

Saskatoon TRANSPORTATION MASTER PLAN



January 1, 2021





OBJECTIVES

SASKATOON TRANSPORTATION MASTER PLAN OBJECTIVES

Operating Procedures and Programs

To maintain and establish uniform, consistent, safe, and efficient operating procedures and programs for transportation facilities, infrastructure, and services that reflect our community's values.

Quality of Service

To operate and maintain a transportation network that supports the safe movement of people and goods throughout the city during all seasons of the year.

Transportation Network

To plan and design a hierarchy of streets for all modes of travel that support the movement of people of all ages and levels of mobility in all seasons of the year, while integrating the street environment with existing and future land uses.

Goods Movement

To recognize the important economic role of goods movement by providing a safe, efficient, and connected goods movement network within the city that is integrated with the regional highways network. The city street network provides an intermodal interface with the two national railway carriers and the airport.

Public Transportation

To provide reliable, accessible transit service that encourages more people to choose public transportation as their mode of choice in all seasons of the year.

Monitoring and Reporting

To provide a basis for effective strategic decision making by monitoring and reporting on the progress made toward achieving the relevant targets and strategies of the *Active Transportation Plan* and *Growth Plan to Half a Million*.



EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

The *Saskatoon Transportation Master Plan for the City of Saskatoon* is organized into three parts.

PART I: OUR CITY

Part I introduces the *Saskatoon Transportation Master Plan (STMP)* and outlines how it unites all existing transportation policies and plans from *Bylaw 9700*, *The Official Community Plan Bylaw, 2020*, the *Strategic Plan 2018-2021*, and *Growth Plan to Half a Million*. The purpose of the *STMP* is to guide the implementation of a transportation infrastructure plan, annual budgeting, program development, long-range financial planning, area and corridor transportation studies, and design and practice guidelines.

A summary list of the supporting strategies and objectives from *Bylaw 9700*, *The Official Community Plan Bylaw, 2020*, the *Strategic Plan 2018-2021*, and *Growth Plan to Half a Million* can be found in Table 1-1. These are used in Part II: Transportation Policies and Practices to show how the *STMP* is directly linked to these three guiding documents.

PART II: TRANSPORTATION POLICIES AND PRACTICES

Part II consists of the following components:

- Operating Procedures and Programs;
- Quality of Service;
- Transportation Network;
- Goods Movement; and
- Public Transportation.

Each component presents a high-level discussion of the City’s current practices, outlines future initiatives, and includes the necessary policies to ensure the City can support its future strategies and objectives.

PART III: STRATEGY

Part III presents a Prioritized Transportation Infrastructure Projects List (List), found in Appendix D. The seven criteria used to prioritize this List were derived from the *Strategic Plan 2018-2021* and are as follows:

1. Improves Equity;
2. Improves Accessibility;
3. Improves Safety;
4. Optimizes Traffic Flow;
5. Addresses Network Gaps;
6. Optimizes Parking; and
7. Facilitates Infill Development.

Also presented in this part is the City’s current and future monitoring and reporting practices. Table 8-1 outlines a summary of current targets.



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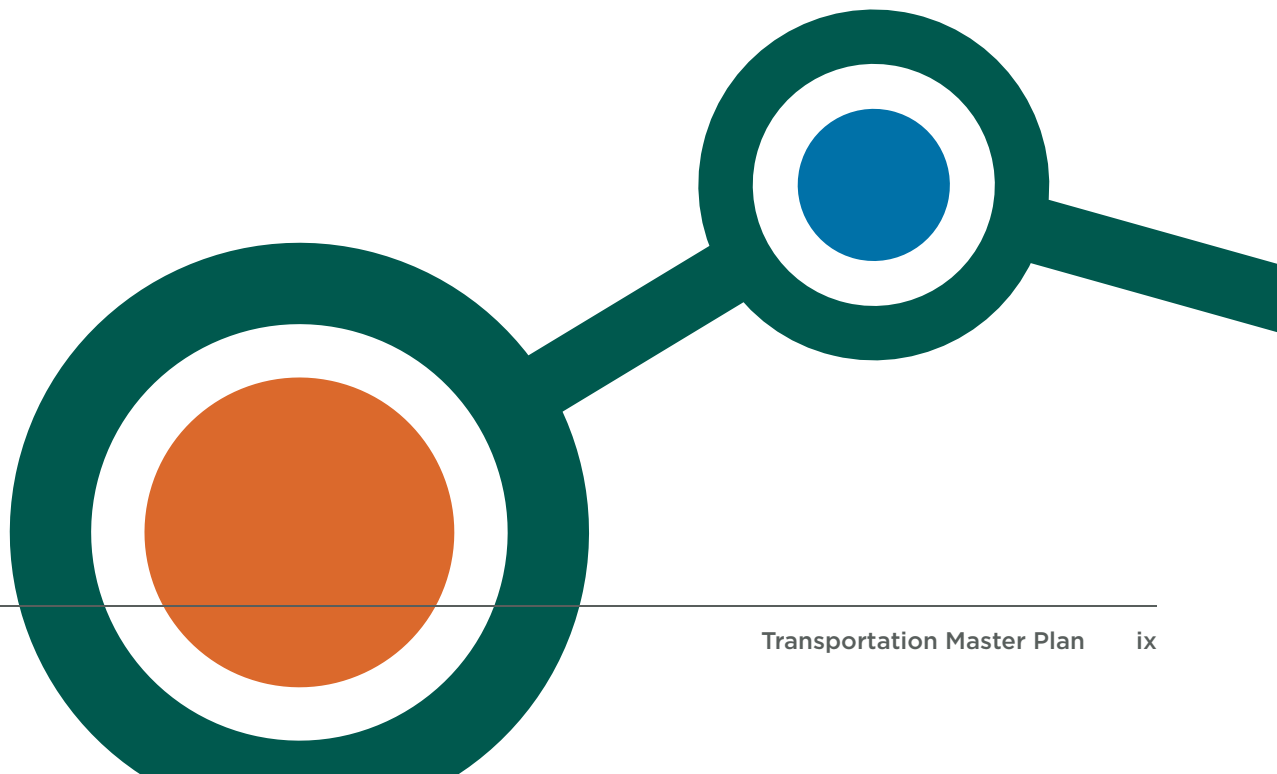
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PART I: OUR CITY



1.0 INTRODUCTION

The *Saskatoon Transportation Master Plan (STMP)* for the City of Saskatoon (City) unites all existing transportation policies and plans. It is consistent with *Bylaw 9700, The Official Community Plan Bylaw, 2020 (OCP)*, *Strategic Plan 2018–2021 (Strategic Plan)*, and *Growth Plan to Half a Million (Growth Plan)*.

The purpose of the *STMP* is to guide the implementation of a transportation infrastructure plan, annual budgeting, program development, long-range financial planning, area and corridor transportation studies, and design and practice guidelines.

1.1 CONTEXT

The City has estimated that our June 30, 2020 population was 279,900. This estimate is based on a projected annual growth rate of 1.7% from July 1, 2019 to July 1, 2020. The City's population is expected to double to half a million people over the next thirty to forty years. With this growth in mind, the *STMP* was designed to create a plan for the City to continue to grow while still maintaining a city that is vibrant and attractive to future generations.

1.2 THE OFFICIAL COMMUNITY PLAN BYLAW, 2020

City Council approved the new *OCP* for Saskatoon in June 2020. This was followed by provincial approval in August 2020. The *OCP* provides a comprehensive policy framework for achieving the community that Saskatoon residents collectively envision and desire. It guides the physical, environmental, economic, social, and cultural development of our community through a broad set of goals, objectives, and policies. These inform all planning, decision making, and priority setting for the City. The *STMP* supports and aligns with this policy framework, while providing more specific detail and direction regarding transportation facilities, infrastructure and programs.

1.2.1 Moving Around

Section H of the *OCP*, Moving Around, is relevant to the *STMP*:

Transportation Planning

Coordinated Land Use and Transportation Planning:

1. To develop an urban form and land use pattern that will promote transportation options and be accessible to all users, encourage walking, cycling, and public transit use, and help to promote a balanced transportation network that meets the needs of Saskatoon's residents and visitors.
2. To support the economy of the Saskatoon region by providing a transportation network that supports the movement of people and goods throughout the city and region.

Street Classification:

3. To provide a hierarchy of streets throughout the city, serving the needs of all modes of transportation.

Street Design:

4. To plan and design streets to support the movement of people of all ages and levels of mobility, in all seasons of the year, by providing appropriate and accessible facilities that support pedestrians, cyclists, transit users, and motorists.

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Site Design:

5. To provide safe and orderly access to sites and public streets.
6. To provide safe and orderly movement within a site.

Accessibility:

7. To design streets and public space that can be accessed and used to the greatest extent possible by all people regardless of their age, ability, or disability in the most independent and natural manner possible without the need for adaptation, modification, assistance, or specialized devices.

Regional Transportation Network:

8. Support access, connectivity, and movement in the regional transportation network.

Transportation Infrastructure

Transportation Network:

9. Develop and maintain a highly interconnected transportation network for moving people and goods throughout Saskatoon.
10. Provide safe pedestrian, cycling, and driving facilities.
11. Provide facilities that are universally accessible by all people.

Network Operation:

12. To meet the needs of all intended users of the transportation network.
13. Operate and maintain a street network that supports the safe movement of people and goods throughout the city, during all seasons of the year.

Parking Management

14. To manage the City's parking resources and support the mobility needs of residents and visitors to Saskatoon.
15. To provide adequate parking opportunities throughout the city, including the appropriate location and design of parking facilities as part of an efficient and functional transportation network.

Transit

Transit Network:

16. To promote land use and development patterns that support an efficient and effective public transit system.

Transit Facilities:

17. Develop high quality transit facilities to encourage transit ridership.

Accessible and Efficient Transit:

18. To operate and maintain an accessible and efficient transit system that provides individuals with the opportunity to use the system with ease and dignity.

1.3 STRATEGIC PLAN 2018–2021

City Council adopted the *Strategic Plan 2018–2021 (Strategic Plan)* in August 2018. This *Strategic Plan* was created by drawing on previous work such as the community visioning process called *Saskatoon Speaks*, and the previous *2013 Strategic Plan*.

1.3.1 Our Vision

Saskatoon is a great place to live, work, learn, and play.

1.3.2 Our Mission

Our Corporation, the City of Saskatoon, exists to provide excellence in local governance and public service delivery.

1.3.3 Our Strategic Goals

Our strategic goals are:

- A Culture of Continuous Improvement;
- Asset and Financial Sustainability;
- Quality of Life;
- Environmental Leadership;
- Sustainable Growth;
- Moving Around; and
- Economic Diversity and Prosperity.

The *STMP* will focus on the strategic goals of Sustainable Growth and Moving Around.

1.3.3.1 Sustainable Growth Strategic Goal

The following is an outline of the Sustainable Growth strategic goal, what we are striving for and the specific actions we are going to take, or have taken, to meet this goal:

1. Our *Plan for Growth* is sustainable through a balanced approach to land use, transportation choices, and efficient servicing.
 - Implement strategies to encourage downtown and infill development, including development process initiatives and financial incentives.
 - Refine and implement the Bus Rapid Transit (BRT) System.
 - Refine and implement corridor plans along designated roadways and transit routes.
 - Renew the City's *Official Community Plan* to align with the principles of the *Plan for Growth*.
 - Proactively prepare concept plans for urban development including a new sector plan with the University of Saskatchewan.
 - Develop and implement reasonable strategies where growth pays for growth.
 - Refine measures for who pays for growth in new development areas.
2. Regional partnerships provide the best opportunities for sustainable prosperity and quality of life.
 - Refine and implement the *Saskatoon North Partnership for Growth (P4G) Regional Plan*.
 - Complete the South East and North West concept plans with the RM of Corman Park.
 - Explore collaborative servicing strategies with regional partners, driven by business case development.
 - Complete the studies to refine regional Green Network.

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3. Economic growth and development is supported by streamlined business practices and development approvals.
 - Complete service reviews for the overall development process and building permits.
 - Continue to migrate residential and commercial building permits to a customer-friendly online format.
 - Engage the development and construction industries to support process improvements and economic development initiatives.
 - Align development and permit application fees with expected customer service levels.
 - Explore municipal development corporations (MDC) to attain “city building” objectives.

1.3.3.2 Moving Around Strategic Goal

The following is an outline of the Moving Around strategic goal, what we are striving for and the specific actions we are going to take or have taken to meet this goal:

4. The transportation network includes an accessible and efficient transit system and a comprehensive network of active transportation to provide more choice to move around the city.
 - Develop a city-wide transit strategy to support BRT.
 - Develop a Transportation Master Plan using outputs from the *Growth Plan* and *Active Transportation Plan*.
 - Vision Zero is pursued to reduce vehicle collisions.
 - Develop and implement a regulatory framework for Transportation Network Companies (TNCs).
5. Traffic flow throughout the city is safe and optimal.
 - Ensure the North Commuter Parkway and Traffic Bridge project are open to traffic.
 - Ensure that Interchange projects – McOrmond and College; Boychuk and Hwy 16 are open to traffic.
 - Development and implementation of an *Intelligent Transportation System Strategic Plan*.
6. Parking availability is optimized.
 - Conduct an overall parking service review, to align citizen expectations and sustainable funding.
 - Implement a new residential parking permit program.
 - Implement a new temporary reserved parking program.

1.4 GROWTH PLAN TO HALF A MILLION

City Council approved the *Growth Plan to Half Million (Growth Plan)* in April 2016. The plan advances our strategic goals of Sustainable Growth and Moving Around. The *Growth Plan* consists of three core initiatives: Corridor Growth, Transit, and Core Bridges.

1.4.1 Corridor Growth

The goal for Corridor Growth is:

The City will explore opportunities for complete, vibrant communities along major corridors with attractive transit services. The design of these communities will facilitate more people-friendly environments and easy-to-access priority modes such as walking, cycling, and transit that will contribute toward these vibrant areas of the city.

The objectives for Corridor Growth are:

1. To create and enhance complete communities with a variety of housing choices, a high-quality public realm, and overall vibrancy.
2. To create and improve access to employment and amenities.
3. To improve mobility options for people along major corridors and on a city-wide basis.
4. To enhance connectivity between and within neighbourhoods by enhancing communities' edges.
5. To support the efficient provision of infrastructure and associated services.

1.4.2 Transit**The goal for Transit is:**

The transit system in Saskatoon will strive toward providing exceptional experience for customers and be attractive. The long-term Transit Plan will include a broader range of service to support a variety of trips. Rapid transit will complement the overall transit system and serve as the spine to the transit network. Rapid transit corridors and stations will be planned to support and connect higher density, mixed-use areas of the city in order to enhance mobility for residents and visitors.

The objectives for Transit are:

6. To support and shape opportunities for growth and development beyond current plans.
7. To provide frequent, direct and reliable transit services for the most significant travel markets.
8. To provide neighbourhood services that support local area travel and connections to primary corridors.
9. To provide transit supportive facilities that enhance safety and comfort for customers.

1.4.3 Core Bridges**The goal for Core Bridges is:**

The core area bridges will continue to be the primary routes to and from the established areas of the city, while planned peripheral roadways and bridges support vehicle travel between the suburban growth areas. As the City Centre, North Downtown, and University area plans are implemented, the road network and bridges serving these areas should support these vibrant communities with priority treatments for transit and attractive pedestrian and cycling facilities.

The objectives for Core Bridges are:

10. To connect arterial roads that serve travel between core area communities in Saskatoon.
11. To primarily serve core area travel rather than vehicle travel that starts and ends outside Circle Drive.
12. To connect pedestrians, cyclists, transit, and vehicles to promote sustainable modes of travel within the core areas.
13. To continue the grid street pattern that exists within the core area to not only promote use of alternative modes, but to minimize impacts of increasing traffic on neighbourhoods.
14. To create an urban street character on both sides of any new or existing crossing within the core area.

1.5 ACTIVE TRANSPORTATION PLAN

The *Active Transportation Plan (AT Plan)* helps provide more choices for moving around Saskatoon by addressing our community and infrastructure needs for walking, cycling, and other modes of active transportation. The *AT Plan* was approved by City Council in June 2016.

Since the approval of this plan, the City has integrated its goals and themes into our everyday practices to ensure that the transportation network provides safe, direct, and convenient routes for people of varying abilities.

1.6 SUMMARY OF SUPPORTIVE GOALS AND OBJECTIVES

The *STMP* focuses on the:

- *OCP* objectives identified in the Moving Around section;
- Goals identified in the two *Strategic Plan* goals of Sustainable Growth and Moving Around; and
- Objectives identified in the *Growth Plan*.

These goals and objectives are outlined in Part II: Transportation Policies and Practices to demonstrate how the *STMP* is directly linked to these three guiding documents.

A summary of the *OCP*, *Strategic Plan*, and *Growth Plan* goals and objectives that have provided direction and support the *STMP* are presented in Table 1-1.

Table 1-1: Summary of Supportive Strategies and Objectives

	OCP	Strategic Plan	Growth Plan
#	OBJECTIVES	GOALS	OBJECTIVES
1	To develop an urban form and land use pattern that will promote transportation options and be accessible to all users, encourage walking, cycling, and public transit use, and help to promote a balanced transportation network that meets the needs of Saskatoon’s residents and visitors.	Our Plan for Growth is sustainable through a balanced approach to land use, transportation choices, and efficient servicing.	To create and enhance complete communities with a variety of housing choices, a high quality public realm, and overall vibrancy.
2	To support the economy of the Saskatoon region by providing a transportation network that supports the movement of people and goods throughout the city and region.	Regional partnerships provide the best opportunities for sustainable prosperity and quality of life.	To create and improve access to employment and amenities.
3	To provide a hierarchy of streets throughout the city, serving the needs of all modes of transportation.	Economic growth and development is supported by streamlined business practices and development approvals.	To improve mobility options for people along major corridors and on a city-wide basis.

	OCP	Strategic Plan	Growth Plan
#	OBJECTIVES	GOALS	OBJECTIVES
4	To plan and design streets to support the movement of people of all ages and levels of mobility, in all seasons of the year, by providing appropriate and accessible facilities that support pedestrians, cyclists, transit users, and motorists.	The transportation network includes an accessible and efficient transit system and a comprehensive network of active transportation to provide more choice to move around the city.	To enhance connectivity between and within neighbourhoods by enhancing communities' edges.
5	To provide safe and orderly access to sites and public streets.	Traffic flow throughout the city is safe and optimal.	To support the efficient provision of infrastructure and associated services.
6	To provide safe and orderly movement within a site.	Parking availability is optimized.	To support and shape opportunities for growth and development beyond current plans.
7	To design streets and public space that can be accessed and used to the greatest extent possible by all people regardless of their age, ability, or disability in the most independent and natural manner possible without the need for adaptation, modification, assistance, or specialized devices.		To provide frequent, direct and reliable transit services for the most significant travel markets.
8	Support access, connectivity, and movement in the regional transportation network.		To provide neighbourhood services that support local area travel and connections to primary corridors.
9	Develop and maintain a highly interconnected transportation network for moving people and goods throughout Saskatoon.		To provide transit supportive facilities that enhance safety and comfort for customers.
10	Provide safe pedestrian, cycling, and driving facilities.		To connect arterial roads that serve travel between core area communities in Saskatoon.

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	OCP	Strategic Plan	Growth Plan
#	OBJECTIVES	GOALS	OBJECTIVES
11	Provide facilities that are universally accessible by all people.		To primarily serve core area travel rather than vehicle travel that starts and ends outside Circle Drive.
12	To meet the needs of all intended users of the transportation network.		To connect pedestrians, cyclists, transit, and vehicles to promote sustainable modes of travel within the core areas.
13	Operate and maintain a street network that supports the safe movement of people and goods throughout the city, during all seasons of the year.		To continue the grid street pattern that exists within the core area to not only promote use of alternative modes, but to minimize impacts of increasing traffic on neighbourhoods.
14	To manage the City's parking resources and support the mobility needs of residents and visitors to Saskatoon.		To create an urban street character on both sides of any new or existing crossing within the core area.
15	To provide adequate parking opportunities throughout the city, including the appropriate location and design of parking facilities as part of an efficient and functional transportation network.		
16	To promote land use and development patterns that support an efficient and effective public transit system.		
17	Develop high quality transit facilities to encourage transit ridership.		
18	To operate and maintain an accessible and efficient transit system that provides individuals with the opportunity to use the system with ease and dignity.		

1.7 ADDITIONAL ADMINISTRATIVE POLICIES AND PLANS

In addition to the supporting documents, Transportation follows all applicable Council and Administrative policies as well as other corporate plans.

