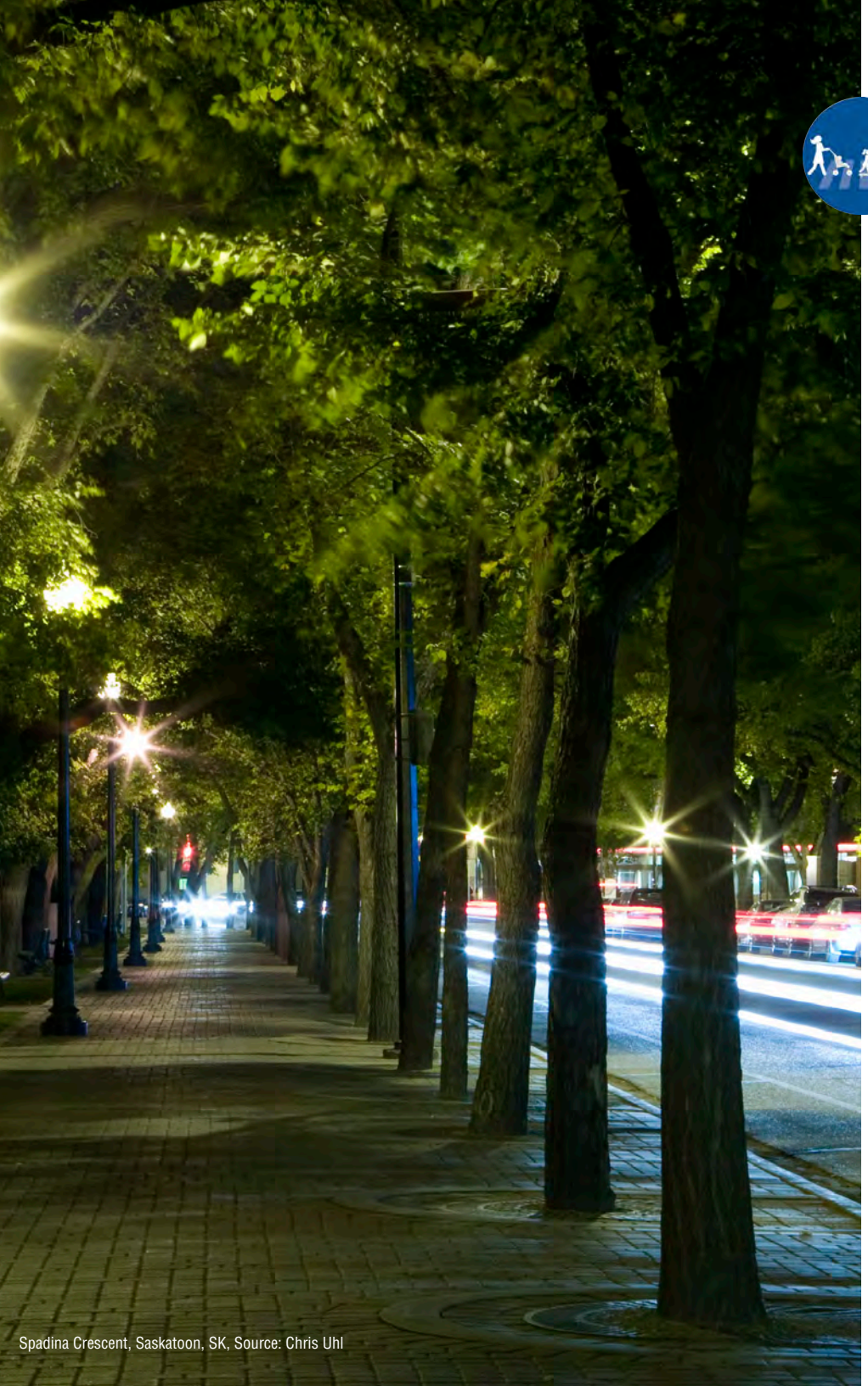
ACTION | Explore opportunities to encourage water-based active transportation.

Water-based recreational activities along the South Saskatchewan River include canoeing, kayaking and paddle boarding. However, these are currently recreation-based activities that are less viable as forms of transportation. To encourage water-based active transportation, the City should work with Meewasin to explore providing easier access points to the Meewasin Valley during summer months and identify potential locations for docks and lock up stations to safely secure canoes, paddleboards, kayaks, etc.

ACTION | Explore opportunities to encourage other types of active transportation such as skateboards, inline skates, scooters and electric bicycles.

The City should consider amending existing bylaws to permit other forms of active transportation, such as people skateboarding, on streets with dedicated bicycle facilities, consistent with best practice seen in other jurisdictions.

South Saskatchewan River, Saskatoon, SK, Source: Urban Systems



Spadina Crescent, Saskatoon, SK, Source: Chris Uhl

4.2 SAFETY AND SECURITY

BACKGROUND

Safety, both real and perceived, is an important factor that influences whether people choose to walk, cycle or use other forms of active transportation. People walking and cycling are considered to be 'vulnerable road users' because they are subject to a higher risk of serious injury than drivers and transit users. Examples of safety concerns identified by Saskatoon residents and stakeholders include intersection crossings and other high collision locations such as 22nd Street, poor lighting and personal safety issues at underpasses, crossing barriers such as Circle Drive and accessing bridge crossings. If not addressed, these, and other safety concerns can effectively discourage active transportation in Saskatoon.

The prevalence of automobiles and automobile-oriented street design can feel threatening to vulnerable road users. Automobile-dominated spaces impact the perceived walkability and bikeability of an area. No matter the extent of infrastructure, if people do not feel safe using the community's sidewalks, trails or bicycle routes to get to their destination, they will see this as a barrier to active transportation and opt for their vehicle. Given this, providing safe, secure and accessible walking and biking environments is just as important as providing features that improve convenience and connectivity.

DIRECTIONS AND ACTIONS

DIRECTION 2A - IMPROVE ROAD SAFETY

Traffic safety is a key barrier preventing people from walking and cycling more often. Given that pedestrians and cyclists are particularly prone to injuries and fatalities when involved in a collision, it is important to evaluate the current conditions that cause these road safety issues. By evaluating these conditions, the City can identify more clearly what measures should be undertaken to create a safer environment for vulnerable road users. Evaluating the safety needs and issues for people walking and cycling in Saskatoon can contribute to improving road safety in general and reducing traffic related fatalities. The actions below focus on how the City can improve road safety by conducting safety studies, road safety audits and safety research programs to better understand road safety issues.

ACTION | Conduct separate pedestrian and cycling safety studies to understand and monitor collisions involving vulnerable road users.

The purpose of these types of safety studies is to understand the main source of road safety issues that act as barriers to people walking and cycling. Such studies are unique because they are comprehensive in nature and focus on understanding the specifics behind collision events. Conducting pedestrian and cyclist safety studies could examine collision statistics in more detail, such as who is involved in collisions, where collisions and road safety issues occur, when collisions occur and how collisions occur. Having more information can increase understanding of the effectiveness of existing safety treatments and identify opportunities to improve safety through engineering, enforcement and education measures. Data used for these studies can come from a variety of sources including SGI collison report data and through partnerships with the Saskatoon Health Region and other researchers looking at both reported and near-miss collisions.

ACTION | Conduct road safety audits and corridor studies on streets that have been identified with safety concerns.

The highest number of collisions involving both people walking and cycling are occurring along major corridors such as 8th Street East, 22nd Street West, 20th Street West and 33rd Street West. Conducting safety audits and corridor studies are important methods of reviewing the safety and operations of the City's vehicle, pedestrian and bicycle facilities.

ACTION | Monitor hot spot collision locations and identify safety mitigation measures.

As identified in **Section 2.5**, hot spots are areas within Saskatoon with higher collision concentrations. Hot spots can include corridors as well as specific intersection locations. Through a detailed review of collision data and the completion of safety studies like those discussed above, more specific details about the key issues at these locations will become clear. Through the identification of hot spot collision locations, the City can develop mitigation measures using engineering, education or enforcement.

ACTION | Reduce conflicts on multi-use pathways between people using different forms of active transportation and locations where pathways intersect with the street network.

Recent research has found that while users perceive multi-use pathways as safe and comfortable facilities, the actual likelihood of an injury resulting from a collision is was quite high. There are a number of factors that contribute to injuries and collisions on multi-use pathways, including collisions with other users, collisions with animals such as dogs, collisions with obstructions such as bollards or poles, collisions caused by meandering pathways and poor sightlines and collisions at intersections with other motorized vehicles.

The design of a pathway has a significant impact on comfort and safety. The number of users can also impact comfort and safety of a pathway as well as the number of potential conflicts between road users. To reduce conflicts on multi-use pathways, the City can develope design guidance on pathway width and when is it appropriate to separate people cycling from other users. In addition, there are opportunities for the City and Meewasin to consider installing additional signage along the multi-use pathways within Saskatoon. New signage can be installed to identify safety hazards, remind users to keep right except to pass and for people cycling to yield to people walking. Conflict markings can also be used at intersections and locations where multi-use pathways intersect with the road network to improve safety.

ACTION | Collaborate with researchers and programs that are working to improve safety for people participating in active transportation.

Community organizations, community researchers and the City should collaborate on research projects looking to further understand pedestrian and cycling safety concerns and innovative mitigation measures. Examples of research in cycling safety includes BikeMaps.org, a website developed for crowd-sourced mapping of cycling collisions and near misses. The attributes collected are used for spatial modeling research on predictors of safety and risk and to aid surveillance and planning. The Smart Cities Healthy Kids initiative at the University of Saskatchewan is another example. It includes a number of different research initiatives, including the built environment project that aims to understand how urban planning and design can be used to encourage children to be more physically active, thus slowing the rise in childhood obesity.

ACTION | Explore the feasibility of reducing speed limits on local roads.

Research suggests a direct correlation between the speed a vehicle is travelling and the severity of a collision. The implementation of reduced speed zones on neighbourhood streets can be considered as a method to improve safety for people walking and cycling. The City should explore the feasibility of reducing speed limits on local roads within the city.

DIRECTION 2B- IMPROVE PERSONAL SAFETY

Personal safety was identified through stakeholder feedback and public engagement as an issue impacting walking and cycling in Saskatoon. It was found that insufficient lighting and low visibility in areas with underpasses, overpasses, pathways and sidewalks can cause many residents to feel unsafe and ultimately discouraged from walking or cycling. The following actions focus on addressing issues of personal safety to encourage active transportation as a safe and convenient transportation choice.

ACTION | Provide lighting along sidewalks, bicycle routes and pathways where appropriate.

Currently, many of the trails and pathways in Saskatoon that are not located adjacent to a major street are unlit. Properly placed lighting is thought to discourage criminal activity, enhance natural surveillance opportunities, reduce fear of those walking and cycling after dark and allow people to see any barriers, obstructions or curves along the pathway. Another positive aspect is that well-lit and visible pedestrian and cycling facilities can influence users' feelings about the environment from an aesthetic standpoint. Based on staff reviews and feedback from the public, the City should consider providing new lighting and illumination along sidewalks, bicycle routes and pathways. It allows for safe and comfortable use of the network both day and night. This is especially important during the

winter months when both the morning and evening commutes take place in the dark. Lighting should be context sensitive and pedestrian scale. It should not obstruct the pathway and should avoid producing unnecessary ambient light.

ACTION | Follow the standards of CPTED to ensure principles are followed in active transportation facility design.

Crime Prevention Through Environmental Design (CPTED) is an approach to urban design that reduces the opportunity for crime to occur and increases both real and perceived safety in public areas. Incorporating CPTED principles in active transportation facility design increases real and perceived safety in public areas, which in turn promotes active transportation as a safe and attractive transportation mode choice. Special considerations for lighting, sightlines, fencing and maintenance are important in active transportation facility design. The City's CPTED Review Committee and policies are in place requiring review of all new or major City projects, new developments and Neighbourhood Concept Plans for conformance with the principles of CPTED. It is recommended that the City continue to follow CPTED standards in active transportation facility design.

ACTION | Continue to address personal safety concerns on existing underpasses with lighting improvements and/or design enhancements.

Saskatoon has a number of underpasses that provide crossings for people walking and cycling across major streets. The City should continue to use CPTED standards to enhance visibility and personal safety at existing underpass and overpass locations within the city.

Broadway Bridge Underpass, Saskatoon, SK, Source: Urban Systems

Broadway Avenue, Saskatoon, SK, Source: Urban Systems

4.3 CONVENIENCE

BACKGROUND

Convenience focuses on integrating the various modes of transportation and providing amenities such as bicycle parking and end-of-trip facilities to support moving around. Investing in these areas will help make walking, cycling and other forms of active transportation a more practical option for day-to-day travel.

For active transportation to become attractive and competitive transportation choices, they first need to be as convenient as possible. The most important factor in terms of convenience is the distance between destinations. Creating a connected network with the necessary infrastructure will help address this.

Features that can increase the convenience of active transportation include secure bicycle parking, end-of-trip facilities, pedestrian amenities at transit stops and maintenance stations. In addition, ensuring seamless connections between public transit and pedestrian and cycling networks can extend the reach of transit and increase the ease of active transportation for getting around Saskatoon.

Such features help to break down perceptions that walking and cycling is not convenient and establish more areas of the city as destinations for people using active transportation.

DIRECTION 3A - PROVIDE BICYCLE PARKING AND END-OF-TRIP-FACILITIES

Most trips by bicycle require a place to park at the rider's destination. Having safe, secure bicycle parking in key locations around the city is critical, as the fear of theft or vandalism is a significant barrier to biking, regardless of the cost of the bicycle. There are many different types of bicycle parking.

- **Short-term bicycle parking** typically consists of bicycle racks distributed in the public right-of-way in commercial areas and at key destinations throughout the city. Since bicycle racks are generally oriented toward residents and visitors stopping in an area for shopping or other personal business, they should be located as close to destinations as possible, in convenient locations that are highly visible for users. Providing a limited number of covered bicycle racks for protection from the elements is desirable.
- **Long-term bicycle parking** is more secure than typical bicycle racks. It may include bicycle lockers or larger secure facilities, such as bicycle rooms, bicycle cages, secure bicycle parking areas or full service bicycle stations. Long-term parking is generally oriented toward cyclists needing to park a bicycle for an entire day or longer. Major employment areas, transit stations and areas with high cycling activity are ideally suited to long-term parking facilities. They can also be required in private developments.


BICYCLE SHELTER

BICYCLE LOCKER


ON-STREET BICYCLE RACK

BICYCLE CORRAL

SECURE BICYCLE PARKING

BICYCLE VALET

Other end-of-trip facilities, such as changing rooms, showers and storage space for equipment, can also make cycling more convenient. This is particularly important in winter cities as more gear is required at certain times of year and having a place to store it has a significant impact on convenience. The following actions focus on providing more bicycle parking and end-of-trip facilities.

ACTION | Develop requirements for short-term and long-term bicycle parking and other end-of-trip facilities for new developments.

The City has bicycle parking requirements in its Zoning Bylaw. The City should build on existing requirements and provide short-term and long-term bicycle parking and end-of-trip facility requirements for new developments throughout the city. Requirements should be based on the number of employees and floor area of various land uses. They should consider including flexible parking standards, with reduced motor vehicle parking requirements for employment sites that construct end-of-trip facilities. The development of bicycle parking guidelines could also illustrate bicycle parking and end-of-trip facility designs. These can be provided to developers and building managers to further support implementation of high quality bicycle parking facilities.

ACTION | Demonstrate leadership and ensure adequate bicycle parking is provided at all City owned and operated facilities.

Installing and improving existing bicycle parking and end-of-trip facilities at City owned and operated buildings demonstrates to residents, developers and private business owners that bicycle parking is important. Adequate bicycle parking at libraries, leisure centres, public pools, arenas and other civic centres will benefit employees, residents and visitors while supporting access to these facilities using active transportation.

ACTION | Continue to work with business improvement districts and other partners to implement short-term bicycle parking and other end-of-trip facilities within public space.

Partnerships can play a critical role in helping to make cycling more convenient. It is important that incentives be put in place to encourage existing businesses to provide bicycle parking and end-of-trip facilities within public spaces in front of their businesses.

ACTION | Develop a program to support businesses in existing developments to provide long-term bicycle parking and other amenities.

The City should develop a program to support businesses in existing developments to retrofit buildings to provide long-term bicycle parking and other amenities such as storage and change room facilities to support employees' cycling to work year-round.

ACTION | Work with business improvement districts and other partners to develop an on-street bicycle corral program.

Bicycle corrals are a grouping of bicycle racks located on-street. They are typically located in a parking space that is normally allocated to motor vehicles. Because they are often located within the road right-of-way, bicycle corrals minimize sidewalk clutter, free up space for other uses and increase bicycle parking at locations with high demand. The City should work with business improvement districts and other business organizations to develop an on-street bicycle corral program and to look for opportunities to replace on-street parking in strategic locations with bicycle corrals.

ACTION | Work with event coordinators and partners to provide temporary bicycle parking to serve corporate-sponsored and large community events.

Saskatoon Cycles currently provides a bike valet service at events within the city, if requested. The City should continue to work with event coordinators and bike valet coordinators to ensure that temporary bicycle parking is provided at all corporate-sponsored and large community events.

ACTION | Implement bicycle repair and maintenance stations at key locations throughout the city.

The City already has installed a number of bicycle repair stations throughout the city. These stations have tools that individuals can use to make quick repairs to their bicycles. In addition to these self-serve stations, there are opportunities for the City to partner with the private sector to provide bicycle repair and/or retail and rental services at different locations. The City can support the development of one or more such facilities themselves or in partnership with businesses. Cost-sharing opportunities should also be explored between the City and businesses to provide bicycle parking and end-of-trip facilities.

DIRECTION 3B - IMPROVE CONNECTIONS TO TRANSIT

Improving access and connections to transit for pedestrians and cyclists increases multi-modal transportation choices and helps to extend the reach of public transit. While developing a connected bicycle and pedestrian network, it is important to integrate these facilities with other modes of transportation. It is particularly important to look for opportunities to better integrate active transportation with transit. Walking, cycling and transit can work well in combination, as transit allows people to make trips that are farther than they may be able to walk or ride.

Integrating transit with active transportation can encompass a variety of infrastructure treatments and amenities, such as sufficient sidewalk access to transit stops, accessible transit stops and the provision of shelters, benches, lighting and transit schedule information. In addition, having the ability to bring a bicycle onto the bus or having secure bicycle parking available at future stations and stops allows cyclists to include transit in their journey. It also allows them to more quickly reach destinations that are not immediately adjacent to a transit route. Transit integration is important as nearly all transit users are walking or cycling to transit stops.

The following actions focus on improving connections to transit.

ACTION | Provide bicycle racks on all buses throughout the year.

Having bicycle racks on buses provides individuals who live further than walking distance from transit services more convenient access to transit. It also allows for more multi-modal choices for trips that are otherwise seen as too long to be made solely by bicycle. In Saskatoon, bicycle racks are available on all full-sized buses all year. The City should continue to ensure that all new and existing buses are equipped with bicycle racks, including smaller buses.

ACTION | Provide bicycle parking at high use transit stops and transit terminals.

The City should provide both short- and long-term parking at transit stops, transit exchanges, such as Place Riel, and new stations that are heavily used and at locations that are well integrated with the bicycle network. Bicycle parking recommendations at transit exchanges, transfer facilities and new stations should also be incorporated into the City's forthcoming Transit Oriented Design Guidelines, being developed as part of the *Growth Plan* and future design work for new transit facilities.

ACTION | Improve the customer experience with transit stop improvements, including benches, shelters and information consistent with the transit recommendations in the *Growth Plan*.

Pedestrian amenities at transit stops can help enhance the pedestrian environment and encourage trips on transit. There are approximately 1,600 transit stops within the city and nearly 200 (13%) have shelters. The transit component of the *Growth Plan* recommends providing customer amenities at locations along Frequent Transit Corridors where transit ridership and boarding are highest. The *Growth Plan* also notes that new BRT stations will include amenities such as, heated shelters, large platforms for pick-up and drop-off and other critical passenger information. Along with future BRT stations the City should also improve the customer experience at stops adjacent to high trip generators and stops with high boarding rates.

ACTION | Continue to work towards a universally accessible transit system, including ensuring that transit stops have sidewalks and are accessible year-round.

Since 1996, the City has included low-floor buses in its transit fleet to improve access for customers with mobility challenges and young children. Aside from the buses themselves, the City can continue to work to ensure that 100% of transit stops are accessible.

ACTION | Ensure all new developments have walking and cycling connections to transit.

The City should continue to ensure that all new developments are well connected to the transit network and that there are considerations for both walking and cycling to ensure the networks are well integrated.

