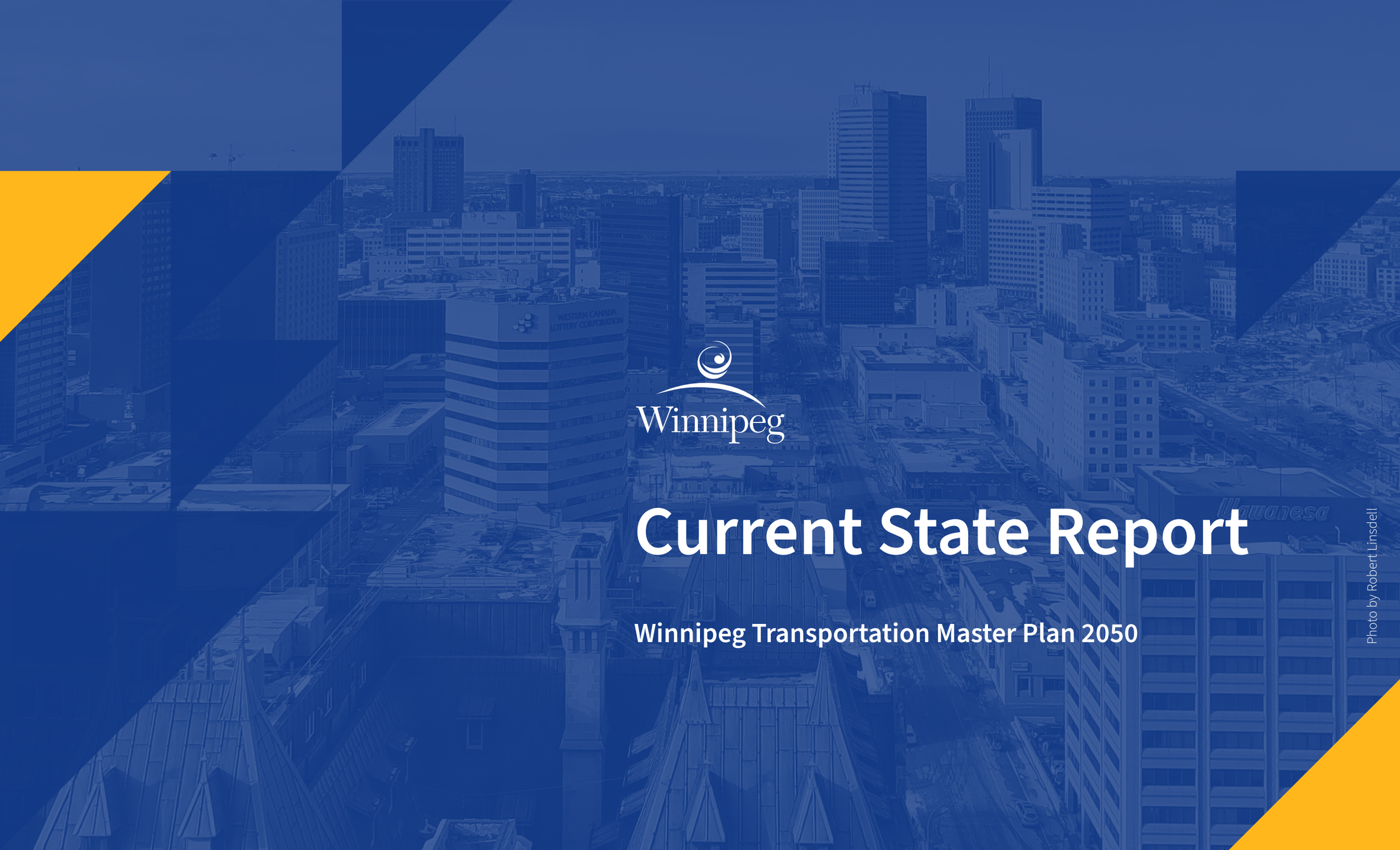


Winnipeg

# Current State Report

## Winnipeg Transportation Master Plan 2050

Photo by Robert Linsdell

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# 1.0 Introduction

# 1.0 Introduction



**The City of Winnipeg is updating its Transportation Master Plan (TMP) to meet the city's transportation needs and climate plan objectives for 2050. TMP2050 will be the city's blueprint for planning, investing in, developing, and operating its walking, cycling, transit, and road networks over the next three decades. This plan is an update of the previous plan completed in 2011.**

Winnipeg's transportation network is comparable to other mid-sized cities. This network serves the current transportation needs of Winnipeggers adequately, providing generally good coverage and appropriate levels of service across different transportation modes. However, as the population grows, improvements will be required to achieve the vision of a transportation system that supports quality of life and economic vitality through the safe, efficient, connected and barrier-free movement of people and goods using a choice of modes and sustainable infrastructure.

Challenges to achieving that vision include declining transit ridership, gaps in the "active" transportation network (e.g. walking, biking), and competing interests for space on Winnipeg's roadways. These challenges need to be considered when designing the city's future transportation network.

The purpose of this report is to describe the current transportation network in Winnipeg. This includes descriptions of the physical infrastructure and services available, and an analysis of the performance trends. This analysis looks at how well each network component is serving the people of Winnipeg. These network components are broken down as follows:

- Transit network and services
- Goods movement network
- Road network
- Active-transportation network
- New mobility services and emerging technologies

# Winnipeg at a glance

**The City of Winnipeg is currently home to 776,900 people occupying 470 square kilometres.[1] Winnipeg has a radial development pattern, with the downtown—home to the highest concentration of density and employment—at the centre of the city. The city has an extensive prewar grid network of streets immediately surrounding the downtown (see Exhibit 1.1). The linear and connected nature of this grid creates excellent opportunities for residents to use sustainable modes of transportation. As the suburbs were developed, streets were designed primarily for automobile use, which is why they became more and more curvilinear.**

Located in the centre of Canada, Winnipeg is a major freight hub for both east–west and north–south freight traffic. More than 40 million tonnes of freight are moved by rail, truck, and air to, from, and within the city each year. Winnipeg's geography is defined by its two primary rivers, the Red and Assiniboine, and multiple rail lines that cross the city. In fact, nearly 50 percent of the trips taken during the morning and evening peak periods involve crossing a bridge.[2]

1 Population data for 2021 obtained from the City of Winnipeg's Chief Administrative Office.

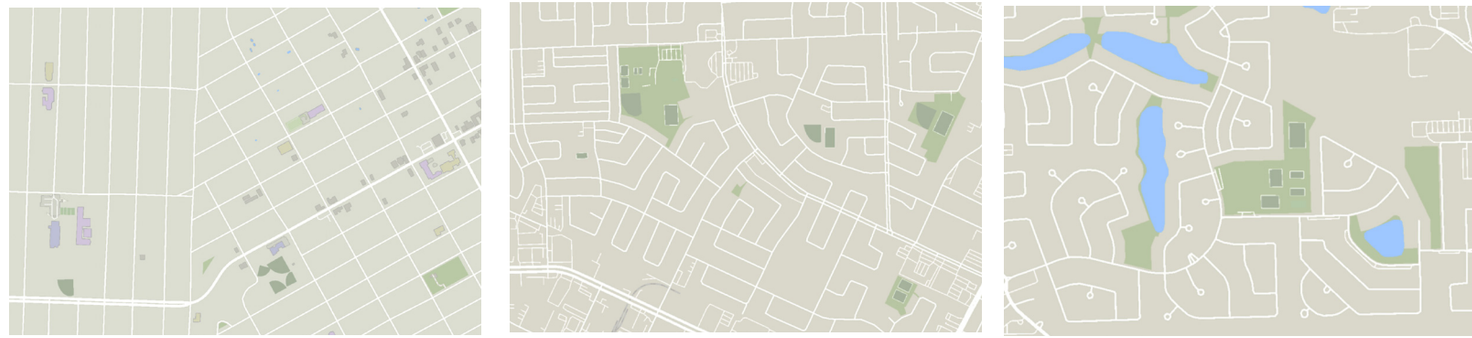
2 According to the 2019 Winnipeg transportation demand model update.

### Exhibit 1.1: Winnipeg's street layout

**Traditional street grid**
(Prewar communities, before 1945)

**Modified grid layout**
(Early suburbs, 1945-1974)

**Curvilinear street layout**
(Recent suburbs, 1974 to present)



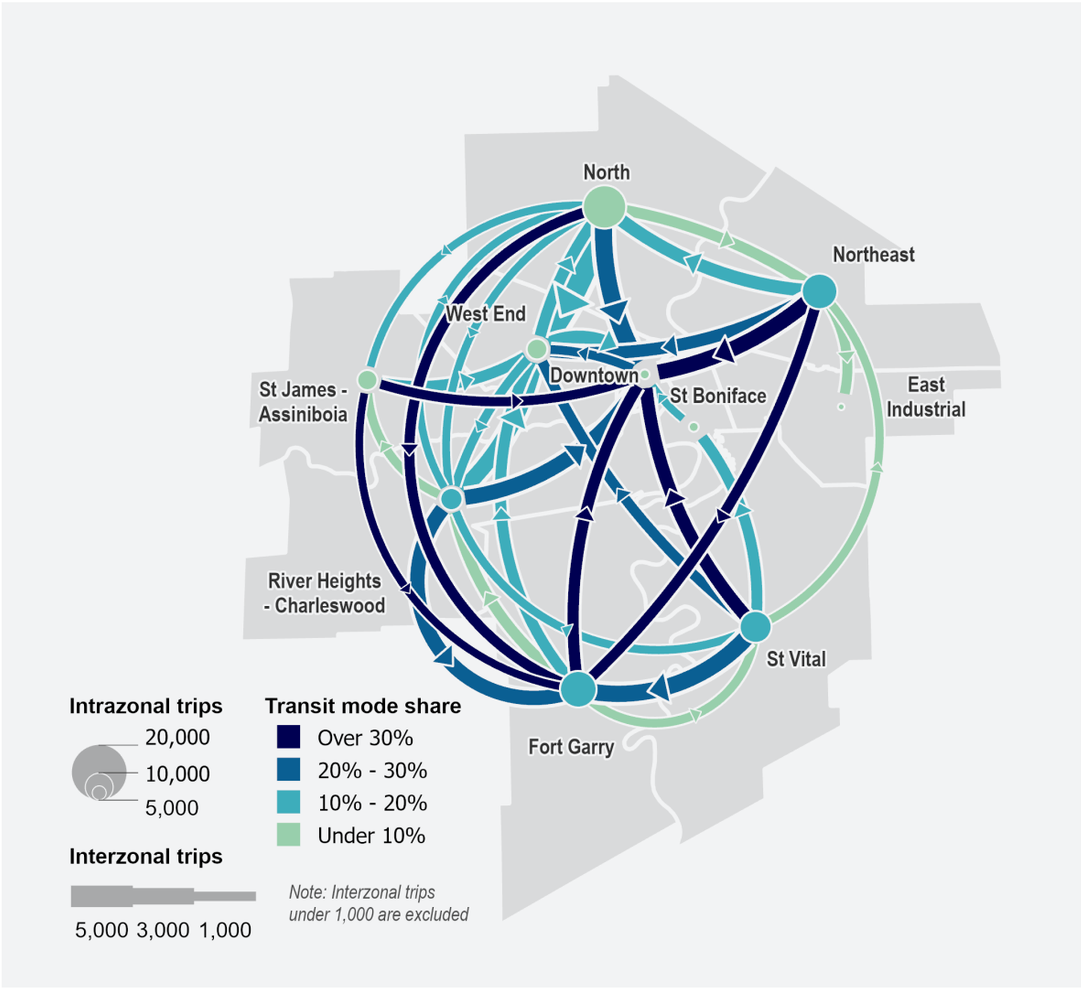
Source: IBI Group, based on City of Winnipeg mapping data, 2011 Winnipeg TMP Needs and Opportunities Background Report.