Policies include:

- [C09-017](#) - Buffer Strips - Provision and Construction Criteria
- [C07-031](#) - Corporate Asset Management Policy
- [C07-023](#) - Corridor Study Selection Process
- [C07-027](#) - Decorative Crosswalks Policy
- [C07-026](#) - Disabled Parking Zones
- [C07-024](#) - Intersection Improvement Process Selection Process
- [C07-016](#) - Lease of City Boulevards
- [C07-025](#) - Loading Zones
- [C07-012](#) - Median Openings
- [C07-010](#) - Parking Restrictions and Parking Prohibitions
- [C02-046](#) - Public Engagement Policy
- [C01-021](#) - Public Notice
- [C07-015](#) - Reduced Speed Zones for Schools
- [C07-004](#) - Specialty Ornamental Street and Sidewalk Lighting Systems
- [C07-030](#) - Street Design Policy
- [C07-003](#) - Temporary Road Closures
- [C07-029](#) - Traffic Calming Policy
- [C07-019](#) - Traffic Bylaw Special Permits
- [C07-018](#) - Traffic Control - at Pedestrian Crossings
- [C07-007](#) - Traffic Control - Use of Stop and Yield Signs
- [C07-028](#) - Traffic Noise Sound Attenuation
- [C02-037](#) - Transit Advertising Policy
- [C08-001](#) - Triple Bottom Line Policy
- [C09-013](#) - Use of Sidewalks, Boulevards, and Parking Stalls - Vending
- [C09-025](#) - Utility Easements on City Property
- [C07-017](#) - Walkway Evaluation and Closure
- [C07-021](#) - Walkway Maintenance
- [C09-041](#) - Wetland Policy
- [A07-014](#) - Administration of Residential Parking Permits
- [A09-034](#) - Crime Prevention Through Environmental Design Review

Corporate Plans include:

- [Accessibility Action Plan](#)
- [Blairmore Sector Plan](#)
- [Building Better Bridges & Structures](#)
- [Building Better Roads](#)
- [Building Better Sidewalks](#)
- [City Centre Plan](#)
- [Comprehensive Downtown Parking Strategy](#)
- [Green Infrastructure Strategy](#)
- [Holmwood Sector Plan](#)
- [Local Actions: The City of Saskatoon's Adaptation Strategy](#)
- [Low Emissions Community Plan](#)
- [Riel Industrial Sector Plan](#)
- [University Sector Plan](#)
- [University Heights Sector Plan](#)

There may be additional policies and documents to those listed above that are used on a project level basis as required.

1.8 AMENDING THE SASKATOON TRANSPORTATION MASTER PLAN

The *STMP* is a living document and will be kept current by reviewing, updating, and amending it every five years or as required. Any changes to policies, maps, or appendices in the *STMP* as proposed by Administration will require approval by City Council. Amendments to the *STMP* may also be triggered by amendments to the *OCP* and *Strategic Plan*.

1.9 USING THE SASKATOON TRANSPORTATION MASTER PLAN

Part II of the *STMP* is organized into several chapters. Each chapter is organized by objectives, relevant supports, projects and programs, future initiatives, and guiding principles.

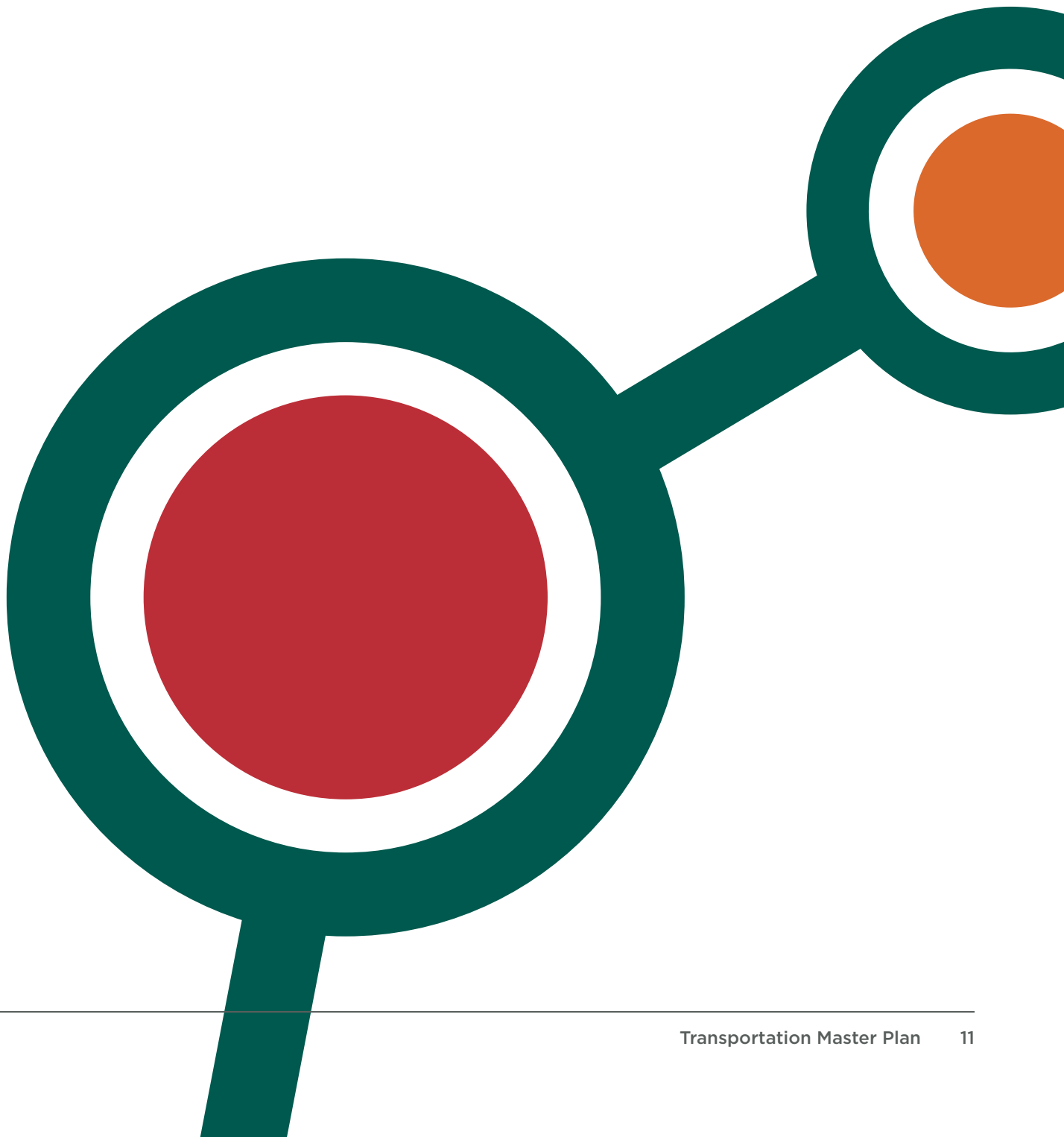
Part III of the *STMP* is organized into chapters that outline the City's investment plans and priorities and monitoring and reporting programs.

The *STMP* should be read in its entirety since content in one section may apply to others.

1.10 TRANSPORTATION DEPARTMENT OBJECTIVES

The Transportation Department is the steward of Saskatoon's transportation network. Its responsibility is to provide:

- Safe, reliable, and timely options for travel in the city.
- Expertise and direction to City Council, colleagues, property and business owners, and other organizations.
- Leadership, education, and engagement on city transportation systems.





PART II: TRANSPORTATION POLICIES AND PRACTICES

2.0 OPERATING PROCEDURES AND PROGRAMS

Objective

To maintain and establish uniform, consistent, safe, and efficient operating procedures and programs for transportation facilities, infrastructure, and services that reflect our community's values.

Supports

OCP OBJECTIVES

- #5 To provide safe and orderly access to sites and public streets.

- #6 To provide safe and orderly movement within a site.

- #9 Develop and maintain a highly interconnected transportation network for moving people and goods throughout Saskatoon.

- #10 Provide safe pedestrian, cycling, and driving facilities.

- #12 To meet the needs of all intended users of the transportation network.

- #13 Operate and maintain a street network that supports the safe movement of people and goods throughout the city, during all seasons of the year.

- #14 To manage the City's parking resources and support the mobility needs of residents and visitors to Saskatoon.

Strategic Plan GOALS

- #5 Traffic flow throughout the city is safe and optimal.

Growth Plan OBJECTIVES

- #1 To create and enhance complete communities with a variety of housing choices, a high quality public realm, and overall vibrancy.

- #2 To create and improve access to employment and amenities.

- #3 To improve mobility options for people along major corridors and on a city-wide basis.

- #5 To support the efficient provision of infrastructure and associated services.

Discussion

2.1 SPEED LIMITS

The City currently establishes posted speed limits as outlined in the Transportation Association of Canada (TAC) *Geometric Design Guide for Canadian Roads*, which relates posted speed limits to design speed. Design speeds are established according to the street classification and adjacent land use. Speed limits for city streets are outlined in Schedule 4 of *Bylaw 7200 – The Traffic Bylaw*.

The City has a reduced speed limit for school zones, as outlined in *Council Policy C07-015 – Reduced Speed Zones for Schools*.

2.2 TRAFFIC CONTROL

Traffic control is a critical element in the safe operation of any transportation system. The City uses the following devices to establish traffic control at intersections or midblock pedestrian crossings:

- Yield signs;
- Stop signs;
- Traffic signals;
- Roundabouts; and
- Pedestrian and cyclist actuated signals.

The City follows the guidance provided by the TAC, as well as the following policies:

- *Council Policy C07-007, Traffic Control – Use of Stop and Yield Signs*; and
- *Council Policy C07-018, Traffic Control at Pedestrian Crossings*.

2.2.1 Temporary Traffic Control

Temporary traffic control includes the coordination of closures and detours on Collector class roads and higher classifications in accordance with the *Temporary Traffic Control Manual* within the City. Temporary traffic control plans are created for construction and maintenance work based on the needs of the workers on site to ensure they have a safe area to perform their work, while also providing as minimal a disruption as possible to traffic and pedestrians in the affected area.

2.3 TRAFFIC SIGNAL OPERATIONS

As the City grows and traffic volumes increase, the number of traffic signals on the city’s street network grows. All signals on the publicly owned street network are installed, operated, and managed by the City. Saskatoon’s Advanced Traffic Management System (ATMS) ensures the consistent, safe, and efficient control of traffic signals by facilitating constant communication between the traffic signal infrastructure to monitor operations and to maintain signal coordination.

2.3.1 Accessible Pedestrian Signals

It is the City’s practice to install Accessible Pedestrian Signals (APS) at all new signalized intersections where pedestrian crossing is permitted. The City also maintains an ongoing program and funding to retrofit existing signalized intersections with APS devices. Locations for APS retrofit are prioritized through collaboration with representatives of the vision loss community. APS devices are also included on Rectangular Rapid Flashing Beacons and Active Pedestrian Corridor devices.

2.4 TRAFFIC SIGNING AND PAVEMENT MARKING

The *City of Saskatoon Traffic Signing Standards* and *City of Saskatoon Pavement Marking Standards* establishes guidelines for the consistent and standard application of traffic signs and pavement markings. In general, the City follows the guidance provided in the latest edition of the TAC, *Manual of Uniform Traffic Control Devices for Canada*.

2.5 TRAFFIC CALMING

The overall objectives of traffic calming is to maintain the liveability and environmental quality of our neighbourhoods while ensuring the safe, efficient, and economical movement of persons and goods. The objective is to calm streets to their intended functionality and improve motorist compliance to acceptable and appropriate levels within the system.

Specific objectives include:

- Slower vehicular speeds;
- Fewer, less severe collisions;
- Increased safety for all road users, particularly pedestrians and cyclists;
- Reduced reliance on police enforcement;
- Enhanced roadway environment and streetscape;
- Improved access to all modes of transportation; and
- Reduced 'cut-through' or non-local traffic for local streets.

Collectively, these factors contribute to how 'liveable' a street or community may be.

The City follows the guidance provided by the TAC, as well as the following policies:

- *Council Policy C07-029, Traffic Calming Policy*; and
- *Traffic Calming Guide*.

2.6 ON-STREET PARKING

The provision and management of on-street parking ensures supply and demand is appropriately addressed in a manner that is equitable, affordable and safe, particularly in high demand parking areas.

The City follows the guidance outlined in the following bylaws regarding the Residential Parking Permit Program and paid parking zones. These bylaws and policies also cover all other on-street parking regulations within the City:

- *Bylaw 7862, Residential Parking Program Bylaw, 1999*;
- *Bylaw 7200, Traffic Bylaw, 1991*;
- *Council Policy C07-026, Disabled Parking Zones*;
- *Council Policy C07-010, Parking Restrictions and Parking Prohibitions*; and
- *Council Policy C09-013, Use of Sidewalks, Boulevards and Parking Stalls - Vending*.

2.7 FUTURE INITIATIVES

2.7.1 Traffic Signal Operations Strategy

The development of a Traffic Signal Operations Strategy will outline policies and strategies from administrative-related items to technical elements that pertain to traffic signal operations. The document will contain guiding principles and policies related to administration, traffic control systems, and traffic signal operations – all of which promote consistent, safe, and efficient control of traffic signals.

2.7.2 Speed Limit Review

Bylaw 7200 - The Traffic Bylaw states that the maximum speed on all City roadways is 50 km/h if not listed separately in Schedule No. 4: Maximum Speeds of the bylaw. The Speed Limit Review will provide a detailed framework for revising posted speed limits on residential streets including posted speed limits in school zones, playground zones, and areas with a high concentration of seniors.

2.7.3 Active Transportation Detour Policy

The policy will expand on the concepts contained in the City's *Temporary Traffic Control Manual* and provide guidance on the importance of ensuring planning and implementation of temporary traffic controls for pedestrian and cyclist facilities in work zones for the safety, convenience, and accessibility of our streets.

2.7.4 Curbside Management

There is a growing demand for the utilization and management of the curbside in the City. With the use of transportation network companies, online shopping and associated deliveries, demand for curbside pickups, drop-offs, and dwell times are increasing. The Curbside Management initiative seeks to inventory, optimize, allocate, and manage curb spaces to maximize mobility and access for the wide variety of curb demands. Use of the curbside for these activities may conflict with the traditional parking use of the curb.

2.7.5 Electric Vehicle Charging Stations

The City's *Low Emissions Community Plan* includes four actions that collectively encourage adoption of electric vehicles (EV) for the community and municipal fleet with the goal of 30% of all new vehicle sales being electric by 2030 and 90% of vehicle sales by 2050.

A comprehensive strategy for deploying a network of charging stations for Saskatoon is needed to support EV drivers. As a first step, an EV community pilot program is being developed to encourage residents to consider EVs through educational materials and increasing charging station availability. Many businesses have already installed charging stations for public use and the City plans to install approximately four to six additional stations as part of the pilot project. At the same time, the City will be piloting EVs for its own fleet and installing charging infrastructure to support these vehicles.

Currently private EV charging stations are not permitted within the right-of-way, nor can any portion of the curb be set aside for private use.

2.7.6 Shared Micro-mobility

Shared micro-mobility includes all shared-use fleets of small, fully or partially human-powered vehicles such as bikes, e-bikes, and e-scooters (compliant with federal regulations). Users typically rent such bikes or scooters for a short period of time using an app service. As of 2020, Saskatchewan legislation allows power-assisted bicycles, but e-scooters are considered a non-compliant motor vehicle and are therefore prohibited from travelling on public roads.

2.7.7 Emerging Technologies

This section highlights some emerging technologies that the City is monitoring. This is driven in part by the evolution of our vehicle fleet composition which may be guided by the *Low Emissions Community Plan*.

2.7.7.1 Connected Vehicles and Automated Vehicles

TAC currently has a Connected and Automated Vehicles (CAV) Task Force. The principal role of the CAV Task Force is to serve as a hub for collaboration and information exchange between volunteer groups, TAC, and external organizations. The City is monitoring the outcome of this task force.

2.7.7.2 Mobility as a Service

Mobility as a Service (MaaS) is a mobility marketplace in which a traveler can access multiple transportation services over a single digital interface. MaaS primarily emphasizes passenger mobility allowing travelers to seamlessly plan, book, and pay for multimodal trip on pay-as-you-go and/or subscription basis.

Guiding Principles

- Apply consistent posted speed limits, traffic control devices, traffic signing, and pavement markings to provide consistent and reliable guidance.
- Install Accessible Pedestrian Signals (APS) at all new signalized intersections where pedestrian crossing is permitted.
- Retrofit existing traffic signals with APS devices.
- Through traffic calming, maintain the liveability and environmental quality of our neighbourhoods while ensuring the safe, efficient, and economical movement of persons and goods.
- Continue efforts to update operating procedures and programs.
- Balance the needs of all street users in the planning and operation of existing and future transportation infrastructure.

3.0 QUALITY OF SERVICE

Objective

To operate and maintain a transportation network that supports the safe movement of people and goods throughout the city during all seasons of the year.

Supports

OCP OBJECTIVES

- #2** To support the economy of the Saskatoon region by providing a transportation network that supports the movement of people and goods throughout the city and region.

- #4** To plan and design streets to support the movement of people of all ages and levels of mobility, in all seasons of the year, by providing appropriate and accessible facilities that support pedestrians, cyclists, transit users, and motorists.

- #5** To provide safe and orderly access to sites and public streets.

- #6** To provide safe and orderly movement within a site.

- #9** Develop and maintain a highly interconnected transportation network for moving people and goods throughout Saskatoon.

- #10** Provide safe pedestrian, cycling, and driving facilities.

- #11** Provide facilities that are universally accessible by all people.

- #12** To meet the needs of all intended users of the transportation network.

- #13** Operate and maintain a street network that supports the safe movement of people and goods throughout the city, during all seasons of the year.

Strategic Plan GOALS

- #5** Traffic flow throughout the city is safe and optimal.

Growth Plan OBJECTIVES

- #2** To create and improve access to employment and amenities.

- #3** To improve mobility options for people along major corridors and on a city-wide basis.

- #5** To support the efficient provision of infrastructure and associated services.



Discussion

3.1 STREET MAINTENANCE

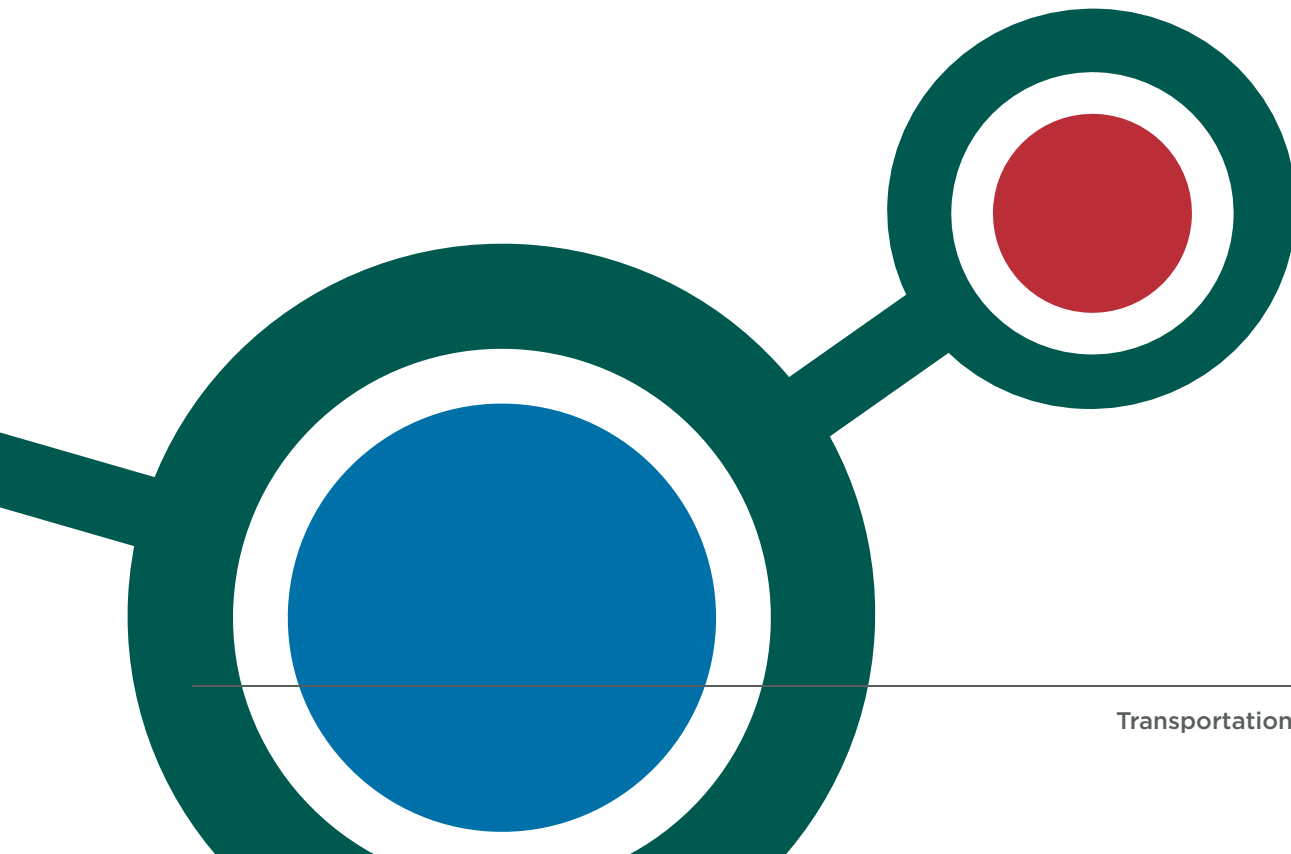
The City's street maintenance programs include a variety of treatments to extend and maintain the usable life and integrity of streets, sidewalks, and walkways and provide mobility and safety for all users during all seasons of the year. Some of these maintenance treatments include paving, blade leveling, pothole repair, utility cut repair, grading, street sweeping, sanding and salting, and snow removal.