ACTION | Conduct a bike share feasibility study.

Bike share programs provide affordable access to bicycles for short-distance trips and solve the 'first/last mile' problem for transit users. High activity areas could potentially support a bike share system in the future. Convenient bike share systems can be attractive to casual riders and visitors and could encourage more people to try cycling. The City should partner with interested organizations, such as Tourism Saskatoon, to conduct a bike share feasibility study to assess potential opportunities to initiate a program in the city.

BUSES EQUIPPED WITH BIKE RACKS


BICYCLE PARKING

ACCESSIBLE TRANSIT STOPS

Public Plaza, Broadway Avenue, Saskatoon, SK, Source: Urban Systems

4.4 LAND USE AND GROWTH

BACKGROUND

Land use and growth focuses on creating high quality active transportation connections within and between existing neighbourhoods, employment areas and infill areas and along future growth and Bus Rapid Transit (BRT) corridors. It is equally important to ensure that active transportation facilities are integrated when planning new neighbourhoods in suburban growth areas.

Saskatoon is one of the fastest growing cities in Canada. It is expected to reach a population of half a million over the next 30 to 40 years. This growth will result in changing land uses and population distribution throughout the city and will put increased pressures on the overall transportation network. Growth presents different opportunities and challenges for active transportation, depending on the context and scale. Growth in neighbourhood infill areas, strategic infill areas such as the University lands, downtown and north downtown, along growth corridors and future BRT corridors and new suburban areas all have different considerations for active transportation.

The City has prepared several plans to support a doubling of Saskatoon's population over the next 30 to 40 years. The *Growth Plan* has established a long term goal of 50% infill and 50% greenfield development. However, a medium density scenario with a balance of 57% greenfield and 43% infill is more likely in the medium term, as shown in **Figure 34**.

The purpose of the directions and actions outlined under the Land Use and Growth Theme is to ensure that active transportation is considered in all areas of the city as it grows to half a million.

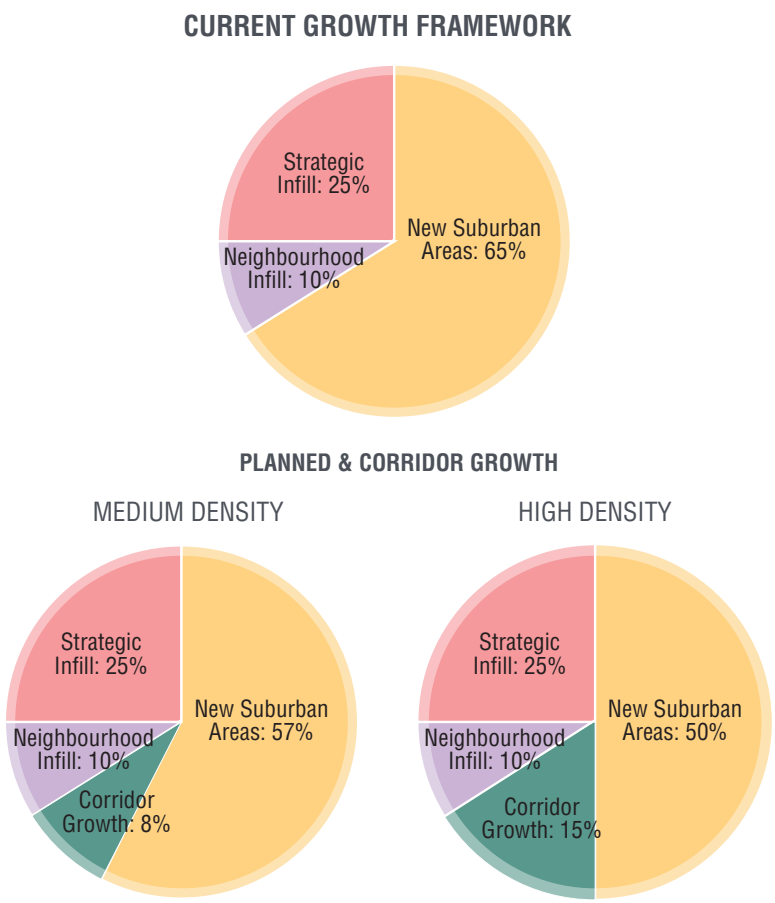


Figure 34 - Current and Future Growth Patterns

Growth in new neighbourhoods will continue to be a significant component of the overall growth in Saskatoon. Through recently adopted sector plans, the City has committed to re-imagining new suburban neighbourhoods by emphasizing a greater mix of land use and housing types as well as transportation choices – particularly walking and cycling. As highlighted under the Connectivity theme, the ATP recommends policy changes for new neighbourhoods, including changes to current roadway development standards and the City's New Neighbourhood Design and Development Standards concerning active transportation facilities. Creating safe, convenient multi-modal connections between new and existing neighbourhoods is a central tenet of the ATP. Creating an integrated transportation network within new neighbourhoods and employment areas, as well as connections to surrounding neighbourhoods is needed to ensure continuity with the existing and planned active transportation network and facilities proposed in the ATP.

Planning and development of future employment areas, strategic infill sites, growth corridors and future BRT corridors also present opportunities to ensure that safe and attractive active transportation facilities are provided and that these facilities are integrated with the broader active transportation network.

At a macro-scale, land use and growth patterns play a profound role in shaping how convenient and safe active transportation is to travel to, from and within neighbourhoods. Even when streets have comfortable facilities for active transportation, residents will be deterred if the street network within their neighbourhood is indirect and circuitous, placing destinations such as grocery stores outside convenient walking or cycling distance. In particular, pedestrians are very sensitive to longer routes. Direct routing should be a priority to encourage more walking and cycling. For example, levels of walking are higher in neighbourhoods with a strong grid road network, even if there are gaps in sidewalk coverage.

At a micro-scale, land use and growth includes urban design as it relates to individual site layout and orientation, the setback and setting of buildings and the details and materials of streetscaping elements (e.g. trees, seating, lighting, etc.). These elements contribute to creating attractive, comfortable and convenient places for people using active transportation.

DIRECTIONS AND ACTIONS

DIRECTION 4A - ENHANCE STREETSCAPES AND THE PUBLIC REALM

Enhancing streetscapes and the public realm creates more welcoming and vibrant everyday spaces for people walking, cycling, taking transit or using other forms of active transportation. Planning documents such as the City Centre Plan, Local Area Plans and the *Growth Plan's* proposed *Transit-Oriented Design Guidelines and Complete Streets Guidelines* provide guidance on the types of enhancements to streetscapes and the public realm necessary to create a vibrant and pedestrian-friendly environment. The public realm include streets, pathways, rights-of-way, parks, open spaces and civic buildings and facilities. The city-wide street network comprises one of the most extensive public spaces in a community.

Creating more inviting streetscapes and enhancing the public realm needs to occur within the context of the complete transportation network and the role different streets play within that network. The following actions build on existing City plans and polices and provide active transportation related actions to enhance streetscapes and the public realm.

ACTION | Continue to work with business improvement districts and other business associations along growth and future BRT corridors to support public amenities.

Streetscape amenities improve the look and feel of public space, through elements that either add an aesthetically appealing feature and/or serve a useful function. Streetscape amenities refer to a range of street furnishings, such as street trees and planter boxes, street lighting, banners, bicycle racks, benches and public art. However, public or semi-private gathering spaces such as outdoor café patios, plazas and parklets also provide gathering places that animate streetscapes. Streetscape amenities are intended to create more attractive and lively public areas that encourage people to spend more time outdoors and to provide more opportunities


STREET FURNISHINGS


WIDE SIDEWALKS


PLANTERS AND STREET TREES


PUBLIC ART

BANNERS AND LIGHTING


WEATHER PROTECTION

for people to rest and socialize. Streetscape amenities are targeted at improving the pedestrian environment and create attractive destinations for cyclists and transit users as well. The City should continue to work with business improvement districts and other business associations to support more streetscape amenities within the public realm. In addition, streets identified as future growth corridors or BRT corridors should be considered for streetscaping and public realm enhancements to create more attractive places for people moving around by walking, cycling, transit and other forms of active transportation.

ACTION | Ensure the active transportation network is prioritized to provide access to major employment areas.

Commercial, institutional and light industrial areas are important destinations within a city, as they are often areas of high activity and generators of transit, walking and cycling trips. Providing active transportation access to existing and future employment areas can be achieved through features such as pedestrian and bicycle pushbuttons, connected bicycle routes and trails, wide and high quality sidewalks in the public right-of-way and bicycle parking. Parklets are extensions of the public realm creating designated space for people to rest, gather and socialize. Parklets are typically installed on top of parking spaces. The City should work with business improvement districts and other stakeholders to develop a parklet and plaza program.

In addition, the City's Employment Areas Study recommendations that support active transportation should be implemented, including:

- **Amending the OCP to provide guidance on planning future employment areas as comprehensively planned units**, including requiring non-residential concept plans to be developed for future employment areas.
- **Exploring options to expand the use of site plan control to include a range of future commercial and industrial uses.** Expanding the use of site plan control will provide the City with additional ability to require enhancements to site design to improve access and safety for all transportation modes to and within employment areas.
- **Developing Employment Area Design Guidelines** to ensure that future sites achieve a high quality of design that enables access for all transportation modes.

DIRECTION 4B - ENHANCE NEW NEIGHBOURHOOD CONNECTIONS

This direction contains recommendations to guide growth in new suburban areas. New suburban areas contain new residential neighbourhoods, parks and naturalized areas, undeveloped urban holding areas and employment areas containing commercial, industrial, institutional and mixed land uses.

In the last 50 years or so, growth in Saskatoon has extended to the Suburban Development Areas outside Circle Drive. These communities have taken on various forms of auto-oriented, low-density residential, commercial, or industrial development, which is typically focused around internal, curvilinear road networks. Neighbourhoods are often separated by arterial roads that either do not have fronting development or have low-density and auto-oriented fronting development. This urban structure is not convenient, attractive or safe for active transportation users; the private automobile is the primary mode of transportation for most people living, working and shopping in these areas. The City is shifting away from this model and striving accommodate a mix of land uses and transportation options.

Ensuring that new neighbourhoods and development areas have active transportation connections to the city-wide transportation network is key to promoting more trips by walking and cycling. Well-designed

communities make walking and biking the best way to move around for local trips. Specific design principles that support sustainable travel modes are the location of destinations, the distance between destinations, the density (including the number of residences and employment within a neighbourhood), the diversity of land uses (land use mix) and the urban design characteristics of the road network - all of which should be taken into consideration when developing new neighbourhoods.

ACTION | Ensure new suburban areas, neighbourhoods and employment areas are integrated with the existing and planned active transportation network connecting to other neighbourhoods and destinations.

Access points that provide connections to adjacent neighbourhoods or areas support direct and short trips between neighbourhoods by walking and cycling and maximizes transit route coverage and directness. It will be important for the City to update existing standards and policies to ensure the ATP recommendations are implemented consistently and new developments are integrated with existing and planned active transportation networks. Sector and concept plans should be generally consistent with facility types and routes recommended in the ATP.

ACTION | Ensure new neighbourhoods and growth in new suburban areas have pedestrian and cycling facilities within the development.

The City should continue to work with developers and other stakeholders and examine existing policies and standards to ensure the development of new walkable and bikeable neighbourhoods and employment areas. The City has a 'toolkit' of standards and funding mechanisms to guide planning and design of active transportation facilities in new areas that should be examined to ensure that they effectively support development of active transportation facilities in new areas based on best practice.

ACTION | Plan for Complete Street designs in development of new neighbourhoods, employment areas and for major infill projects.

Complete streets policies aim to provide a range of transportation options appropriate for the land use context, including transit, cycling, walking and driving an automobile along a street that is safe and comfortable for all road users. As part of the *Growth Plan*, a Complete Streets Policy and Design Guide will be developed to provide a blueprint for designing, building (retrofitting), operating and maintaining complete streets. The City should ensure that all new developments follow policy and design guide recommendations for incorporating complete streets designs and principles into all new neighbourhoods and when retrofitting streets.

ACTION | Ensure new neighbourhoods are designed with a mix of land uses to ensure destinations such as community centres, grocery stores, parks and schools are within walking distance.

A diversity of housing, services and employment within a neighbourhood can increase the opportunities for residents and employees to use active transportation to access local destinations. Opportunities for creating neighbourhoods with a mix of land uses should be examined when amending or developing new sector plans, developing or amending neighbourhood concept plans, employment area concept plans, growth corridor plans and other major plans for Saskatoon.

DIRECTION 4C - SUPPORT INFILL DEVELOPMENT CONSIDERATIONS

This direction contains recommendations to guide land use and growth in strategic and neighbourhood infill areas and along growth corridors identified in the *Growth Plan*. The actions identified within this direction will help to ensure active transportation is supported and integrated into all types of infill development.

ACTION | Support higher density, mixed use infill development that promotes and encourages active transportation.

Higher density and mixed use developments can help support active transportation by providing more destinations within a shorter travel distance. Encouraging higher density infill developments with site specific mixed use options in identified growth areas is recommended to help encourage more trips by walking and cycling. Implementing *Growth Plan* recommendations to direct 50% of Saskatoon's growth to areas inside Circle Drive and along growth corridors would significantly contribute to the convenience and attractiveness of moving around using active transportation.

ACTION | Ensure all forms of infill development enhance connectivity for active transportation.

As the City advances plans to encourage more infill development, guiding principles should ensure that safe, walkable, bikeable and accessible neighbourhoods are achieved. Guidelines that require developers to install (or provide monetary compensation for) sidewalks and bicycle facilities on streets that are part of the active transportation network should be established. Plans for corridor growth should advance the development of multi-modal corridors as identified in the ATP under the Connectivity theme.

ACTION | Enhance guidelines and standards for infill development to incorporate active transportation projects.

Guidelines and standards for infill development are important to ensure that all forms of development such as office parks, shopping areas, schools and residential areas contain safe, attractive, convenient and connected active transportation facilities.

More specific standards or guidelines for site design will be required, such as: proposed bicycle network and opportunities for implementation; sidewalk width requirements; and guidance for installing new sidewalks at locations where sidewalks are required.

20th Street, Saskatoon, SK, Source: Urban Systems

4.5 MAINTENANCE AND ACCESSIBILITY

BACKGROUND

To support and encourage active transportation in all seasons, winter cities need to ensure sidewalks, multi-use pathways and on-street bicycle routes are well-maintained and cleared of snow, ice and debris throughout the year. In addition, walking and cycling facilities should be universally accessible and usable throughout the year by all residents, including seniors, children and people with disabilities. Poorly maintained and inaccessible active transportation infrastructure can make it more difficult and less desirable to walk or cycle.

While infrastructure to promote walking and cycling is often seen as a top priority, ongoing rehabilitation and maintenance as well as improving the accessibility of existing infrastructure needs to be an equally important focus.

Recognizing that year-round maintenance and accessibility is top of mind for many Saskatoon residents, the key focus of this theme is to enhance approaches to ensuring that both the pedestrian and the bicycle network are accessible and well-maintained throughout the year.

DIRECTION 5A - MAINTAIN THE SIDEWALK AND PATHWAY NETWORK

Sidewalks and pathways are an important component of Saskatoon's transportation system and, therefore, they must be capable of accommodating all users. Maintenance is necessary to keep sidewalk and pathway infrastructure functional and usable over time.

In 2015, the City invested in an objective sidewalk rating system to provide data on the condition of all city sidewalks and help guide sidewalk maintenance programs. Sidewalk repairs are completed on a priority basis, with sidewalks adjacent to streets undergoing roadway surface treatments often completed first. In recent years, the City has provided more funding specifically for sidewalk repairs and preservation, recognizing the important role well maintained sidewalks have on the accessibility of the transportation network. The City's Parks Division maintains pathways in parks. As per the agreement between the City and Meewasin, the City's Public Works Division maintains Meewasin pathways.

ACTION | Review and update current sidewalk snow removal requirements.

Snow removal in Saskatoon is regulated by the City's existing Sidewalk Clearing Bylaw (No. 8463). The City should review and update current sidewalk snow removal requirements and ensure it is being enforced to guarantee the sidewalk network is accessible throughout the year. Recommendations include a priority system for sidewalk clearance as follows:

- **Priority 1 Sidewalks.** The City is already responsible for clearing sidewalks in high-pedestrian downtown locations. The City should identify all downtown streets it is responsible for clearing. Priority 1 sidewalks should be plowed to bare pavement by City personnel within 12 hours of the end of a snowfall, consistent with the priority assigned to priority 1 roadway snow removal.
- **Priority 2 Sidewalks.** In some commercial and suburban areas, property owners are required to clear sidewalks within 24 hours. The City should further define priority 2 sidewalks to include commercial streets and all sidewalks in the vicinity of schools, hospitals, nursing homes, seniors residences and transit stops. Priority 2 sidewalks should be cleared to bare pavement by property owners within 12 hours of the end of a snowfall.
- **Priority 3 Sidewalks.** All remaining residential sidewalks should be cleared by property owners within 36 hours.

ACTION | Continue to regularly inspect sidewalks and pathways to ensure they are well maintained, safe and accessible.

The City should continue to inspect sidewalks and pathways throughout Saskatoon to ensure they are free of trip hazards, cracks, slopes, debris and uneven surfaces. The City currently has a program in place to repair or replace sidewalks in order to preserve them as long as possible. The City should review and update its program to include pathways as well as sidewalks.

ACTION | Regularly inspect crosswalks to ensure they are well maintained, marked and painted to enhance visibility.

It is important to ensure that painted crosswalks are visible and well maintained, with high-visibility pavement markings, appropriate lighting and clear sightlines. The City should consider developing a program to inspect and inventory crosswalks throughout Saskatoon to ensure that its current inspection process reflects best practice.

ACTION | Continue to work with different City departments and other agencies to maintain pathways year-round.

The maintenance of pathways within the city is completed by various City departments. For example, the City's Parks Division maintains pathways in parks; whereas Public Works maintains the Meewasin trail network as per an agreement between the City and Meewasin. The City should continue to maintain the high level of standards in place for maintenance and snow removal of the Meewasin pathways network and ensure this is extended to any existing and new pathways built within the city that are under the City's jurisdiction.

ACTION | Ensure all transit stops are accessible, particularly during winter months.

As nearly every transit trip starts with a walking trip, it is important that access to transit stops is maintained throughout the year. A number of transit stops, particularly in industrial areas, do not have sidewalks. As discussed under the Connectivity theme, transit stops without adequate places for walking should be prioritized under a sidewalk infill program. The City should also focus on ensuring that all sidewalks at transit stops are cleared of snow and debris and accessible year-round.

ACTION | Seek opportunities to expand the existing Snow Angel program to assist with sidewalk snow removal for people unable to do so.

A Snow Angel is someone who volunteers to help clear the sidewalk for a property owner who is unable to do so themselves, such as an elderly resident or person with mobility restrictions. The City should expand and consider re-marketing the Snow Angel program to ensure it is a well-recognized and incentivized initiative.

ACTION | Ensure accessible detours are provided for pedestrians during construction and maintenance.

Ensuring accessible detours includes providing adequate information and advance notice that a sidewalk is closed or that there may be a need to cross the street. The City can require contractors to establish temporary paths where necessary and implement a fine structure for those who do not comply. Detours should be provided for all users, including people using mobility aids. The City should review its current construction detour policies to ensure that they represent best practice for accommodating all active transportation users.

DIRECTION 5B - MAINTAIN THE BICYCLE NETWORK

To ensure a bicycle network's success, proper maintenance throughout the year is required. However maintenance can often be overlooked or neglected due to tight operating budgets, large outstanding maintenance needs, or an insufficient inventory of bikeway maintenance issues.

Regular maintenance includes snow clearing, ensuring pavement markings are visible, sweeping, maintaining smooth roadways and gutter-to-pavement transitions and installing bicycle-friendly drainage grates. Year-round maintenance, especially during the winter months, is an important practice for a city like Saskatoon, which has a significant year-round cycling culture. Good maintenance practices encourage more people to cycle, as cyclists are especially susceptible to falls or collisions due to uneven road surfaces, potholes, ice and debris. The City typically maintains on-street bicycle facilities as part of road maintenance.

ACTION | Review and update current bicycle facility snow removal requirements.

The City has limited requirements for snow removal on bicycle routes. The City should review existing requirements and provide additional guidance specific to on-street bicycle facilities. This should include changing the definition of priority 1 streets to include having protected and painted bike lanes and designated bicycle boulevards plowed to bare pavement to the edge of the curb. The City should also work with Meewasin to designate regionally significant multi-use pathways to be plowed within 24 hours.