## WHERE PEOPLE TRAVEL?

People in Winnipeg travel all over the city to meet their daily needs as shown in Exhibit 1.2 on the following page. An analysis of the travel trends of Winnipeggers found the following:

- **Suburb-to-suburb commuting is common:** About 74 percent of commuter trips start and end outside of Downtown or the west end, suggesting most employers are located outside of central Winnipeg.
- **Transit is a popular mode for trips Downtown and to Fort Garry:** Bus routes from all corners of the city tend to converge Downtown and at the University of Manitoba, making public transit a more attractive option for Winnipeggers travelling to these areas.
- **Many people meet their daily needs within their own community:** Residents in the north and northeast areas of the city and in Fort Garry and St. James and Assiniboia make a high volume of trips within the community. While this is due in part to short-distance trips to and from school and other non-work destinations, it also suggests many are able to work within their home community (or choose housing nearby their workplace).
- **Many trips require a river crossing:** About 45 percent of trips taken during the AM peak require a river crossing, highlighting the importance of maintaining a small number of critical links in the transportation network.

### Exhibit 1.2: Morning peak hour origin–destination flows and transit mode share

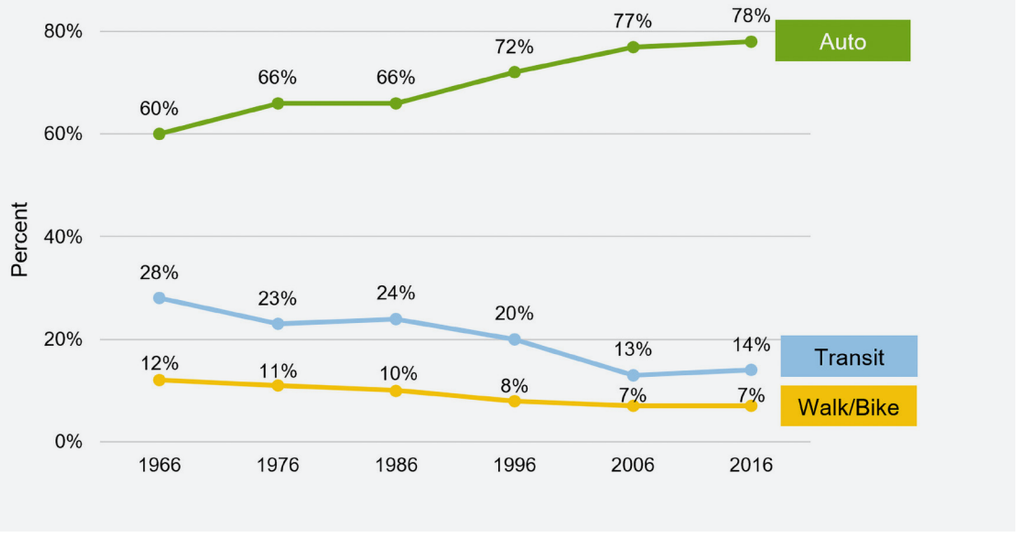



Note: This exhibit captures commuter patterns for both workers and students.
Source: IBI Group. Adapted from the 2019 Winnipeg transportation demand model update.

## HOW PEOPLE TRAVEL

In Winnipeg, automobiles remain the dominant mode of transportation. According to Canada's 2016 Census, 78 percent of all work trips were made by automobile (driver and passenger trips), 14 percent were made using public transit, and 7 percent were made by walking and biking (Exhibit 1.3). The proportion of Winnipeggers who travel to work via automobile has significantly increased over the last 50 years, which has caused a subsequent decrease in the proportion of walking, biking and using public transit. In the past decade however, these trends have slowed, potentially signalling the beginning of a shift in travel behaviour.

### Exhibit 1.3: Work trips by mode, 1966 to 2016




Source: MORR Transportation Consulting. Formatting adapted by IBI Group.



# 2.0 Roadways

## Key trends and challenges

- The road network has expanded since the last TMP, with new road segments added to high-growth areas, increasing the capacity of key links.
- The city's road classification system adequately defines the role of each road type for automobiles, but could be improved in its accommodation of transit and non-motorized road users.
- Traffic congestion is largely concentrated at locations approaching Downtown, mixed-use centres, and river and rail crossings.
- Increasing traffic volumes and speeds on residential streets are a safety concern for residents.
- Congestion is more frequently seen as intersection delay rather than road demand exceeding capacity, suggesting a lack of acute capacity at intersections.
- Though serious-injury and fatal collisions have gradually declined since 2012, total injuries per person and registered vehicle have increased.
- In Winnipeg, collisions involving pedestrians and cyclists are more likely to result in a fatality or major injury compared with passenger vehicles.
- Collisions involving pedestrians and cyclists are generally concentrated Downtown, in the northwest areas of Winnipeg and along mixed-use corridors.

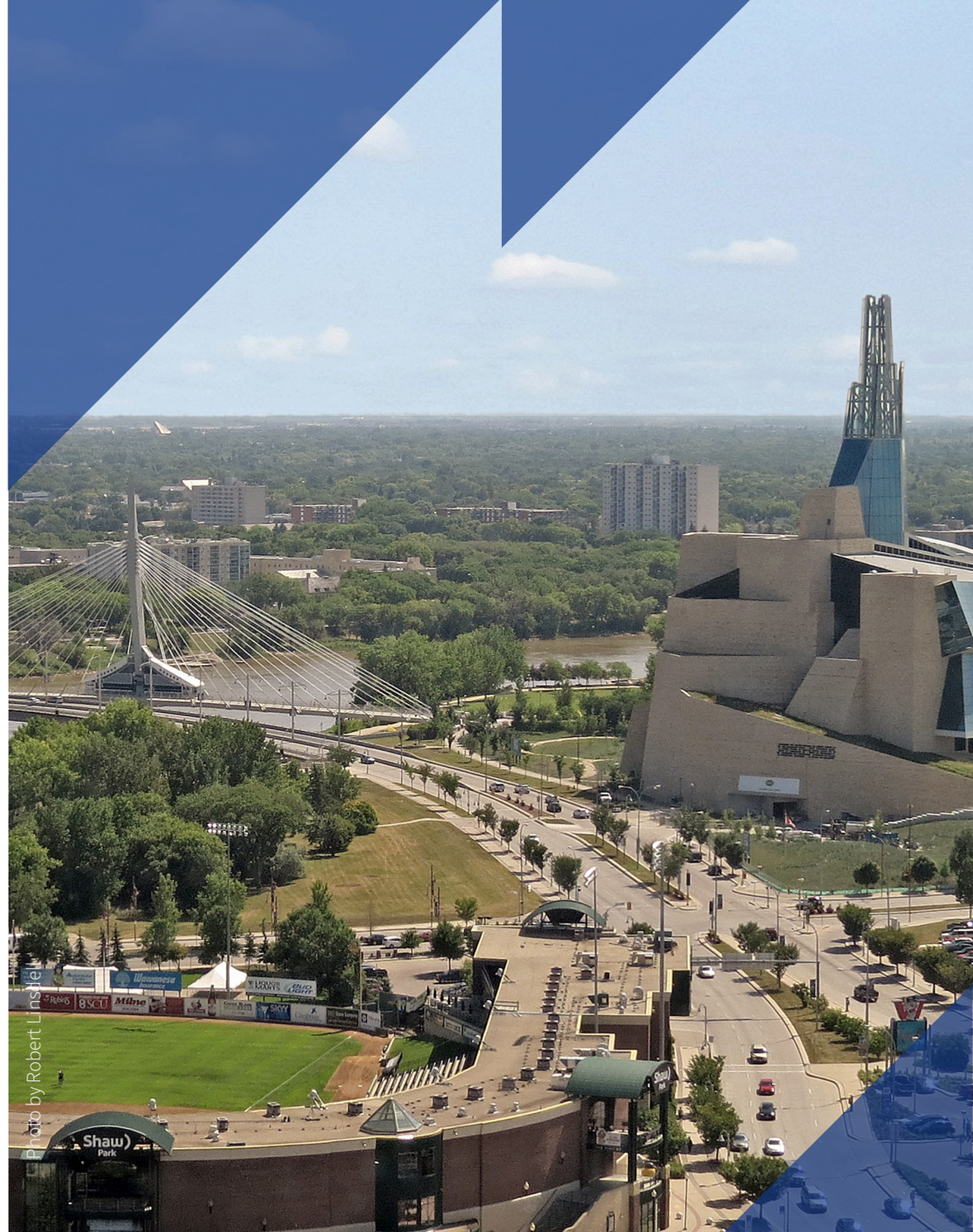


Photo by Robert Linstad

**Winnipeg has an extensive road network laid out in a primarily radial pattern that moves outward from Downtown. As Winnipeg's population continues to grow, it will be necessary for the road network to move more people and goods efficiently, across all modes of transportation.**