The City follows the guidance provided by the following documents when determining the level of service to provide for a specific street maintenance program:

- Road Maintenance Level of Service;
- Service Level - Street Cleaning & Sweeping;
- 2017-18 Winter Road Maintenance Level of Service;
- Council Policy C07-021, Walkway Maintenance;
- Bylaw 8463, Sidewalk Clearing Bylaw; and
- Park and Open Space Maintenance on Saskatoon.ca.

3.2 STREET LIGHTING

The City's street lighting system is designed to the current edition of the *Illumination Engineering Society of North America RP-8, Recommended Practice for Design and Maintenance of Roadway and Parking Facility Lighting*. The main purpose for lighting roadways is to provide an enhanced visual environment for people to safely use the road system during hours of darkness. An enhanced visual environment reduces motor vehicle collisions and provides a safer environment for pedestrians, cyclists, and drivers. Regular maintenance of the lighting system includes nightly patrols where problems are immediately identified and repaired, and online or call in reporting where problems are identified and repaired within four business days. Some problems cannot be immediately repaired. In these instances, a temporary measure will be put in place until a permanent repair can be made.



3.3 INTELLIGENT TRANSPORTATION SYSTEMS

Intelligent Transportation Systems (ITS) is a combination of leading-edge information and communication technologies used in transportation and traffic management systems to improve the safety, efficiency, and sustainability of transportation networks, to reduce traffic congestion and to enhance the drivers' experience.

The City's *ITS Strategic Plan* outlines the following vision statement:

Invest strategically in innovations that maximize public safety and efficiency, encourage all modes of transportation, and support our region's growth through improved information access and network adaptability.

The *ITS Strategic Plan* consists of the following eight specific goals:

1. Improve transportation flexibility (incorporating the mode split targets from the *Growth Plan*);
2. Reduce vehicle travel times along major corridors;
3. Improve emergency response efficiency;
4. Improve transit schedule adherence;
5. Manage commercial vehicle movements to preserve road infrastructure;
6. Mitigate impacts of train-road crossing disruptions;
7. Improve access to traveller information; and
8. Improve multi-agency ITS stakeholder business intelligence for real-time operations and planning purposes.

3.4 FUTURE INITIATIVES

3.4.1 Traffic Signing and Signal Infrastructure Inventory

As of 2020 there is no detailed inventory of existing traffic signage and signal infrastructure. Creation of an inventory would allow for management of these assets.

3.4.2 Walkway Evaluation and Closure Policy Review

Council Policy C07-17, Walkway Evaluation and Closure provides a framework for residents living adjacent to walkways to express interest in closing walkways adjacent to their properties. The review will consider possible changes to this policy or other policies and programs that address maintenance, graffiti, vandalism, crime, and enhancing the overall feeling of safety in our neighbourhoods.

3.4.3 Wayfinding Strategy

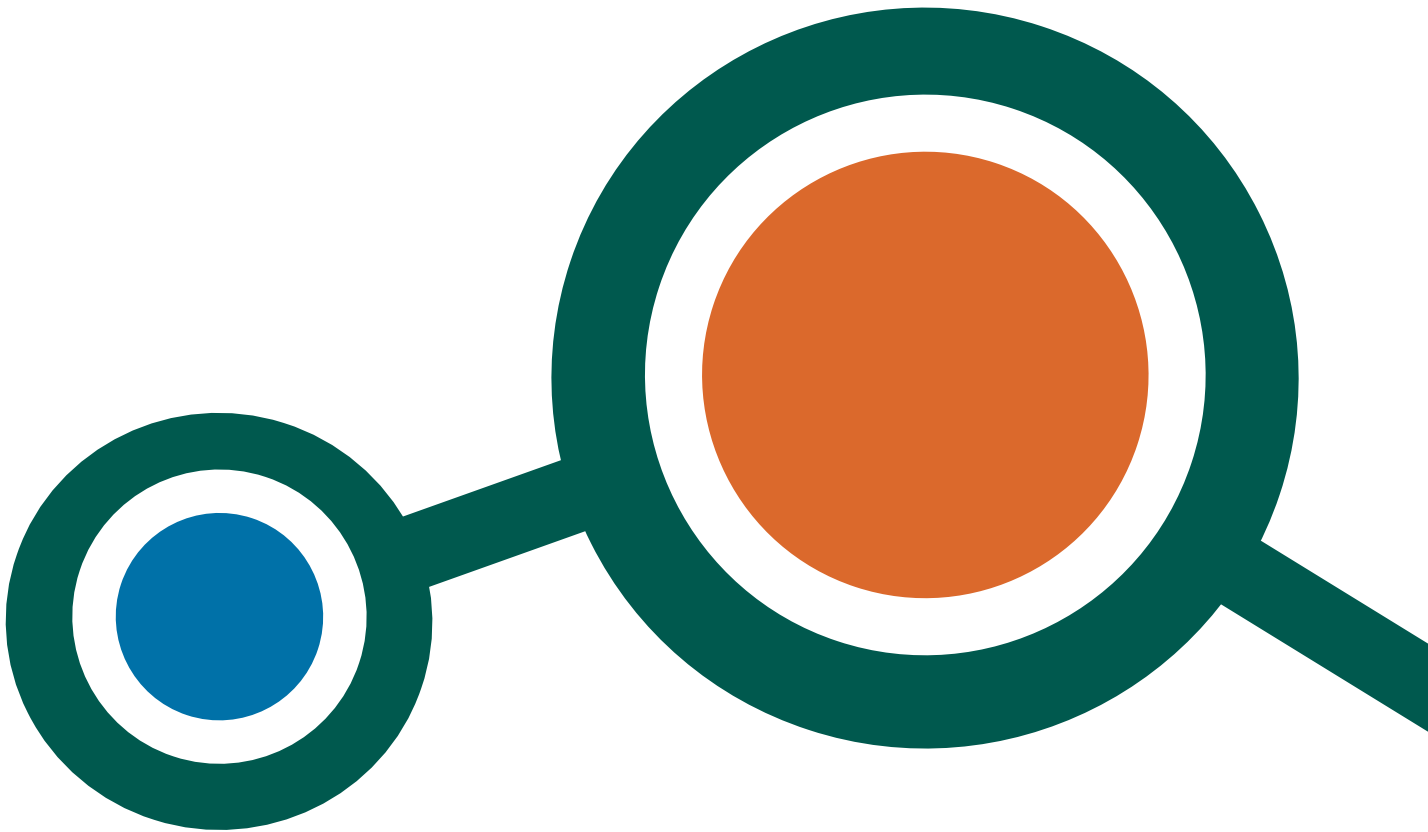
Transportation staff are working with other City departments to develop wayfinding guidelines to ensure a common and consistent city-wide wayfinding strategy. The wayfinding guidelines will introduce a seamless, consistent, and easy-to-understand city-wide system of signage, trip planning tools, and information about route type to help people make decisions about how to navigate a neighbourhood or city.

3.4.4 Access Management Bylaw

The purpose of the Access Management Bylaw is to establish regulations for granting vehicular access between private property and city streets and to prescribe the terms under which such permits are administered. The new bylaw seeks to adopt a more effective model for access control and management of private crossings through revision of the existing bylaws (*Bylaw 8770 - Zoning Bylaw and Bylaw 4785 - Private Crossings Bylaw*) and to establish a framework of integrated policies, guidelines, design standards, and specific requirements for driveway permits.

Guiding Principles

- Maintain the transportation network so that it may accommodate the safe movement of people and goods throughout the city during all seasons of the year.
- Develop and maintain strategies for year-round maintenance of traffic operations infrastructure including signs, pavement markings, traffic signals, etc.
- Develop and maintain strategies for year-round maintenance of sidewalks, walkways, pathways, bicycle infrastructure, and streets, including debris removal and snow clearing and storage.
- Street lighting conforms to appropriate national standards to provide an enhanced visual environment for people to safely use the transportation network during hours of darkness.
- Invest strategically in innovations that enhance both public safety and efficiency, encourage all modes of transportation, and support our region's growth through improved information access and network adaptability.



4.0 TRANSPORTATION NETWORK

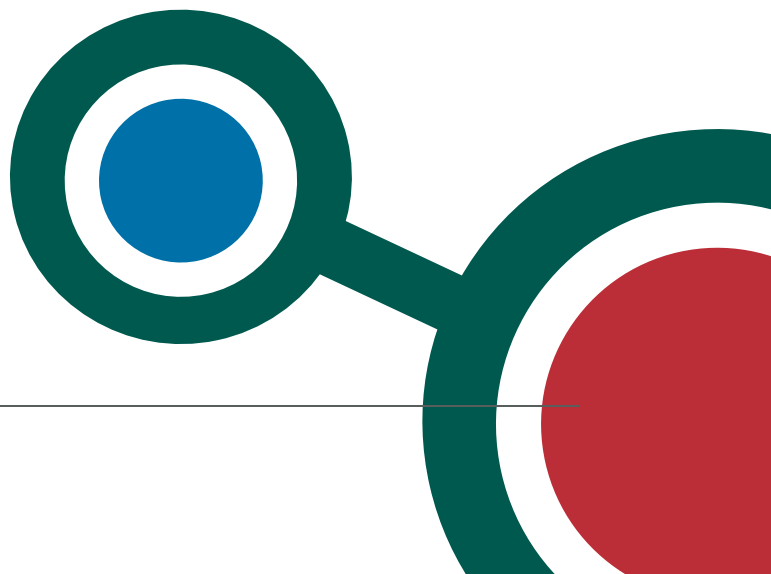
Objective

To plan and design a hierarchy of streets for all modes of travel that support the movement of people of all ages and levels of mobility in all seasons of the year, while integrating the street environment with existing and future land uses.

Supports

OCP OBJECTIVES

- #1** To develop an urban form and land use pattern that will promote transportation options and be accessible to all users, encourage walking, cycling, and public transit use, and help to promote a balanced transportation network that meets the needs of Saskatoon’s residents and visitors.
- #2** To support the economy of the Saskatoon region by providing a transportation network that supports the movement of people and goods throughout the city and region.
- #3** To provide a hierarchy of streets throughout the city, serving the needs of all modes of transportation.
- #4** To plan and design streets to support the movement of people of all ages and levels of mobility, in all seasons of the year, by providing appropriate and accessible facilities that support pedestrians, cyclists, transit users, and motorists.
- #7** To design streets and public space that can be accessed and used to the greatest extent possible by all people regardless of their age, ability, or disability in the most independent and natural manner possible without the need for adaptation, modification, assistance, or specialized devices.
- #8** Support access, connectivity, and movement in the regional transportation network.
- #9** Develop and maintain a highly interconnected transportation network for moving people and goods throughout Saskatoon.
- #10** Provide safe pedestrian, cycling, and driving facilities.
- #11** Provide facilities that are universally accessible by all people.
- #12** To meet the needs of all intended users of the transportation network.
- #15** To provide adequate parking opportunities throughout the city, including the appropriate location and design of parking facilities as part of an efficient and functional transportation network.



Strategic Plan GOALS

- #1** Our Plan for Growth is sustainable through a balanced approach to land use, transportation choices, and efficient servicing.

- #2** Regional partnerships provide the best opportunities for sustainable prosperity and quality of life.

- #4** The transportation network includes an accessible and efficient transit system and a comprehensive network of active transportation to provide more choice to move around the city.

- #5** Traffic flow throughout the city is safe and optimal.

- #6** Parking availability is optimized.

Growth Plan OBJECTIVES

- #1** To create and enhance complete communities with a variety of housing choices, a high quality public realm, and overall vibrancy.

- #2** To create and improve access to employment and amenities.

- #3** To improve mobility options for people along major corridors and on a city-wide basis.

- #5** To support the efficient provision of infrastructure and associated services.

- #6** To support and shape opportunities for growth and development beyond current plans.

- #8** To provide neighbourhood services that support local area travel and connections to primary corridors.

- #10** To connect arterial roads that serve travel between core area communities in Saskatoon.

- #12** To connect pedestrians, cyclists, transit, and vehicles to promote sustainable modes of travel within the core areas.

- #13** To continue the grid street pattern that exists within the core area to not only promote use of alternative modes, but to minimize impacts of increasing traffic on neighbourhoods.

Discussion

The intent of our transportation network is to:

- Serve and support existing and planned land use and built form context;
- Encourage people to travel by walking, cycling, and transit;
- Provide transportation options for people of all ages and abilities through universal design;
- Enhance the safety and security of urban streets;
- Create a network of streets that offer mobility options for all users;
- Provide opportunities for improved health and recreation to people in the community by providing active, safe streets; and
- Create public space that is active and attractive within the street corridor.

4.1 STREET NETWORK

In creating a street network plan, there are several aspects that should be considered:

1. Travel demand;
2. Level of transportation service;
3. Energy considerations;
4. Urban form;
5. System continuity;
6. Modal balance;
7. Traffic operations and control;
8. Environmental and urban impacts: air quality, noise, visual impact, and urban development; and
9. Fiscal considerations.

The street network should maintain system continuity, maintain system geometry, consider topography and other sensitive features, preserve the community feeling of neighbourhoods and community focal points, and service community focal points.

The City's freeways/expressways (high speed controlled access), arterials, and collector street network plans are illustrated in Appendix A: Transportation Maps.

All local, collector, and arterial streets are added to the network through the process of developing sector plans followed by neighbourhood concept plans. Construction of these streets follows that same pattern of development, thus expanding the transportation network.

4.2 ACTIVE TRANSPORTATION NETWORK

Active transportation includes any form of human-powered transportation, such as walking, jogging, cycling, skateboarding, in-line skating, and using mobility aids. The City's *AT Plan* helps provide more choices for moving around Saskatoon by addressing our community and infrastructure.

Investing in active transportation contributes to a balanced transportation system. There are also significant quality of life, health, safety, economic, and environmental benefits associated with investing in active transportation.

4.2.1 Pedestrian Facilities and Network

A complete, accessible, and connected pedestrian network contributes to a safe, comfortable walking environment and can make walking a more convenient and attractive choice for moving around. The City's pedestrian network map can be found in Appendix A: Transportation Maps.

The Sidewalk Infill Program focusses on eliminating gaps in the existing sidewalk network by completing the design and construction of new sidewalks or pathways adjacent to existing arterials, collectors and local streets.

The Pedestrian Accessible Curb Ramp Program installs pedestrian accessible curb ramps where they are missing at intersections that will not be addressed through the Rehabilitation Program in the next 3-5 years.

4.2.2 Cycling Facilities and Network

A complete and connected network of bicycle facilities can encourage more cycling if it serves users of all ages and abilities (AAA), 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 City's cycling network map can be found in Appendix A: Transportation Maps.

Continuous improvements to the existing facilities are made to provide consistent signage and pavement markings for bicycle routes and conflict points, improve transitions between facility types, and install signal detection and push buttons at key crossing locations.

4.3 STREET CLASSIFICATION

Street classification is the orderly grouping of streets into systems according to the type of service and function they provide the public. When a street system is properly classified, the function and characteristics of each street are readily understood.

The street network is comprised of various street types, each of which performs a particular function in facilitating the way people and goods move through and within the City. The current street classification system used by the City considers many principles and factors including land use, land service function, typical traffic volume, traffic flow characteristics, posted speed, vehicle type, network connections, and design user groups and modes with the goal of providing a connected street network for all types of transportation. The street classification characteristics, principles, and factors are described in more detail in Appendix B: Street Classification Characteristics, Principles, and Factors.

The following hierarchical street classification is used to define the City's street network: freeways/expressways, arterials, collectors, locals, and lanes. Street classification is used to determine a variety of services and operational requirements, such as:

- Level of service for a variety of maintenance practices;
- Transit services;
- Access management;
- Posted speed limits;
- Location of traffic calming measures;
- Street cross-section features; and
- Sector and neighbourhood planning.

Detailed information around the various cross-section elements and the specifications for the various street classification can be found in the City's *Design and Development Standards Manual, Section Eight Transportation Systems*.

4.4 STREET DESIGN POLICY

Council Policy C07-030, Street Design Policy is based on the *Complete Streets Design and Policy Guide*.

The purpose of this policy is:

- To plan and design existing and retrofit streets to effectively support the movement of people of all ages and levels of mobility by providing appropriate and accessible facilities that support pedestrians, cyclists, transit users, as well as motorists; and integrating the street environment with existing and future land uses.
- To provide safe and accessible facilities for all road users and provide guidance on how to incorporate Complete Streets concepts into the planning, design, construction of new streets, and reconstruction of existing streets.
- To integrate best practices of universal design in all elements of the right-of-way.
- To accommodate pedestrians, cyclists, transit users, and motorists in a balanced and cohesive manner.
- To provide transportation options that promote a healthy, active community by creating livable neighbourhoods that encourage people to travel by walking, cycling, and taking transit.
- To guide operations and maintenance of existing and new streets to support the movement of people of all ages, abilities, and levels of mobility along streets.

For detailed information of the process and design for new subdivision developments, infill developments, and redevelopment of properties in the City pertaining to transportation requirements, review the *City's Design and Development Standards Manual, Section Eight – Transportation Systems*.

4.5 SASKATOON NORTH PARTNERSHIP FOR GROWTH

The Saskatoon North Partnership for Growth (P4G) is a collaborative that comprises the following partnering municipalities:

- City of Saskatoon;
- Rural Municipality of Corman Park (RM);
- City of Martensville;
- Town of Osler; and
- City of Warman.

In 2017, the five partner municipalities endorsed the *P4G Regional Plan* in principle, including a Regional Land Use Map, a Regional Servicing Strategy, and a Regional Governance and Implementation Strategy. These documents established a high-level approach to collaborative land use and infrastructure planning that will enable the region to grow to a population of one million over the next 50 to 70 years. P4G is now being formalized as a Planning District, and the partner municipalities are adopting an Official Community Plan bylaw for the District that reflects the *P4G Regional Plan*. The P4G District Land Use Map can be found in Appendix A: Transportation Maps. This map illustrates future urban and rural growth areas, and important future elements of our regional transportation network such as the proposed Saskatoon Freeway alignment and potential interchange locations.

4.6 FUTURE INITIATIVES

4.6.1 Pedestrian and Cycling Facility Retrofit Design Guide

Adding pedestrian and cycling facilities in existing neighbourhoods to provide network connectivity for these modes will help make walking and cycling a more convenient and practical option for day-to-day travel. Considering industry standards and best practices, adapted to the Saskatoon context, develop a pedestrian and cycling facility retrofit design guide to facilitate the construction of new sidewalks, pedestrian accessible curb ramps, and cycling facilities in established areas.

4.6.2 Cycling Network Expansion

Expanding and enhancing Saskatoon's cycling network will require a combination of strategies including ensuring that new neighbourhoods and infill areas have adequate places for cycling and addressing gaps in the existing cycling network. Adopt and implement a strategy for expanding cycling infrastructure in existing neighbourhoods that provides AAA facilities as well as non-AAA facilities while considering the recommended network streets proposed within the *AT Plan*, as well as alignment with rehabilitation work.