ACTION | Review and update current operating procedures for snow removal and refine if warranted.

While current snow removal requirements outline ideal snow removal practices, actual operating procedures are not always clear cut. The City should review current operating procedures for snow removal on bicycle facilities, including current departmental responsibilities, employed contractors and existing fleet of machinery and update as warranted. In addition, there is a need to coordinate with local business and BIDs to provide education and information on proper sidewalk clearing procedures to ensure businesses do not clear snow from sidewalks into bicycle lanes.

ACTION | Ensure detours are provided for bicycle users during construction and maintenance activities.

It is important to accommodate cyclists during construction and maintenance activities when roadways or paths might be closed or unavailable. Cyclists should be given sufficient warnings of route closures (i.e. 'Bike Route Closed', 'Trail Closed') and provided adequate detour information to bypass the construction zone. Signage 'should also display alternate routes and dates of closure. The City should review it's current construction detour policies to ensure that they represent best practice for accommodating all active transportation users.

Construction Detour, Vancouver, BC, Source: Urban Systems

ACTION | Designate and prioritize a winter cycling network for snow removal.

The bicycle network should be treated like the rest of the roadway network – with the highest demand bicycle routes receiving the first and most thorough snow treatment and other bicycle routes being treated in subsequent order, depending on their network importance. By doing this, the City will develop a ranking system that effectively establishes a 'Winter Cycling Network'. The City should publicize these routes through a map identifying winter snow clearing priorities.

ACTION | Design bicycle routes to facilitate snow removal, snow storage and drainage.

One of the best ways to facilitate the removal of snow from bicycle routes is thoughtful roadway and bicycle facility design. Unfortunately, conventional bicycle lanes at the edge of the roadway often become the area for snow storage and can accumulate debris and gravel. Several roadway planning and design considerations can be taken to avoid this situation, including:

- Plan new or renewed roadways with sufficient right-of-way to provide enough space for a bicycle lane and an adequate snow storage space on the road side.
- Provide a wide bicycle lane buffer.
- Restrict on-street parking during snow events.
- Provide bicycle lane widths to accommodate small truck snowplows and invest in a fleet to maintain protected bicycle lanes.
- Install recessed thermoplastic pavement markings.

DIRECTION 5C - PROVIDE ACCESSIBLE INFRASTRUCTURE

Walking to everyday destinations is easy when city streets and neighbourhoods are safe and well-designed for pedestrian accessibility. The areas of Saskatoon with high rates of walking are characterized by grid street patterns, high population density, sidewalks and proximity to multi-use paths and destinations.

It is important that the city-wide pedestrian environment be accessible by a large cross-section of people, including people with disabilities, seniors and parents with children. The walking environment should include accessibility features to accommodate the unique needs of these groups and to provide better pedestrian circulation for everyone. Improving accessibility at intersections and crossings is important as difficult crossings can act as significant barriers to walking, making trips longer or creating safety issues, particularly for seniors, children and people with physical and cognitive disabilities.

The City recognizes that society has a responsibility to be accessible to everyone. There is also a strong business case to do so. The Human Rights Code protects people with disabilities from discrimination in public services through a complaint-based system. Accessibility for people with disabilities is a priority for the Saskatchewan Human Rights Commission and the City. Accessibility rights include the right to accessible services, transportation and employment.

In 2008, the City's Accessibility Advisory Committee created the Accessibility Action Plan, which included a number of recommendations specific to active transportation. The plan recommends a structured approach to sidewalk repairs, curb ramp installations and audible traffic signals.

ACTION | Install accessible pedestrian signals all traffic signals.

Accessible pedestrian signals communicate when it is time to walk and when not to walk for visually impaired pedestrians at signalized intersections. The City is working towards installing accessible pedestrian signals in the downtown, on key commercial corridors and at key intersections in new developments. The City should continue to prioritize these locations but also strive to upgrade all traffic signals to provide pedestrian signals and accessible pedestrian signals at the same time.

ACTION | Provide accessible curb ramps with tactile features at intersections within the city.

Accessible curb ramps are critical to enable those with visual disabilities, those using mobility aids and parents with strollers to comfortably navigate Saskatoon's street network. These features should be provided in new developments or during retrofits. Special considerations should be made to ensure that curb ramps are positioned to provide direct access to the crosswalk.

ACTION | Install pedestrian countdown timers at warranted locations within the city.

Countdown devices give information to pedestrians regarding the amount of time left to safely cross the street. A number of intersections in downtown Saskatoon have pedestrian countdown timers. Continuing to install these devices in other locations is a necessary step in facilitatating safer crossings. The City should develop standards for installation of pedestrian countdown timers at intersections throughout the City, prioritizing areas that currently have high pedestrian activity or future potential for increase pedestrian activity, such as growth corridors. As per Direction 1C, the City should update its Traffic Control at Pedestrian Crossings Policy to ensure it reflects best practice for pedestrian crossings.

ACTION | Ensure all transit stops within the city are accessible.

A requisite of pedestrian accessibility is sidewalk access to transit stops and accessible transit stop design. Working with developers and prioritizing sidewalk upgrades can lead to a continual increase in the number of sidewalks with transit access. The City should aim to have all transit stops accessible.

ACTION | Monitor crossing time at intersections to ensure adequate time is provided for all pedestrians.

This includes reviewing and, if necessary, adjusting pedestrian crossing times to ensure people have enough time to cross before the signal changes. This is particularly important in areas with high concentrations of children, seniors or people with disabilities.

ATP Pop-up Engagement, Kiwanis Memorial Park, Saskatoon, SK. Source: Urban Systems

4.6 EDUCATION AND AWARENESS

BACKGROUND

Although 'hard' measures are critical, a range of 'soft' support measures are also recommended to encourage people to walk and cycle in Saskatoon. These 'soft' measures provide awareness and information about active transportation and will help to achieve Goal #4 of the ATP: building a culture of active transportation in Saskatoon. Education and encouragement initiatives can include providing information to the public on the benefits of active transportation, information on local walking and cycling routes (such as trail maps), events to promote active transportation and programs that teach skills and awareness of road safety, walking and cycling.

Approaches to increase awareness include enhanced wayfinding, signage, trip planning tools, route maps, skills-building programs and promotional campaigns. Improving awareness is typically a cost-effective approach that makes people feel safer and more comfortable using active transportation, while encouraging increased use of pedestrian and cycling facilities.

DIRECTION 6A - ENHANCE WAYFINDING, SIGNAGE AND TRIP PLANNING

A seamless, consistent and easy-to-understand city-wide system of wayfinding, signage and trip planning tools for both walking and cycling is important. It can make the local network easier to navigate, identify the location of important destinations and provide information about route type. Most importantly, wayfinding helps people make decisions about how to navigate a neighbourhood or city. During public consultation for the ATP, wayfinding, signage and trip planning were identified as a key support measure for both pedestrians and cyclists in Saskatoon.

The City's current wayfinding, signage and trip planning measures are primarily focussed on bicycles and vehicles and situated along designated bicycle routes, including the bicycle boulevard on 23rd Street. The City's website includes a webpage dedicated to walking, which provides information on various facilities that make up the walking network, including links to Meewasin Trail maps. Similarly, a webpage dedicated to cycling provides a wealth of information, including the Cycling Guide, Bicycle Bylaw, bicycle maps and educational information and videos.

Building on and expanding existing wayfinding, signage and trip planning tools enables pedestrians and cyclists to identify facilities and destinations city-wide, as described below.

ACTION | Regularly update the Cycling Guide.

The City produces and regularly updates the Cycling Guide, which rates all roads in Saskatoon and provides suggested routes and facilities. The City should update this guide annually and make it available in both print and interactive online formats, including a mobile app and open source availability.

WAYFINDING

BICYCLE COUNT PROGRAM

SIGNAGE

ACTION | Work with interested community groups to develop neighbourhood-based walking and cycling maps and neighbourhood-level wayfinding.

The City should continue to work with partner agencies and organizations to develop more detailed neighbourhood-based maps. By showing walking and cycling routes, these maps can provide people with information on where to travel within their own neighbourhood to access local destinations.

ACTION | Integrate bicycle and pedestrian network data and trip planning information into Saskatoon Transit's online trip planner and Google maps.

Integrate data within the City's EGO Transit Trip Planner or as a stand-alone trip planner for walking and biking trips.

ACTION | Develop pedestrian and cycling wayfinding guidelines to ensure a common and consistent city-wide wayfinding system.

Wayfinding guidelines can include protocols for route naming and identification of destinations, as well as consistent design and application of route markings and cycling signage. This can be done through partnerships with other agencies such as Meewasin and the University of Saskatchewan.

ACTION | Work with business improvement districts to enhance pedestrian and cyclist wayfinding.

The City can work with BIDs to create kiosks identifying key information, such as transit, community facilities and businesses, as well as a map with 'you are here' locators with five-minute walkshed (sites within five-minute walking distance).

DIRECTION 6B - IMPROVE EDUCATION AND AWARENESS

Education and awareness initiatives geared towards motorists and active transportation users are important components of any active transportation plan. These initiatives encourage all parties to 'share the road' and can contribute to increased traffic bylaw compliance. While infrastructure is not built overnight, education and awareness items are often 'quick wins' that can be implemented at relatively low-cost. In addition, education and awareness campaigns can actively build community interest for City investments in active transportation.

Currently, there are many education and awareness campaigns in Saskatoon, such as Bike to Work Days, IceCycle, Jane's Walk and Winter Cycling 101, to name just a few. Building on these existing events, additional approaches can be used to increase awareness for active transportation throughout Saskatoon including:

ACTION | Review and update the Bicycle Bylaw No. 6884 to ensure that it reflects best practice.

The City's Bicycle Bylaw controls and regulates the operation of bicycles in streets, parks and other areas. A number of elements of the Bicycle Bylaw should be reviewed to reflect best practices and emerging technologies and equipment, including: requirements that bicycle users must be positioned as close to the right hand curb as is reasonably practicable; regulations prohibiting two abreast cycling; regulations identifying maximum loads that can be carried; and, requirements for bicycle use in bicycle lanes, in parks, on bridges and on sidewalks.

ACTION | Develop more videos and other tools to educate all road users on new bicycle infrastructure and how to share the road.

The City has developed a series of Cycling Safety Videos, including cycling in traffic, cycling on sidewalks and how to use protected bicycle lanes. The City should continue to produce videos, accessible through the City's website.

ACTION | Maintain support for the Active and Safe Routes to School programming to spread awareness among children, youth and parents on walking and cycling skills.

The Active and Safe Routes to School program typically focuses on the five Es: engineering, education, encouragement, enforcement and evaluation. Initiatives such as in-class curriculum, walking clubs, walking/cycling school buses, no-idling campaigns, active transportation - based field trips and road safety education for secondary school students support active transportation education and uptake among students. These initiatives should continue to be delivered by Saskatoon Public Schools in partnership with the City.

ACTION | Support community events, programs and festivals that encourage walking and cycling.

The City has an opportunity to support events such as IceCycle, Sunday street closures, open streets/ciclovias, Bike to Work Day/Week, Walk to Work Day/Week, International Walk to School Day and other events encourage walking and cycling and increase momentum for active transportation. The City should also work with community associations and other groups to support and encourage walking and cycling programs such as neighbourhood walking or cycling clubs. A community grant program supporting active transportation programs, services and events offered through community organizations, should be developed by the City in the short-term.

ACTION | Support the relationship between active transportation and tourism.

Promoting active transportation from a tourism perspective can provide a variety of benefits to the local economy. The City should consider working with local organizations to promote active transportation options and activities for tourists. Saskatoon has already established a Downtown Bike Friendly Program. The City should revise the program mandate and work with business improvement districts to support the development of Bicycle-Friendly Business Districts in other parts of the city, focusing on areas of high cycling potential as the highest priorities. The City should also encourage hotels and bed and breakfasts to invest in bicycles to lend to their patrons.

ACTION | Continue to support the Learn to Ride Safe Program.

This program presents a comprehensive approach to bicycle safety education for grade three students. At this age, young riders can benefit from a combination of classroom instruction and on-bike experience in a controlled environment. The City should continue to deliver this program and seek opportunities to expand the program to other grades and to other organizations to reach a wider audience.

ACTION | Celebrate walking and bicycle facilities with grand openings and events throughout the year.

The City should continue to find ways to celebrate the installation of new active transportation projects through website material, videos and events that raise awareness and get people excited about the ongoing implementation of the ATP.

DIRECTION 6C - INCREASE MARKETING AND COMMUNICATIONS

As with any product or service, communicating and marketing the benefits of active transportation is a key ingredient in building acceptance and interest. Positive, lighthearted and even humorous marketing materials can actively encourage people to consider walking and biking more. The City has developed marketing and communication materials for active transportation, particularly leading up to the installation of the protected bicycle lanes on 23rd Street. Other organizations and programs, such as Saskatoon Cycles, the Bridge City Bicycle Co-Op and the Saskatoon Health Region's inMotion program, have also created brands associated with increasing physical activity such as walking and cycling. The City should work with community organizations and other agencies to cross-promote events and ensure that marketing and communications are consistent. Working with these organizations can help the City get the message out more effectively. Some opportunities to increase marketing for active transportation in Saskatoon are described below:

ACTION | Consult with active transportation advisory group(s) on new projects and monitoring and implementation of the ATP.

The City should replace the Cycling Advisory Group and ATP Stakeholder Advisory Group with a new Active Transportation Advisory Group to advise on proposed projects, policies and standards, programs, events and other initiatives undertaken to implement the ATP. The Active Transportation Advisory Group should include representatives from key stakeholders groups and Saskatoon residents.

ACTION | Continue to conduct targeted communication and engagement with vulnerable and under-represented groups to identify unique needs.

This will enable the City to better understand and address barriers that prevent these groups from walking and cycling, while also identifying the best forums for participation and opportunities to encourage active transportation.

ACTION | Develop a recognizable visual identity and expand information on website.

A comprehensive branding strategy and/or a visual identity can be used to market educational material and spread awareness about active transportation programs, policies and standards and facilities. In addition, the City's cycling webpage should be expanded to be an active transportation webpage that provides information about walking, cycling and other forms of active transportation in Saskatoon.

ACTION | Use city-wide campaigns to deliver positive messaging to promote walking and cycling.

Campaigns and city-wide communications using radio advertisements, transit shelter advertisements, website content and more can be effective tools for reaching out to residents, increasing awareness and interest in active transportation.

ACTION | Work with local businesses to encourage employee travel options including Transportation Demand Management (TDM) programs and initiatives that encourage employees to use active transportation.

Cities around the world have focussed on promoting active transportation positively through marketing and communications. Campaigns help break down myths and misconceptions regarding perceived barriers to active transportation, namely perceptions about lack of time, health issues, weather, safety and security, age and the feeling that active transportation is impractical. Improving education and awareness can be a cost-effective approach to encouraging active transportation.

'People on Bikes' Marketing Campaign, Greenville, South Carolina, USA, Source: Wall-to-Wall Studios

Farmers' Market, Saskatoon, SK, Source: Urban Systems

River Landing, Saskatoon, SK, Source: Urban Systems

3rd Avenue South, Saskatoon, SK, Source: Urban Systems

PART 5: Implementation

The directions and actions developed as part of the ATP are intended to guide Saskatoon's policy, planning and capital investment decisions as well as on-going operations and maintenance activities in support of active transportation over the next 30 to 40 years. While the ATP has been developed as a long-term plan, it will require significant additional financial investment, staff resources and an implementation strategy to prioritize improvements over the short-, medium- and long-term.

This chapter presents an implementation and phasing strategy, including prioritization of ATP actions and network improvements over the short-term (0 to 5 years), medium-term (5 to 10 years) and long-term (10 years and beyond). A number of 'quick win' initiatives that the City should begin within the next two years are identified, as well as a funding and leverage strategy.

5.1 Implementation Principles

The ATP implementation strategy is based on a number of principles that need to be considered as the City moves forward.

- **The ATP is the first step towards implementing the vision for active transportation in Saskatoon, not the last.** The directions and actions in the ATP are intended to lay the groundwork for implementing the ATP over the long-term. However, it is important to recognize that implementation will require significant investment and resources. This includes significant investments in new infrastructure, ongoing maintenance of existing and new AT facilities, resources for development of new standards and policies, funding for new programming and public education and staff resources. Achieving the vision, goals and targets will require the ongoing support of the City and its partners, along with sustained investment in active transportation.
- **The ATP is a flexible and living document.** The ATP is intended to be a flexible document. For the proposed walking, cycling and trail network, multi-modal corridors and new crossings and bridges, there is a level of flexibility regarding the specific locations, corridors and facility types that are recommended. The ATP presents recommendations and suggestions based on the engagement process and technical analysis; however, the City will need to review the feasibility and desirability of each infrastructure project in regards to the overall transportation network. The implementation of the ATP will also require ongoing public engagement as new projects are considered.
- **The City should monitor, review and update the ATP on a regular basis , as needed, and at least every 5 to 10 years.** As the City begins implementing the directions and actions of the ATP, a monitoring and reporting strategy will be needed to measure and communicate progress towards achieving the vision, goals and targets. An active transportation account, detailed in **Section 6.2**, is one way that the City can report on progress made in implementing the ATP. Based on the results of the monitoring and reporting strategy, the ATP will need to be adapted to changing priorities and conditions over time.

Saskatchewan Polytechnic, Saskatoon, SK, Source: Urban Systems

- **The City should develop a yearly Active Transportation Action Plan** and five-year forecast as part of the annual budgeting process to identify upcoming projects, initiatives, funding sources and implementation partners as part of its efforts prioritize implementation of ATP actions, monitor and communication successes and to keep the ATP a living document.
- **The City should engage in further public consultation to implement many recommendations of the ATP.** Many of the initiatives in the ATP require more detailed input and technical work. The City should work closely with partners, residents and stakeholder groups to move forward with priorities in the ATP.

5.2 Prioritizing Actions

The tables in **Appendix C** recommend strategies for implementing each of the actions identified in the ATP with respect to:

- **Timeframe.** Each action is identified as either a short-term (0 to 5 years), medium-term (5 to 10 years) or long-term (10 years and beyond) initiative. Many actions will be implemented on an on-going basis, in which case they are shown under each timeframe. It should also be noted that these priorities may change over time. If an opportunity arises to implement an action identified as a medium or long-term priority, such as through a redevelopment opportunity or other capital project, the City should seek to maximize the opportunity.
- **Method of Implementation.** This column identifies how each action will be implemented: as a capital project, through ongoing operations and maintenance, or as a policy or programming initiative.

- **Who Should Lead?** This column suggests the primary and secondary responsibility for each action. Many actions are the primary responsibility of the City (including Transportation, Planning and Development and other divisions), while other actions should be led by external agencies, such as the Saskatoon Health Region, University of Saskatchewan, community groups or the private sector.
- **Goals Addressed.** Each action is categorized based on its relative contribution to each of the ATP's five goals. Although some actions may only work to achieve one goal, many actions can help achieve multiple goals.

Saskatchewan Polytechnic Transit Hub, Saskatoon, SK, Source: Urban Systems

5.3 Network Prioritization

The ATP includes a recommended long-term network of walking and cycling facilities (note: multi-use pathways were included as part of the bicycle network). The purpose of this section is to provide the City with a method to identify priorities for specific projects to improve the pedestrian and cycling network over the short-, medium- and long-term.

An objective, Geographic Information System (GIS)-based prioritization methodology was used to identify priority locations based on a list of variables. The prioritization methodology incorporates the network planning guiding principles discussed in the Connectivity theme as well as the data and analysis presented in **Part 2** of this report. The network prioritization variables used in the analysis are shown in **Table 4**, below.

BICYCLE NETWORK	SIDEWALK NETWORK
Network Connectivity	Network Connectivity
Trip Generators	Trip Generators
Access to Transit	Access to Transit
Level of Protection	-
Potential	Potential
Equity	Equity
Safety	Safety
Network Spokes	Network Spokes

Table 4 - Network Prioritization Variables

Each variable contains scoreable information about each proposed route's ability to address an existing and future need within Saskatoon. Each variable was scored on a five-point scale and the results were combined to generate an overall score for each new walking and cycling facility in Saskatoon. By combining these scores, a project ranking list was developed (**Figure 35** and **Figure 36)**. Each of the variables is described in more detail below.

- **Network Connectivity.** This variable measures the degree to which the proposed network improvement addresses a gap in the respective sidewalk and bicycle networks.

  For the bicycle network, this assessment was based on the Gap Analysis completed during development of the ATP. The Gap Analysis was based on the identification of Area Gaps, Quality Gaps, Crossing Gaps and Network Gaps. A different score was assigned depending on the type of gap.