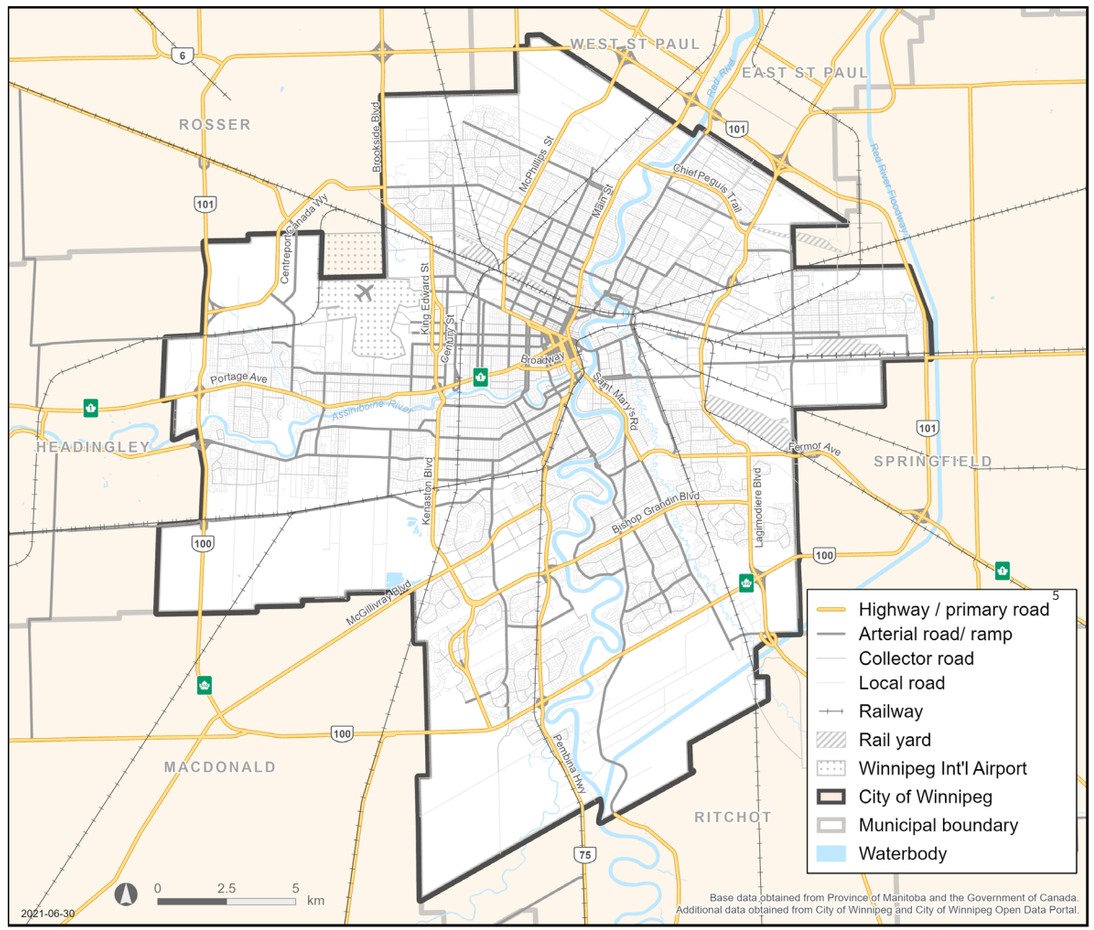
## Existing road network

Winnipeg has an extensive road network that consists of approximately 8,200 road-lane kilometres[4] of arterial, collector, and local roads. This network enables both efficient movement and convenient access to homes, businesses, services, and other amenities. It is unique among Canada's big cities in that it has no freeways; however, the Perimeter Highway (Provincial Trunk Highways 100 and 101) circles the city, providing access to the surrounding region as well as acting as a bypass route (see Exhibit 2.1).

The Red River, Assiniboine River, and freight rail lines all act as natural barriers to travel across the city. There are seven road crossings over the Assiniboine River and nine over the Red River. These crossings provide connectivity across the city, but also create pinch points, as traffic must be funnelled to the limited number of crossings.

Today, Winnipeg has approximately 5.17 road-lane kilometres per 1,000 residents, an increase from the 2010 ratio of 4.53 per 1,000. This is lower than peer municipalities such as Calgary and Quebec City, which have predominantly low-density development patterns, but higher than other peer cities such as Edmonton and London, Ontario (see Exhibit 2.2). Maintaining a sufficient level of service with the minimum amount of road lanes is advantageous to the city, as it minimizes road maintenance costs.

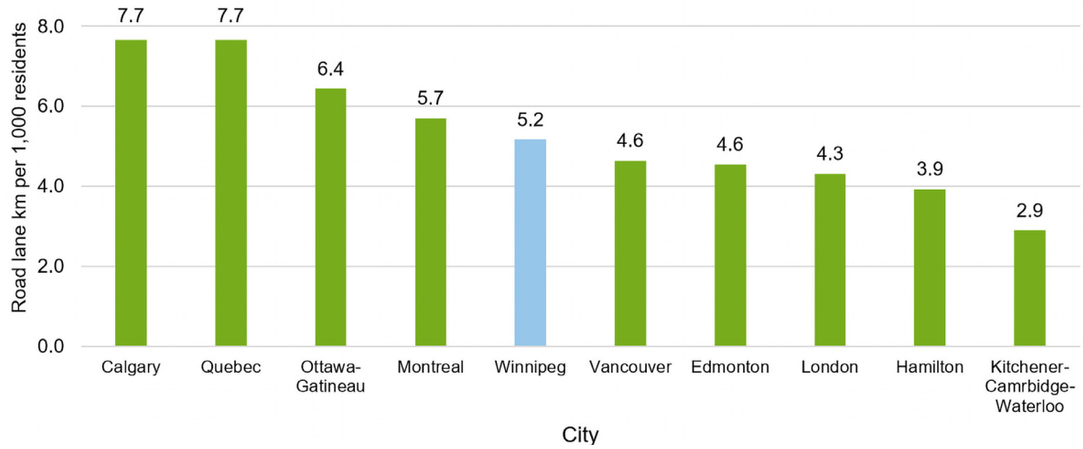
Exhibit 2.1: Winnipeg road network




4 A road-lane kilometre is a kilometre of one-lane roadway. The total number of road-lane kilometres is calculated by dividing the total square metres of roads by the average lane width.

5 The Primary road category identifies the city's largest corridors and is not reflective of the official road classification system.

## Exhibit 2.2: Road-lane kilometres per 1,000 residents in the existing urban area




Source: Urban transportation indicators, fifth survey (April 2016), Transportation Association of Canada.

### REGIONAL ROAD NETWORK

Winnipeg's regional road network includes provincial highways, which are under the jurisdiction of Manitoba Infrastructure, and municipal roads, which are under the jurisdiction of local governments. Provincial highways include the Provincial Trunk Highways and Provincial Roads. Most notable for Winnipeg is the Perimeter Highway (Provincial Trunk Highways 100 and 101), which is largely outside of the city's municipal boundaries, except for a larger portion in the south. The Perimeter Highway is one of the most important economic and goods movement corridors in Manitoba, playing a role in connecting Winnipeg's municipal economy to the provincial, national, and international markets. It also provides people within Winnipeg and beyond with access to employment, education, services, and amenities.



## Road network performance

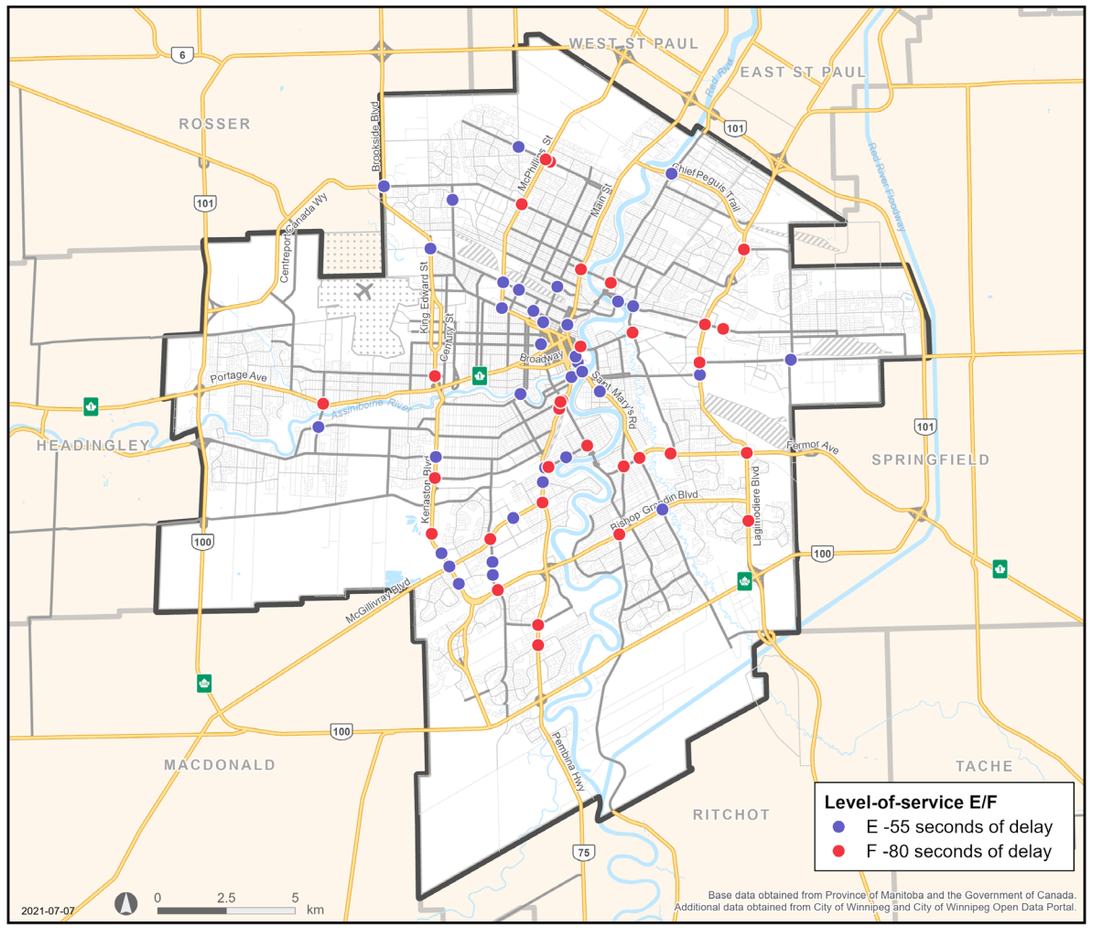
Traffic congestion results when demand for a road or intersection exceeds capacity. Although congestion has both economic and environmental implications due to trip delays and idling vehicles causing increased air pollution and emissions, it is also evidence of a dynamic and growing economy. Congestion in Winnipeg is most clearly observed as delays at intersections.

While there is significant congestion Downtown and near river and rail crossings, the problem is not limited to these areas. Many major arterial and collector roads are experiencing high congestion levels—even in neighbourhoods relatively far from Downtown. An overview of intersections in Winnipeg with significant delays during peak periods is presented in Exhibit 2.3.