4.6.3 Saskatoon Freeway Functional Planning Study

The Government of Saskatchewan, through the Ministry of Highways and Infrastructure (Ministry), is engaging in a functional planning study that will finalize the right-of-way plan, produce project cost estimates, and determine the interchange locations and configurations for the Saskatoon Freeway. This freeway is expected to be a four-lane, 55-kilometre stretch of divided highway that begins at Highway 11 south of Saskatoon and connects with Highway 7 west of the city (<https://saskatoonfreeway.org/>).

The City is actively involved in this study through participation on its various committees and Technical Working Groups. The City will continue to work with the Ministry and study consultants on the Saskatoon Freeway project.

4.6.4 P4G Planning District

The *P4G Official Community Plan (P4G OCP)* sets out the intent of concept plans to create land use and servicing frameworks that will facilitate development in both rural and urban growth areas, while ensuring efficient and cost-effective transition to urban development in the future where the development is intended to become urban.

As identified within the *P4G OCP*, concept plans are required to provide a framework for more detailed land use and servicing that will be completed for specified areas of the P4G Planning District:

- The North Concept Plan study area, located in the RM, north of Saskatoon and south of Warman and Martensville, encompasses both rural and urban growth areas.
- The South East Concept Plan is being considered for an area located southeast of the City between approximately Highway 16 South and Highway 11 South, inside the Saskatoon Freeway alignment.
- Additional Concept Plans will be considered for areas within the P4G Planning District as needed.

The *P4G Regional Plan* also identified the need for a Regional Transportation Plan, which would include updating the Regional Travel Demand Model. The project is included in the P4G capital plan and subject to budget approval from the partner municipalities.

Guiding Principles

- Maintain *Council Policy C07-030, Street Design Policy* as a guiding document for the planning and design of new and existing streets.
- Review the design of new streets through a Complete Streets lens, ensuring that they meet the principles outlined in the *Complete Streets Design and Policy Guide* and *Design and Development Standards Manual, Section Eight Transportation Systems*.
- Review the retrofit design of existing streets through a Complete Streets lens, ensuring that possible improvements to the existing transportation system are incorporated.
- Street design reflects:
 - Existing development, or planned development, where planned future land use, a secondary plan or the transportation functional plan indicates; and
 - The principles of *Council Policy C07-030, Street Design Policy*.
- The transportation network provides mobility options for people of all ages and abilities.
- Support land use and development patterns that facilitate moving around using active transportation and ensure adequate infrastructure is provided in new neighbourhoods, infill areas, and along growth corridors.
 - Ensure new neighbourhoods and growth in new suburban areas have pedestrian and cycling facilities that integrate with the existing and planned active transportation network connecting to other neighbourhoods and destinations.
 - Support new neighbourhood developments that have a mix of land uses and higher densities to ensure that destinations such as community centres, grocery stores, parks and schools are within walking distance.
 - Evaluate infrastructure in corridor growth areas and identify appropriate retrofits and/or new facilities to ensure support for development that is medium- and high-density, transit-oriented, street-oriented and pedestrian-scale.
- Establish a complete, connected, accessible, and convenient network of active transportation facilities throughout Saskatoon.
 - Create a city-wide network of pedestrian infrastructure by adopting a strategy for sidewalk infrastructure which prioritizes the installation of missing links in the pedestrian network, constructs new sidewalks to complete the network, and seeks opportunities to implement new sidewalks in conjunction with other projects, plans or developments.
 - Develop a city-wide network of cycling facilities by adopting and implementing a strategy for AAA and non-AAA facilities.
 - Ensure a connected walking and cycling network providing safe, convenient, and barrier-free access to new and existing grade separated facilities such as bridges, underpasses, and overpasses.
- All new and retrofit bridges and interchanges on arterial and lower classification streets are designed and built to accommodate pedestrian and bicycle use on both sides.
- Work with the P4G partners, as well as the Government of Saskatchewan, First Nations, and other regional partners, as necessary to
 - maintain and develop connections to the provincial highway system so people and goods may be moved more efficiently within the city and region.
 - develop a transportation network that can be transitioned as urban development occurs in the City's future urban growth areas.

5.0 GOODS MOVEMENT

Objective

To recognize the important economic role of goods movement by providing a safe, efficient, and connected goods movement network within the City integrated with the regional highways network. The city street network provides an intermodal interface with the two national railway carriers and the airport.

Supports

OCP OBJECTIVES

- #2 To support the economy of the Saskatoon region by providing a transportation network that supports the movement of people and goods throughout the city and region.

- #3 To provide a hierarchy of streets throughout the city, serving the needs of all modes of transportation.

- #5 To provide safe and orderly access to sites and public streets.

- #8 Support access, connectivity, and movement in the regional transportation network.

- #9 Develop and maintain a highly interconnected transportation network for moving people and goods throughout Saskatoon.

Strategic Plan GOALS

- #1 Our Plan for Growth is sustainable, through a balanced approach to land use, transportation choices, and efficient servicing.

- #2 Regional partnerships provide the best opportunities for sustainable prosperity and quality of life.

Growth Plan OBJECTIVES

- #5 To support the efficient provision of infrastructure and associated services.

- #10 To connect arterial roads that serve travel between core area communities in Saskatoon.

Discussion

Goods movement is about how consumer and manufacturing products reach their destinations. This includes their journeys to, from, and within Saskatoon. The ability to deliver goods reliably and on schedule is vital to any business. As the Saskatoon region continues to grow, the growth in demand for moving goods will put pressure on the transportation system. An effective and efficient transportation network ensures the reliability of products arriving to their destination on time.

5.1 TRUCKS

Truck routes are a vital component to Saskatoon's goods movement network. The Truck Permit Program is governed by *Bylaw 7200 – The Traffic Bylaw*, which outlines regulations and required routes for long haul and pick-up/delivery trucks within the city limits. Saskatoon's truck routes and structure clearances can be found in Appendix A: Transportation Maps.

POLICIES AND PRACTICES

Regulations on the transportation of dangerous goods through the City can be found in [Bylaw 8153 – The Transportation of Dangerous Goods Bylaw](#).

5.2 RAILWAYS

The railway lines that run through the City are an important part of moving goods, at a local, regional, and national level.

5.2.1 Railway Relocation vs Grade Separation

The railway lines intersect the street network at multiple locations in the City. The City initiated the railway relocation vs grade separation project to investigate eliminating the railway versus road user conflicts in order to increase the efficiency of the transportation system and improve safety. The project examined the feasibility of grade separating important street crossings as well as the feasibility of relocating the Canadian Pacific Railway (CP) track outside of city limits in order to eliminate those crossings within the city.

Relocation, in the form of a shared corridor, was the recommended option for the two scenarios studied. At this time, both CP Railway and Canadian National Railway (CN) have declined to investigate the shared corridor concept further.

5.2.2 Railway Crossing Safety and Whistle Cessation

According to the *Grade Crossings Regulations: Railway Safety Act*, both the railway company and the road authority must ensure compliance with the requirements of Grade Crossings Standards at all grade crossings. Transport Canada's objective for the crossing safety program is to reduce collision risk (frequency and severity) and ensure compliance with the technical standards.

A safety assessment was completed for all at-grade railway crossings in the City. The required signs and pavement marking installations, as well as sightline clearances are underway. Remaining initiatives outlined in the safety assessment are to be completed by November 2021 in coordination with the railway companies.

Guiding Principles

- Maintain a comprehensive network of truck routes, including dangerous goods routes, which rely primarily on highways and arterial roadways.
- Protect the integrity of major goods movement corridors through the establishment of appropriate land use planning and access control.
- Balance community livability with goods movement needs:
 - Integrate goods movement considerations into planning and development plans; and
 - Minimize or mitigate land use conflicts.
- Manage transportation network safety and economic efficiency:
 - Implement strategic investments; and
 - Ensure street design is compatible with current vehicle size and weight regulations.
- Review at-grade crossings within City boundaries on a regular basis for compliance with the anti-whistling requirements and pursue whistle cessation at crossings where the criteria have been met.

6.0 PUBLIC TRANSPORTATION

Objective

To provide reliable, accessible transit service that encourages more people to choose public transportation as their mode of choice in all seasons of the year.

Supports

OCP OBJECTIVES

- #1** To develop an urban form and land use pattern that will promote transportation options and be accessible to all users, encourage walking, cycling, and public transit use, and help to promote a balanced transportation network that meets the needs of Saskatoon's residents and visitors.

- #4** To plan and design streets to support the movement of people of all ages and levels of mobility, in all seasons of the year, by providing appropriate and accessible facilities that support pedestrians, cyclists, transit users, and motorists.

- #9** Develop and maintain a highly interconnected transportation network for moving people and goods throughout Saskatoon.

- #12** To meet the needs of all intended users of the transportation network.

- #16** To promote land use and development patterns that support an efficient and effective public transit system.

- #17** Develop high quality transit facilities to encourage transit ridership.

- #18** To operate and maintain an accessible and efficient transit system that provides individuals with the opportunity to use the system with ease and dignity.

Strategic Plan GOALS

- #1** Our Plan for Growth is sustainable through a balanced approach to land use, transportation choices, and efficient servicing.

- #4** The transportation network includes an accessible and efficient transit system and a comprehensive network of active transportation to provide more choice to move around the city.

Growth Plan OBJECTIVES

- #2** To create and improve access to employment and amenities.

- #3** To improve mobility options for people along major corridors and on a city-wide basis.

- #5** To support the efficient provision of infrastructure and associated services.

- #6** To support and shape opportunities for growth and development beyond current plans.

- #7** To provide frequent, direct, and reliable transit services for the most significant travel markets.

- #8** To provide neighbourhood services that support local area travel and connections to primary corridors.

- #9** To provide transit supportive facilities that enhance safety and comfort for customers.

- #12** To connect pedestrians, cyclists, transit, and vehicles to promote sustainable modes of travel within the core area.

Discussion

A comprehensive public transportation system supports a sustainable, livable city where people use transit as a preferred transportation choice. To meet the transportation requirements of a growing city, Saskatoon needs to provide a variety of transportation options for users of all ages and abilities in all seasons of the year.

6.1 SASKATOON TRANSIT

To move from the current coverage-based model to a high-frequency model, Saskatoon Transit introduced high frequency service along 8th Street, 22nd Street, and College Drive to Preston Avenue North. These frequency changes were made to improve service, encourage ridership, and improve mobility of riders.

For details on the current service provided by Saskatoon Transit, refer to the *Saskatoon Transit Annual Report*.

6.2 PRIVATE TRANSPORTATION SERVICES

In Saskatoon, private transportation services consist of vehicles for hire, such as taxis and transportation network companies (TNC).

Taxis, taxi brokerages, and taxi drivers are licensed by the City and regulated under *Bylaw 9651 - The Vehicles for Hire Bylaw*. TNCs are also regulated by the Province of Saskatchewan.

6.3 FUTURE INITIATIVES

6.3.1 Bus Rapid Transit

A Bus Rapid Transit (BRT) system will help Saskatoon Transit accommodate the City's expected growth to half a million while making transit a more attractive option for all. BRT is a premium transportation system designed to improve capacity and reliability compared to conventional bus systems. It allows for more people to move more efficiently through optimized routes and dedicated travel lanes, while retaining the low-cost and flexibility of buses.

A BRT system uses several strategies to create reliable, comfortable, and efficient experiences for transit users, pedestrians, and drivers. Some of these strategies include:

- Transit Signal Priority Measures;
- Dedicated Transit Only Lanes;
- Queue Jump Lanes;
- Customer systems; and
- Improved stations.

The BRT system will connect the City from east to west and north to south along major corridors. A map of the approved BRT network can be found in Appendix A: Transportation Maps.

Guiding Principles

- Increase bus frequency:
 - Create more direct routes that will cross the BRT corridors more often.
 - Increase bus frequency on regular routes and offer new routes as the City grows.
- Improve reliability and on-time performance:
 - Implement Intelligent Transportation System (ITS) providing improved efficiency through more detailed route analysis.
 - Maintain average fleet age of seven years through continued purchase of new buses.
- Enhance comfort:
 - Provide cleaner buses and shelters to offer a more comfortable and enjoyable ride.
 - Work with appropriate Administration to install missing sidewalks and pedestrian ramps to facilitate accessibility of transit facilities.
 - Convert high volume transit shelters to heated transit shelters.
 - Install transit shelters in more locations.
- Improve customer service:
 - Provide more customer-focused training to build customer-centered service skills.
 - Increase the quantity and quality of the information that customers receive.
- Implement the BRT plan associated with the Growth Plan:
 - Continue to develop the BRT corridors throughout Saskatoon, increasing frequency, reliability, and commuting options.
 - Redesign the local bus routes.
- Continue to pursue Transportation Demand Management through the Growth Plan projects, i.e. Bus Rapid Transit, Transit Villages, Corridor Growth, etc.
- Continue to encourage transit to integrate with active transportation facilities:
 - Ensure active transportation networks support intermodal opportunities by integrating barrier-free pedestrian and bicycle infrastructure with transit facilities and services.
 - Provide secure bike parking at high use bus stops, transit terminals, employment areas, parks, and open spaces.



PART III: STRATEGY

7.0 TRANSPORTATION INVESTMENTS

Over the past number of years, many capital projects and programs have been presented to either a Standing Policy Committee or City Council for review and consideration. A map illustrating the location and category of these projects and programs can be found in Appendix C: The Big Picture Map.

7.1 PRIORITIZATION CRITERIA

The City has a Transportation Infrastructure Projects List, which consists of all the projects illustrated on the Big Picture Map. In order to prioritize the Transportation Infrastructure Projects List, seven prioritization criteria were derived from the *Strategic Plan 2018–2021*. City Council approved the prioritization criteria on March 23, 2020. Table 7-1 outlines the relationship of the prioritization criteria to the City’s strategic goals.

Table 7-1: Relationship of Seven Prioritization Criteria to the City’s Strategic Goals

Strategic Goals	Prioritization Criteria
Moving Around The transportation network includes an accessible and efficient transit system and a comprehensive network of active transportation to provide more choice to move around the city.	<ol style="list-style-type: none"> 1. Improves Equity 2. Improves Accessibility
Traffic flow throughout the city is safe and optimal.	<ol style="list-style-type: none"> 3. Improves Safety 4. Optimizes Traffic Flow 5. Addresses Network Gaps
Parking availability is optimized.	<ol style="list-style-type: none"> 6. Optimizes Parking
Sustainable Growth Our Plan for Growth is sustainable, through a balanced approach to land use, transportation choices, and efficient servicing.	<ol style="list-style-type: none"> 7. Facilitates Infill Development

7.2 PRIORITIZING THE TRANSPORTATION INFRASTRUCTURE PROJECTS LIST

Prioritizing the projects on the Transportation Infrastructure Projects List consisted of using the seven prioritization criteria and applying the following criteria weighting:

- 0 indicates no change;
- 1 indicates minor improvement;
- 2 indicates moderate improvement; and
- 3 indicates significant improvement.

Appendix D presents the Prioritized Transportation Infrastructure Projects List (List) ordered from highest to lowest priority. A brief background on each project is provided in Appendix E.

STRATEGY

The List was approved by City Council on June 29, 2020 with the following resolutions:

1. That the list of prioritized transportation projects be approved in principle;
2. That the information within the report of the General Manager, Transportation and Construction dated June 1, 2020, be included in the next multi-year budget cycle; and
3. That the Administration include the interchange project at Marquis Drive and Idylwyld Drive on the list, with a note that it is currently under review, and rank appropriately.

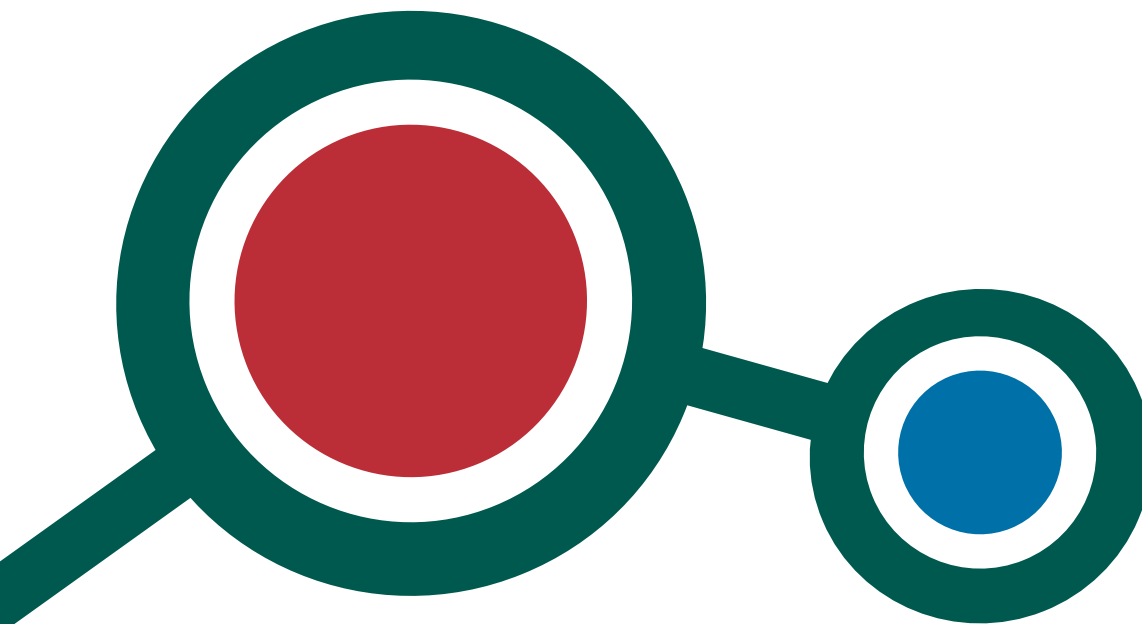
Both BRT and Corridor Growth projects have project funding plans independent of the *STMP*; therefore, these projects have not been included in the List. Also, many transportation infrastructure projects for new neighbourhoods have not been included as land development projects are typically funded and managed differently than the projects included on the List.

7.3 MANAGEMENT OF THE PRIORITIZED TRANSPORTATION INFRASTRUCTURE PROJECTS LIST

Management of the List will be as follows:

- Implementation begins in 2022 to coincide with the next budget cycle.
- For the next multi-year budget cycle, the Administration will propose funding based on the List and direction received from City Council.
- Early 2023, the List will be updated and provided again to City Council for deliberation.

Managing the List ensures City Council receives early indication of prioritized projects followed by receiving the funding request through the budgeting process in the next year. This process can then be repeated each budget cycle.



8.0 MONITORING AND REPORTING

Objective

Provide a basis for effective strategic decision making by monitoring and reporting on the progress made toward achieving the relevant targets and strategies of the *Active Transportation Plan* and *Growth Plan to Half a Million*.

Discussion

8.1 TRAFFIC MONITORING PROGRAM

The City's Traffic Monitoring Program currently consists of collecting motor vehicle traffic data. The program is designed to ensure that selected streets in the city-wide motor vehicle traffic data program are collected approximately every five years.

8.1.1 Traffic Data Reporting

Traffic factors are calculated by reviewing and analyzing the data collected at the City's permanent count stations. These factors are then applied to short-term traffic counts to prepare an estimated Average Annual Daily Traffic report summarizing the most recent year's data as well as historical data by location. The Average Annual Daily Traffic report is posted annually on the City's website.

8.2 MODE SHARE TARGETS

The Statistics Canada 2016 Census data for mode share of trips to work in Saskatoon is illustrated in Figure 8-1. The figure illustrates that the mode share of trips to work in Saskatoon consists of 5% walking and 2% cycling, totaling 7%.

The *AT Plan* outlines a target to increase walking and cycling trips to 24% of all daily trips and 15% of all commute trips by 2045.

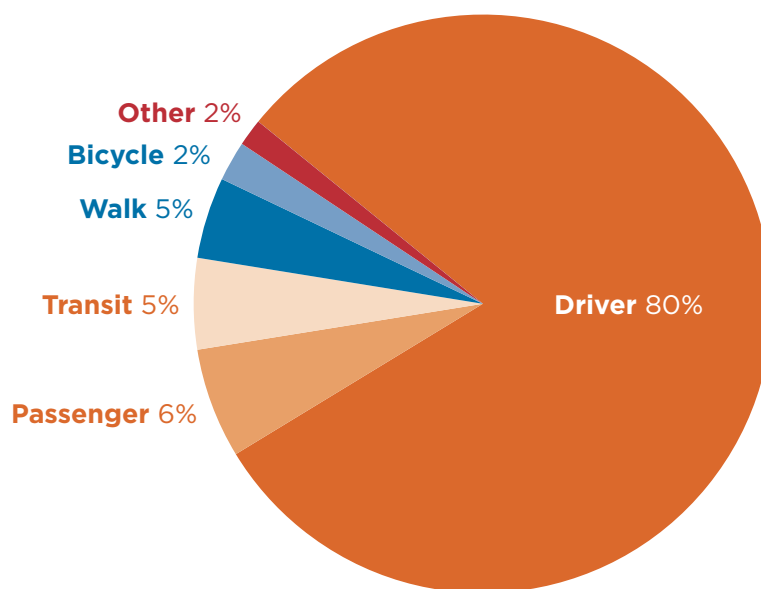


Figure 8-1: Commute Trips to Work Mode Share
(source - 2016 Census, Statistics Canada)

STRATEGY

8.2.1 Saskatoon Transit Ridership Target

Saskatoon Transit’s long-term target is to increase transit ridership to 62 trips per capita. Figure 8-3 illustrates Saskatoon Transit’s historical ridership data and target.