  The sidewalk network prioritization was based on how well each proposed sidewalk connected with the existing sidewalk network. Based on GIS analysis, a score was assigned to each sidewalk segment based on whether it connects to a sidewalk on either end and if there are sidewalks on both sides of the street or one side of the street.

- **Generators.** This variable measures the number of pedestrian and cycling land-use generators in proximity to the proposed pedestrian or bicycle facility. Improvements adjacent to land-use generators are likely to result in a higher demand for walking and cycling. Pedestrian and cycling generators include downtown land uses, areas with commercial and industrial land uses, schools and parks. A score was assigned based on proximity to these generators.

- **Access to Transit.** The majority of transit trips begin or ends by walking or cycling. One of the key directions of the ATP is to improve walking and cycling integration with transit. This variable measures the degree to which the proposed improvement increases access to transit facilities. Improvements within the closest proximity to transit stops received the highest scores.
- **Level of Protection** (bicycle network only). The ATP focuses on developing a cycling network that is comfortable for people of all ages and abilities. As a result, proposed bicycle facilities that provide the greatest level of protection for people cycling were assigned the highest score. It is important to note that this variable was only considered within the context of the bicycle network. For example, routes proposed to be AAA received a higher score than non-AAA routes.
- **Potential.** The ATP focuses on strategic investments in areas of the city with the highest potential for increased mode share for active transportation. This variable assesses the greatest potential to increase walking or cycling based on land use patterns, population density and transportation infrastructure. Neighbourhoods with the highest potential as identified in **Part 2** of this report, were assigned the highest score.
- **Equity.** The ATP has also focused on strategic investments in areas with traditionally underserved populations. This variable assesses the greatest potential to improve access to traditionally underserved populations. Areas with the greatest equity potential were given the highest score.
- **Safety.** Safety is a key deterrent to walking or cycling. This variable assesses the relative safety benefits of the proposed improvement. This analysis was based on reported collision data and counted all reported pedestrian and cycling collisions along a segment over a five-year period. This analysis did not consider exposure for active transportation users to adjacent traffic volumes, although the City should integrate this analysis into the pedestrian and cycling safety study proposed as action 2A.1. Proposed facilities located on routes with the highest number of collisions involving motor vehicles and people walking and cycling were given the highest score.
- **Network Spokes.** The pedestrian and cycling networks include a spoke network to provide high quality connections from various parts of the city to the downtown. Facilities located on routes that have been designated network spokes received higher scores than routes that are part of the local network.

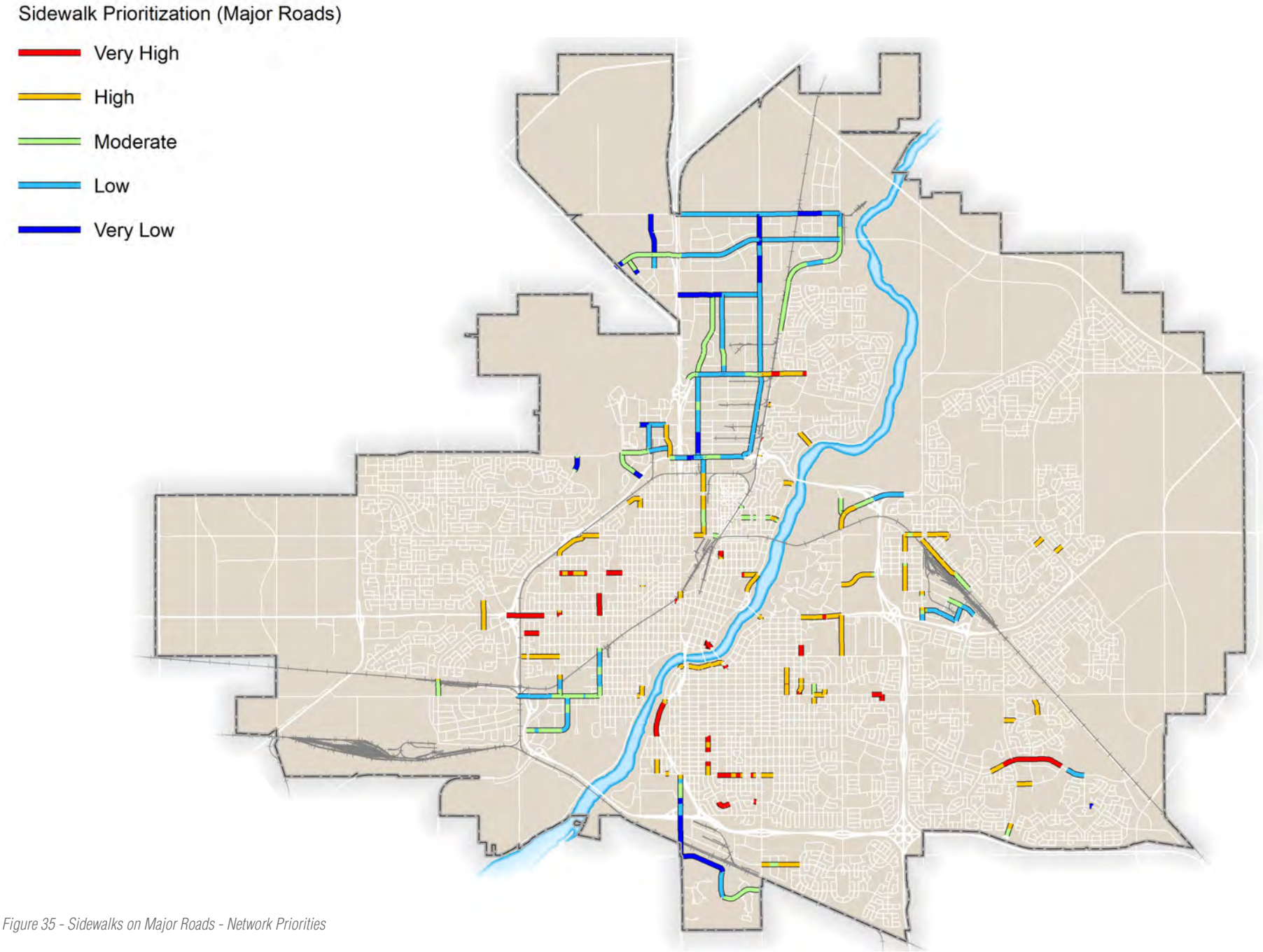


Figure 35 - Sidewalks on Major Roads - Network Priorities

Bicycle Network Prioritization

- Very High
- High
- Moderate
- Low
- Very Low

Note: "Low" and "Very Low" denotes routes that are low or very low priorities for direct investment by the City and/or routes that will be prioritized when adjacent land is developed.

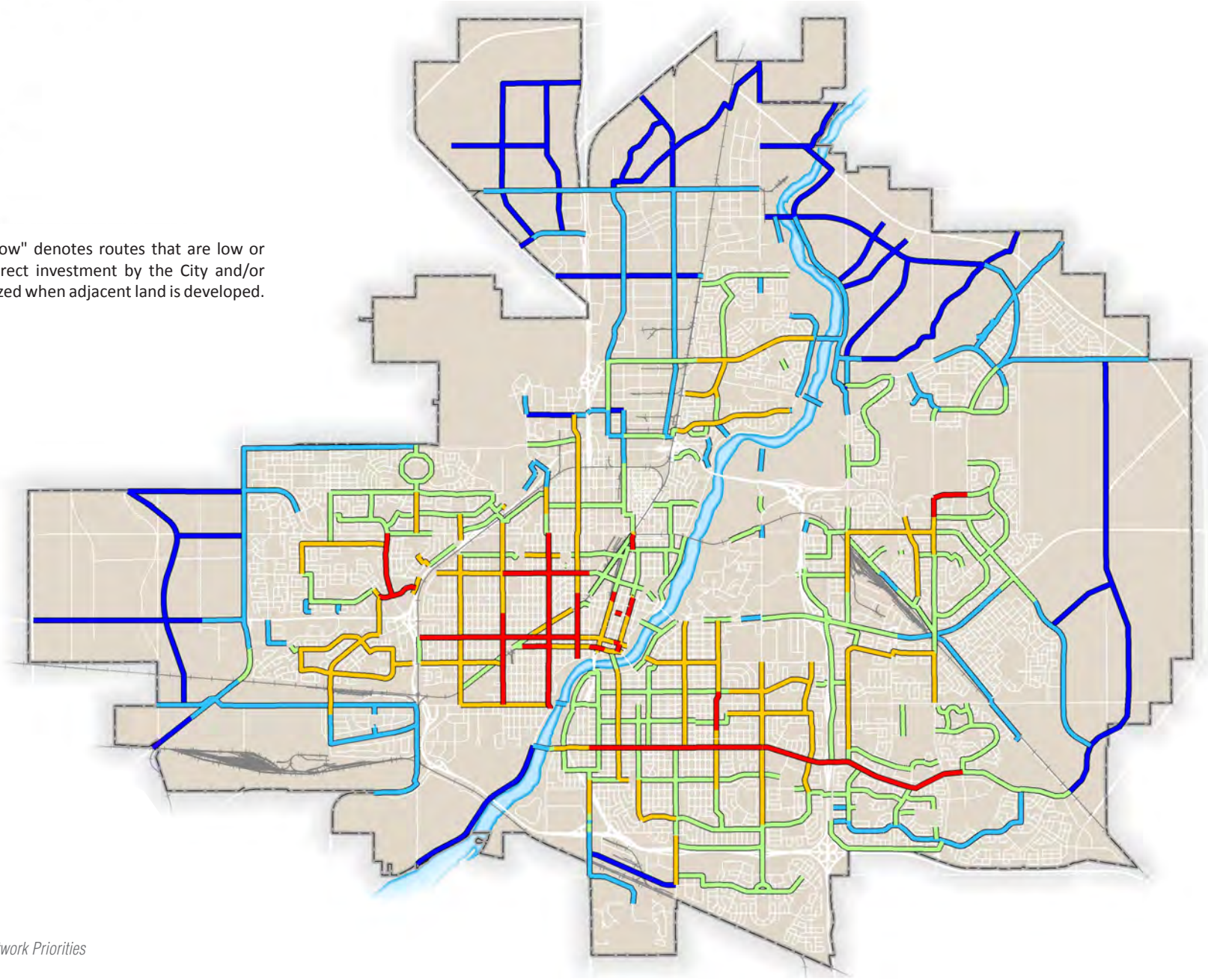


Figure 36 - Bicycle Network Priorities

5.4 Quick Wins

The short-term actions identified in **Section 5.2, Appendix C** and the short-term network improvements in **Section 5.3** provide guidance on those initiatives that are recommended to be undertaken over the next five years. Short-term network improvements are the facilities identified as 'very high' and 'high' on **Figure 35** and **Figure 36**. It is important to note that many of the actions identified in the ATP are ongoing and may be dependent on development. It will be important that the City begin taking steps to ensure that when opportunities present themselves they are able to begin immediately implementing the actions identified throughout the ATP. In addition to the short-term actions, the City should focus on a number of 'quick wins' to begin implementing the ATP immediately and to build momentum. Short wins are defined as projects that are ready to be implemented in the next one to two years, will be publicly visible and serve to build momentum behind the ATP. The quick wins the City should prioritize over the next one to two years include:

THEME 1: CONNECTIVITY

- Update sidewalk requirements for new developments (Action 1A.1).
- Improve the City's sidewalk infill program to address gaps in the sidewalk network on local roads. (Action 1A.3).
- Develop and adopt bicycle facility design guidelines (Action 1B.4).
- Update bicycle facility requirements for new developments (Action 1B.5).
- Network Enhancements:
  - If the downtown protected bicycle lane demonstration projects (23rd Street and 4th Avenue) prove successful, the City should work to make these projects permanent.
  - Based on the results noted above, begin planning for a downtown bicycle network for all ages and abilities (Action 1 B.2).
  - Installation of Victoria Avenue bicycle facilities corresponding with completion of the new Traffic Bridge.
  - Installation of sidewalks and bicycle facilities connecting neighbourhoods to downtown and other key destinations, such as on McPherson Avenue.
  - Develop a 2017 Active Transportation Action Plan and 5-year projection identifying additional projects, funding sources, staff resources and potential partners.

THEME 2: SAFETY AND SECURITY

- Conduct separate pedestrian and cycling safety studies to understand and monitor collisions involving vulnerable road users (Action 2A.1).
- Conduct road safety audits and corridor studies on streets that have been identified with safety concerns (Action 2A.2).
- Monitor hot spot collision locations and identify safety mitigation measures (Action 2A.3).

THEME 3: CONVENIENCE

- Develop requirements for short-term and long-term bicycle parking and other end-of-trip facilities for new developments (Action 3A.1).
- Demonstrate leadership and ensure adequate bicycle parking is provided at all City owned and operated facilities (Action 3A.2).
- Work with business improvement districts and other partners to develop an on-street bicycle corral program (Action 3A.5).
- Provide bicycle racks on all buses throughout the year (Action 3B.1).

THEME 4: LAND USE AND GROWTH

- Ensure the active transportation network is prioritized to provide access to major employment areas (Action 4A.2).
  - Amend the OCP to provide guidance on planning future employment areas as comprehensively planned units
  - Explore options to expand the use of site plan control to include a range of future commercial and industrial land uses
- Enhance guidelines and standards for infill development to incorporate active transportation projects (Action 4C.3).

THEME 5: MAINTENANCE AND ACCESSIBILITY

- Review and update current sidewalk snow removal requirements (Action 5A.1).
- Seek opportunities to expand the existing Snow Angel program to assist with sidewalk snow removal for people unable to do so. (Action 5A.5).
- Review and update current bicycle facility snow removal requirements (Action 5B.1).

THEME 6: EDUCATION AND AWARENESS

- Review and update the Bicycle Bylaw No. 6884 to ensure that it reflects best practice (Action 6B.1).
- Maintain support for the Active and Safe Routes to School programming to spread awareness among children, youth and parents on walking and cycling skills (Action 6B.3).
- Support community events, programs and festivals that encourage walking and cycling (Action 6B.4).
  - Develop a community grant program to support active transportation programs, services and events offered through community organizations
- Develop a recognizable visual identity and expand information on the City's website (Action 6C.3).
- Use city-wide campaigns to deliver positive messaging to promote walking and cycling (Action 6C.4).

5.5 Cost Estimates

The ATP includes order-of-magnitude capital cost estimates for the implementation of the proposed on-street bicycle network, installation of sidewalks on major roads, multi-use pathways and new proposed active transportation crossings (river, rail and road) over the next 30 to 40 years.

During the discussion of cost estimates it is important to keep in mind how much capital the City is currently spending on active transportation and transportation more generally on an annual basis. Currently, approximately $1,000,000 of the City's annual capital budget is allocated to active transportation, including up to $500,000 from the Active Transportation Reserve, approximately $250,000 in funding to Meewasin for trail development, red light camera revenues for active transportation and neighbourhood traffic safety improvements for active transportation. In comparison, the City's Transportation Capital Budget is $64.5 million in 2016. The recently approved *Growth Plan* estimates that roadway investments will cost approximately $1.4 billion over the next 30 to 40 years. Therefore, a significant increase in capital funding for active transportation is required over the next 30 to 40 years to implement the directions and actions identified in **Part 4** and to achieve the vision, goals and targets identified in **Part 3**.

The cost estimates presented for the ATP are based on typical unit costs and recent pricing in Saskatoon. The cost estimates have been provided to identify the relative cost for planning purposes, but should not be used for budgeting purposes. Wherever possible, the City should work with developers, other agencies and levels of governments to establish cost sharing agreements or to seek grant opportunities in order to off-set total project costs. The cost to implement proposed active transportation networks identified in the ATP is estimated at approximately $250 million over the next 30 to 40 years. A summary of capital costs by network is provided in **Table 5**.

PROJECT	KM (APPROX)	COST ESTIMATE
ON-STREET BICYCLE FACILITIES	195 km	$60,000,000
SIDEWALKS ON MAJOR ROADS	90 km	$31,000,000
MULTI-USE PATHWAYS	170 km	$88,000,000 – CoS $12,000,000 – Meewasin **(Total $100,000,000)**
CROSSINGS	8 (crossing locations)	$59,000,000
TOTAL	**455 km + 8 crossing locations**	**$250,000,000**

Table 5 - Breakdown of ATP Network Capital Costs

It is important to note that the capital costs for the ATP include the complete bicycle network, proposed trail network, all proposed new crossings and the installation of sidewalks on major roads. Other partners and organizations will have a role in contributing to these costs. For example, the proposed multi-use pathway network includes over 20 kilometres of pathways that have been proposed as part of the Meewasin Trail Study. While identified in the ATP long-term network and included in the high level cost estimates, the capital cost of these new facilities would fall under Meewasin's jurisdiction and be shared between the City, Meewasin and other agencies.

In addition to capital costs for new infrastructure, there are additional operating costs, staff resources, funding for developing standards and policy, program delivery, as well as monitoring and evaluation that are required to implement the ATP as recommended. The City should budget

for these costs as part of the yearly Active Transportation Action Plan and five-year forecast as identified in **Part 5.1**.

5.6 Leverage and Funding Strategy

Although the ATP is estimated to cost approximately $250 million over the next 30 to 40 years, these costs can be shared by pursuing external funding from other levels of governments, partnerships with other organizations and the development industry and integration of cycling and pedestrian improvements with other plans and projects.

This section describes several strategies that the City may consider to help leverage its investments and to maximize its ability to implement active transportation improvements.

- **Capital Planning**. The City should incorporate the ATP recommendations into its short-, medium- and long-term financial plans to ensure that projects are accounted for in the City's capital planning process. In this regard, the City should seek changes to its capital budget to fund implementation of the ATP.

  Currently, approximately $1,000,000 of the City's annual capital budget is allocated to active transportation, including additional funds provided through other initiatives, programs and projects that have active transportation components, such as funding from red light camera revenues and neighbourhood traffic safety review. Approximately $250,000 per year is provided to Meewasin for trail upgrades and maintenance.

  Based on the existing capital budget allocation and the recommendations of the ATP, the City will need to significantly increase its annual investment to ensure the ATP is implemented within the proposed timelines.

  The *Growth Plan* estimates that roadway investments to accommodate 500,000 people will cost approximately $1.4 billion. It is important to note that a portion of this total includes some funding for new sidewalks and active transportation infrastructure. When comparing the estimated capital cost of the ATP to the total roadway costs of the *Growth Plan*, the ATP equates to approximately 15%.

- **Staff Resources.** Implementation of the ATP will not only require capital resources, it will also require additional staff resources to implement the various actions identified. Dedicated bicycle and pedestrian program managers are common in North American cities and, along with other transportation planners and communications specialists, staff resources are a critical part of creating walkable and bikeable cities.

  The City currently has approximately two FTE staff members working on active transportation projects. It is recommended that the City ensure they have, at minimum, three full time dedicated staff members working specifically on the implementation of the ATP. This would include an engineer, a planner and a staff member dedicated to active transportation communications, education and programming. This dedicated team would work together and with other municipal departments, agencies and organizations to implement the ATP.

  It will be important that these staff members continue to develop expertise in active transportation design, planning and communications including regular training in active transportation policy, design and best practices.

21st Street East, Saskatoon, SK, Source: City of Saskatoon

- **Integration.** The City should integrate cycling and pedestrian improvements with other plans and capital projects, where possible. There are active transportation components associated with many upcoming and planned road renewal programs, development projects and major capital projects such as the North Commuter Parkway and the Traffic Bridge Replacement Project which have been identified as a part of the city's active transportation network.

  The best opportunities to provide safe and convenient active transportation facilities is during the initial planning and design of these projects. Wherever possible, the City should seek out opportunities to integrate active transportation facilities with new infrastructure or renewal and rehabilitation projects, such as major road resurfacing and servicing upgrades. The City needs to also make necessary amendments to existing policies and standards are made to ensure opportunities to integrate proposed active transportation projects are required as new developments occur.

- **Developers.** An important component of the implementation of Saskatoon's ATP will be the City's ability to leverage active transportation investments during planning of new neighbourhoods or infill projects. For example, approximately 50 kilometres ($30,000,000) of proposed multi-use pathways within the city would likely be implemented as new developments occur.

  In addition, the City should require that multi-modal traffic studies are completed for large commercial, institutional and industrial development projects to ensure that Transportation Demand Management plans are undertaken for their employees.