Generally, there is enough capacity on Winnipeg's roads, meaning that congestion is more commonly caused by the following challenges:

- **Lack of redundancy:** There are few available corridors that can serve as alternatives to Winnipeg's arterial roads. This results in large catchment areas around them. Traffic signals are timed to favour the higher-volume through traffic on arterials; unfortunately, this means the vehicles trying to access the arterials from lower-volume collectors experience higher levels of delay. This can be seen at intersections along Lagimodière Boulevard, Pembina Highway, Kenaston Boulevard, St. Mary's Road, and McPhillips Street.
- **River and rail crossings:** These links have long been identified as bottlenecks for motorists. The intersections adjacent to bridges and underpasses are the points where traffic that requires a crossing (regardless of direction) meet. Consequently, there tends to be a high volume of traffic at these intersections that must be accommodated.
- **Pedestrian movements:** Intersections with high vehicle-turning movements and high pedestrian volumes, particularly those Downtown, tend to experience higher levels of delay.

**Exhibit 2.3: Intersections in Winnipeg with longer delays in either peak period**




Source: IBI Group. Adapted from City of Winnipeg intersection traffic-signal models.

**Commercial areas outside of Downtown, such as Kildonan Place and Linden Ridge Shopping Centre, also tend to experience higher levels of congestion. Since residents and employees outside of Downtown are less likely to use public transit or bike or walk to work, higher automobile use in these areas leads to more traffic congestion.**

**In both the morning and afternoon peak periods, an average of 44 percent of trips require a bridge crossing.**

## BRIDGES

Winnipeg's rivers are a defining feature of the city's geography and, consequently, its road network. The 10 bridges that cross the Red and Assiniboine rivers are often a bottleneck for commuters during the week and for discretionary trips on weekends.

Some 45 percent of morning peak and 43 percent of afternoon peak trips require a bridge crossing. With almost half of Winnipeg's commuter trips converging to only a few points, the risk of congestion is high.

The following provides some insight into traffic volumes at the six bridges that lead into the city's Downtown.

- **Louise Bridge:** Traffic volumes have decreased over the years but the bridge is still operating at or over capacity. Given the bridge is 111 years old, it is nearing the end of its useful life cycle. Volume changes may be attributed to travellers switching crossing points or avoiding peak hours when crossing to reduce the risk of encountering congestion.
- **Disraeli Bridge:** Traffic volumes have not changed considerably since 2011.
- **Main Street Bridge:** Traffic volumes entering Downtown peaked in 2014 and dropped significantly by 2018. A possible explanation is diversion of some volume to the Midtown Bridge.
- **Midtown Bridge:** Traffic volumes into Downtown increased significantly in 2013, at which time volumes at all bridge access from south Winnipeg also increased.
- **Osborne Bridge:** Traffic volumes currently entering Downtown are similar to 2011 levels.
- **Provencher Bridge:** Traffic volumes entering Downtown are comparable to 2011 levels.

**Winnipeg is home to a combined 14 overpass and underpass rail crossings, which - like bridges - create bottlenecks for traffic like the bridges, are a bottleneck for traffic.**



Photo by Alex Regier

# Road safety

In 2017, the City of Winnipeg committed to the Towards Zero philosophy, which seeks to eliminate all injuries and fatalities on the transportation network through changes to how roads are planned, constructed, and used.

One of the City of Winnipeg's recent road safety projects is the development of the Road Safety Strategic Action Plan, which began in August 2020. The main focus of the Road Safety Action Plan is to reduce fatalities and major injuries. Once completed, the plan will serve as a road map for implementing both short-term solutions and long-term investments over the next three to five years and beyond in a coordinated and focused manner.

## HISTORIC COLLISION DATA

Between 2012 and 2018, there were more than 195,000 total collisions. These resulted in 98 fatally injured victims and 1,113 victims with major injuries. The total number of injuries has increased steadily over the six-year period, generally outpacing population growth and the growth in registered vehicles. As a result, the injuries per person and per registered vehicle have increased on average, meaning that, between 2012 and 2018, it had become more common for people to be injured on Winnipeg's roads but not killed.

## COLLISION SEVERITY BY MODE OF TRANSPORTATION

The mode with the highest number of fatalities and injuries are passenger vehicles. This is to be expected due to their prevalence in the transportation system; however, only 1.5 percent of these collisions result in a fatal or major injury (FMI).

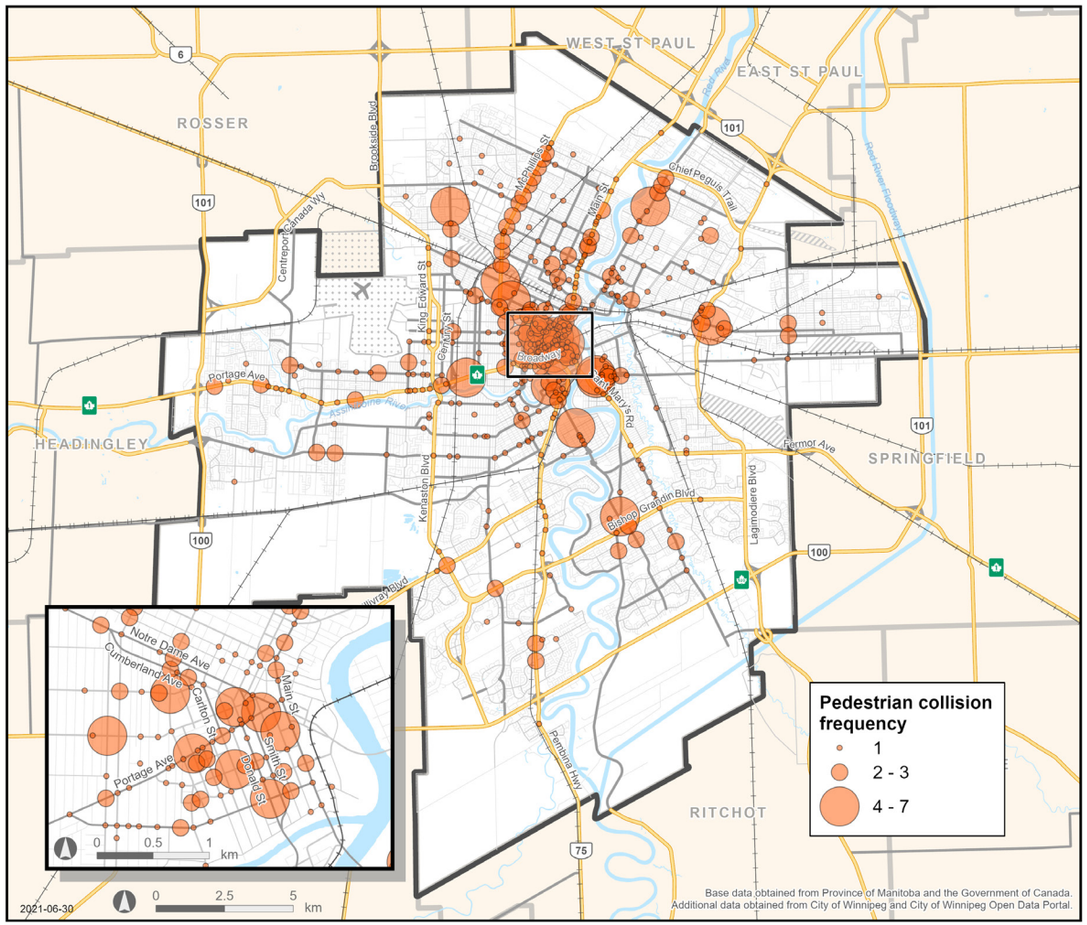
On the other hand, collisions involving vulnerable road users such as pedestrians and cyclists typically have much more severe results. While pedestrians and cyclists account for only 2 percent of the total injuries, they make up 12 percent and 5 percent of the FMI collisions, respectively, indicating the vulnerability of these road users.

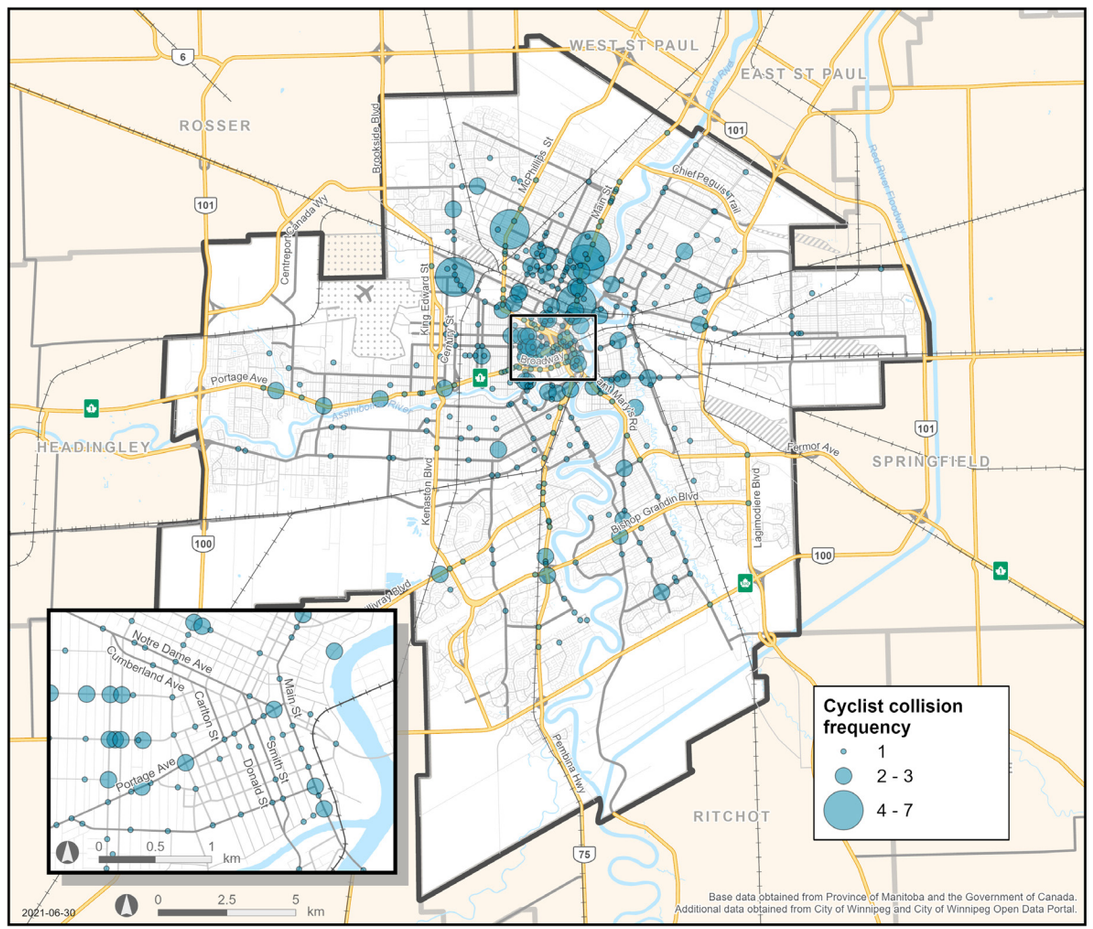
## LOCATIONS OF COLLISIONS WITH VULNERABLE ROAD USERS

Exhibit 2.4 (see next page) illustrates the location of FMI collisions involving vulnerable road users, including pedestrians and cyclists. These collisions are generally concentrated Downtown in the northwest areas of Winnipeg and along mixed-use corridors. This aligns with locations that are higher density and have a higher volume of pedestrians. FMI pedestrian collisions take place Downtown at higher volumes (associated with more people walking than biking) and along McPhillips Street, while FMI cyclist collisions are more likely to take place along Main Street.