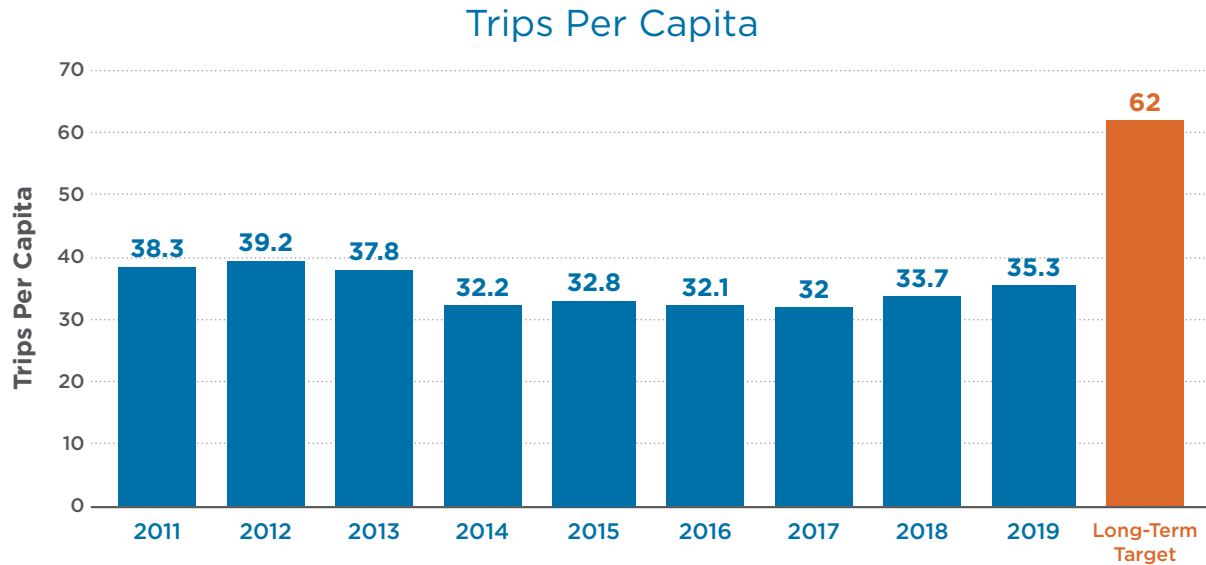


Figure 8-3: Historical Trips Per Capita

This long-term target is consistent with the transit rides per capita target identified in the *Growth Plan* strategy for a population in 30 to 40 years that is twice the size of Saskatoon’s current population.

8.2.2 Transit Data Reporting

Saskatoon Transit publishes performance measure statistics annually in the annual report. The data is based on fixed route service and access transit and covers annual ridership comparison, service reliability, on-time performance, number of complaints registered and addressed, and annual operating hours. The annual report can be found on the Saskatoon Transit website.

8.3 SAFETY

The City recognizes that the current best practice for creating the safest experience for transportation network users is through the safe systems approach. The safe systems approach recognizes that system designers (i.e. transportation engineers), road users (i.e. all modes), and system operators (i.e. roadways and operations, traffic signal specialists, police, transit operators) must work together. It is a shared responsibility with everyone focused on safety. At the core of the safe systems approach is the fact that the human body has limited capacity to tolerate the impact from collisions. This approach also recognizes the need for safe roads, safe speeds, safe people, and safe vehicles.

The City has access to the Saskatchewan Government Insurance (SGI) collision data which is used to monitor the current collision trends for both individual locations and the City as a whole. Collisions are defined as all police-reported collisions on public property with greater than \$5,000 damage or includes an injury or fatality.

8.3.1 Collision Trends

The following three figures illustrate the current collision trends for the City by presenting the previous five years (2015 to 2019) of SGI collision data:

- Figure 8-4 presents total collisions by year. The number of collisions per year varies, but the past five years of available data show a decline in the number of total collisions.
- Figure 8-5 presents vulnerable road users (pedestrian, cyclist, and motorcycle) collisions by year; these types of collisions are trending down.
- Figure 8-6 presents severe injury and fatal collisions by year. No specific trend in these types of collisions is obvious.

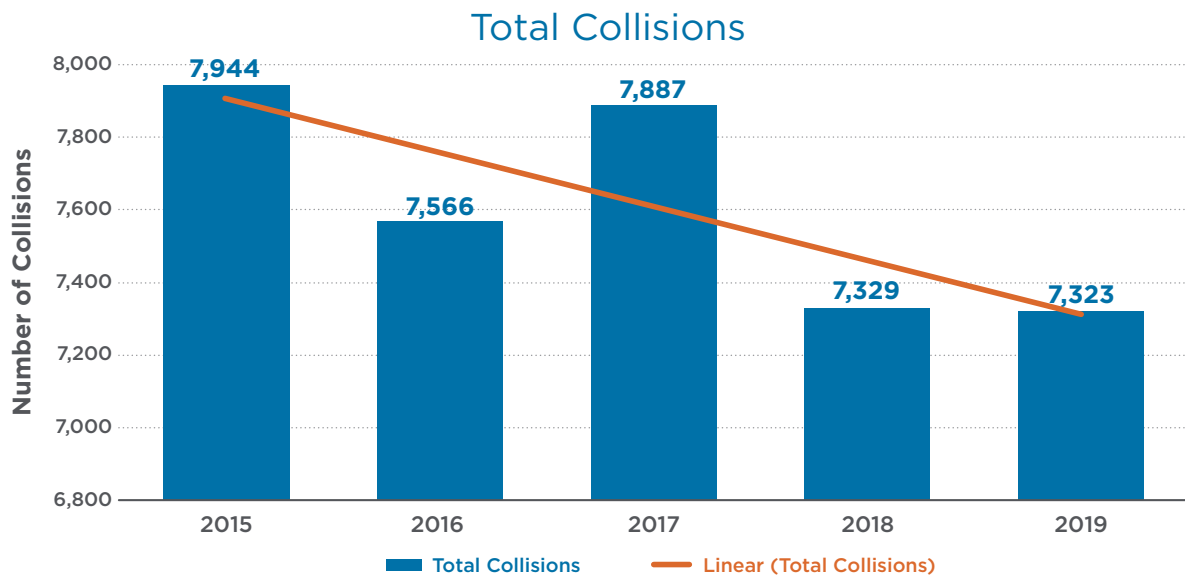


Figure 8-4: Total Collisions

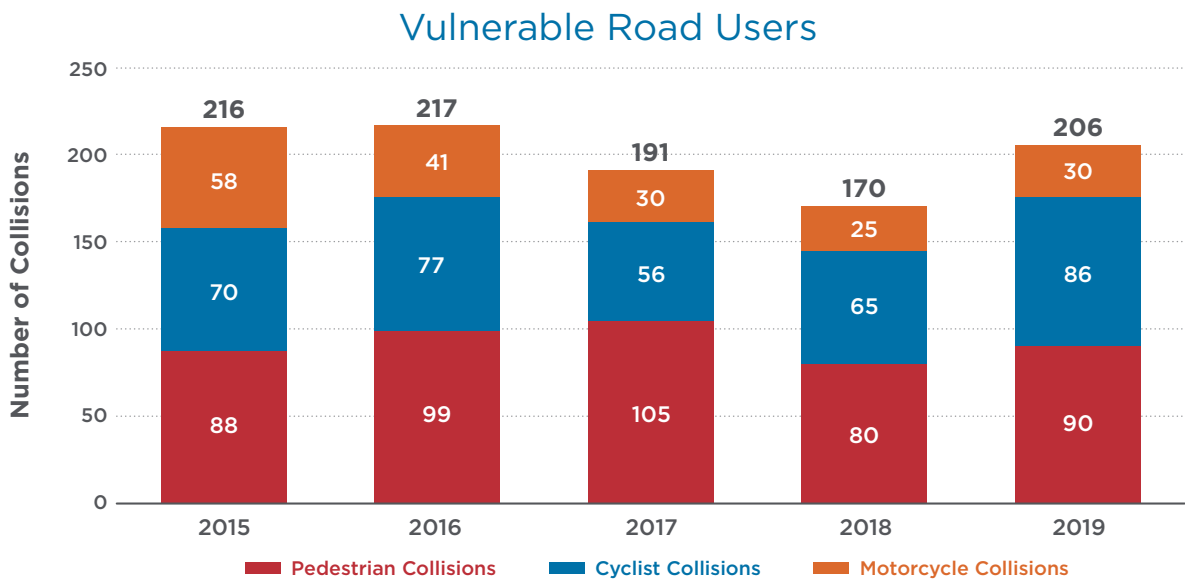


Figure 8-5: Vulnerable Road User Collisions

Severe Injury and Fatal Collisions

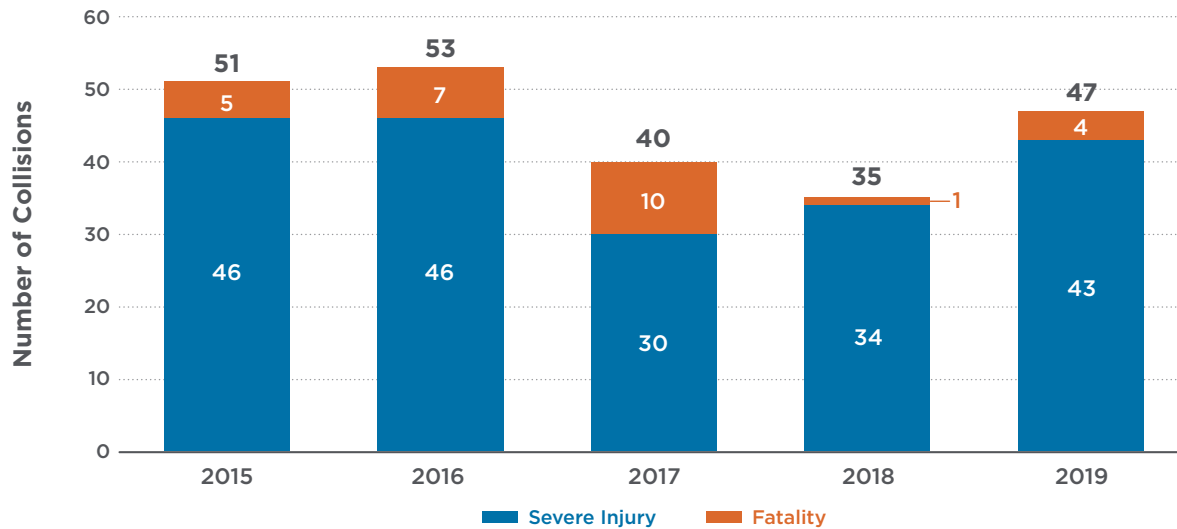


Figure 8-6: Severe Injury and Fatal Collisions

8.4 FUTURE INITIATIVES

8.4.1 Active Transportation Monitoring Program

The purpose of this initiative is to establish a comprehensive active transportation monitoring program to help inform future decision making. The outcome will be a program that collects and monitors pedestrian and cyclist activity on the transportation network.

8.4.2 Develop Collision Indicators

Collisions have impacts beyond injuries, including property damage and perception of safety. Through the planning, design, operation, and maintenance of Saskatoon’s streets, the City has a strong influence on safety.

Indicators will be set based on previous trends and research into other jurisdictions methodology to determine targets. Initially, the review will be focused on signalized intersections.

8.4.3 Collision Reporting

Monitoring collisions may help identify opportunities for systematic or localized improvements. A comprehensive collision report is planned for every three years. In interim years, a detailed study on a key collision topic will be prepared (topics may include vulnerable road users, arterial intersections, etc.).

8.4.4 Major Corridor Measures of Effectiveness

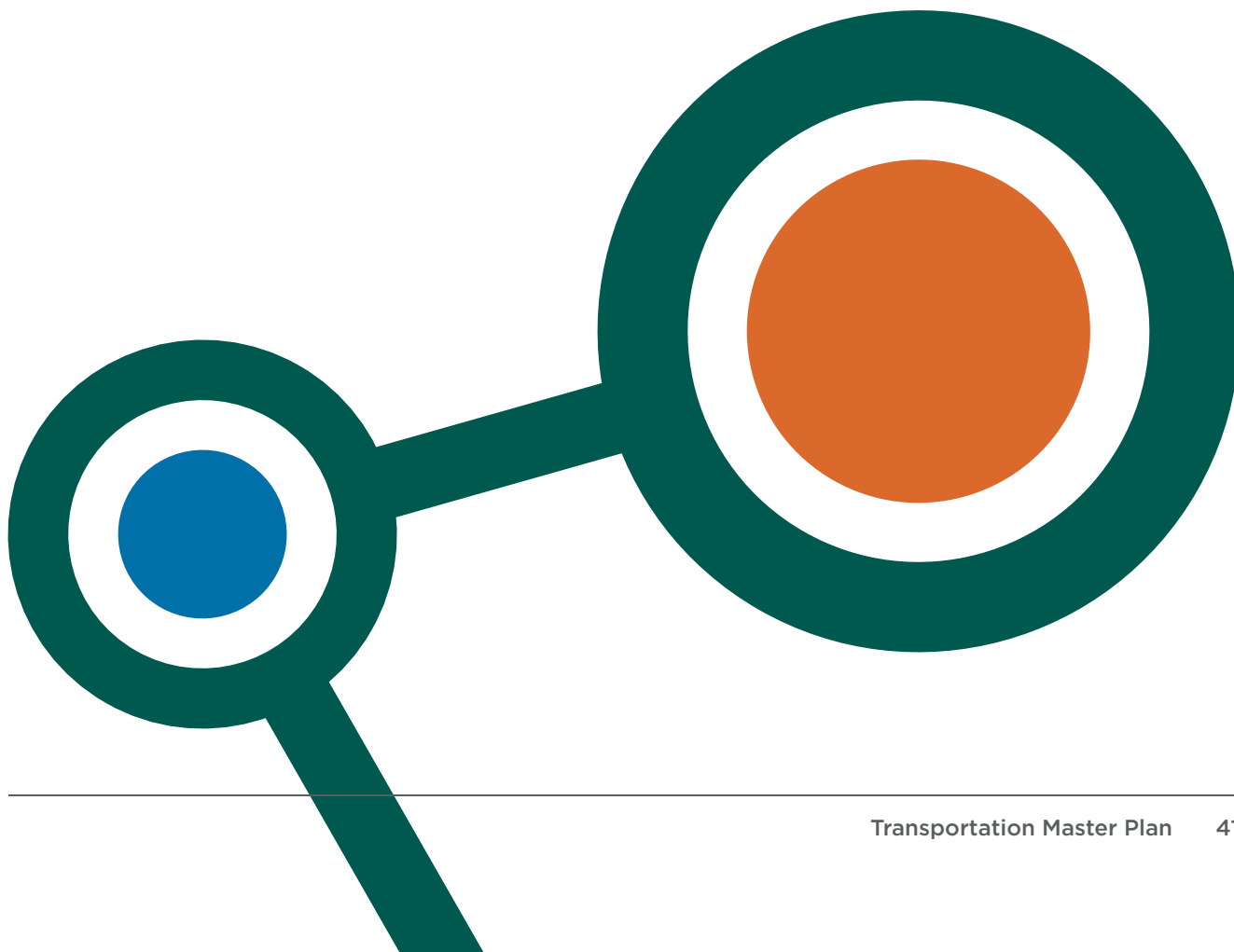
Motor vehicle travel time reliability is consistency in travel times. If travel times vary greatly from day to day, drivers remember the days they have encountered unexpected delays. Travel time reliability measured from day to day and/or across different times of the day will be our primary measure of effectiveness (MOE) for major corridors. A schedule will be developed to monitor major corridors and report on travel time reliability. Signal timing coordination studies will use the information gathered. Other MOEs may be considered through the course of further study.

8.5 SUMMARY OF TARGETS

The targets outlined in this component are summarized in Table 8-1 below. As baselines are established for future initiatives, additional targets will be developed.

Table 8-1: Summary of Targets

Metric	Baseline	Future State Target	Target Date
Mode Share Targets: All Trips	The City's 2013 Household Travel Survey data for mode share. All walking and cycling trips in Saskatoon total 12%.	All walking and cycling trips in Saskatoon total 24%. (AT Plan)	2045
Mode Share Targets: Commute Trips	The Statistics Canada 2016 Census data for mode share. All walking and cycling commute trips in Saskatoon total 7%.	All walking and cycling commute trips in Saskatoon total 15%. (AT Plan)	2045
Saskatoon Transit Ridership Target	In 2019 bus ridership was 35.3 trips per capita.	Transit ridership is 62 trips per capita. (Growth Plan)	2050-2060