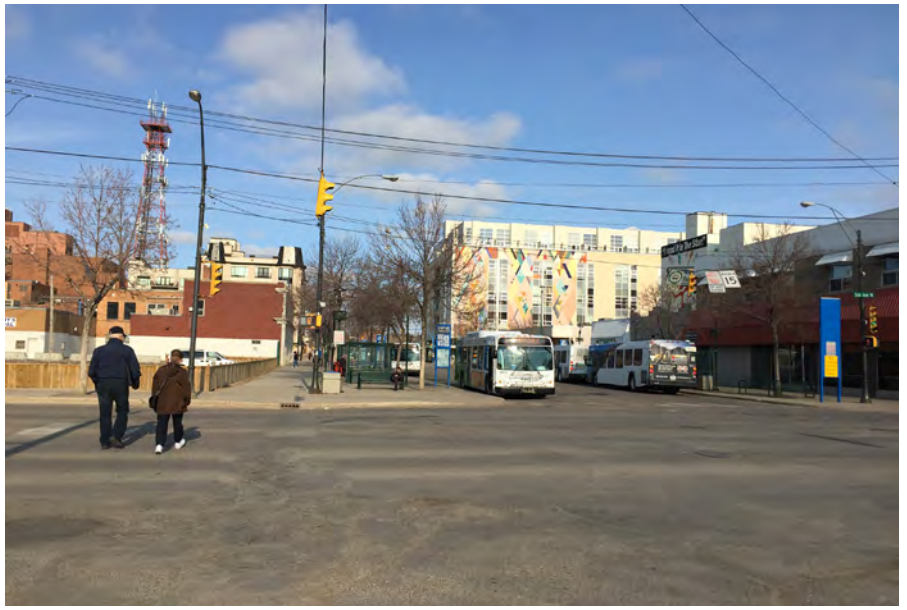
Other ways in which active transportation investments can be leveraged include:

- Voluntary public realm improvements
- Community amenity contributions
- Density bonusing contributions
- Funding in lieu of parking
- Providing high quality bike parking facilities

- **Provincial Programs.** Provincial grants and funding should be explored, however, grants are not often recognized as a predictable or reliable source of funding. In fact, grant programs often favour shovel-ready projects.
- **Infrastructure Canada** manages several programs that provide funding for environmental and transportation infrastructure projects in municipalities across Canada. Typically, the federal government contributes one-third of the cost of municipal infrastructure projects. Provincial and municipal governments contribute the remaining funds and in some instances, there may be private sector investment as well.
- **Green Municipal Funds.** The Federation of Canadian Municipalities manages the Green Municipal Fund, with a total allocation of $550 million. This fund is intended to support municipal government efforts to reduce pollution, reduce greenhouse gas emissions and improve quality of life. The expectation is that knowledge and experience gained in best practices and innovative environmental projects will be applied to national infrastructure projects.
- **Private sector.** Many corporations wish to be good corporate neighbours and active in the community and to promote environmentally-beneficial causes. Bicycle and pedestrian facilities are well-suited to corporate sponsorship and have attracted significant sponsorship both at the local level and throughout North America.
- **Other Strategic Partnerships.** The City should build on its successful partnerships with other agencies, the private sector and the not-for-profit sector to help implement the ATP. The City should continue to work closely with partners such as Meewasin, the University of Saskatchewan, Saskatoon Health Region, Tourism Saskatoon, business improvement districts and others to help implement the ATP.
- **Advertising.** There are several options for obtaining funding for transportation projects from advertising revenues. For example, the costs of producing and distributing a bicycle route map can be partially or fully offset by selling advertising space on the map. Advertising on bicycle racks and transit shelters can reduce the costs of providing those facilities.

21st Street East, Saskatoon, SK, Source: Urban Systems

River Landing, Saskatoon, SK, Source: Urban Systems



3rd Avenue North, Saskatoon, SK, Source: Urban Systems

PART 6: Monitoring Strategy

A monitoring strategy is essential to ensure that the ATP is implemented as intended and making progress towards the vision statement, targets and goals. A monitoring strategy will also enable the City to appropriately allocate monetary and staff resources to implement prioritized initiatives. Monitoring also provides a means of identifying changing conditions which would require changes to the ATP. The monitoring strategy needs to be:

Meaningful. The monitoring strategy should yield meaningful results and point to the success in achieving the vision, goals and targets of the ATP.

Measurable. The monitoring strategy needs to establish criteria that are readily measurable and for which data or information can be readily obtained.

Manageable. The monitoring strategy needs to take into account resource limitations and identify measures where information is accessible or data is simple to collect.

6.1 Measures of Success

The City's monitoring program should contain 'measures of success' for two components: first, the degree of progress in implementing the ATP, and secondly, the outcomes of implementing the ATP. Potential measures of success are described in the tables following, including general measures of success for the overall ATP, as well as specific measures of success related to each theme.

GENERAL ATP MEASURES OF SUCCESS

MEASURE	INDICATOR
Walking and cycling mode share (work)	%
Walking and cycling mode share (all trips)	%
Walking and cycling volumes on key corridors	#
Walking and cycling funding levels	$
City staff resources	#

Table 6 - General ATP Measures of Success

THEME 1: CONNECTIVITY

MEASURE	INDICATOR
Total length of bicycle network (by facility type)	Total km
Total km of AAA bicycle network	Total km
Amount of city within 400 metres of bicycle network	% of city
Total length of sidewalk network	Total km
Proportion of sidewalks at least 1.8m wide	%
Proportion of streets with a sidewalk on at least one side	% of all streets (by class)
Number of river crossings providing access for active transportation users	#, $, total km
Number of completed bicycle network projects	#, $, total km
Number of completed pedestrian network projects	#, $, total km
Number of pedestrian and bicycle activated signals	#
Number of signals with pedestrian and bicycle activated pushbuttons	#

Table 7 - Measures of Success for Connectivity

THEME 2: SAFETY AND SECURITY

MEASURE	INDICATOR
Number of collisions involving pedestrians and cyclists	#
Number of fatal collisions involving pedestrians and cyclists	#
Proportion of all collisions involving pedestrians and cyclists	%
Proportion of all fatal collisions involving pedestrians and cyclists	%
Number of hospitalizations due to injuries involving people walking, cycling or using other forms of active transportation	#
Number of emergency room visits due to injuries involving people walking, cycling, or using other forms of active transportation	#
Number of road safety audits/corridor studies completed or currently underway	#
Number of collisions involving pedestrians and cyclists at hot spot locations	#
Number of research projects/programs on active transportation completed or currently underway	#

Table 8 - Measures of Success for Safety and Security

THEME 3: CONVENIENCE

MEASURE	INDICATOR
Number of bicycle racks downtown	#
Number of secure bicycle parking spaces at transit stations	#
Proportion of buses with bicycle racks	%
Proportion of transit stops with shelters	%
Proportion of sidewalk on both sides of the street within 400 metres of a transit stop	%

Table 9 - Measures of Success for Convenience

THEME 4: LAND USE AND GROWTH

MEASURE	INDICATOR
Sidewalk coverage within 400 metres of all mixed use centres and corridors	% of streets
Bicycle network coverage within 400 metres of all mixed use centres and corridors	%

Table 10 - Measures of Success for Land Use and Growth

THEME 5: MAINTENANCE AND ACCESSIBILITY

MEASURE	INDICATOR
Proportion of bicycle network designated as Winter Cycling Network	%
Total km of pathways cleared	km
Total km of sidewalks cleared	km
Number of accessible pedestrian signals	#
Proportion of transit stops that are accessible	%
Number of pedestrian countdown timers	#

Table 11 - Measures of Success for Maintenance and Accessibility

THEME 6: EDUCATION AND AWARENESS

MEASURE	INDICATOR
Number of active transportation wayfinding displays	#
Number of neighbourhood-based walking and cycling maps	#
Number of annual active transportation events	#

Table 12 - Measures of Success for Education and Awareness

6.2 Next Steps

To assist in monitoring these and other measures of success the City should develop and implement a comprehensive Active Transportation Monitoring Program within one year of adoption of this plan. This Monitoring Program will help identify baselines for each of these measures of success. The Monitoring Program should consider using some or all of the measures identified above. It is recognized that data may be more challenging to collect for some measures than others and as a result, it is understood that the Monitoring Program may not include all the measures identified above.

The City should communicate the results though the development and publishing of an active transportation account. An active transportation account is a tool to monitor the development of walking and cycling activity in a community on a regular basis and is used to assess whether a community is achieving its cycling and walking vision, goals, targets and strategies. Active transportation accounts typically report on public input, which can be incorporated into the bicycle and pedestrian planning process, for the development of project, policies and standards, programs and other initiatives. The active transportation account can also be, in itself, an opportunity to do community-wide marketing and communication on walking and cycling.

By monitoring the ATP on an-going basis and by developing and publishing an active transportation account, the City will be able to monitor its success in implementing the ATP and track progress towards achieving the vision and goals of the ATP. This monitoring is critical ensure the on-going success of the ATP and that the City is successfully working towards its vision to become a leading city for active transportation, where walking and cycling are convenient, comfortable, attractive, fun and normal ways of moving around the city year-round for residents and visitors of all ages and abilities.

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ACTIVE TRANSPORTATION PLAN
FINAL REPORT APPENDICES

JUNE 2016

Prepared for the City of Saskatoon by Urban Systems Ltd.

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APPENDIX B: Crossings

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Broadway Avenue, Saskatoon, SK, Source: City of Saskatoon

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APPENDIX A: DETAILED BICYCLE NETWORK MAPS