## Exhibit 2.4: Location of fatal and major injury collisions with vulnerable road users (2012 to 2018)




Note: Pedestrian collisions are shown at left, cyclists at right.
Source: IBI Group. Adapted from data provided by MORR Transportation Consulting.



# 3.0 Goods movement

## Key trends and challenges

- As Winnipeg is an important multimodal freight hub, its road network must accommodate substantial truck traffic while balancing trucking needs with those of cars and more sustainable modes of transportation.
- The rail network has an extensive footprint across the city, with railway yards and more than 200 at-grade crossings. The rail network in general creates physical barriers and pinch points throughout the city, while at-grade crossings contribute to road network delays.
- As more industrial activity starts to take place outside the city's boundary, there will be an increased need for cross-jurisdictional coordination of land-use and transportation planning.
- The impacts of COVID-19 on e-commerce may change future demands on commercial vehicles, especially for urban delivery.



**Located the centre of the country, at the crossroads of railway and highway networks and with a significant manufacturing and industrial sector of its own, Winnipeg generates large volumes of goods movement traffic, with increases expected in the future.**

# Profile of Winnipeg's goods movement network

In Winnipeg, trucks and courier vehicles move the majority of goods; however, with its mid-continental location, Winnipeg is also a key node in multimodal, transcontinental goods movement networks connecting roads, rail, and air transportation methods. This means there is considerable interaction between the urban, regional, and long-haul transportation of goods on the city's streets. It also means there is a significant footprint of multimodal infrastructure used to move goods within Winnipeg and the surrounding area, such as rail yards and the airport.

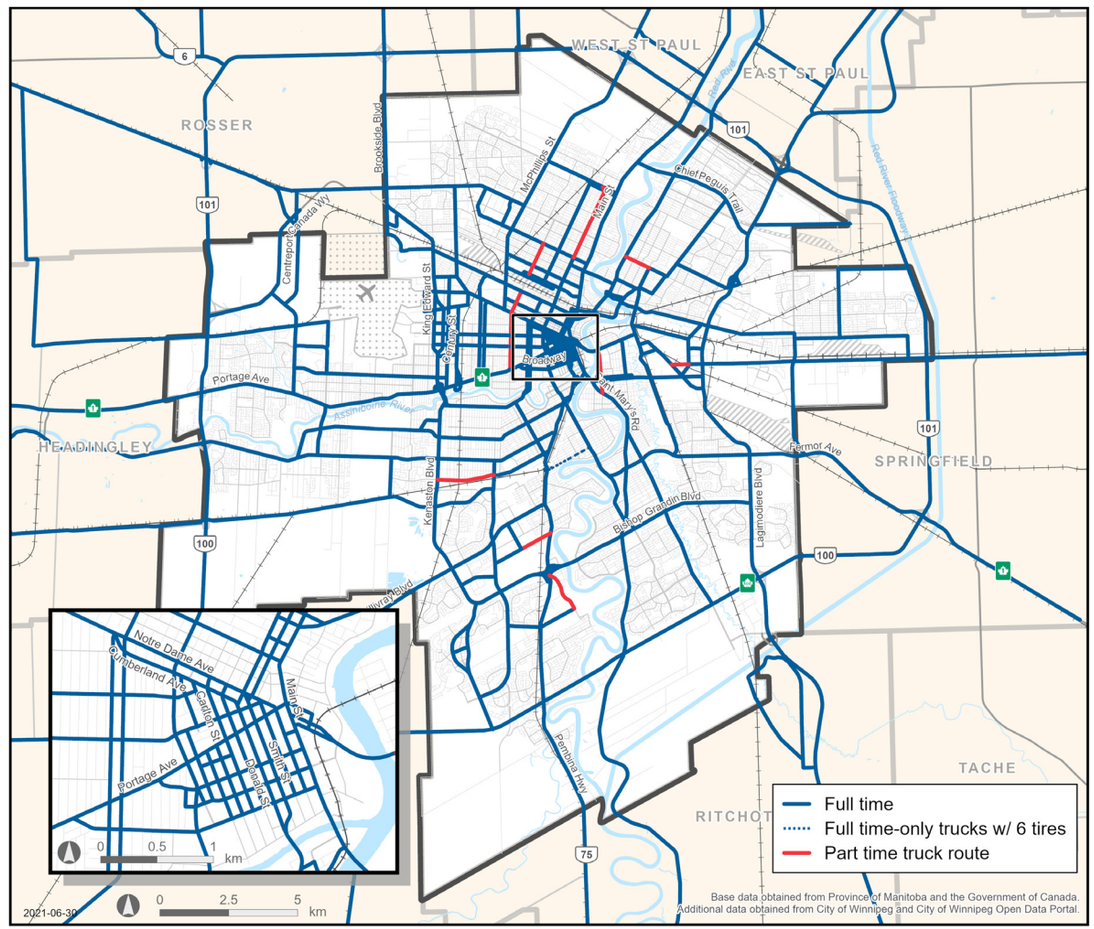
## TRUCKS

Winnipeg's network of truck routes is extensive, traversing much of the city, including Downtown, with very few restrictions (Exhibit 3.1). Trucks are also allowed off the network for first- or last-mile access to origins and destinations.

### IMPORTANCE OF MOVING GOODS

Winnipeg's importance as a multimodal goods movement node is demonstrated by the strength of its transportation and logistics sector. Goods movement industries in this sector include trucking firms, courier companies, railways, air cargo companies, and retail and wholesale distributors. In 2017, transportation and logistics jobs comprised 10 percent of all jobs in Winnipeg and the surrounding region, representing approximately 50,000 jobs. Equally important, Winnipeg and the region represent a concentration of transportation and logistics jobs compared with other parts of the country.

**Exhibit 3.1: Designated truck routes**




Source: MORR Transportation Consulting. Formatting adapted by IBI Group.

## RAIL

Winnipeg is also home to an extensive rail network that traverses the city and surrounding region (Exhibit 3.2). The city is served by three major railways (Canadian National [CN], Canadian Pacific [CP], and Burlington Northern Santa Fe) that provide access across Canada and to the US. Other rail connections link Winnipeg with regional destinations, including Churchill, Manitoba, which offers ocean access to Europe and beyond for grain and other bulk commodities.

## AIR

The James Armstrong Richardson International Airport is another important component of Winnipeg's multimodal goods movement network (Exhibit 3.2). The airport provides regularly scheduled domestic, cross-border, transpolar, and international cargo service, some of which is moved by dedicated cargo services and the rest in the bellies of scheduled passenger services.

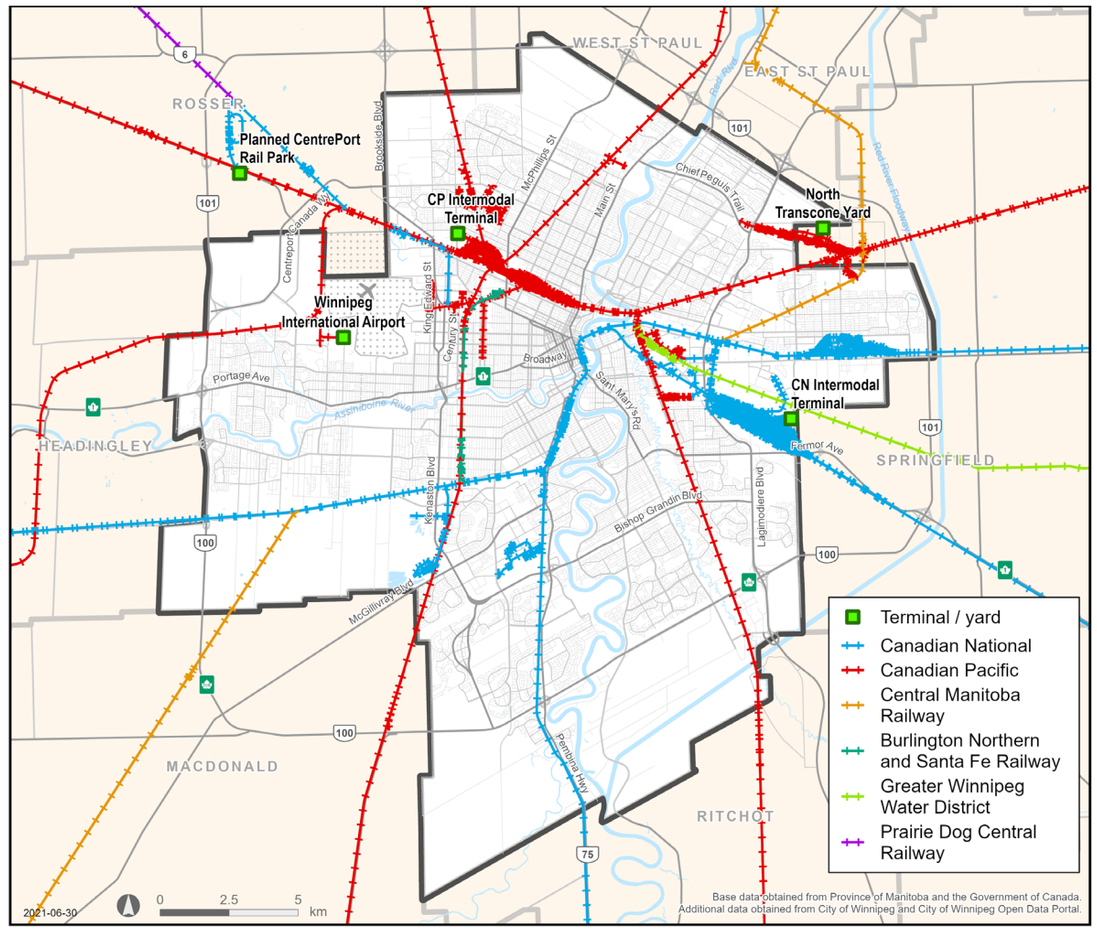
## OTHER GOODS MOVEMENT INFRASTRUCTURE

Two intermodal (truck-rail) terminals and several rail yards are located in and around the city (Exhibit 3.2). Of note, CP's North Transcona Rail Yard is located just outside the city boundaries, as is the planned first phase of an intermodal terminal at CentrePort Canada on the main CP line. These major goods movement generators outside the city now impact (or will impact) truck traffic within the city.