APPENDICES







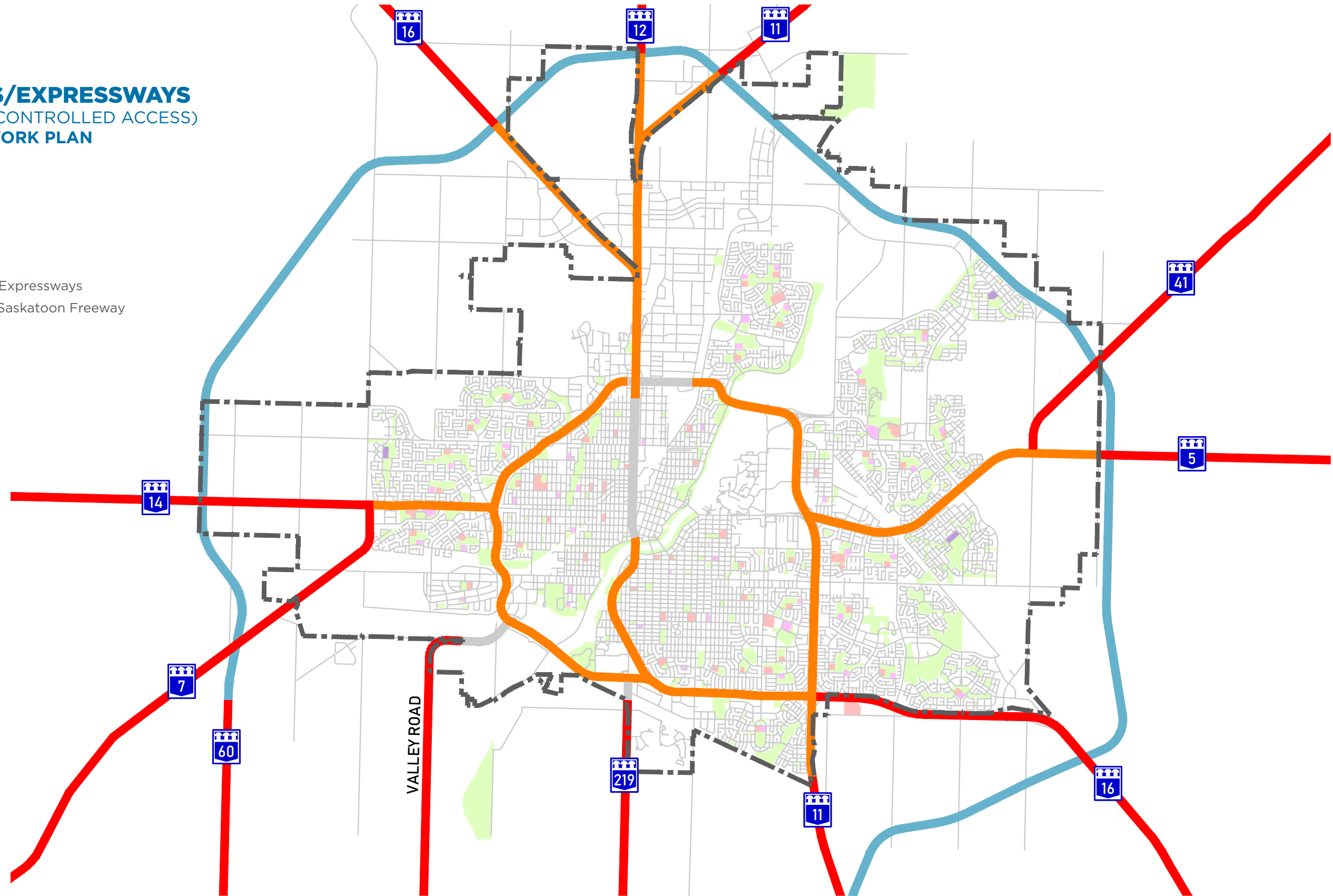
APPENDIX A: TRANSPORTATION MAPS

1

FREEWAYS/EXPRESSWAYS (HIGH SPEED CONTROLLED ACCESS) STREET NETWORK PLAN

Legend

-  City Limits
-  Highways
-  Freeways/Expressways
-  Proposed Saskatoon Freeway

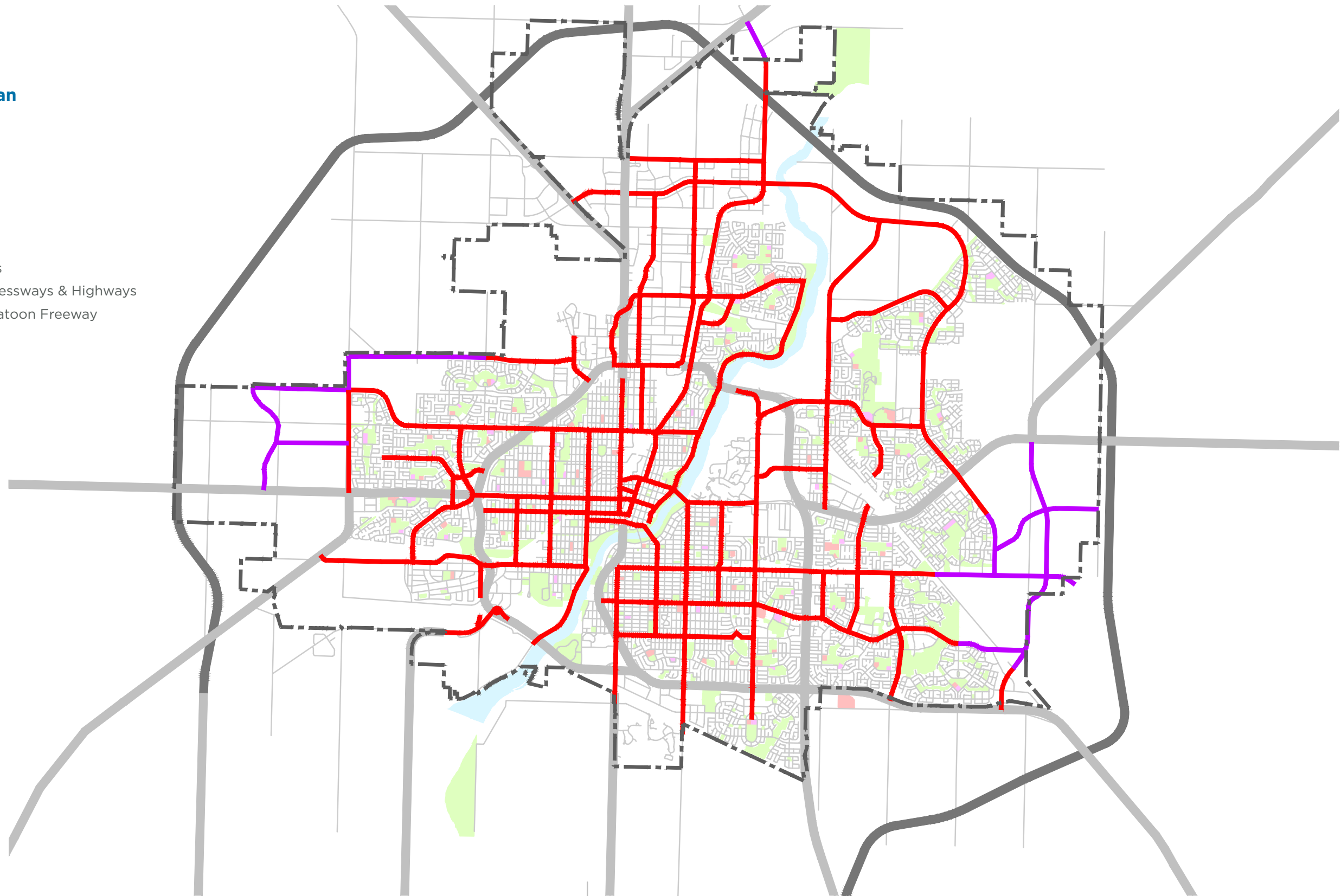


2

ARTERIALS
Street Network Plan

Legend

- - - City Limits
- Arterials
- Future Arterials
- Freeways/Expressways & Highways
- Proposed Saskatoon Freeway

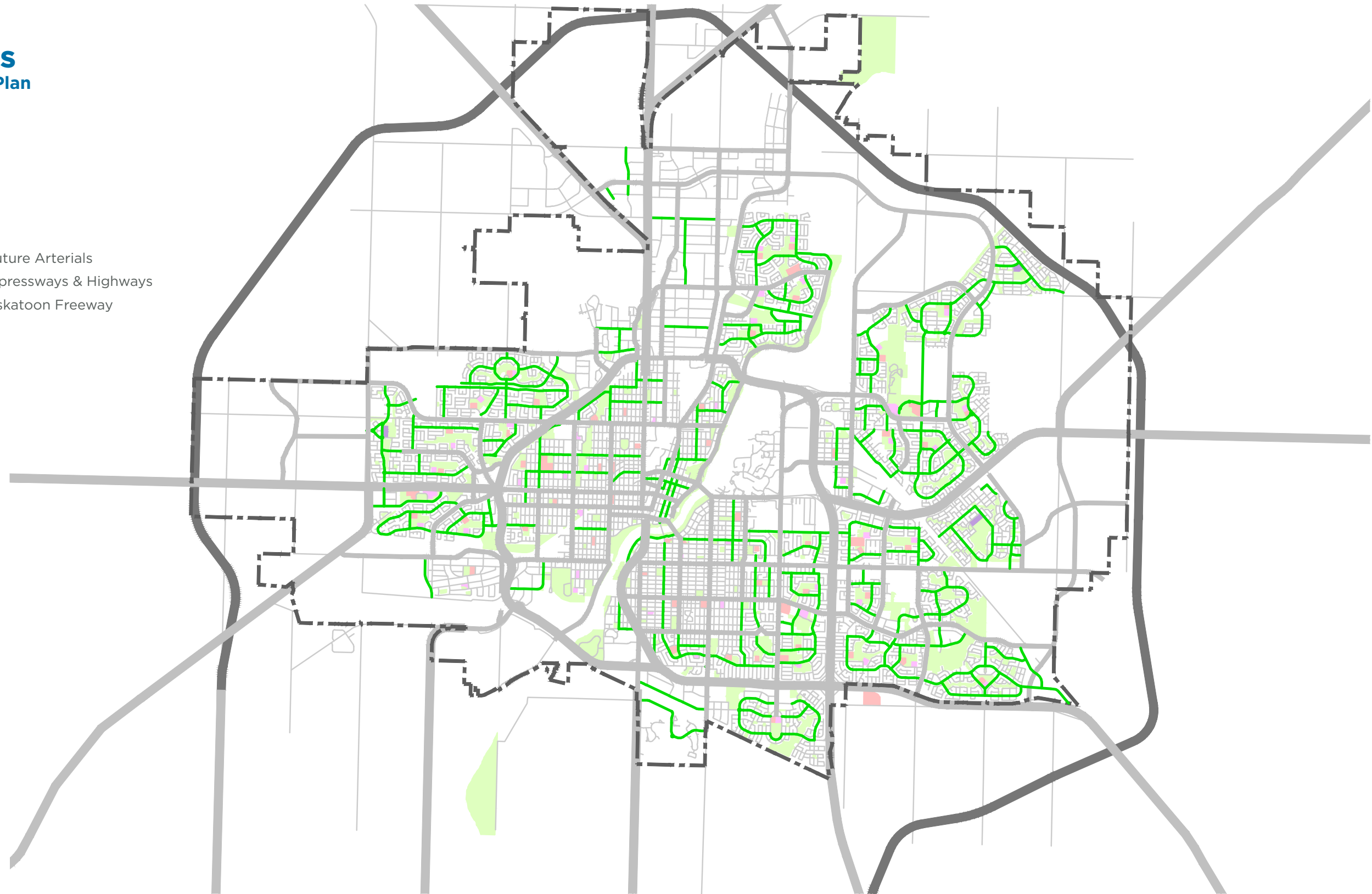


3

COLLECTORS
Street Network Plan

Legend

- - - City Limits
- █ Collectors
- ▬ Arterials & Future Arterials
- ▬ Freeways/Expressways & Highways
- ▬ Proposed Saskatoon Freeway

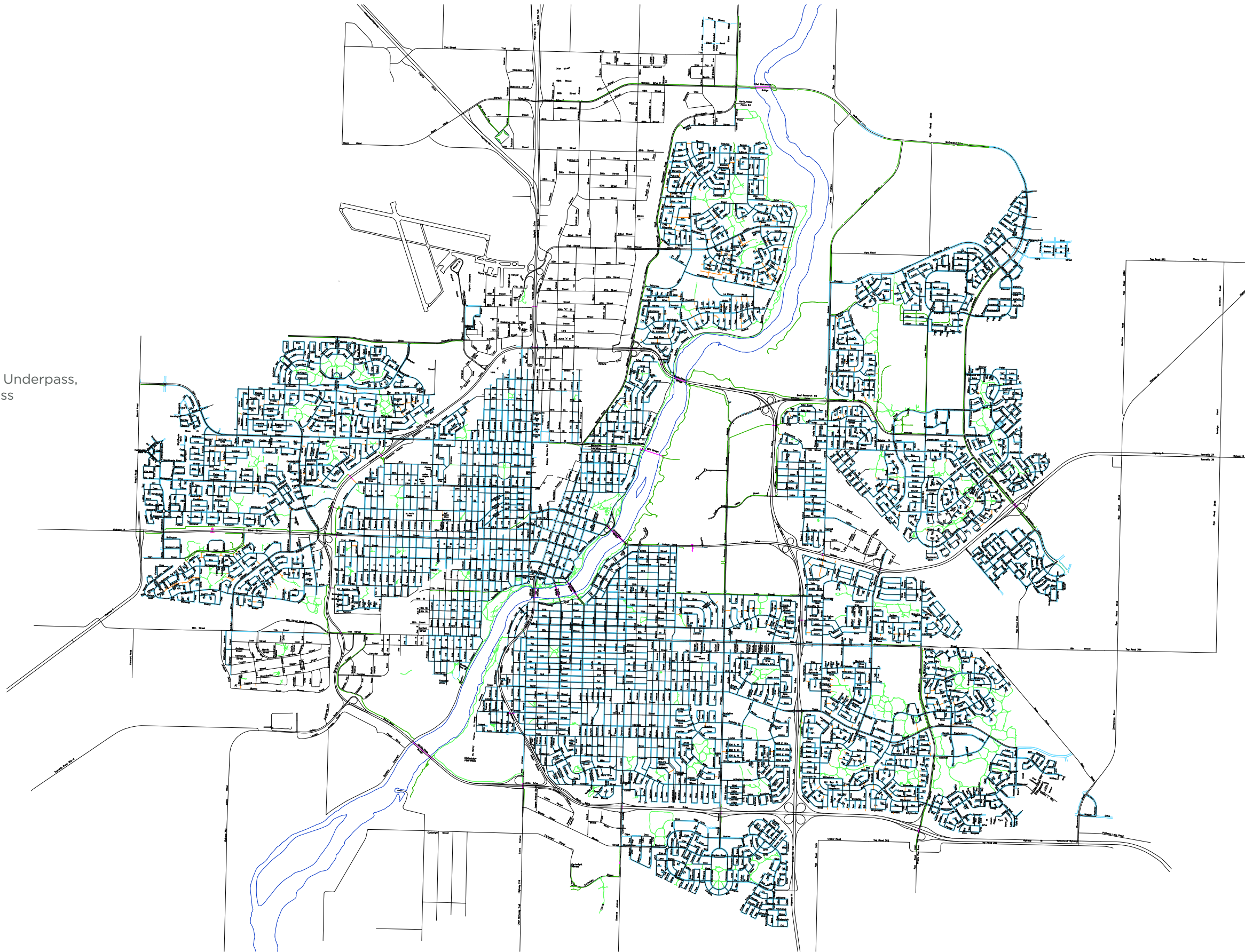


4

PEDESTRIAN NETWORK

Legend

- Sidewalk
- Multi-Use Pathway
- Walkway
- Park Path
- Bridge, Pedestrian Underpass, Pedestrian Overpass



5

CYCLING NETWORK

PRIMARY
ALL AGES & ABILITIES

Streets with low vehicle traffic and speeds or Off-Road Pathways that are suitable for riders of all ages and abilities

- Protected Bike Lanes
- Cycle Track
- Bike Boulevard
- Multi-Use Trails or Pathways
- Walkways or Parks
- Gravel or Crusher Dust Multi-Use Trails

SECONDARY

Streets with medium vehicle traffic and speeds suitable for intermediate riders

- Painted Bike lanes
- Shared-Use On-Road Cycling
- On Road, Sharing the Road or Bike Route

RESTRICTED

- Restricted Cycling
- Restricted Cycling

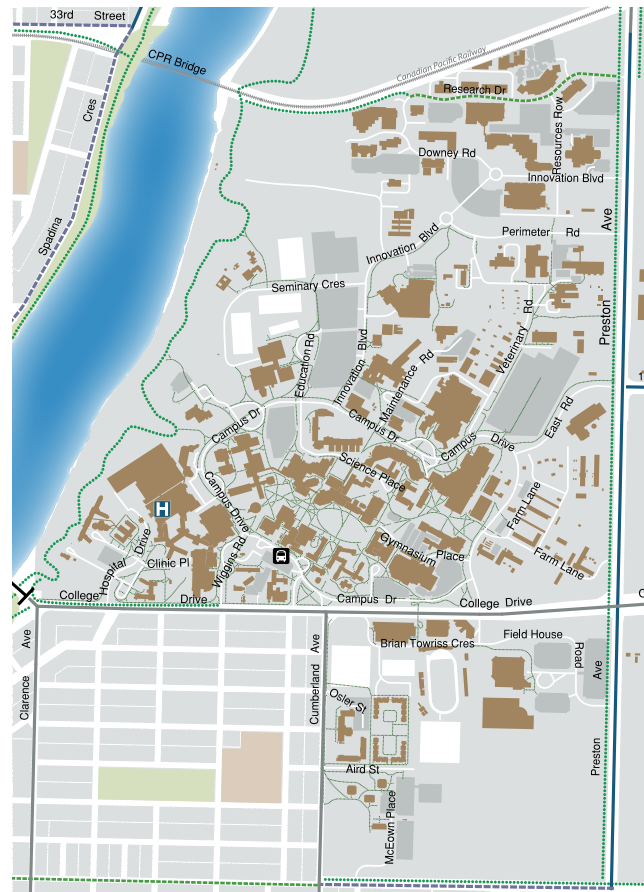
- Street Network
- Underpass/Overpass
- Underpass/Overpass with stairs
- Bridge
- No Access
- Bus Terminal
- Hospital
- Highway
- Railway
- Schools
- Leisure Centre
- Bicycle Repair Station



Cycling Network DOWNTOWN

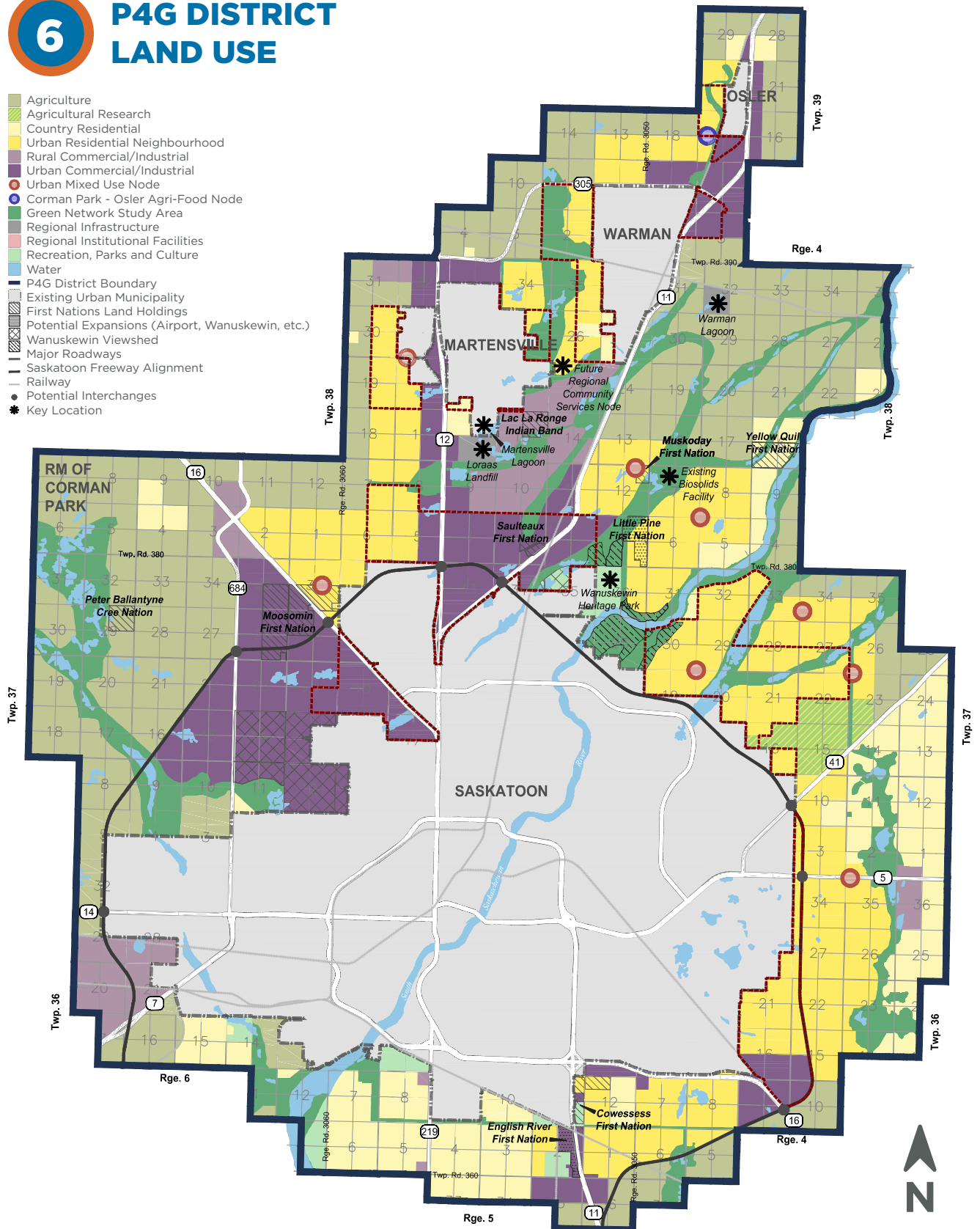


Cycling Network UNIVERSITY OF SASKATCHEWAN



6 P4G DISTRICT LAND USE

- Agriculture
- Agricultural Research
- Country Residential
- Urban Residential Neighbourhood
- Rural Commercial/Industrial
- Urban Commercial/Industrial
- Urban Mixed Use Node
- Corman Park - Osler Agri-Food Node
- Green Network Study Area
- Regional Infrastructure
- Regional Institutional Facilities
- Recreation, Parks and Culture
- Water
- P4G District Boundary
- Existing Urban Municipality
- First Nations Land Holdings
- Potential Expansions (Airport, Wanuskewin, etc.)
- Wanuskewin Viewshed
- Major Roadways
- Saskatoon Freeway Alignment
- Railway
- Potential Interchanges
- Key Location