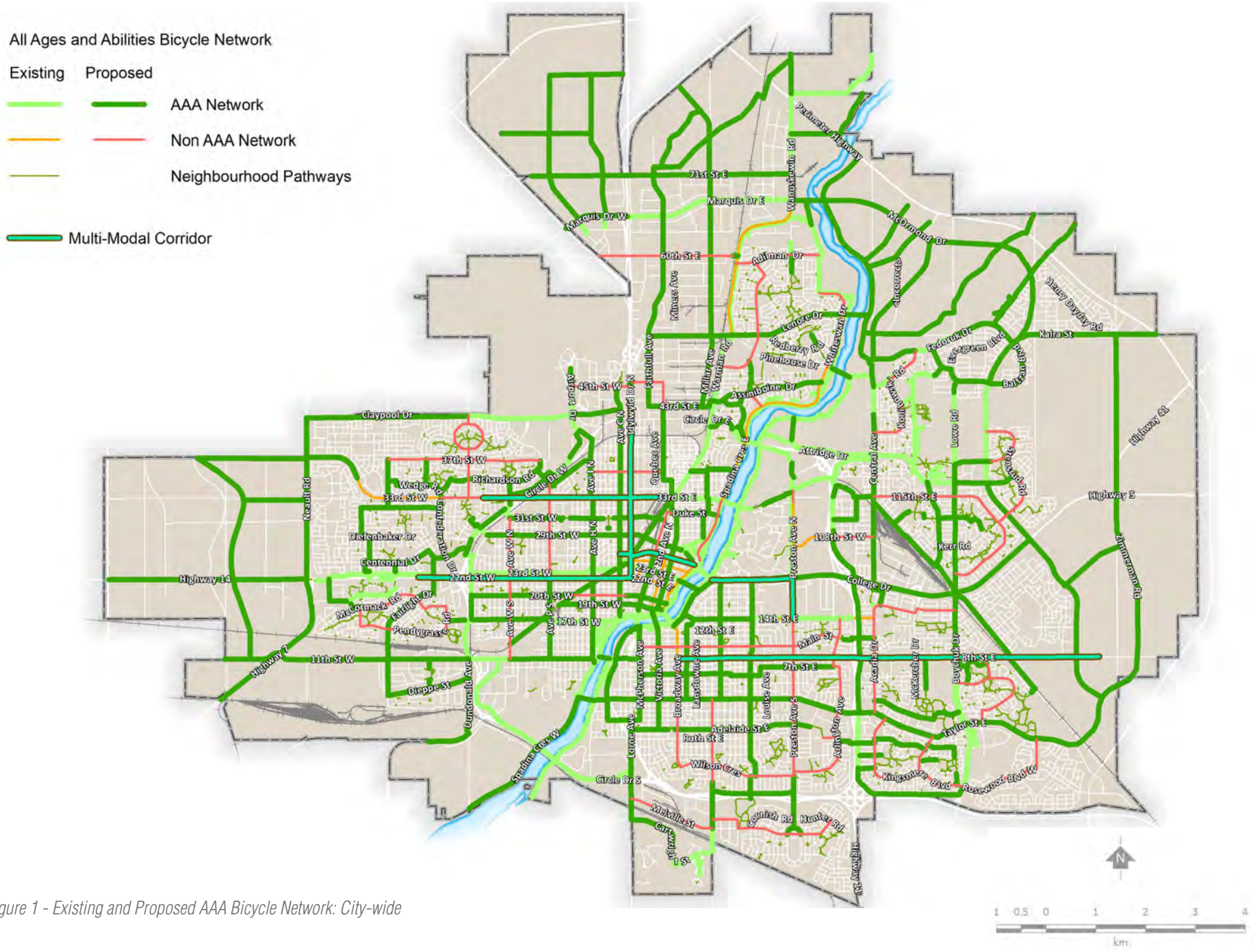

Figure 1 - Existing and Proposed AAA Bicycle Network: City-wide

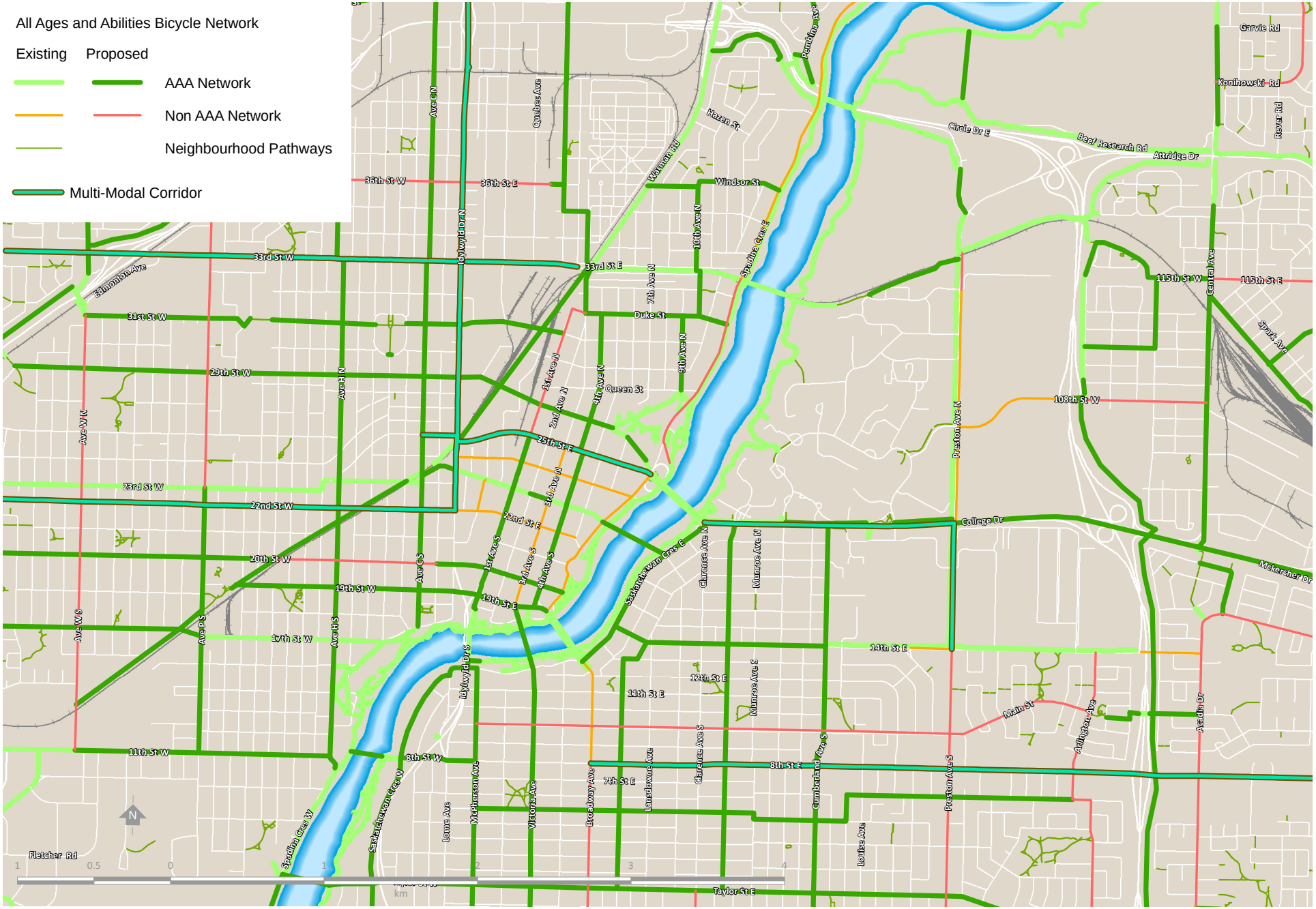

Figure 2 - Existing and Proposed AAA Bicycle Network: Downtown

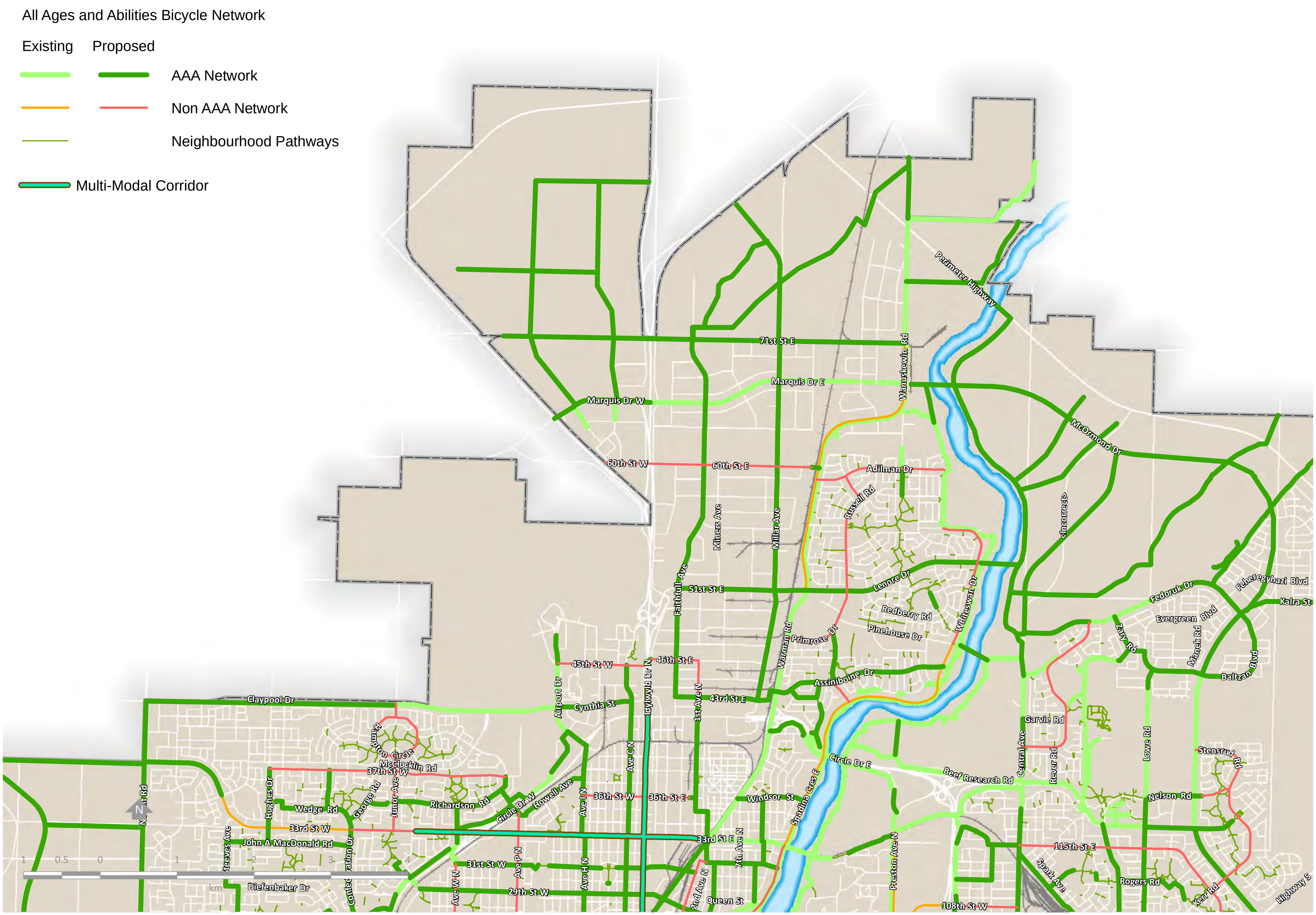

Figure 3 - Existing and Proposed AAA Bicycle Network: North

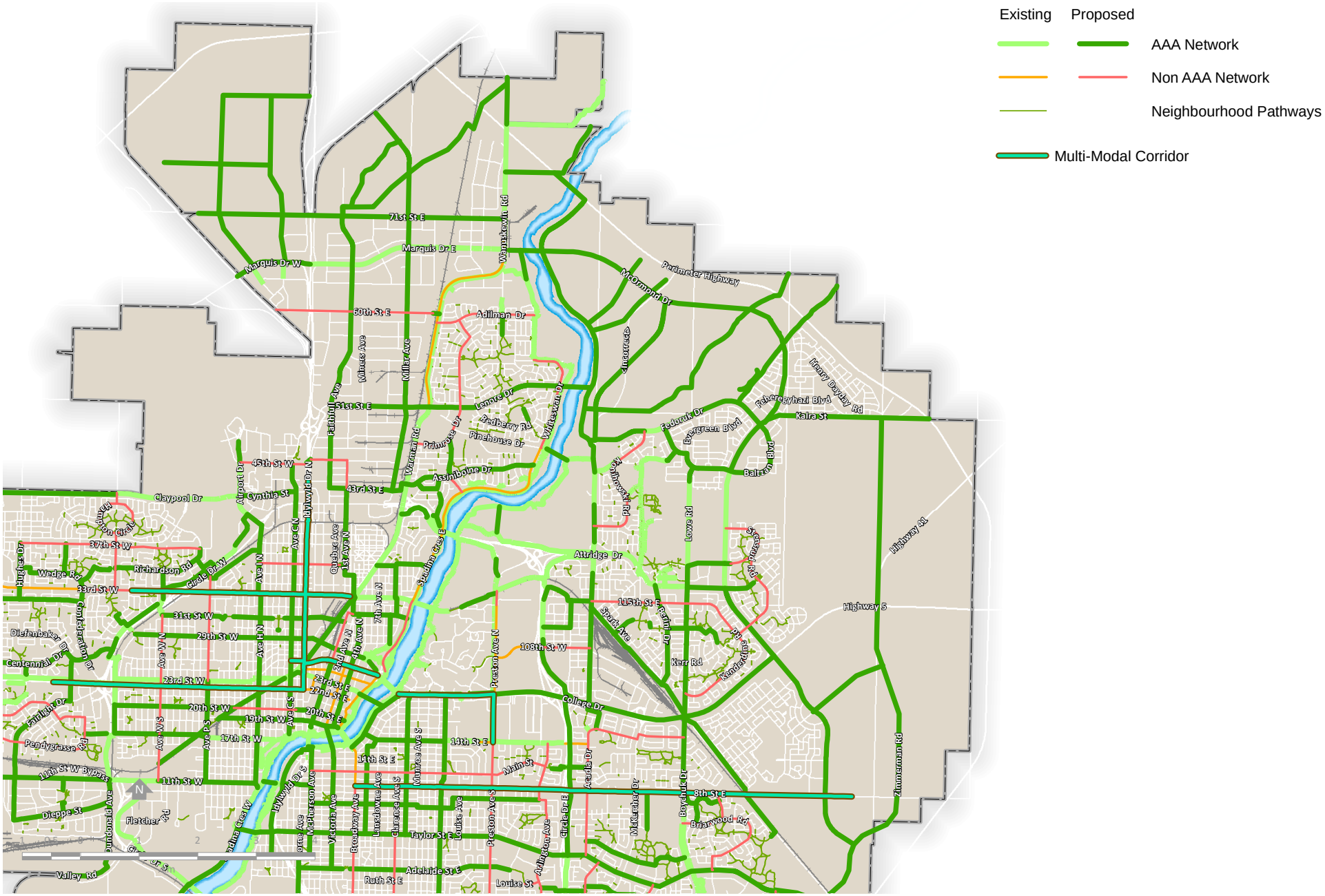

Figure 4 - Existing and Proposed AAA Bicycle Network: Northeast

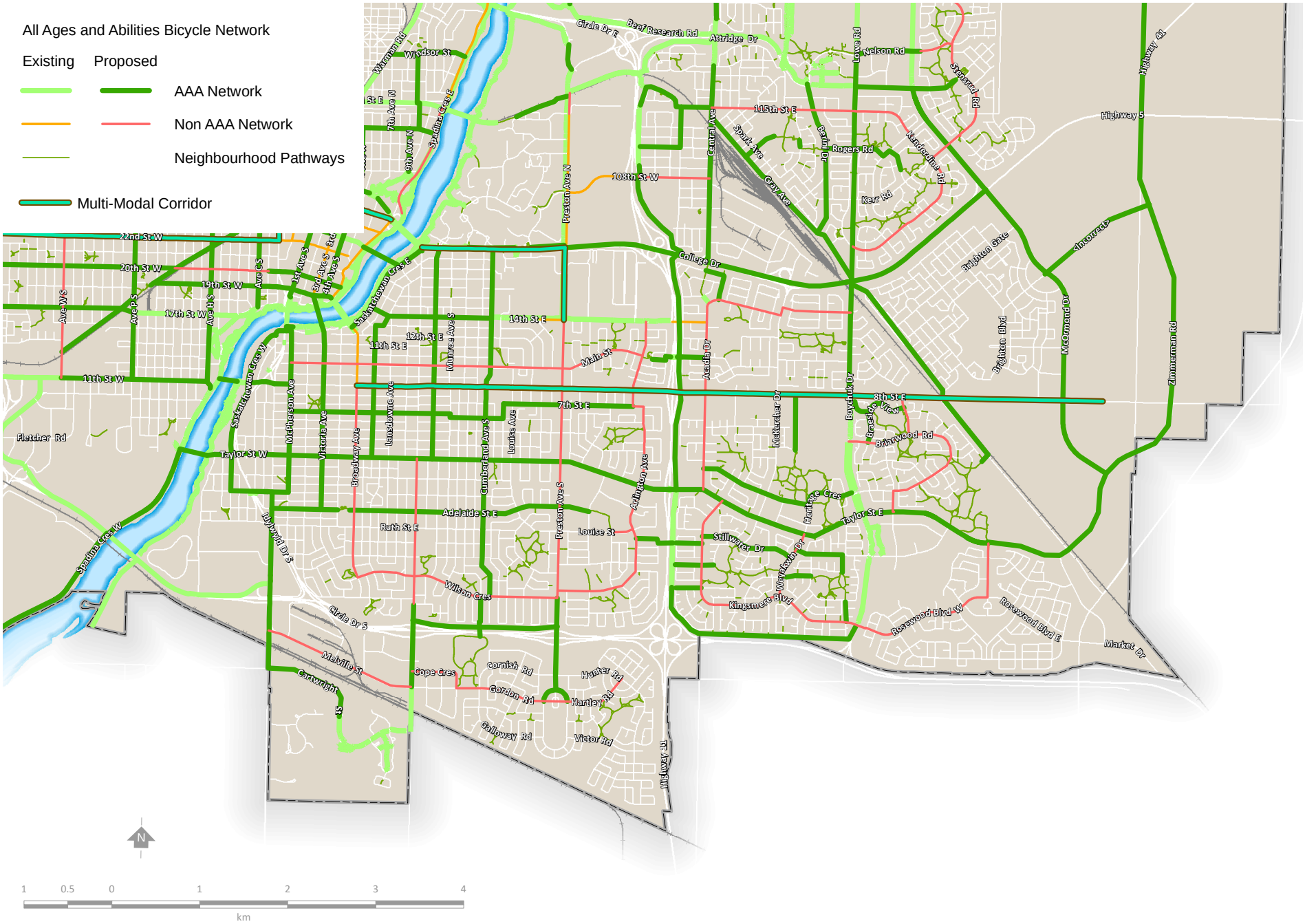

Figure 5 - Existing and Proposed AAA Bicycle Network: Southeast

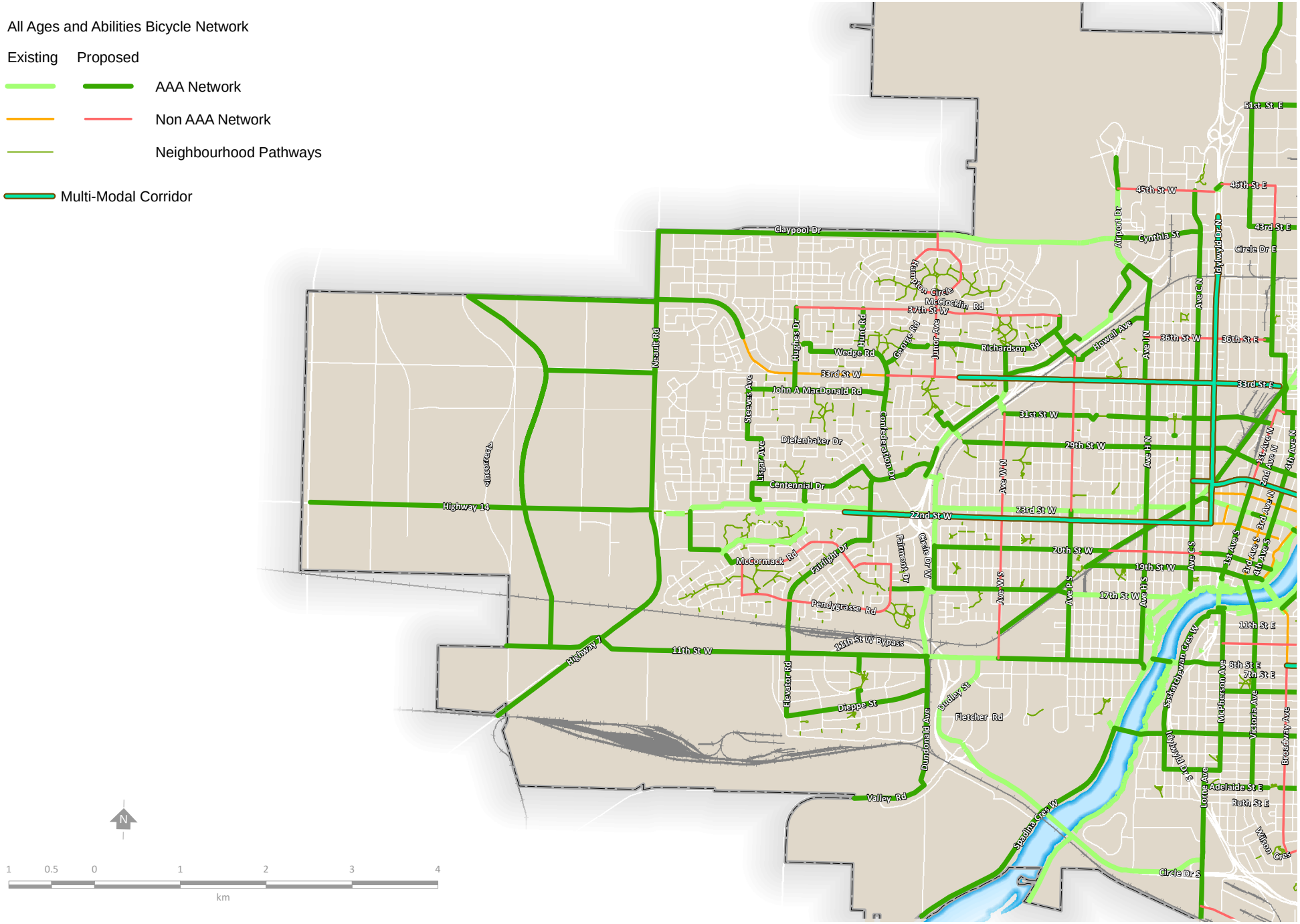

Figure 6 - Existing and Proposed AAA Bicycle Network: Northeast

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APPENDIX B: CROSSINGS

Crossings

Under the theme of Connectivity, Direction 1C – Address Physical Barriers includes actions that address barriers to safe and convenient use of active transportation, including interchanges and railway corridors, portions of highways and major roads, limited or inconvenient access to existing bridges; and limited river crossings. In particular, two actions focus on enhancing existing crossings and proposing new crossings to facilitate safe and convenient use of active transportation.

Corresponding to the action to improve walking and cycling access to existing bridges, underpasses and overpasses (Action 1C.1), **Figure 7** identifies the locations of existing bridges, underpasses and overpasses throughout Saskatoon. Upgrades are recommended at some of these existing crossings to address a range of issues, including a lack of accessible infrastructure, personal safety concerns, inadequate space or protection for people walking, cycling or using other forms of active transportation and uneven or cracked pavement surfaces. These issues were identified through the engagement process and through technical observation during the development of the ATP.

Table 1 summarizes the location of the existing crossing, the type of barrier it crosses, the existing structure type and whether an access upgrade is recommended. At locations where an assess upgrade is recommended, the City should review each location in more detail to access the feasibility of the upgrade, it's priority over the next 30 to 40 years and the design of the access upgrade required for addressing the identified issue.

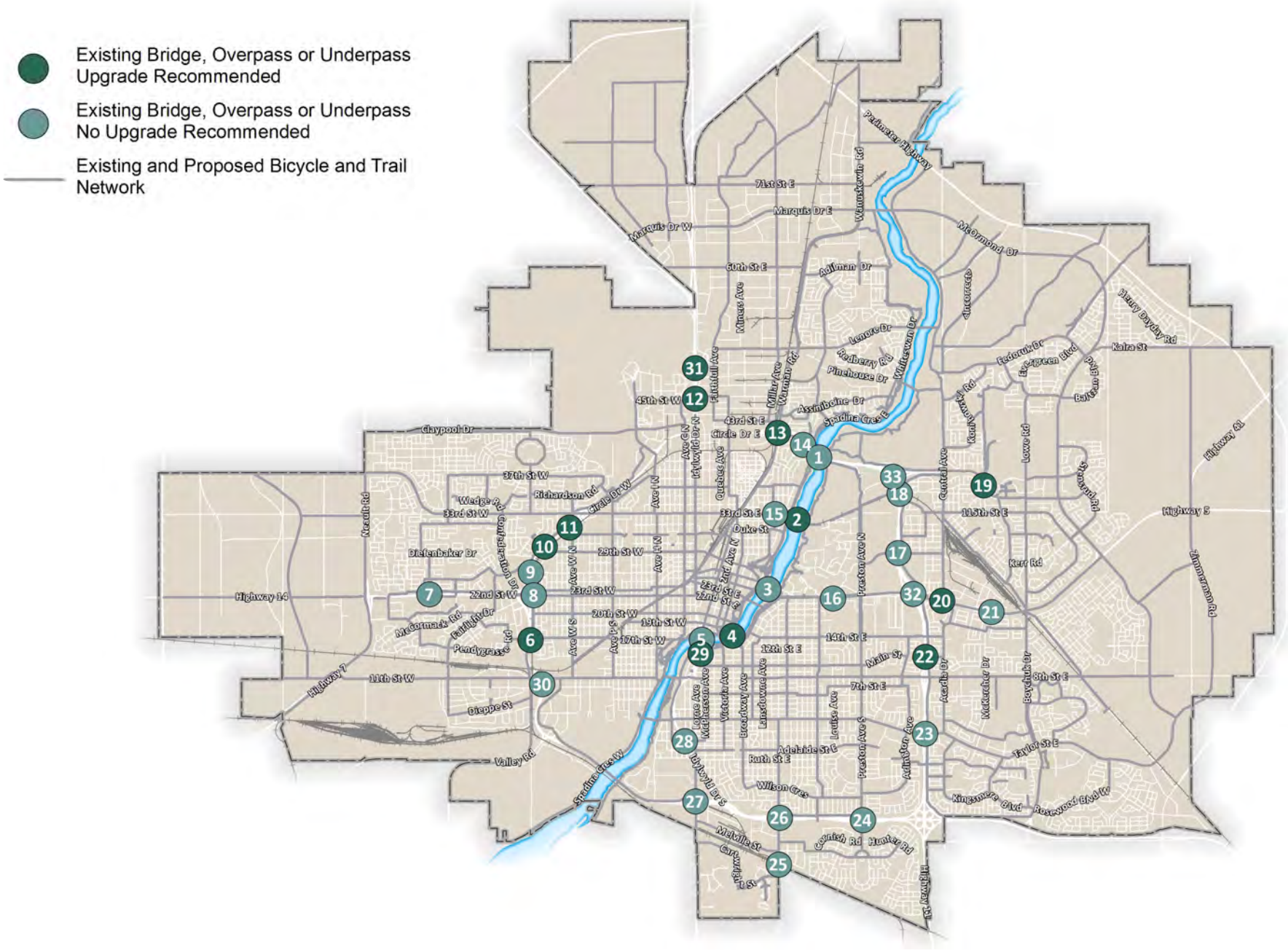

Figure 7 - Existing Bridges, Overpasses and Underpasses for Active Transportation

NO.	CROSSING LOCATIONS	BARRIER TYPE (ROAD/ RIVER/RAIL)	EXISTING STRUCTURE TYPE	ACCESS UPGRADE RECOMMENDED*	IDENTIFIED ISSUE
1	Circle Drive Bridge	River	Bridge (Multi-modal)	**No**	-
2	CPR Bridge	River	CPR Bridge	**Yes**	Accessibility
3	University Bridge	River	Bridge (Multi-modal)	**No**	-
4	Broadway Bridge	River	Bridge (Multi-modal)	**Yes**	Access from on-street facility
5	Senator Sid Buckwold Bridge	River	Bridge (Multi-modal)	**No**	
6	Clancy Drive & 18th Street	Road – Circle Drive	Underpass	**Yes**	Access from on-street facility
7	Shaw Centre & Dickey Crescent	Road – 22nd Street	Overpass	**No**	-
8	East of Circle Drive & 22nd Street	Road – 22nd Street	Overpass	**No**	-
9	Confederation Mall & Vancouver Avenue	Road – Circle Drive	Underpass	**No**	-
10	29th Street & back lane (near Mackie Crescent)	Road – Circle Drive	Underpass	**Yes**	Accessibility – back lane access
11	Edmonton Avenue & Avenue W	Road – Circle Drive	Underpass	**Yes**	Pavement quality
12	Cynthia Street & Northridge Drive	Road – Idylwyld Drive N	Overpass	**Yes**	Accessibility
13	Warman Road	Road – Circle Drive	Overpass (Multi-modal)	**No**	-
14	Rupert Drive & Pembina Place	Road – Circle Drive	Overpass	**No**	-
15	33rd Street & 10th Avenue	Rail	Underpass	**No**	-
16	University of Saskatchewan - Campus Drive & Stadium Crescent	Road – College Drive	Overpass	**No**	-
17	108th Street	Road – Circle Drive	Overpass	**No**	-
18	Adolph Crescent & Preston Crossing	Road – Circle Drive	Overpass	**No**	-
19	Rossmo Road & Forestry Farm Park Drive	Road - Attridge Drive	Underpass	**Yes**	Pavement quality
20	Central Avenue & Carleton Drive	Road – College Drive	Overpass	**Yes**	Accessibility

NO.	CROSSING LOCATIONS	BARRIER TYPE (ROAD/ RIVER/RAIL)	EXISTING STRUCTURE TYPE	ACCESS UPGRADE RECOMMENDED*	IDENTIFIED ISSUE
21	McKercher Drive	Road – College Drive	Overpass (Multi-modal)	**No**	-
22	Lindsay Drive & Harrington Street	Road – Circle Drive	Underpass	**Yes**	Personal Safety/ CPTED
23	Taylor Street	Road – Circle Drive	Overpass(Multi-modal)	**No**	-
24	Preston Avenue	Road – Circle Drive	Overpass(Multi-modal)	**No**	-
25	Clarence Avenue Rail Crossing	Rail	Overpass(Multi-modal)	**No**	-
26	Clarence Avenue & Circle Drive	Road - Circle Drive	Overpass (Multi-modal)	**No**	-
27	Chief Whitecap Trail & Lorne Avenue	Road – Circle Drive	Overpass(Multi-modal)	**No**	-
28	Hilliard Street & St Patrick Avenue	Road – Idylwyld Drive	Overpass	**No**	-
29	11th Street East	Road – Idylwyld Drive	Underpass	**Yes**	Personal Safety/ CPTED
30	11th Street West	Road – Circle Drive	Overpass(Multi-modal)	**No**	-
31	Avenue C North	Road – Louis Riel Trail	Overpass(Multi-modal)	**Yes**	No access for active transportation users
32	Attridge Drive	Road – Yellowhead Highway	Overpass(Multi-modal)	**No**	**
33	108 Street **	Road – Yellowhead Highway	Overpass(Multi-modal)	**No**	-

*Table 1 - Existing Bridges, Overpasses and Underpasses for Active Transportation and Recommended Access Upgrades**

* Recommended Access Upgrades involves improving access on existing routes for active transportation users, including providing additional pavement markings at crossings to make it clear to all road users how to access crossings and making sure accesses all crossings are universally accessible. In some cases, this will require some additional studies to address feasibility as well as appropriate design and facility considerations for each crossing requiring access upgrades.