### REGIONAL GOODS MOVEMENT NETWORK

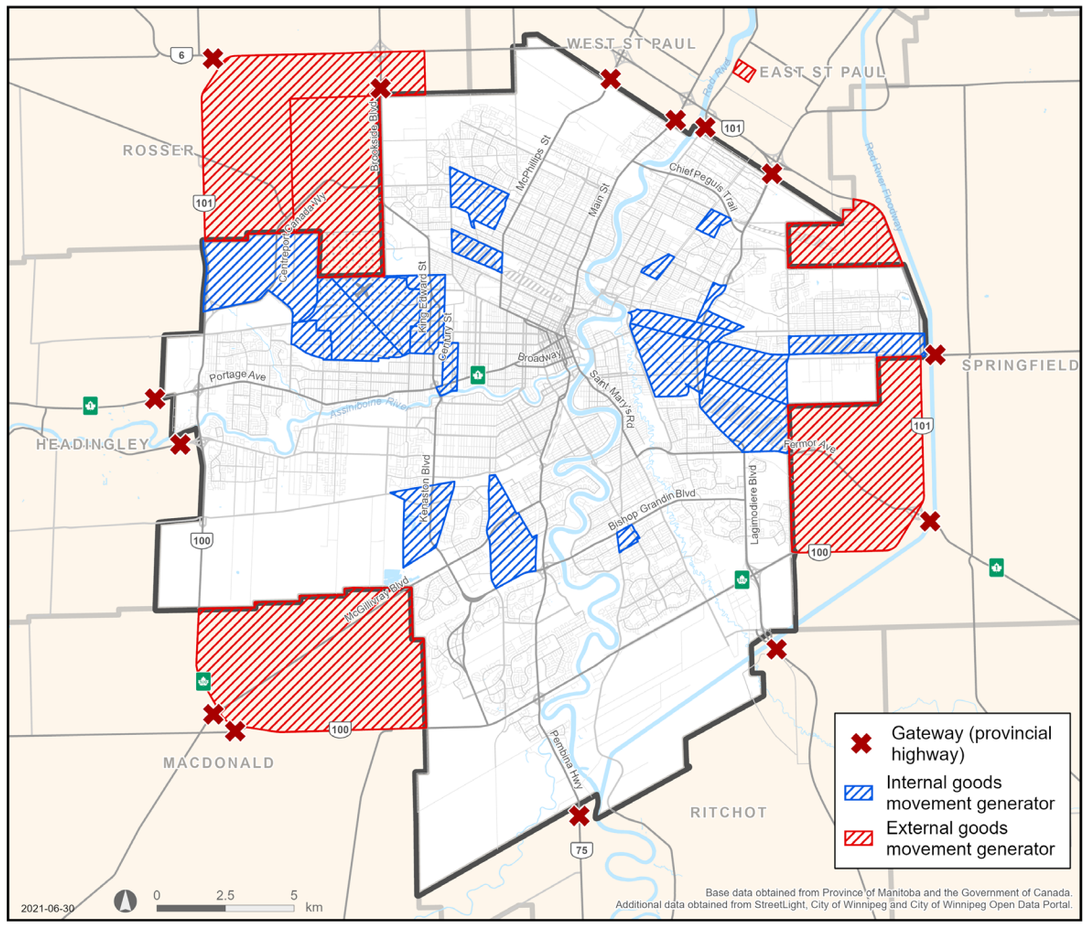
The regional goods movement network consists of 1,750 km of roads. Most of the truck traffic operates on the Perimeter Highway (Provincial Trunk Highways 100 and 101), the Trans-Canada Highway, Highway 75, and Highway 7 up to the limestone quarries. Notably, 69 percent of the pavement on the regional truck route network is classified as being in fair or poor condition and requiring repairs that range from minor to major. Conversely, only 26 percent of roads in general within the city of Winnipeg require some level of repair.

### Exhibit 3.2: Winnipeg rail network




Source: MORR Transportation Consulting. Formatting adapted by IBI Group.

### Exhibit 3.3: Major goods movement generators




Source: IBI Group. Adapted from data provided by Dillon Consulting.

### GOODS MOVEMENT GENERATORS

There are 26 major goods movement generators, comprising key industrial areas, railway yards, and intermodal terminals as well as the airport, and major shopping centres. These are depicted in Exhibit 3.3. Areas within the city are shown in blue; areas outside the city are shown in red.

## Use and performance of the goods movement network

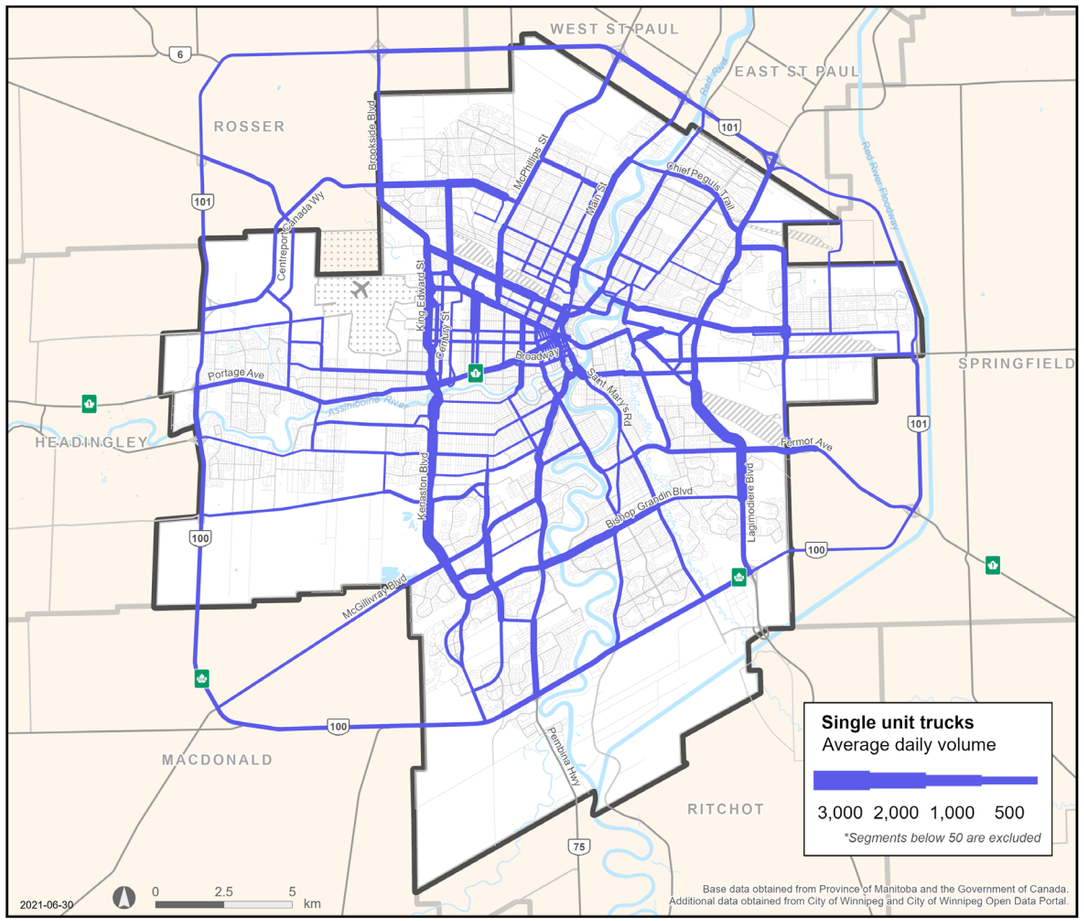
Key truck route corridors in Winnipeg include Route 90, Lagimodière Boulevard, Inkster Boulevard, Logan Avenue, and Keewatin Street, in addition to the Perimeter Highway.[3]

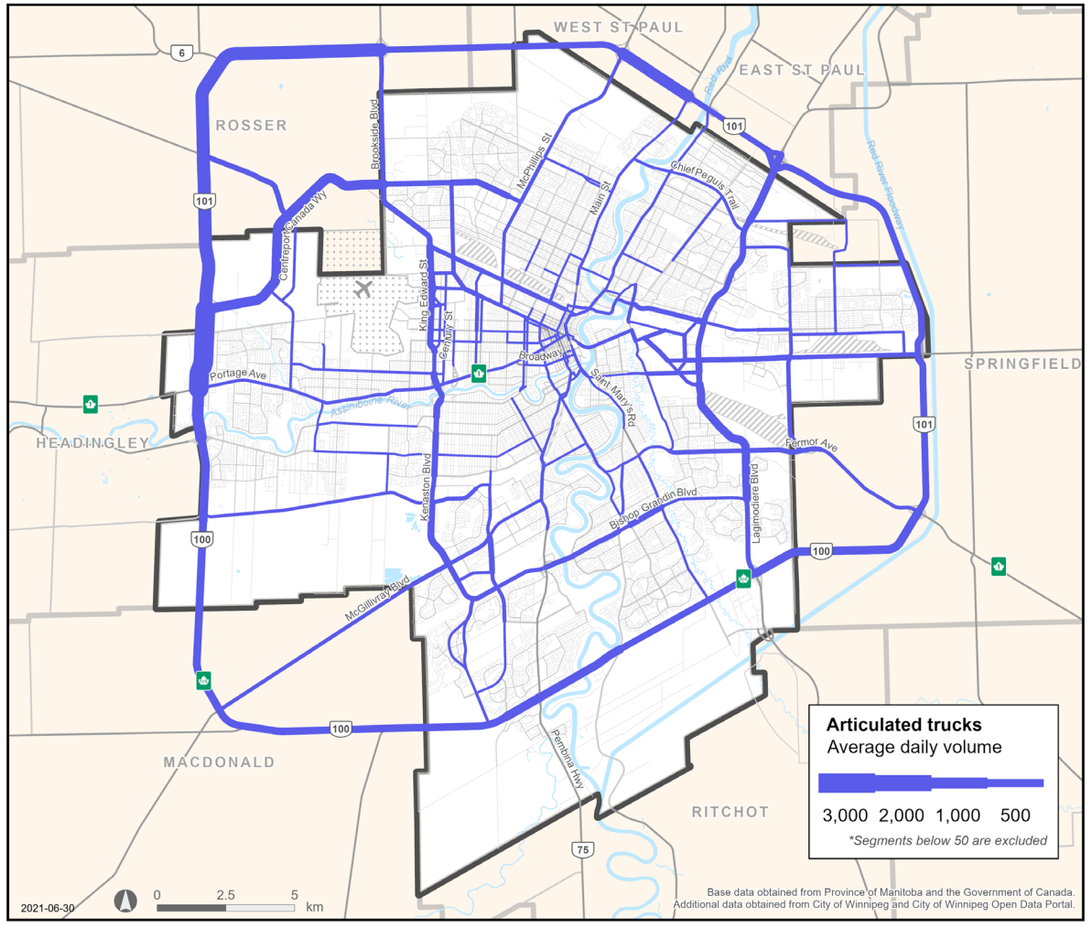
When looking at truck traffic, it is important to distinguish between the size of the vehicles, specifically “single units,” which are medium-sized two- and three-axle vehicles, and “articulated units,” such as tractor-trailer combinations.