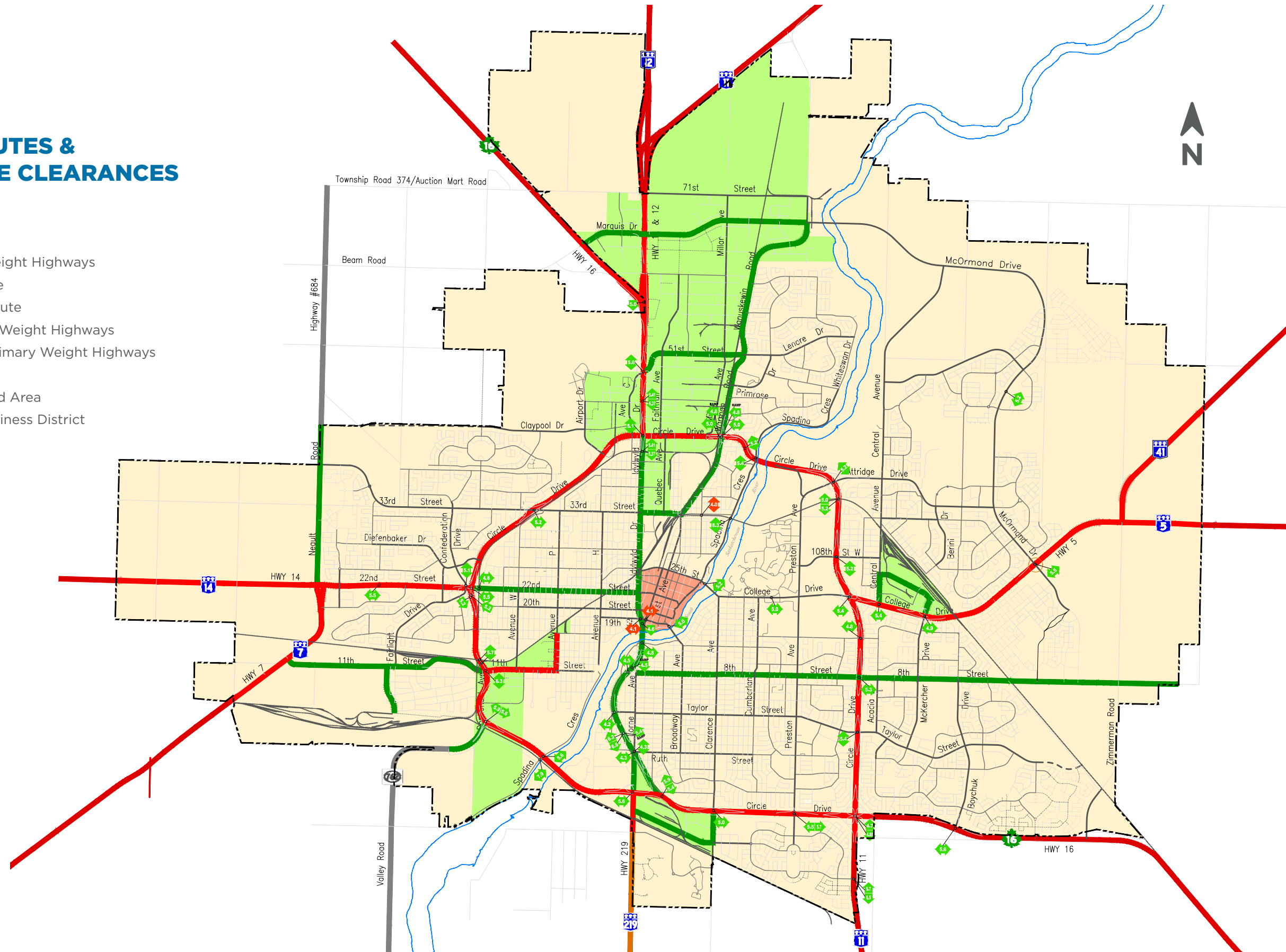


7

TRUCK ROUTES & STRUCTURE CLEARANCES

Legend

- Primary Weight Highways
- Truck Route
- Delivery Route
- Secondary Weight Highways
- 9-Month Primary Weight Highways
- City Limits
- Unrestricted Area
- Central Business District

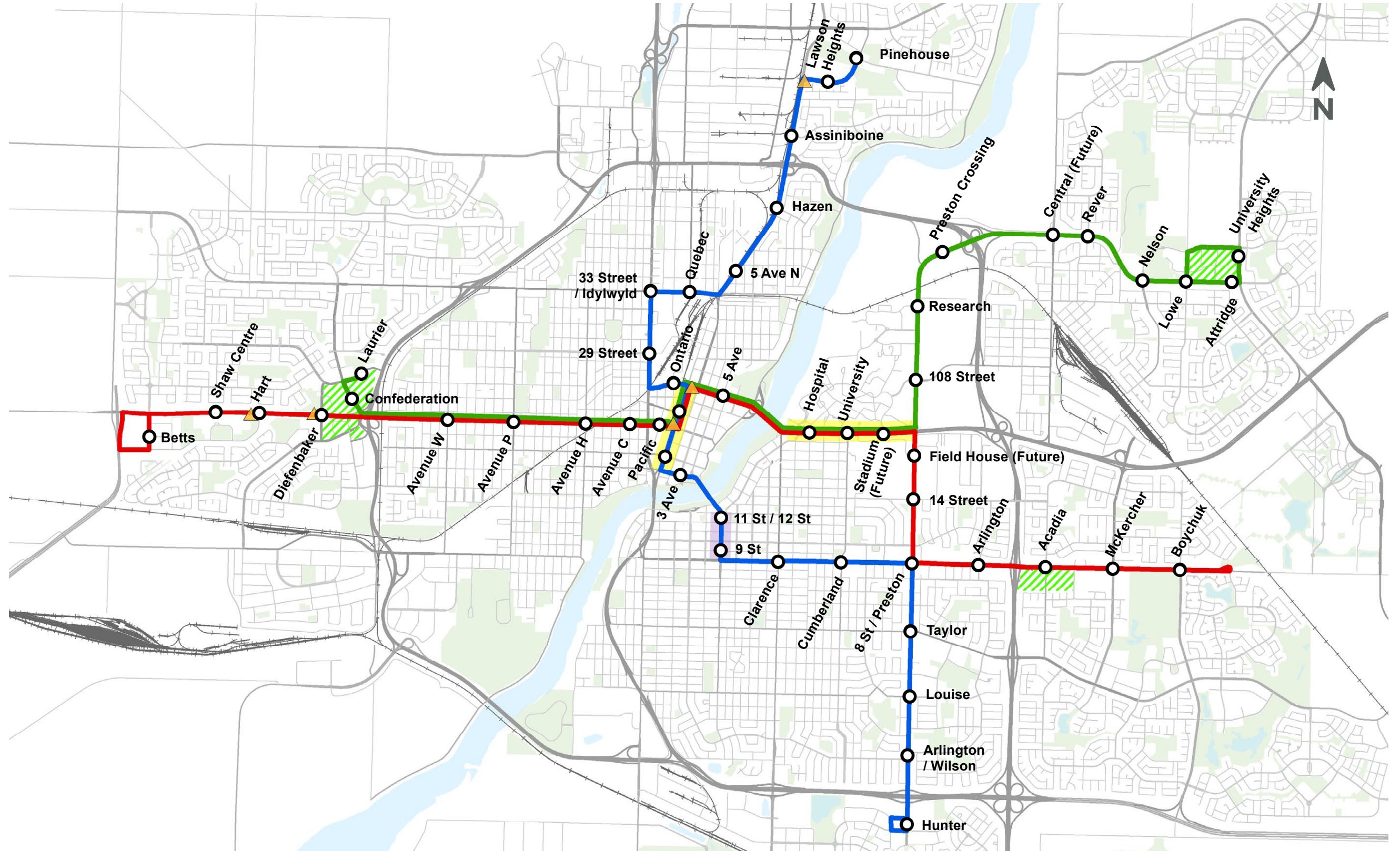


8

FUTURE BUS RAPID TRANSIT

Legend

- Stations
- ▲ Queue Jump Lanes
- Red Line
- Green Line
- Blue Line
- Mixed Traffic with Bump-out Stations
- Exclusive Runningways
- Transit Villages



APPENDIX B:

STREET CLASSIFICATION CHARACTERISTICS, PRINCIPLES, AND FACTORS

Street Classification Characteristics

Characteristic	Lanes		Locals		Collectors		Arterials		Freeways/ Expressways
	Residential	Commercial	Residential	Commercial	Residential	Commercial	Minor	Major	
Traffic Service Function	Land access function only (traffic movement not a consideration)		Land access primary function (traffic movement secondary consideration)		Traffic movement and land access of equal importance		Traffic movement major consideration	Traffic movement primary consideration	Traffic movement primary consideration
Land Service/ Access	Land access only function		Land access primary function		Traffic movement and land access of equal importance		Some access control	Rigid access control	No access
Typical Traffic Volume (veh/day)	<500	<1,000	<1,000	<5,000	<5,000	8,000–10,000	5,000–25,000		>20,000 >10,000
Traffic Flow Characteristics	Interrupted flow		Interrupted flow		Interrupted flow		Uninterrupted flow except at signals and crosswalks		Uninterrupted flow except at signals Free-flow (grade separated)
Typical Posted Speed Limits (kph)	20		50		50		50–70		80–90
Typical Vehicle Type	Passenger and service vehicles	All types	Passenger and service vehicles	All types	Passenger and service vehicles	All types	All types	All types, large portion of trucks	All types, large portion of trucks
Desirable Network Connections	Lanes, Locals		Lanes, Locals, Collectors		Locals, Collectors, Arterials		Collectors, Arterials, Freeways/Expressways		Arterials, Freeways/Expressways
Transit Service	Not permitted		Generally avoided		Permitted		Permitted		Express buses only
Cyclist Facilities	No restrictions or special facilities		No restrictions or special facilities		No restrictions; special facilities considered		No restrictions; special facilities considered		Prohibited*
Pedestrians Facilities	Permitted, no special facilities		Sidewalks provided both sides		Sidewalks provided both sides, separation from traffic lanes preferred		Sidewalks provided both sides, separation from traffic lanes required		Prohibited*
Typical Parking Restrictions	Some restrictions		No restrictions or restrictions one side only		Few restrictions other than peak hour		Permitted, restricted or prohibited	Prohibited or peak hour restrictions	Prohibited
Minimum Intersection Spacing (m)	As needed		60		60		200	400	800 or 1,600 between interchanges
Typical Right-of-Way Width (m)	6		15–22		21–41		33–43		75–125

*May be considered beyond the clear zone

Street Classification System Principles and Factors

Principles	Factors
Land Use	<ul style="list-style-type: none"> ● Major factor in determining the classification of the street and dictates: <ul style="list-style-type: none"> • access needs; • type of vehicle to design for; and • anticipated traffic volumes. ● Street design must also meet other objectives such as: <ul style="list-style-type: none"> • minimizing unnecessary vehicular traffic; • accommodating pedestrian and bicycle activity; • providing space for social activities; and • facilitating economic success of the area.
Land Service Function	<ul style="list-style-type: none"> ● All streets provide either service to traffic, access to land, or both. ● In general: <ul style="list-style-type: none"> • highest order streets (freeways/expressways) are designed with mobility in mind; • arterial streets are designed to facilitate mobility and higher-order network connectivity; • collector streets balance mobility and access; and • lower order streets (locals) are designed with few constraints to provide greater access to adjacent parcels.
Typical Traffic Volume	<ul style="list-style-type: none"> ● Higher volumes of traffic are carried on the higher-order streets, such as freeways/expressways. ● Lower volumes of traffic are carried on lower-order streets, such as locals and collectors. ● Expected traffic volume used during the design of new streets and traffic volumes for existing streets demonstrate their relative importance in the network, but are not intended to be regulatory.
Traffic Flow Characteristics	<ul style="list-style-type: none"> ● Traffic flow characteristics can be impacted by a number of possible street uses, such as: <ul style="list-style-type: none"> • number of accesses provided; • pedestrian usage; • on-street parking; and • amount of traffic crossing, entering, and leaving the roadway. ● Traffic flow is typically described as interrupted or free flow with various degrees between these extremes.
Posted Speed	<ul style="list-style-type: none"> ● Typically higher on the higher-order street classifications and lower on the lower-order street classifications.
Vehicle Types	<ul style="list-style-type: none"> ● Depends on the purpose of the street and the surrounding land use. ● Vehicle types using a street have a significant impact on the overall design of the street. There are three anticipated vehicles considered: <ul style="list-style-type: none"> • Design vehicle – largest typical vehicle that will frequently use the street; • Control vehicle – largest vehicle that will infrequently use the street; and • Managed vehicle – most common vehicle to use the street.
Network Connections	<ul style="list-style-type: none"> ● Streets reflect the normal progression of connectivity. ● An ideal system, allows for street users to adjust to gradual changes in the street cross-section features: <ul style="list-style-type: none"> • freeways/expressways connect with arterials; • arterials with collectors; • collectors with locals; and • locals with lanes. ● Other connections should be minimized.
Design User Groups and Modes	<ul style="list-style-type: none"> ● To create a connected street network for all modes of use, pedestrians, cyclists, and transit users must be considered. ● Each of these user groups will receive varying facilities and service based on the street classification.

APPENDIX C: THE BIG PICTURE

PLANNING STUDIES

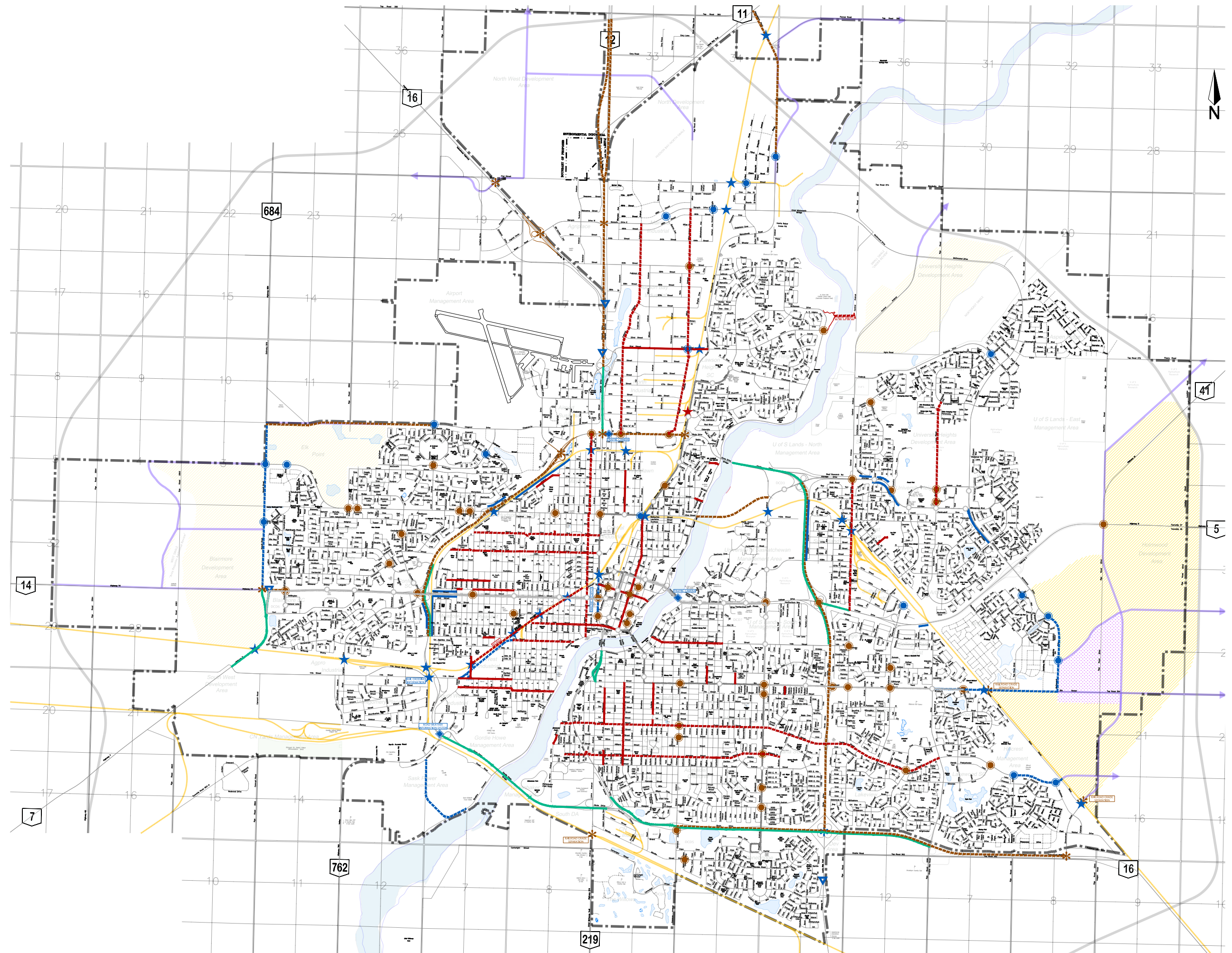
- Planning**
- Intersection Study
- Interchange Study
- Street Study
- Rail Crossing Notification System Improvement

CAPITAL PROJECTS

- Safety**
- Safety Improvement
- Operation**
- Street Improvement
- Sound Attenuation Monitoring Program
- Intersection Improvement
- Interchange Improvement
- Sign Improvement
- Intelligent Transportation Systems Improvement
- Rail Crossing Notification System Improvement
- Active Transportation**
- Sidewalk Infrastructure
- Cycling Infrastructure
- Active Transportation Infrastructure
- Railway Active Transportation Crossing
- City-Wide Projects**
- Curb Ramp Infrastructure Improvements
- Advanced Traffic Management System Communication
- Neighbourhood Traffic Review Future Permanent Traffic Calming
- Intelligent Transportation Systems Strategic Plan

MAP DETAILING

- Street Alignment
- Arterial Street Alignment
- Saskatoon Freeway Alignment
- City Limits
- School Sites**
- Public - Elementary/Secondary
- Separate - Elementary/Secondary
- Other**
- Storm Water Retention Ponds
- Wetlands
- Future Street Alignment
- Future Arterial Road
- Future Bus Rapid Transit Lines & Stations
- Future Residential Development
- Future Suburban Centre (Residential/Institutional)
- Park



APPENDIX D:

PRIORITIZED TRANSPORTATION INFRASTRUCTURE PROJECTS LIST

Project	Prioritization Criteria							TOTAL SCORE	Costs (in Millions)			
	Improves Safety	Improves Equity	Improves Accessibility	Optimizes Traffic Flow	Addresses Network Gaps	Optimizes Parking	Facilitates Infill Development		Planning	Design	Construction	Total
Sidewalk Infill Program ***	3	3	3	1	3	1	1	15	Program, n/a			
Downtown Active Transportation Network ***	3	3	2	1	3	1	1	14	0.13	0.30	4.50	4.93
Imagine Idylwyld	2	3	2	3	2	0	2	14		0.75	15.00	15.75
West Central Multi-Use Corridor (WCMUC)	3	3	3	1	3	0	1	14			2.50	2.50
17th Street Extension	1	3	2	2	2	0	3	13		1.70	8.37	10.07
Intersection Improvements Program ***	3	2	2	2	1	1	1	12	Program, n/a			
Railroad Active Transportation Crossing: Assiniboine Drive	3	3	3	0	3	0	0	12	0.01	0.01	0.48	0.50
Circle Drive: Clancy Drive to Laurier Drive	3	2	1	3	1	0	1	11		5.00	100.00	105.00
33rd Street River Crossing	0	2	2	1	2	0	3	10	0.02	2.00	40.00	42.02
Active Transportation Corridors ***	3	2	1	1	2	0	1	10	0.10	0.15	5.00	5.25
Cycling Infrastructure: Bundle One ***	3	2	1	1	2	0	1	10	0.15	0.15	1.47	1.77
Cycling Infrastructure: Bundle Two ***	3	2	1	1	2	0	1	10	0.06	0.10	0.93	1.09
Circle Drive: Laurier Drive to Airport Drive (Including Interchange: Airport Drive & Circle Drive)	2	2	2	2	1	0	0	9	0.25	3.95	79.00	83.20
Circle Drive: Idylwyld Drive to Warman Road	3	2	1	2	0	0	0	8	0.20	0.80	16.00	17.00
Intersection: 51st Street & Millar Avenue	3	1	1	2	0	0	0	7	0.02	0.10	2.00	2.10
Idylwyld Drive: 51st Street to 71st Street	2	1	1	2	0	0	0	6	0.20	1.63	32.50	34.13
Interchange: Circle Drive & Idylwyld Drive	2	1	1	2	0	0	0	6	0.20	2.25	45.00	47.45
Interchange: Highway 16 & Highway 11	3	0	0	3	0	0	0	6		14.00	280.00	294.00
Interchange: Marquis Drive & Idylwyld Drive ###	2	0	1	2	0	0	0	5	0.20	2.25	45.00	47.45
Idylwyld Drive: 71st Street to Saskatoon Freeway	1	1	1	2	0	0	0	5	0.20	1.63	32.50	34.33
North Utility & Active Transportation River Crossing	0	1	2	0	2	0	0	5		1.25	25.00	26.25
Interchange: Circle Drive & Warman Road	2	0	0	2	0	0	0	4	0.20	2.25	45.00	47.45
Interchange: Highway 16 & Marquis Drive	2	0	0	2	0	0	0	4	0.20	2.25	45.00	47.45
Railroad Grade Separation: Lorne Avenue	1	1	1	1	0	0	0	4	0.02	2.00	40.00	42.02
Circle Drive: 8th Street to Highway 16	1	0	0	2	0	0	0	3	0.20	1.40	28.00	29.60
Circle Drive: Attridge Drive to College Drive	1	0	0	2	0	0	0	3	0.20	1.20	24.00	25.40
Circle Drive: Clarence Avenue to Highway 11	1	0	0	2	0	0	0	3	0.20	1.45	29.00	30.65
Circle Drive: College Drive to 8th Street	1	0	0	2	0	0	0	3	0.20	0.85	17.00	18.05
Intelligent Transportation System (ITS) Strategic Plan ***	1	0	0	2	0	0	0	3	0.02	0.08	1.50	1.60
Rail Crossing Improvements	2	0	0	0	1	0	0	3	0.02	0.02	0.75	0.79
Roadside Safety: Median Barrier - Circle Drive - Circle Drive North Bridge to College Drive	3	0	0	0	0	0	0	3		0.04	0.79	0.83
Roadside Safety: Median Barrier - Idylwyld Drive - 8th Street to Saskatchewan Crescent East	3	0	0	0	0	0	0	3		0.06	1.25	1.31
Roadside Safety: Remaining High Priority ***	3	0	0	0	0	0	0	3	0.20	0.04	0.80	1.04
Highway 16: Highway 11 to Zimmerman Road	0	0	0	0	0	0	0	0	0.20	2.38	47.50	50.08
TOTALS									3.40	52.03	1,015.84	1,071.04

NOTES: *** = Program with multiple projects ### = Project is currently under review. Shaded box means that project phase is completed.