** No existing active transportation facilities but they are not recommended at this time due to existing land use and the location of a nearby crossing (#18)

Corresponding to Action 1C.2 to provide safer, convenient walking and cycling access on new bridges, underpasses and overpasses, new crossings can improve connectivity throughout the city for active transportation users. As the City implements the ATP with new facilities and infrastructure over the long–term, it may become necessary to provide new active transportation crossings. Additional dedicated active transportation crossings will enhance network connectivity, help to reduce travel times, provide dedicated AAA crossings over barriers, address demand and demonstrate the City's commitment to active transportation.

These crossings will be part of the long-term network and will require significant financial investment. Further review and study for feasibility, appropriate location and design will be required. Public consultation with the public and stakeholders should also take place as part of the review process. New crossings should be prioritized based on land use patterns, demand, network connectivity and opportunities to integrate with other major projects, such as the proposed Northern Active Transportation Crossing Option 1.

Should travel volumes and feedback indicate that the facilities on existing bridges are not accommodating the demand for active transportation users travelling to and from downtown, the City would then want to consider moving forward with the proposed City Centre active transportation crossing (#5), as seen in the table and the map below. **Figure 8** and **Table 2** identifies new active transportation crossings based on structure type. Four types were identified including:

- **Dedicated Active Transportation Crossings** are new river crossings dedicated to active transportation users. In total, three potential active transportation crossings are identified. Two location options are identified between Circle Drive North Bridge and the future North Commuter Parkway bridge, one downtown crossing is identified and two location options between the Traffic Bridge and Circle Drive South Bridge are identified. It is important to note that two location options identified for the north and south does not imply that both options would be needed within the ATP's time frame.
- **Multi-Modal Crossing** are new river crossings that have been approved by City Council. The City should ensure active transportation infrastructure is provided on these facilities and consideration is given for active transportation access to surrounding areas. For example, new infrastructure should be designed to facilitate easy transitions from on-street bicycle facilities to multi-use pathway on the crossing structure. Three multi-modal crossings have been identified.
- **Overpasses and Underpasses** are generally recommended over existing road and rail infrastructure. They would be dedicated active transportation facilities. New overpasses and underpasses should be designed with CPTED considerations, be accessible for all users and be well integrated into the existing and proposed active transportation network. Six overpass and underpass locations have been identified through discussions with residents and stakeholders and technical analysis of network connectivity and right of way opportunities.
- **Future Grade Separation Investments** are crossings previously approved by City Council as part of the Conceptual Road Network. The City should ensure active transportation infrastructure is provided on these facilities and consideration is given for active transportation access from to surrounding areas. These crossings will serve as important regional connections and to new neighbourhoods and should therefore provide safe and adequate access for all users. 22 future grade separation investments have been identified on the map and table below, many of which are interchanges, though there are a few rail crossing locations.

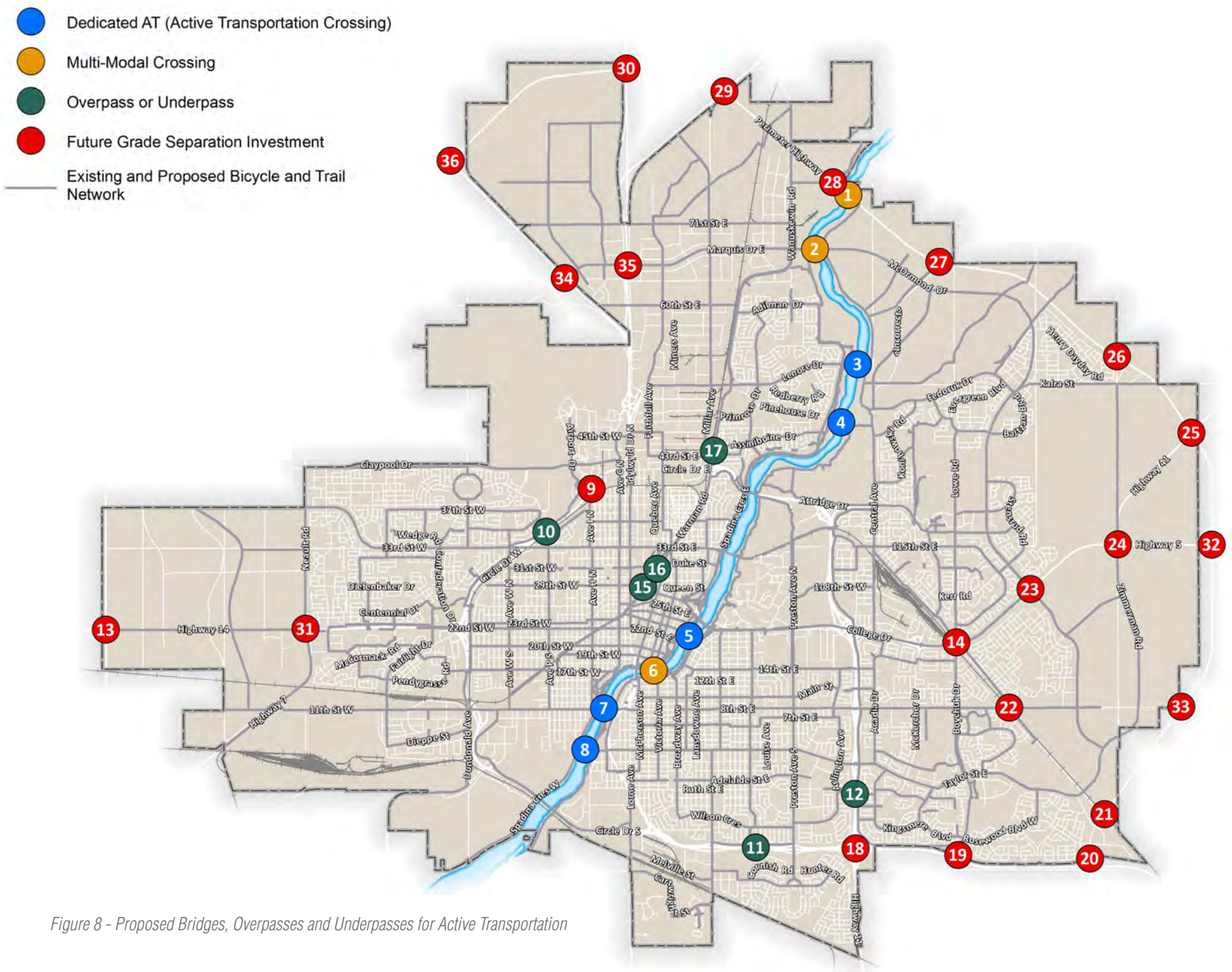

Figure 8 - Proposed Bridges, Overpasses and Underpasses for Active Transportation

NO.	CROSSING LOCATIONS	BARRIER TYPE (ROAD/ RIVER/RAIL)	PROPOSED STRUCTURE TYPE	PREVIOUSLY APPROVED PROJECT?
1	Future Saskatoon Freeway	River	Multi-Modal Crossing (Bridge)	**Yes**
2	Future North Commuter Parkway	River	Multi-Modal Crossing (Bridge)	**Yes**
3	North Active Transportation Crossing Option 1 – Lenore Drive*	River	Dedicated AT Crossings	**No**
4	North Active Transportation Crossing Option 2 – Assiniboine Drive**	River	Dedicated AT Crossings	**No**
5	City Centre Active Transportation Crossing**	River	Dedicated AT Crossings	**No**
6	Traffic Bridge Replacement	River	Multi-Modal Crossing (Bridge)	**Yes**
7	South Active Transportation Crossing Option 1 – 11 Street***	River	Dedicated AT Crossings	**No**
8	South Active Transportation Crossing Option 2 – Ruth Street ***	River	Dedicated AT Crossings	**No**
9	Avenue I to Airport Drive	Road – Circle Drive	Future Grade Separation Investment	**Yes**
10	Avenue P to Glenwood Avenue	Road – Circle Drive	Overpass or Underpass	**No**
11	Brown Crescent to Peter Zakreski Regional Park	Road – Circle Drive	Overpass or Underpass	**No**
12	East Heights crossing Circle Drive	Road – Circle Drive	Overpass or Underpass	**No**
13	Highway 14 and Perimeter Highway	Road – Perimeter Hwy	Future Grade Separation Investment	**Yes**
14	Moncton Place to Kenderdine Road	Rail	Future Grade Separation Investment	**Yes**
15	North Downtown Option 1****	Rail	Overpass or Underpass	**No**
16	North Downtown Option 2****	Rail	Overpass or Underpass	**No**
17	Assiniboine Drive to Millar Road	Road – Warman Road & Rail	Overpass or Underpass	**No**
18	Circle Drive and Highway 16	Road – Circle Drive	Future Grade Separation Investment	**Yes**
19	Boychuk Drive and Highway 16	Road – Highway 16	Future Grade Separation Investment	**Yes**
20	Highway 16 and Zimmerman Road	Road – Highway 16	Future Grade Separation Investment	**Yes**
21	Zimmerman Road Overpass of CP Railway	Rail	Future Grade Separation Investment	**Yes**

NO.	CROSSING LOCATIONS	BARRIER TYPE (ROAD/ RIVER/RAIL)	PROPOSED STRUCTURE TYPE	PREVIOUSLY APPROVED PROJECT?
22	8th Street Overpass of CP Railway	Rail	Future Grade Separation Investment	**Yes**
23	McOrmond Drive and College Drive	Road – College Drive	Future Grade Separation Investment	**Yes**
24	College Drive and Highway 41	Road – College Drive	Future Grade Separation Investment	**Yes**
25	Highway 41 and Perimeter Highway	Road – Perimeter Hwy	Future Grade Separation Investment	**Yes**
26	Arterial and Perimeter Highway	Road – Perimeter Hwy	Future Grade Separation Investment	**Yes**
27	Arterial and Perimeter Highway	Road – Perimeter Hwy	Future Grade Separation Investment	**Yes**
28	Arterial and Perimeter Highway	Road – Perimeter Hwy	Future Grade Separation Investment	**Yes**
29	Highway 11 and Perimeter Highway	Road – Perimeter Hwy	Future Grade Separation Investment	**Yes**
30	Highway 12 and Perimeter Highway	Road – Perimeter Hwy	Future Grade Separation Investment	**Yes**
31	Highway 14 and Neault Road	Road – Highway 14	Future Grade Separation Investment	**Yes**
32	Highway 5 and Perimeter Highway	Road – Highway 14	Future Grade Separation Investment	**Yes**
33	8th Street and Perimeter Highway	Road – Perimeter Hwy	Future Grade Separation Investment	**Yes**
34	Marquis Drive and Highway 16	Road – Highway 16	Future Grade Separation Investment	**Yes**
35	Marquis Drive and Highway 11	Road – Highway 11	Future Grade Separation Investment	**Yes**
36	Highway 16 and Perimeter Highway	Road – Perimeter Hwy	Future Grade Separation Investment	**Yes**

Table 2 - Recommended new crossings

* Part of proposed sanitary river crossing at this location.
** Specific location to be determined.
*** Further technical study is needed to determine a feasible and optimal location, if any, for a dedicated active transportation crossing between Circle Drive South Bridge and the Senator Sid Buckwold Bridge.
**** These recommended crossings are part of the North Downtown Master Plan.

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APPENDIX C: PRIORITIZING ACTION

THEME: CONNECTIVITY Recommendations under Connectivity are aimed at establishing a complete, connected and convenient network of active transportation facilities throughout Saskatoon.	TIMEFRAME			METHOD OF IMPLEMENTATION			RESPONSIBILITY		GOALS[1] ADDRESSED
	Short (0 - 5 years)	Medium (5 - 10 years)	Long (10+ years)	Capital	Operations & Maintenance	Policy & Programming	Primary	Secondary	
STRATEGY 1A: EXPAND AND ENHANCE THE SIDEWALK NETWORK									
Action 1A.1: Update sidewalk requirements for new developments.	✓					✓	TRANSPORTATION	PLANNING & DEVELOPMENT	1 / 2 / 3
Action 1A.2: Eliminate gaps in the sidewalk network on major roads.	ONGOING			✓			TRANSPORTATION		1 / 2 / 3
Action 1A.3: Improve the City's sidewalk infill program to address gaps in the sidewalk network on local roads.	✓					✓	TRANSPORTATION	PLANNING & DEVELOPMENT	1 / 2 / 3
Action 1A.4: Develop a sidewalk improvement program to widen sidewalks that do not meet minimum standards or in areas of current or future high pedestrian activity.		✓				✓	TRANSPORTATION	PLANNING & DEVELOPMENT	1 / 2 / 3
Action 1A.5: Seek opportunities to implement new sidewalks in conjunction with other projects, plans or developments.	ONGOING			✓			TRANSPORTATION	PLANNING & DEVELOPMENT	1 / 2 / 3
STRATEGY 1B: EXPAND AND ENHANCE THE BICYCLE NETWORK									
Action 1B.1: Develop a complete and connected bicycle network for all ages and abilities throughout Saskatoon.	ONGOING			✓		✓	TRANSPORTATION		1 / 2 / 3
Action 1B.2: Develop a downtown network of all ages and abilities bicycle facilities.	✓	✓		✓			TRANSPORTATION		1 / 2 / 3
Action 1B.3: Support regional connections to surrounding communities.		✓	✓	✓			MEEWASIN & TRANSPORTATION	PLANNING & DEVELOPMENT ADJACENT MUNICIPALITIES	1 / 2 / 3
Action 1B.4: Develop and adopt bicycle facility design guidelines.	✓					✓	TRANSPORTATION	PLANNING & DEVELOPMENT	2 / 3
Action 1B.5: Update bicycle facility requirements for new developments.	✓					✓	TRANSPORTATION		2 / 3
Action 1B.6: Ensure that all new and upgraded roads have bicycle facilities.	ONGOING			✓		✓	TRANSPORTATION	PLANNING & DEVELOPMENT	1 / 2 / 3
STRATEGY 1C: ADDRESS PHYSICAL BARRIERS									
Action: IC.1: Improve walking and cycling access to existing bridges, underpasses and overpasses.		✓		✓	✓		TRANSPORTATION		1 / 2 / 3

THEME: CONNECTIVITY Recommendations under Connectivity are aimed at establishing a complete, connected and convenient network of active transportation facilities throughout Saskatoon.	TIMEFRAME			METHOD OF IMPLEMENTATION			RESPONSIBILITY		GOALS[1] ADDRESSED
	Short (0 - 5 years)	Medium (5 - 10 years)	Long (10+ years)	Capital	Operations & Maintenance	Policy & Programming	Primary	Secondary	
Action 1C.2: Provide safer, convenient walking and cycling access on new bridges, underpasses and overpasses.	ONGOING			✓	✓		TRANSPORTATION	PLANNING & DEVELOPMENT	1 / 2 / 3
Action 1C.3: Update the City of Saskatoon's Traffic Control at Pedestrian Crossings Policy and provide enhanced pedestrian crossing locations as warranted based on the revised policy.	ONGOING			✓	✓	✓	TRANSPORTATION		1 / 2
Action 1C.4: Provide enhanced crossings at pedestrian priority intersections, such as those serving high frequency transit.	ONGOING			✓	✓	✓	TRANSPORTATION	SASKATOON TRANSIT	1 / 2
Action 1C.5: Provide enhanced bicycle crossings where bicycle facilities intersect with arterial streets.	ONGOING			✓	✓	✓	TRANSPORTATION		1 / 2
Action 1C.6: Install enhanced bicycle signal crossings on bicycle routes at existing signals.	ONGOING			✓	✓		TRANSPORTATION		1 / 2
STRATEGY 1D: IMPROVE THE MEEWASIN TRAIL AND OTHER PATHWAYS									
Action 1D.1: Support implementation of the recommendations in the Meewasin Trail Study.	ONGOING			✓			PLANNING & DEVELOPMENT	PARKS	1 / 2 / 3
Action 1D.2: Utilize existing utility and rail rights-of-way and surplus road right-of-way as a means to provide pathways for all active transportation users.	ONGOING			✓	✓		PLANNING & DEVELOPMENT	TRANSPORTATION	1 / 3
Action 1D.3: Preserve and enhance walkways and short cuts through neighbourhoods.	ONGOING			✓	✓	✓	PLANNING & DEVELOPMENT	TRANSPORTATION	1 / 3
STRATEGY 1E: ENHANCE OPPORTUNITIES FOR OTHER FORMS OF ACTIVE TRANSPORTATION									
Action 1E.1: Explore opportunities to encourage snow-based active transportation.	ONGOING			✓	✓	✓	PLANNING & DEVELOPMENT	PARKS	4 / 5
Action 1E.2: Explore opportunities to encourage water-based active transportation.	ONGOING			✓	✓	✓	PLANNING & DEVELOPMENT	PARKS	4 / 5
Action 1E.3: Explore opportunities to encourage other types of active transportation such as skateboards, inline skates, scooters and electric bicycles.	ONGOING			✓	✓	✓	PLANNING & DEVELOPMENT	PARKS	4 / 5

Table 4 - Connectivity Recommendations

[1]Goal 1: More walking and cycling
Goal 2: Safer walking and cycling
Goal 3: More places for walking and cycling
Goal 4: Build a culture for active transportation
Goal 5: Encourage other forms of active transportation

THEME: SAFETY & SECURITY Personal safety concerns, arising from insufficient lighting, visibility or poor design, can also deter people from using active transportation.	TIMEFRAME			METHOD OF IMPLEMENTATION			RESPONSIBILITY		GOALS[2] ADDRESSED
	Short (0 - 5 years)	Medium (5 - 10 years)	Long (10+ years)	Capital	Operations & Maintenance	Policy & Programming	Primary	Secondary	
STRATEGY 2A: IMPROVE ROAD SAFETY									
Action 2A.1: Conduct separate pedestrian and cycling safety studies to understand and monitor collisions involving vulnerable road users.	✓					✓	TRANSPORTATION	PLANNING & DEVELOPMENT SGI SASKATOON POLICE SERVICE SASKATOON HEALTH REGION U OF S	1 / 2
Action 2A.2: Conduct road safety audits and corridor studies on streets that have been identified with safety concerns.		✓				✓	TRANSPORTATION	SGI	1 / 2
Action 2A.3: Monitor hot spot collision locations and identify safety mitigation measures.	✓	✓				✓	TRANSPORTATION	SGI SASKATOON POLICE SERVICE	1 / 2
Action 2A.4: Reduce conflicts on multi-use pathways between people using different forms of active transportation and locations where pathways intersect with the street network.	ONGOING			✓	✓	✓	TRANSPORTATION	MEEWASIN	1 / 2
Action 2A.5: Collaborate with researchers and programs that are working to improve safety for people participating in active transportation.	ONGOING					✓	ENVIRONMENTAL & CORPORATE INITIATIVES	U OF S SASKATOON HEALTH REGION SGI	1 / 2
Action 2A.6: Explore the feasibility of reducing speed limits on local roads.		✓				✓	TRANSPORTATION		1 / 2 / 4
STRATEGY 2B: IMPROVE PERSONAL SAFETY									
Action 2B.1: Provide lighting along sidewalks, bicycle routes and pathways where appropriate.		✓	✓	✓			TRANSPORTATION MEEWASIN	SASKATOON LIGHT AND POWER CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN (CPTED) REVIEW COMMITTEE	1 / 2 / 3
Action 2B.2: Follow the standards of CPTED to ensure principles are followed in active transportation facility design.	ONGOING			✓	✓	✓	TRANSPORTATION	PLANNING & DEVELOPMENT CPTED	1 / 2 / 3
Action 2B.3: Continue to address personal safety concerns on existing underpasses with lighting improvements and/or design enhancements.		✓		✓	✓	✓	TRANSPORTATION	PLANNING & DEVELOPMENT CPTED	1 / 2 / 3