Single units and articulated units commonly use different corridors (Exhibit 3.4). Single-unit trucks are found at higher volumes within Winnipeg’s boundaries, including in and around Downtown, and are likely used for pickups and deliveries to and from local origins and destinations. Articulated units are seen in larger volumes along the Perimeter Highway and particularly around CentrePort Canada in the northwest of Winnipeg. This articulated unit traffic is typically a mix of local, regional, and long-haul traffic moving to and from the truck yards and other industries.

[3] Source: Technical Memorandum 2, Existing Goods Movement Network, prepared by MORR Transportation Consulting for the TMP Goods Movement Study, November 2020.

## Exhibit 3.4: Average daily truck traffic (single-unit and articulated trucks)




Note: Single-unit trucks are shown at left; articulated trucks are shown at right.
Source: MORR Transportation Consulting. Formatting adapted by IBI Group.

## Origins and destinations of truck trips

The following list describes the dominant truck-travel flows, including where trips typically start and end:

- The large majority of trips by medium trucks start and end within Winnipeg and the surrounding region.
- Most trips by heavy trucks stay within Winnipeg and the region, although 25 percent of these daily trips start or end outside the region.
- The proportions of external trips (trips that start or end outside of Winnipeg) vary, depending on the location where the trips are generated. For CentrePort, half of the trips by heavy trucks are external. At CN's Symington Yard, 37 percent are external and, at CP's Winnipeg Yard (Weston), 25 percent are external. The highest external proportions of heavy trucks are found at the North Transcona Yard (61 percent) followed by Murray Park (52 percent).



Photo by Carolyn Hanks



# 4.0 Active transportation

## Key trends and challenges

- The integral role that active transportation plays in healthy and complete communities is recognized by the public and the City of Winnipeg through policy documents and recent investments.
- 167 km of the cycling network has been added since 2015, which is an increase of 75 percent for a 2020 total of 388 km.
- Limited space within road rights-of-way and emerging best practices for well-separated infrastructure accessible to people of all ages and abilities leads to competing interests for space.
- Limited crossings over rivers and rail corridors exist, extending travel distances for people who walk or bike.
- Many outer-suburban residential areas, particularly in new developments, have no sidewalks or have limited sidewalks without amenities.
- Several major north–south routes lack sidewalks, creating challenges for longer-distance walking trips and walking at the start or end of transit trips.
- Mixed-use centres in suburban locations are typically not well-designed for pedestrian or cycling access, often have limited and inconvenient or uncomfortable facilities.
- Cycling facilities (such as bike paths) are concentrated south of Downtown, with limited facilities in other neighbourhoods; notably, only 9 percent of the cycling network is located within higher-poverty areas.



# Existing active-transportation networks

Active transportation refers to any mode of travel that relies primarily on human power. Cycling, walking, and using a wheelchair or mobility device are the most common forms of active transportation. The term can also encompass activities like rollerblading, running, jogging, skateboarding and scootering and, in Winnipeg's case, paddling or skating along the river system. Winnipeg's active-transportation network includes sidewalks and dedicated cycling lanes.

## SIDEWALKS

The total length of the sidewalk network in Winnipeg is 2,670 km, which means that approximately 33 percent of Winnipeg's road-lane kilometres are accompanied by sidewalks. An additional 710 km of separated trails and paths also support a higher standard of accessibility and safety due to their separation from the roadway (see Exhibit 4.1).

## CYCLING FACILITIES

As of 2020, the total length of the cycling network in Winnipeg is 388 km; of that, approximately 167 km were built after 2015 (an increase of 75 percent). Most of the available network (77 percent or 299 km) is made up of multiuse pathways that are physically separated from vehicles and can be used by both pedestrians and cyclists. These meet a high standard of accessibility and safety for people of all ages and abilities (see Exhibit 5.2).

## WATERWAY FACILITIES

In addition to the walking and cycling network, the Red and Assiniboine rivers provide Winnipeg with more than 50 km of waterway that offers transportation options such as paddling in the summer and skating in the winter. Every winter, approximately 10 km of the Red River is groomed for a skating trail around the Forks in Winnipeg's Downtown, and additional areas are groomed by private residents. In the summer, the rivers offer a continuous corridor for people to paddle that also provides convenient access to Downtown.

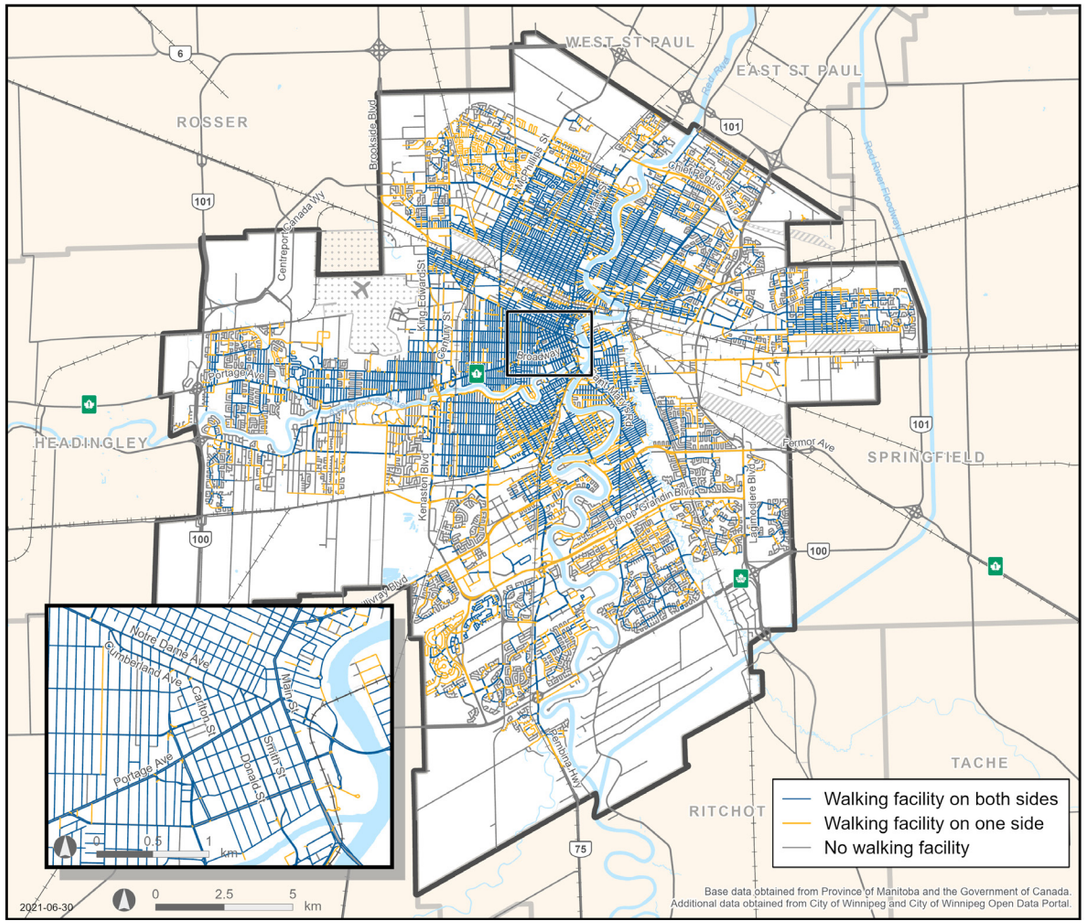
### REGIONAL ACTIVE TRANSPORTATION

While the city of Winnipeg has several bicycle paths that extend to outer regions of the city, there are very few connections beyond the municipal border, thus limiting the option of cycling for regional trips. Two notable connections are the Northeast Pioneers Greenway, an off-street multiuse path, and the pedestrian and cyclist overpass across Provincial Trunk Highway 59 at Birds Hill Provincial Park. While there are limited formal active-transportation connections, some people who walk and bike do use the provincial highway network.