APPENDIX E:

PROJECT BACKGROUNDS

1. Sidewalk Infill Program

- This program involves the design and construction of new sidewalks or pathways adjacent to existing arterial, collector or local streets.
- The Active Transportation Implementation Plan, approved by City Council on March 25, 2019, provided a five-year plan for sidewalk infrastructure expansion and identified the following next steps for the Sidewalk Infill Program:
 - conduct a detailed review of the inventory of missing sidewalks;
 - prioritize the sidewalks for implementation;
 - complete feasibility analysis;
 - prepare designs for construction; and
 - develop cost estimates.

2. Downtown Active Transportation Network

- In April 2019, City Council endorsed the following Downtown Active Transportation Network Routes:
 - 19th Street, between Avenue A and 4th Avenue;
 - 3rd Avenue, between 25th Street and 19th Street; and
 - 23rd Street, between Idylwyld Drive and Spadina Crescent.
- Implementation decisions (including capital or detailed design expenses) are deferred until the Administration has completed additional engagement.
- After engagement in 2021, Administration report back with opportunities to reduce costs by completing active transportation work in conjunction with future streetscaping improvements.

3. Imagine Idylwyld

- The report detailing the concept for Imagine Idylwyld was received for information at City Council's Standing Policy Committee on Transportation (SPCT) on June 11, 2018.
- The purpose of Imagine Idylwyld was to develop a vision and conceptual plan to improve the function, safety, connectivity and quality of the roadway and public realm along Idylwyld Drive, between 20th Street and 25th Street East.
- The concept design is a hybrid of tested options that minimizes travel time for the most drivers while achieving the desire to support all modes of transportation and enable redevelopment opportunities. The concept design is compatible with the intended evolution of the land use along Idylwyld Drive and adjacent neighbourhoods, and enables safer connections for people riding bicycles or walking, including better access to the proposed Bus Rapid Transit (BRT) station near 22nd Street.
- The initial step would be to complete the detailed design based on the conceptual design.

4. West-Central Multi-Use Corridor (WCMUC)

Canadian Pacific Railway (CP) previously identified a safety issue with pedestrians walking on or close to the tracks in the downtown area. Through the Pleasant Hill, Riversdale, and West Industrial Local Area Plans, the City of Saskatoon identified a need to connect these neighbourhoods to the downtown via a multi-use pathway. To address safety and provide active transportation connections, the West-Central Multi-Use Corridor project was conceived. The resultant project is a three kilometre multi-use pathway adjacent to the CP tracks from Idylwyld Drive to Avenue W South. The project was approved by City Council in 2013 and the first phase was constructed between Idylwyld Drive and Avenue D South as part of the 25th Street Extension project.

Details on the project segments are as follows:

Segment	Notes
Avenue D to Avenue F	<ul style="list-style-type: none"> Design agreed to with CP Lease details almost finalized
22nd Street to 20th Street	<ul style="list-style-type: none"> Design is not agreed to with CP City can assume a number of leases over the next 5 years
20th Street to Avenue N	<ul style="list-style-type: none"> Design is not agreed to with CP Construction is possible however there are constraints
Avenue N to Grace Adam	<ul style="list-style-type: none"> Design is not finalized No constraints
Avenue P to Avenue W	<ul style="list-style-type: none"> Design is not finalized No constraints

5. 17th Street Extension

- West Industrial Concept Plan, approved by City Council in May 2008 included extension of 17th Street between Avenue P South and 11th Street West.
- Southwest Transportation Study report to SPCT in May 2018 maintained 17th Street extension and provided functional plans.
- The City previously purchased the property for the extension from CP.

6. Intersection Improvements Program

- Analysis, design and construction to retrofit existing intersection infrastructure.
- Candidate intersections are identified through collision data screening and public concern.
- Improvements are prioritized using benefit-cost analysis.
 - Warman Road & 33rd Street upgrades are planned 2020-2021, and
 - 51st Street & Millar Avenue are planned 2022-2023.

7. Railroad Active Transportation Crossing: Assiniboine Drive

- There is a pedestrian desire to cross the Canadian National Railway (CN) tracks west of Warman Road in the vicinity of Assiniboine Drive and Primrose Drive, resulting in trespassing concerns.
- The Active Transportation Plan (June 2016) proposed a pedestrian connection in the vicinity of Assiniboine Drive. However, an overpass or underpass is not feasible due to the proximity of the railway to Warman Road, elevation differences and the limited right-of-way width.
- Identified during the several adjacent Neighbourhood Traffic Reviews and citizen concerns, the functional plan for this crossing is currently being completed with the cooperation of CN.
- The current status is complete survey and detailed design.

8. Circle Drive: Clancy Drive to Laurier Drive

- Functional planning study is currently underway, expect draft final report and recommended plan spring 2020; a third public engagement will likely occur 2021.
- Consultant is currently incorporating feedback from the second engagement.
- Study includes both Clancy Drive and Laurier Drive, which have previously been identified as neighbourhood concerns.

9. 33rd Street River Crossing

- The *Growth Plan to Half a Million* included a river crossing connecting 33rd Street west of the river, to future growth area in the University lands west of Preston Avenue.
- The initial step would be to complete conceptual and functional designs.

10. Active Transportation Corridors

- Includes evaluation, design, and construction of walking and cycling facility improvements for five city-wide active transportation routes:
 - Southwest Corridor: 17th Street (Spadina Crescent to Avenue P) or 19th Street (Idylwyld Drive to Avenue N)
 - Southeast Corridor: Taylor Street (River to Boychuk Drive) or Adelaide Street (River to Boychuk Drive)
 - Northwest Corridor: Avenue C (Spadina Crescent to Circle Drive)
 - Northeast Corridor: Central Avenue (College Drive to Attridge Drive) and Lowe Road (Attridge Drive to Evergreen Boulevard)
 - North Industrial Corridor: Faithfull Avenue (Circle Drive to Marquis Drive) or Millar Avenue (Circle Drive to Marquis Drive).

11. Cycling Infrastructure: Bundle One

- This AT Bundle includes the design and construction of walking and cycling improvements to five corridors:
 - 14th Street East, from Saskatchewan Crescent to Cumberland Avenue;
 - Dudley Street, from Dawes Avenue to Spadina Crescent;
 - Victoria Avenue, from 8th Street East to Taylor Street East;
 - 3rd Avenue, from 25th Street East to 2nd Avenue North; and
 - 29th Street West (or 31st Street West) from Circle Drive to Idylwyld Drive.
- Planning for these corridors is currently underway through the Neighbourhood Bikeways Project.

12. Cycling Infrastructure: Bundle Two

- This AT Bundle includes the planning, design and construction of walking and cycling improvements to two corridors:
 - 19th Street, from Avenue H to Avenue A
 - Victoria Avenue, from Taylor Street to Ruth Street
- Planning is complete for 19th Street.
- Planning for Victoria Avenue would commence after the completion of the design for Victoria from 8th Street to Taylor Street.

13. Circle Drive: Laurier Drive to Airport Drive (including Interchange: Airport Drive & Circle Drive)

- The Administration is systematically completing functional plans for Circle Drive that would ultimately remove all at-grade intersections and widen to six lanes, with the exception of the segment between Idylwyld Drive and Warman Road.
- The initial step is to complete a functional design, currently planned for 2021 and 2022.

14. Circle Drive: Idylwyld Drive to Warman Road

- The Administration is systematically completing functional plans for Circle Drive.
- This segment include revisiting the interchange at Idylwyld Drive and Circle Drive, and then a corridor review between Idylwyld Drive and Warman Road with no plans of removing at-grade intersections.

15. Intersection: 51st Street & Millar Avenue

- This intersection improvement was originally identified prior to the opening of the Chief Mistawasis Bridge. Subsequent to the opening, the functional plan is being revised to reflect the new traffic patterns in the area.
- The next step is expected to be stakeholder engagement, originally planned for 2020, now likely 2021.

16. Idylwyld Drive: 51st Street to 71st Street

- This functional planning study is in anticipation of the proposed changes to the highway connections north of Saskatoon that the Saskatoon Freeway Phase 1 Functional Planning study will present.
- This work will follow the update of the Riel Industrial Sector Plan.

17. Interchange: Circle Drive & Idylwyld Drive

- This project involves the functional planning, design and construction of significant adjustments to the interchange of Circle Drive & Idylwyld Drive.

18. Interchange: Highway 16 & Highway 11

- This project involves the design and construction of significant adjustments to the existing interchange of Highway 16 & Highway 11.

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19. Interchange: Marquis Drive & Idylwyld Drive

- This project involves the functional planning, design and construction of an interchange at Marquis Drive & Idylwyld Drive.

20. Idylwyld Drive: 71st Street to Saskatoon Freeway

- This functional planning study is in anticipation of the proposed changes to the highway connections north of Saskatoon that the Saskatoon Freeway Phase 1 Functional Planning study will present.
- This work will follow the update of the Riel Industrial Sector Plan.

21. North Utility & Active Transportation River Crossing

- The opportunity for an active transportation river crossing between Circle Drive and Chief Mistawasis bridges was identified in the Active Transportation Plan.
- A sanitary sewer river crossing is required to support the future development of the University Heights sector. A river crossing study identified a potential cost saving if the sanitary crossing was accomplished using a bridge.
- At this time, there is no funding to provide this crossing.

22. Interchange: Circle Drive & Warman Road

- The Administration is systematically completing functional plans for Circle Drive.
- This project would include a review of the existing interchange at Circle Drive & Warman Road to determine what improvement or alterations would be required to meet future needs.

23. Interchange: Highway 16 & Marquis Drive

- This project involves the functional planning, design and construction of an interchange at Highway 16 & Marquis Drive.

24. Railroad Grade Separation: Lorne Avenue

- Identified during evaluation of development south of the City in the RM of Corman Park, this interchange will be required to support future growth in the RM. All costs have been identified to those future developments.
- The initial step is to complete a functional design, timing currently unknown.

25. Circle Drive: 8th Street to Highway 16

- The Administration is systematically completing functional plans for Circle Drive that would ultimately remove all at-grade intersections and widen to six lanes, with the exception of the segment between Idylwyld Drive and Warman Road.
- The initial step is to complete a functional design, timing currently unknown.

26. Circle Drive: Attridge Drive to College Drive

- The Administration is systematically completing functional plans for Circle Drive that would ultimately remove all at-grade intersections and widen to six lanes, with the exception of the segment between Idylwyld Drive and Warman Road.
- The initial step is to complete a functional design, timing currently unknown.

27. Circle Drive: Clarence Avenue to Highway 11

- The Administration is systematically completing functional plans for Circle Drive that would ultimately remove all at-grade intersections and widen to six lanes, with the exception of the segment between Idylwyld Drive and Warman Road.
- The initial step is to complete a functional design, timing currently unknown.

28. Circle Drive: College Drive to 8th Street

- The Administration is systematically completing functional plans for Circle Drive that would ultimately remove all at-grade intersections and widen to six lanes, with the exception of the segment between Idylwyld Drive and Warman Road.
- The initial step is to complete a functional design, timing currently unknown.

29. Intelligent Transportation System (ITS) Strategic Plan

- Ten ITS projects were identified that support the goals of the short and long-term.
- There are various 'owners' of the projects, and various progress has occurred as indicated below.

Project	Status
Rail Crossing Information System	Underway, currently led by Transportation.
Data Warehouse	Not started, will be led by others.
Traffic Management	Underway, currently led by Transportation.
Traveller Information	Not started.
Emergency Traffic Management	Not started
Transit Priority	Underway, currently led by Transportation.
Expanded Data Collection	Not started.
Support Integrated Multi-Modal Trip Planning	Underway, currently led by Transportation.
Mobility as a Service	Not started.
Integrated Corridor Management	Underway, currently led by Transportation.

30. Rail Crossing Improvements

- 11th Street and Dundonald Avenue warning flashers for train ahead completed. Funding by Transport Canada.
- Intersections with railway pre-emption have their status displayed on Fire's dispatch map. There are five locations currently enabled by this system.
- An additional two non-signalized crossings for display at Fire are planned for 2020.
- TRAINFO rail information system to be deployed at 22nd & Avenue F and 33rd Street/Idylwyld Drive as a trial installation.

31. Roadside Safety: Median Barrier – Circle Drive – Circle Drive North Bridge to College Drive

- The Administration required engineering services for the design of median traffic barriers along Circle Drive (Circle Drive North Bridge to College Drive). There are different barrier systems currently installed along this roadway. There is an opportunity to install a single barrier system and to eliminate gaps between closely spaced barriers in the median.
- A consultant has been retained and is working on the detailed design.
- The detailed design is complete and construction is expected in 2021.

32. Roadside Safety: Median Barrier – Idylwyld Drive – 8th Street to Saskatchewan Crescent East

- The Administration required engineering services for the design of median traffic barriers along Idylwyld Drive (8th Street to Saskatchewan Crescent East). Collisions with the existing w-beam median barrier are frequent resulting in repetitive repair costs. The existing median barrier should be replaced with a median barrier that is sustainable and maintenance friendly.
- A consultant has been retained and is working on the detailed design.
- The detailed design is complete and construction is expected in 2021.

33. Roadside Safety: Remaining High Priority

- The Administration plans to address the remaining high priority roadside installation listed below (contingent upon budget approval).

Location	Road	Section Start	Section End	Type	Direction	Side
13	Circle Drive	Clarence Avenue South	Idylwyld Drive	Divided	CW	Right
8	College Drive	Central Avenue	Circle Drive	Divided	WB	Left
4	College Drive	Circle Drive	Central Avenue	Divided	EB	Right
12	Circle Drive	14th Street	College Drive	Divided	CCW	Left
24	Circle Drive	Clarence Avenue South	Preston Avenue South	Divided	CCW	Left
10	Circle Drive	Valley Road	Idylwyld Drive	Divided	CCW	Right
3	Circle Drive	Highway 11/16 IC	Preston Avenue South	Divided	CW	Left
13	Circle Drive	Valley Road	Idylwyld Drive	Divided	CCW	Right
11	Circle Drive	College Drive	14th Street	Divided	CW	Left
5	Circle Drive	Preston Avenue South	Clarence Avenue South	Divided	CW	Left
5	Idylwyld Drive	51st Street	Circle Drive	Divided	SB	Left
6	Idylwyld Drive	51st Street	Circle Drive	Divided	SB	Left
22	Circle Drive	Idylwyld Drive	Valley Road	Divided	CW	Right
26	Circle Drive	Preston Avenue South	Highway 11/16 IC	Divided	CCW	Left
29	Circle Drive	Preston Avenue South	Highway 11/16 IC	Divided	CCW	Left
1	Highway 16	Highway 11 South Junction	Boychuk Drive	Divided	EB	Right
2	Highway 7	Highway 14	11th Street	Divided	SB	Left

34. Highway 16: Highway 11 to Zimmerman Road

- Identified during the Holmwood Sector Plan and the Rosewood Neighbourhood concept plan amendment (for the commercial area), this interchange will be required to support future growth in the Holmwood sector.
- The initial step is to complete a functional design, timing currently unknown.

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GLOSSARY OF TERMS

Access buses are paratransit buses that provide door-to-door service to patrons with mobility challenges and disabilities. While conventional buses run on fixed routes and pick-up/drop-off patrons from bus stops in the system. Access transit has a specialized fleet with a lift to load/unload patrons and the trips need to be booked in advance.

Accessible Pedestrian Signals (APS) are signal devices that assist pedestrians who are visually and/or hearing impaired by providing information that they can interpret to understand when they can safely cross the street. Information is communicated in a non-visual format such as audible and vibro-tactile indications to provide cues at both ends of a crossing. The City uses two different audible bird sounds: a “cuckoo” for the north/south direction and a “chirp” for the east/west direction. Some intersections also have voice message indicating which street can be crossed in addition to the standard “chirp” and “cuckoo”.

Active transportation includes any form of human-powered transportation, such as walking, jogging, cycling, skateboarding, in-line skating, and using mobility aids.

Bus Rapid Transit (BRT) is a high-frequency transit service concentrated along specific high-demand corridors.

Complete Street is a street that provides safe connection for users of all ages, abilities, and modes of travel; street design is centered on the present and future context of the street and corridor.

Dedicated Transit Only Lanes are used to improve the reliability of transit by giving buses the space to move independently of car traffic.

Fatal collisions include any injuries sustained in the collision that result in death within 30 days. Drivers suffering a heart attack prior to a collision will be coded to the severity of the injuries sustained in the collision, not to the severity of the heart attack.

Mode share is the percentage of travelers using a particular type of transportation or number of trips using said type.

Queue Jump Lanes allow buses to bypass congested intersections by utilizing an additional travel lane on the approach to a signalized intersection restricted for transit vehicles only.

Severe injury collisions consist of two categories of collisions from the SGI data:

1. *Major - Incapacitating* - an injury other than a fatal injury, which prevents the injured person from walking, driving or normally continuing the activities the person was capable of performing before the injury occurred. This includes:
 - a. Severe lacerations
 - b. Broken or distorted limbs
 - c. Abdominal injuries
 - d. Unable to leave the collision scene without assistance
2. *Major - Unconsciousness* - an injury from which the victim enters into a state of unconsciousness at or when taken from the collision scene.

Traffic Calming is the combination of mainly physical measures that reduce the negative effects of motor vehicle use, alter driver behavior and improve conditions for all road users including non-motorized street users. Traffic calming measures are a means to address traffic and safety issues such as

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speeding and shortcutting. Physical features such as speed humps, curb extensions and pinch points are often associated with traffic calming measures.

Transit Signal Priority Measures (TSP) connect all the traffic signals along the BRT routes. Specialized computer software analyzes where the buses are at any given time. If a bus is running late, it can automatically shorten red lights and lengthen green lights. This same technology will also be able to help emergency vehicles (fire, police, or emergency medical technicians) get to critical situations faster.

Transportation Demand Management is various strategies that change travel behaviour (how, when, and where people travel) to increase transport system efficiency. Specifically, Transportation Demand Management strategies are used to attempt to reduce dependency on single-occupant auto trips and encourage more sustainable travel modes such as transit, walking, cycling, and carpooling.

Travel time reliability is the consistency or dependability in travel times.

Universal Design in this context is the design and composition of a street so that it can be accessed, understood, and used to the greatest extent possible by all people regardless of their age, ability or disability, in the most independent and natural manner possible without the need for adaptation, modification, assistance, or specialized devices.