Table 6 - Safety and Security Recommendations

THEME: CONVENIENCE Recommendations under Convenience focus on integrating transit, walking and cycling, and providing amenities to make walking, cycling and other forms of active transportation more practical and convenient.	TIMEFRAME			METHOD OF IMPLEMENTATION			RESPONSIBILITY		GOALS[3] ADDRESSED
	Short (0 - 5 years)	Medium (5 - 10 years)	Long (10+ years)	Capital	Operations & Maintenance	Policy & Programming	Primary	Secondary	
STRATEGY 3A: PROVIDE BICYCLE PARKING AND END-OF-TRIP FACILITIES									
Action 3A.1: Develop requirements for short-term and long-term bicycle parking and other end-of-trip facilities for new developments.	✓					✓	PLANNING & DEVELOPMENT		1 / 3 / 4
Action 3A.2: Demonstrate leadership and ensure adequate bicycle parking is provided at all City of Saskatoon owned and operated facilities.	✓			✓	✓		FACILITIES & FLEET MANAGEMENT	PLANNING & DEVELOPMENT	1 / 3 / 4
Action 3A.3: Continue to work with business improvement districts and other partners to implement short-term bicycle parking and other end-of-trip facilities within public space.	✓	✓		✓		✓	PLANNING & DEVELOPMENT BUSINESS IMPROVEMENT DISTRICTS OTHER BUSINESS PARTNERS/ ASSOCIATIONS		1 / 3 / 4
Action 3A.4: Develop a program to support businesses in existing developments to provide long-term bicycle parking and other amenities.		✓				✓	PLANNING & DEVELOPMENT BUSINESSES AND ASSOCIATIONS OTHER BUSINESS PARTNERS/ ASSOCIATIONS		1 / 3 / 4
Action 3A.5: Work with business improvement districts and other partners to develop an on-street bicycle corral program.	✓			✓		✓	PLANNING & DEVELOPMENT BUSINESS IMPROVEMENT DISTRICTS	PARKING SERVICES	1 / 3 / 4
Action 3A.6: Work with event coordinators and partners to provide temporary bicycle parking to serve corporate-sponsored and large community events.	ONGOING					✓	SASKATOON CYCLES	RECREATION & COMMUNITY DEVELOPMENT	1 / 3 / 4
Action 3A.7: Implement bicycle repair and maintenance stations at key locations throughout the city.	✓	✓		✓		✓	PLANNING & DEVELOPMENT		1 / 3 / 4

[3] Goal 1: More walking and cycling
Goal 2: Safer walking and cycling
Goal 3: More places for walking and cycling
Goal 4: Build a culture for active transportation
Goal 5: Encourage other forms of active transportation

THEME: CONVENIENCE Recommendations under Convenience focus on integrating transit, walking and cycling, and providing amenities to make walking, cycling and other forms of active transportation more practical and convenient.	TIMEFRAME			METHOD OF IMPLEMENTATION			RESPONSIBILITY		GOALS[3] ADDRESSED
	Short (0 - 5 years)	Medium (5 - 10 years)	Long (10+ years)	Capital	Operations & Maintenance	Policy & Programming	Primary	Secondary	
STRATEGY 3B: IMPROVE CONNECTIONS TO TRANSIT									
Action 3B.1: Provide bicycle racks on all buses throughout the year.	✓			✓	✓		SASKATOON TRANSIT	PLANNING & DEVELOPMENT	1 / 4
Action 3B.2: Provide bicycle parking at high use bus stops and transit terminals.		✓	✓	✓			SASKATOON TRANSIT	PLANNING & DEVELOPMENT	1 / 3 / 4
Action 3B.3: Improve the customer experience with bus stop improvements, including benches, shelters and information consistent with the transit recommendations in the *Growth Plan*.	ONGOING					✓	SASKATOON TRANSIT	PLANNING & DEVELOPMENT	1 / 3 / 4
Action 3B.4: Continue to work towards a universally accessible transit system, including ensuring that bus stops have sidewalks and are accessible year-round.	✓	✓		✓		✓	SASKATOON TRANSIT	PLANNING & DEVELOPMENT TRANSPORTATION	1 / 3
Action 3B.5: Ensure all new developments have walking and cycling connections to transit.	ONGOING					✓	PLANNING & DEVELOPMENT		1 / 3
Action 3B.6: Conduct a bike share feasibility study.			✓			✓	TOURISM SASKATOON	PLANNING & DEVELOPMENT	1 / 3 / 4

Table 8 - Convenience Recommendations

[3]Goal 1: More walking and cycling
Goal 2: Safer walking and cycling
Goal 3: More places for walking and cycling
Goal 4: Build a culture for active transportation
Goal 5: Encourage other forms of active transportation

THEME: LAND USE & GROWTH Recommendations under Land Use and Growth are aimed at creating land-use and development patterns that support moving around using active transportation.	TIMEFRAME			METHOD OF IMPLEMENTATION			RESPONSIBILITY		GOALS[4] ADDRESSED
	Short (0 - 5 years)	Medium (5 - 10 years)	Long (10+ years)	Capital	Operations & Maintenance	Policy & Programming	Primary	Secondary	
STRATEGY 4A: ENHANCE STREETSCAPES AND THE PUBLIC REALM									
Action 4A.1: Continue to work with business improvement districts and other business associations along growth and future BRT corridors to support public amenities.	ONGOING					✓	PLANNING & DEVELOPMENT BUSINESS IMPROVEMENT DISTRICTS		1 / 3 / 4
Action 4A.2: Ensure the active transportation network is prioritized to provide access to major employment areas.	ONGOING			✓		✓	TRANSPORTATION PLANNING & DEVELOPMENT	BUSINESS IMPROVEMENT DISTRICTS	1 / 3 / 4
STRATEGY 4B: ENHANCE NEW NEIGHBOURHOOD CONNECTIONS									
Action 4B.1: Ensure new suburban areas, neighbourhoods and employment areas are integrated with the existing and planned active transportation network connecting to other neighbourhoods and destinations.	ONGOING					✓	TRANSPORTATION PLANNING & DEVELOPMENT	PRIVATE DEVELOPER	1 / 3
Action 4B.2: Ensure new neighbourhoods and growth in new suburban areas have pedestrian and cycling facilities within the development.	ONGOING					✓	TRANSPORTATION PLANNING & DEVELOPMENT	PRIVATE DEVELOPER	1 / 3
Action 4B.3: Consider complete street designs in development of new neighbourhoods, employment areas and for major infill projects.	ONGOING					✓	TRANSPORTATION PLANNING & DEVELOPMENT	PRIVATE DEVELOPER	1 / 3
Action 4B.4: Require new neighbourhoods are designed with a mix of land uses to ensure destinations such as community centres, grocery stores, parks and schools are within walking distance.	ONGOING					✓	TRANSPORTATION PLANNING & DEVELOPMENT	PRIVATE DEVELOPER	1 / 3
STRATEGY 4C: SUPPORT INFILL DEVELOPMENT CONSIDERATIONS									
Action 4C.1: Support higher density, mixed use infill development that promotes and encourages active transportation.	ONGOING					✓	PLANNING & DEVELOPMENT		1 / 3
Action 4C.2: Ensure all forms of infill development enhance connectivity for active transportation.	ONGOING					✓	PLANNING & DEVELOPMENT		1 / 3
Action 4C.3: Enhance guidelines and standards for infill development to incorporate active transportation projects.	✓					✓	PLANNING & DEVELOPMENT	TRANSPORTATION	1 / 3

Table 9 - Land Use and Growth Recommendations

[4] Goal 1: More walking and cycling
Goal 2: Safer walking and cycling
Goal 3: More places for walking and cycling
Goal 4: Build a culture for active transportation
Goal 5: Encourage other forms of active transportation

THEME: MAINTENANCE & ACCESSIBILITY To support and encourage active transportation, winter cities like Saskatoon need effective strategies for maintaining sidewalks, trails and bicycle infrastructure year-round. Infrastructure should be universally accessible by all, including seniors, children and people with limited mobility.	TIMEFRAME			METHOD OF IMPLEMENTATION			RESPONSIBILITY		GOALS[5] ADDRESSED
	Short (0 - 5 years)	Medium (5 - 10 years)	Long (10+ years)	Capital	Operations & Maintenance	Policy & Programming	Primary	Secondary	
STRATEGY 5A: MAINTAIN THE SIDEWALK NETWORK									
Action 5A.1: Review and update current sidewalk snow removal requirements.	✓					✓	PUBLIC WORKS	TRANSPORTATION	1 / 2 / 3
Action 5A.2: Regularly inspect sidewalks and pathways to ensure they are well-maintained, safe and accessible.	ONGOING				✓	✓	PUBLIC WORKS PARKS MEEWASIN	TRANSPORTATION	1 / 2 / 3
Action 5A.3: Continue to work with different City departments and other agencies to maintain pathways year-round	ONGOING				✓		TRANSPORTATION	PUBLIC WORKS	1 / 2 / 3
Action 5A.4: Ensure all transit stops are accessible, including those without sidewalks, particularly during winter months.	✓	✓		✓	✓	✓	PUBLIC WORKS	SASKATOON TRANSIT	1 / 2 / 3
Action 5A.5: Seek opportunities to expand the existing Snow Angel program to assist with sidewalk snow removal for people unable to do so.	✓					✓	TRANSPORTATION	PUBLIC WORKS	1 / 2 / 3
Action 5A.6: Ensure accessible detours are provided for pedestrians during construction and maintenance.	ONGOING				✓		TRANSPORTATION		1 / 2 / 3
STRATEGY 5B: MAINTAIN THE BICYCLE NETWORK									
Action 5B.1: Review and update current bicycle facility snow removal requirements.	✓					✓	PUBLIC WORKS	TRANSPORTATION	1 / 2 / 3
Action 5B.2: Review and update current operating procedures for snow removal and refine if warranted.	✓	✓				✓	PUBLIC WORKS	TRANSPORTATION	1 / 2 / 3
Action 5B.3: Ensure detours are provided for bicycle users during construction and maintenance activities.	ONGOING				✓	✓	PUBLIC WORKS		1 / 2 / 3
Action 5B.4: Designate and prioritize a winter cycling network for snow removal.		✓			✓	✓	PLANNING & DEVELOPMENT	PUBLIC WORKS	1 / 2 / 3
Action 5B.5: Design bicycle routes to facilitate snow removal, snow storage and drainage.	ONGOING			✓			TRANSPORTATION	PUBLIC WORKS	1 / 2 / 3

THEME: MAINTENANCE & ACCESSIBILITY To support and encourage active transportation, winter cities like Saskatoon need effective strategies for maintaining sidewalks, trails and bicycle infrastructure year-round. Infrastructure should be universally accessible by all, including seniors, children and people with limited mobility.	TIMEFRAME			METHOD OF IMPLEMENTATION			RESPONSIBILITY		GOALS[5] ADDRESSED
	Short (0 - 5 years)	Medium (5 - 10 years)	Long (10+ years)	Capital	Operations & Maintenance	Policy & Programming	Primary	Secondary	
STRATEGY 5C: PROVIDE ACCESSIBLE INFRASTRUCTURE									
Action 5C.1: Install accessible pedestrian signals all traffic signals.	✓	✓		✓			TRANSPORTATION		1 / 2 / 3
Action 5C.2: Provide accessible curb ramps with tactile features at intersection locations within the city.	✓	✓		✓			TRANSPORTATION		1 / 2 / 3
Action 5C.3: Install pedestrian countdown timers at warranted locations within the city.	✓	✓		✓			TRANSPORTATION		1 / 2 / 3
Action 5C.4: Ensure all bus stops within the city are accessible.		✓	✓	✓			SASKATOON TRANSIT	TRANSPORTATION	1 / 2 / 3
Action 5C.5: Monitor crossing time at intersections to ensure adequate time is provided for all pedestrians.	ONGOING				✓		TRANSPORTATION		1 / 2 / 3

Table 11 - Maintenance Recommendations

[5]Goal 1: More walking and cycling
Goal 2: Safer walking and cycling
Goal 3: More places for walking and cycling
Goal 4: Build a culture for active transportation
Goal 5: Encourage other forms of active transportation

THEME: EDUCATION & AWARENESS In addition to infrastructure and policy improvements, increasing awareness and educating residents about sharing the road and providing wayfinding and information can encourage more people to walk, bike and use other forms of active transportation more often and build a culture for active transportation.	TIMEFRAME			METHOD OF IMPLEMENTATION			RESPONSIBILITY		GOALS[6] ADDRESSED
	Short (0 - 5 years)	Medium (5 - 10 years)	Long (10+ years)	Capital	Operations & Maintenance	Policy & Programming	Primary	Secondary	
STRATEGY 6A: ENHANCE WAYFINDING, SIGNAGE AND TRIP PLANNING									
Action 6A.1: Regularly update the Cycling Guide.	ONGOING					✓	TRANSPORTATION	CORPORATE COMMUNICATIONS PLANNING & DEVELOPMENT	1 / 4
Action 6A.2: Work with interested community groups to develop neighbourhood-based walking and cycling maps and neighbourhood-level wayfinding.		✓	✓			✓	RECREATION & COMMUNITY DEVELOPMENT	PLANNING & DEVELOPMENT	1 / 4
Action 6A.3: Integrate bicycle and pedestrian network data and trip planning information into Saskatoon Transit's online trip planner and Google maps.		✓				✓	CIS GIS	SASKATOON TRANSIT	1 / 4
Action 6A.4: Develop pedestrian and cycling wayfinding guidelines to ensure a common and consistent city-wide wayfinding system.		✓				✓	PLANNING & DEVELOPMENT TRANSPORTATION	U OF S MEEWASIN	1 / 4
Action 6A.5: Work with business improvement districts to enhance pedestrian and cyclist wayfinding.		✓	✓			✓	TRANSPORTATION		1 / 4
STRATEGY 6B: IMPROVE EDUCATION AND AWARENESS									
Action 6B.1: Review and update the Bicycle Bylaw No. 6884 to ensure that it reflects best practice.	✓					✓	PLANNING & DEVELOPMENT TRANSPORTATION	COMMUNITY STANDARDS	1 / 2 / 4
Action 6B.2: Develop more videos and other tools to educate all road users on new bicycle infrastructure and how to share the road.	ONGOING					✓	PLANNING & DEVELOPMENT		1 / 4
Action 6B.3: Maintain support for the Active and Safe Routes to School programming to spread awareness among children, youth and parents on walking and cycling skills.	✓					✓	TRANSPORTATION	SASKATOON SCHOOL DISTRICTS SASKATOON HEALTH REGION	1 / 4
Action 6B.4: Support events and festivals that encourage walking and cycling.	ONGOING					✓	RECREATION & COMMUNITY DEVELOPMENT		1 / 4

[6]Goal 1: More walking and cycling
Goal 2: Safer walking and cycling
Goal 3: More places for walking and cycling
Goal 4: Build a culture for active transportation
Goal 5: Encourage other forms of active transportation

THEME: EDUCATION & AWARENESS In addition to infrastructure and policy improvements, increasing awareness and educating residents about sharing the road and providing wayfinding and information can encourage more people to walk, bike and use other forms of active transportation more often and build a culture for active transportation.	TIMEFRAME			METHOD OF IMPLEMENTATION			RESPONSIBILITY		GOALS[6] ADDRESSED
	Short (0 - 5 years)	Medium (5 - 10 years)	Long (10+ years)	Capital	Operations & Maintenance	Policy & Programming	Primary	Secondary	
Action 6B.5: Support the relationship between active transportation and tourism.	ONGOING					✓	RECREATION & COMMUNITY DEVELOPMENT	SASKATOON TOURISM	1 / 4
Action 6B.6: Continue to support the Learn to Ride Safe Program.	ONGOING					✓	SASKATOON SCHOOL DISTRICTS	PLANNING & DEVELOPMENT	1 / 4
Action 6B.7: Celebrate walking and bicycle facilities with grand openings and events throughout the year.	ONGOING					✓	PLANNING & DEVELOPMENT	RECREATION & COMMUNITY DEVELOPMENT	1 / 4
STRATEGY 6C: INCREASE MARKETING AND COMMUNICATIONS									
Action 6C.1: Consult with active transportation advisory group(s) on new projects, and monitoring and implementation of the ATP.	ONGOING					✓	PLANNING & DEVELOPMENT TRANSPORTATION		1 / 4
Action 6C.2: Continue to conduct targeted communication and engagement with vulnerable and under-represented groups to identify unique needs.	ONGOING					✓	PLANNING & DEVELOPMENT		1 / 4
Action 6C.3: Develop a recognizable visual identity and expand information on website.	✓					✓	CORPORATE COMMUNICATIONS	PLANNING & DEVELOPMENT TRANSPORTATION	1 / 4
Action 6C.4: Use city-wide campaigns to deliver positive messaging to promote walking and cycling.	ONGOING					✓	PLANNING & DEVELOPMENT	CORPORATE COMMUNICATIONS	1 / 4
Action 6C.5: Work with local businesses to encourage employee travel options.	ONGOING					✓	ENVIRONMENT & CORPORATE INITIATIVES		1 / 4

Table 13 - Education and Awareness Recommendations

[6]Goal 1: More walking and cycling
Goal 2: Safer walking and cycling
Goal 3: More places for walking and cycling
Goal 4: Build a culture for active transportation
Goal 5: Encourage other forms of active transportation

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APPENDIX D: DETAILED COST ESTIMATES

COST ESTIMATES FOR THE PROPOSED SIDEWALKS, BICYCLE AND TRAIL NETWORKS

Tables 14 and 15 provide the order of magnitude cost estimates presented in **Part 5** of the ATP Final Report. These cost estimates include the approximate distance of additional proposed active transportation facilities by facility type and an approximate unit cost.

COST ESTIMATES FOR NEW ACTIVE TRANSPORTATION RIVER CROSSINGS, OVERPASSES AND UNDERPASSES

In addition, cost estimates are provided for eight proposed new active transportation crossings in Saskatoon. Other new crossings presented in **Table 2** and **Figure 8** of **Appendix B** are not included as the active transportation facilities are part of larger capital projects. It is important to reiterate that these **cost estimates have been provided to identify the relative cost for planning purposes, but should not be used for budgeting purposes**.

PROPOSED FACILITY TYPE	APPROXIMATE KM	UNIT COST (PER KM)	APPROXIMATE COST
Proposed Protected Bicycle Lane	50	$ 875,000	$ 43,800,000
Proposed Protected Bicycle Lane (Off Road)	6	$ 600,000	$ 3,700,000
Proposed Bike Blvd	60	$ 125,000	$ 7,500,000
Proposed Bicycle Lane	77	$ 65,000	$ 5,000,000
Proposed Paved Multi-Use Pathway	166	$ 600,000	$ 100,000,000
TOTAL	359	-	$ 160,000,000

Table 14 - Proposed Bicycle and Multi-Use Pathway Network Cost Estimates by Proposed Facility Type

SIDEWALKS	APPROXIMATE METRES	UNIT COST (PER METRE)	APPROXIMATE COST
2 Sidewalks Required	34,000	$ 350	$ 11,900,000
1 Sidewalks Required	54,550	$ 350	$ 19,100,000
TOTAL	88,550	-	$ 31,000,000

Table 15 - Proposed Sidewalk Network Cost Estimates (Major Roads)

COST ESTIMATES FOR NEW ACTIVE TRANSPORTATION RIVER CROSSINGS, OVERPASSES AND UNDERPASSES

The following order of magnitude cost estimates have been provided based on suggested structure type and crossing distance as shown in **Table 16**.

CROSSING LOCATION	BARRIER TYPE	PROPOSED STRUCTURE TYPE	ESTIMATED COST
North Active Transportation River Crossing (Option 1)*	River	Dedicated AT Bridge	$ 8,000,000
City Centre Active Transportation River Crossing	River	Dedicated AT Bridge	$ 20,000,000
South Active Transportation River Crossing	River	Dedicated AT Bridge	$ 20,000,000
Avenue P to Glenwood Avenue	Road – Circle Drive	Overpass or Underpass	$ 2,250,000
East Heights crossing Circle Drive	Road – Circle Drive	Overpass or Underpass	$ 2,250,000
Brown Crescent to Peter Zakreski Regional Park	Road – Circle Drive	Overpass or Underpass	$ 2,250,000
North Downtown Rail Crossing (Options 1 and 2)	Rail	Overpass or Underpass	$ 2,250,000
Assiniboine Drive to Millar Road	Road – Warman Road & Rail	Overpass or Underpass	$ 2,000,000
TOTAL	-	-	**$ 59,000,000**

Table 16 - Proposed Crossing Location Cost Estimates

* If North Active Transportation River Crossing Option 1 does not get implemented as the preferred option, then North Active Transportation River Crossing Option 2 would cost approximately $20,000,000 as a stand-alone bridge. Option 1 is $8,000,000 as it is part of a sanitary river crossing proposed for this location.

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