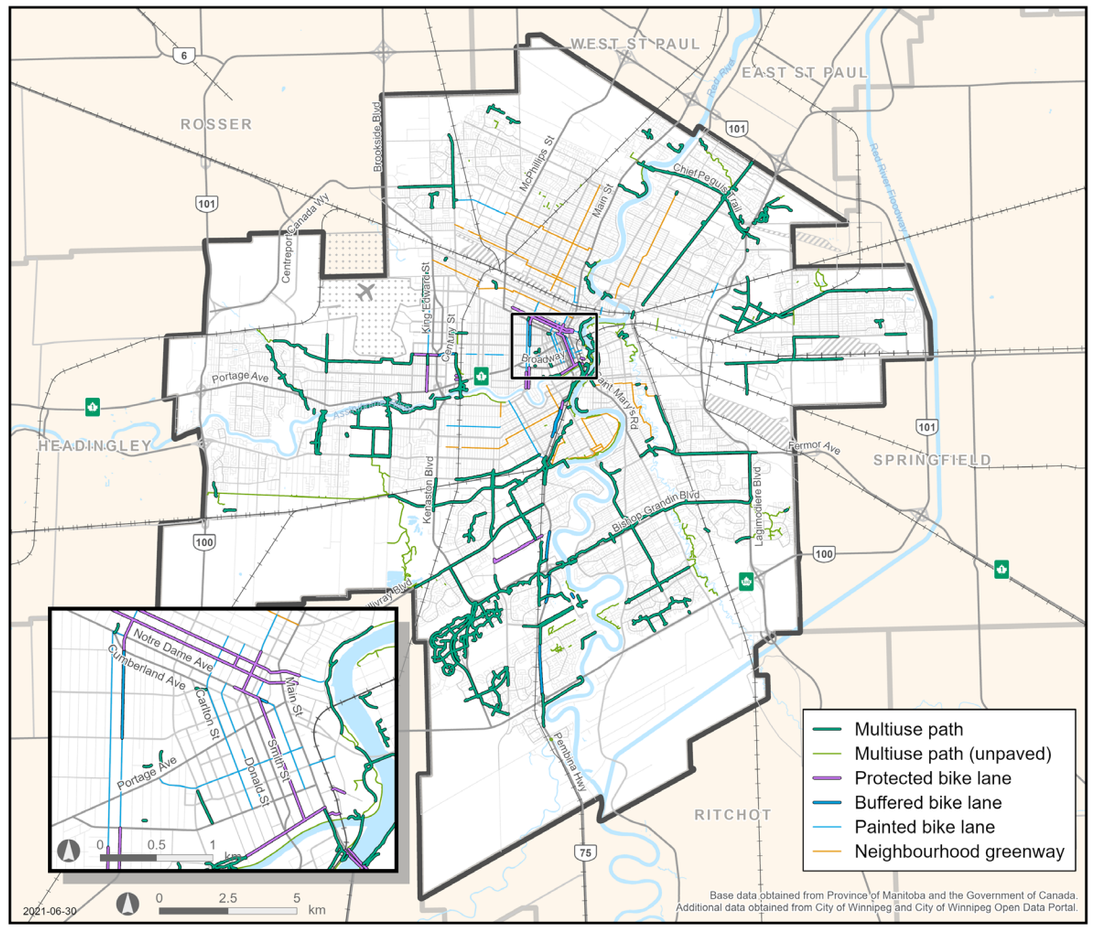

Photo by Joban Khangura

## Exhibit 4.1: Road sidewalk network in Winnipeg (one side, both sides, or none)




Source: MORR Transportation Consulting. Formatting adapted by IBI Group.

## Exhibit 4.2: Existing (2020) cycling network




Source: MORR Transportation Consulting. Formatting adapted by IBI Group.

# Performance of the existing sidewalk network

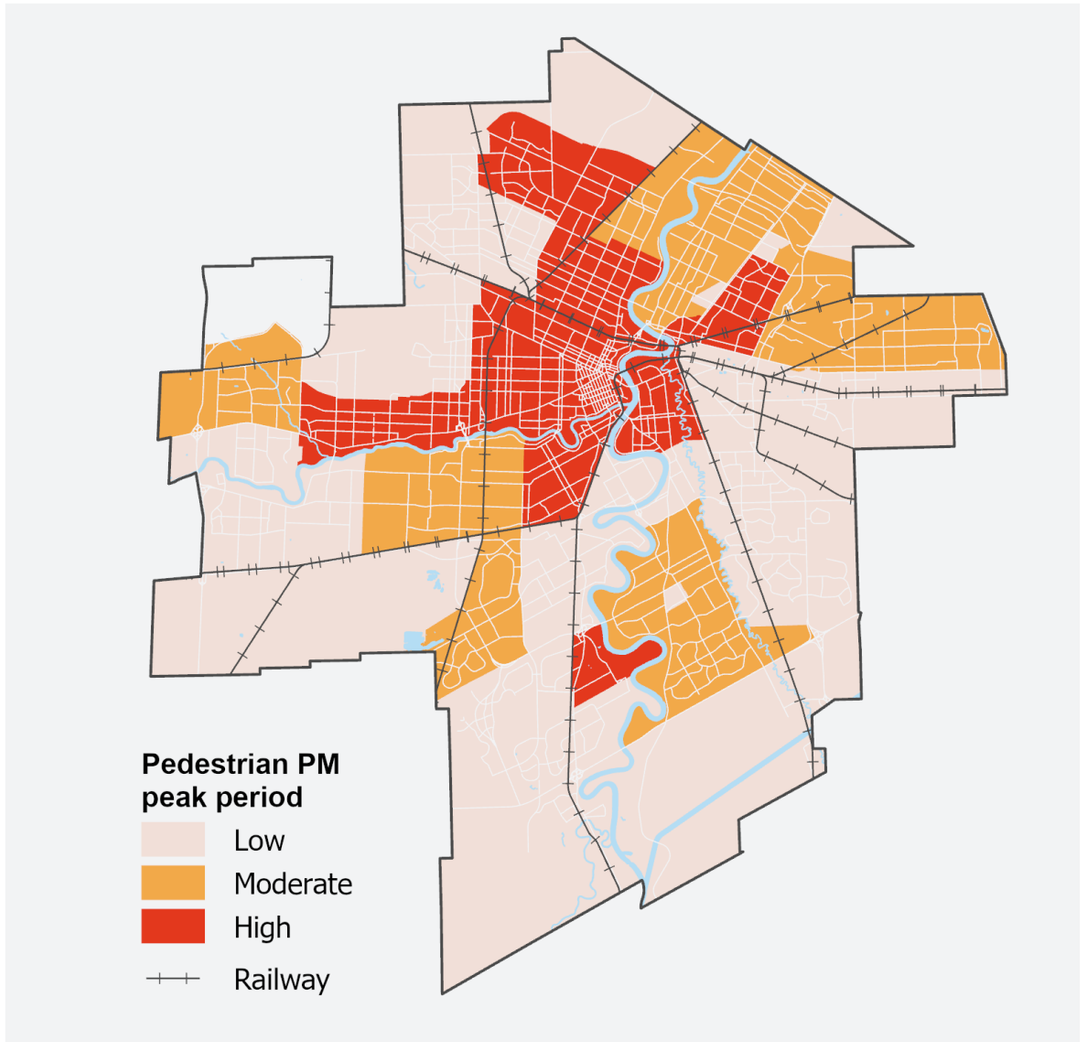
### SIDEWALK USAGE

Based on data collected by the City, pedestrian volumes are highest Downtown at all times of day, particularly along Portage Avenue and Osborne Street. Higher pedestrian counts are additionally seen at institutional locations like schools and campuses; most pedestrian trips are shorter, staying within one neighbourhood or community. Levels of pedestrian activity in the afternoon peak period are shown in Exhibit 4.3.

### GAPS IN THE SIDEWALK NETWORK

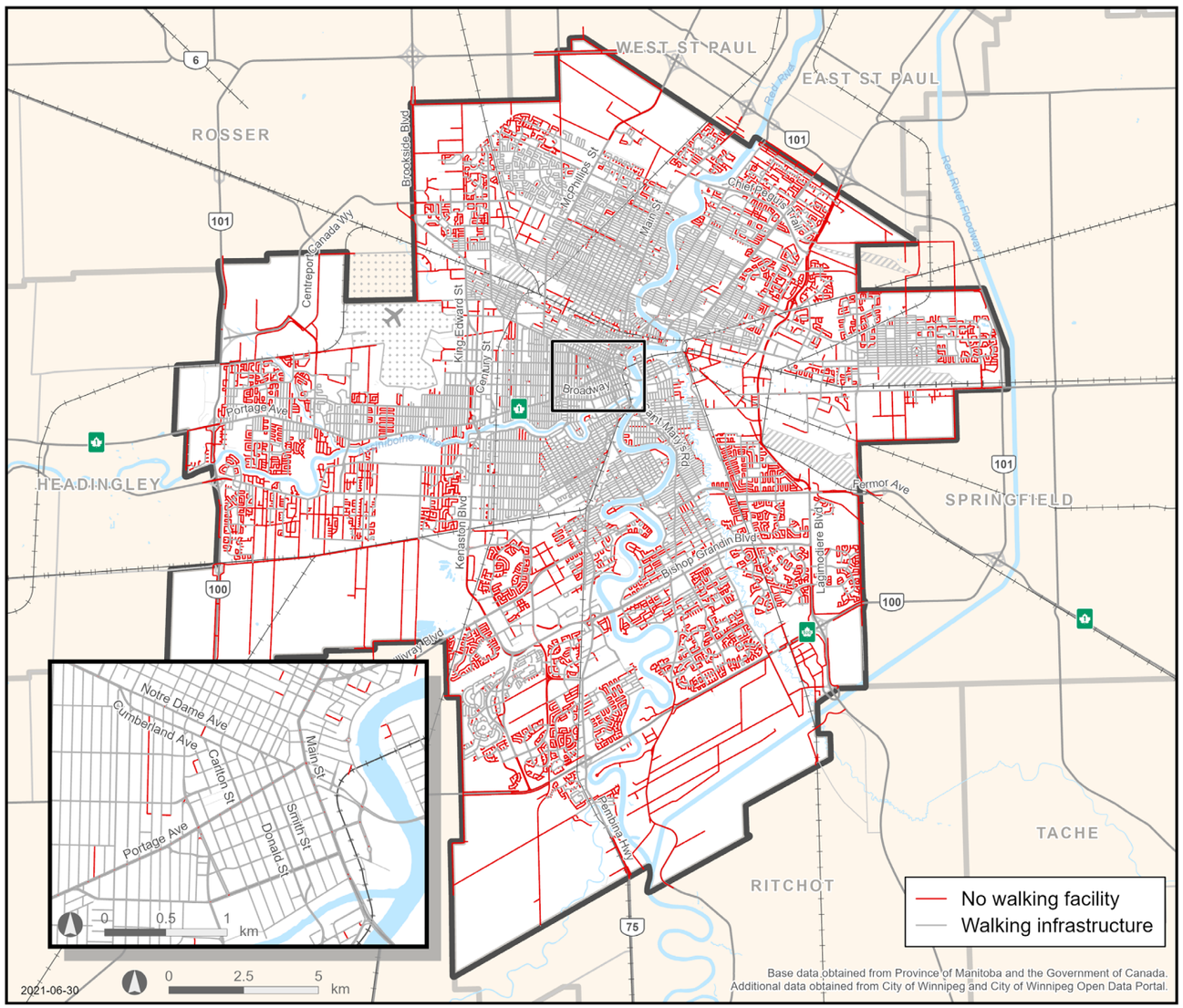
In terms of connectivity, gaps in the sidewalk network are generally located around the edges of the city, with very few gaps Downtown or areas adjacent to Downtown, as shown in Exhibit 4.4. The prominence of rivers and rail corridors also presents a challenge, as there are limited locations to cross these barriers. Further, gaps in the sidewalk network are found in industrial areas as well as along major arterial roads that are not oriented for pedestrian usage. These all adversely affect public transit usage as well, given that Transit users may not be able to easily and safely get from their stop to their destination.

**Exhibit 4.3: Levels of pedestrian activity (telemetric data) (afternoon peak period)**

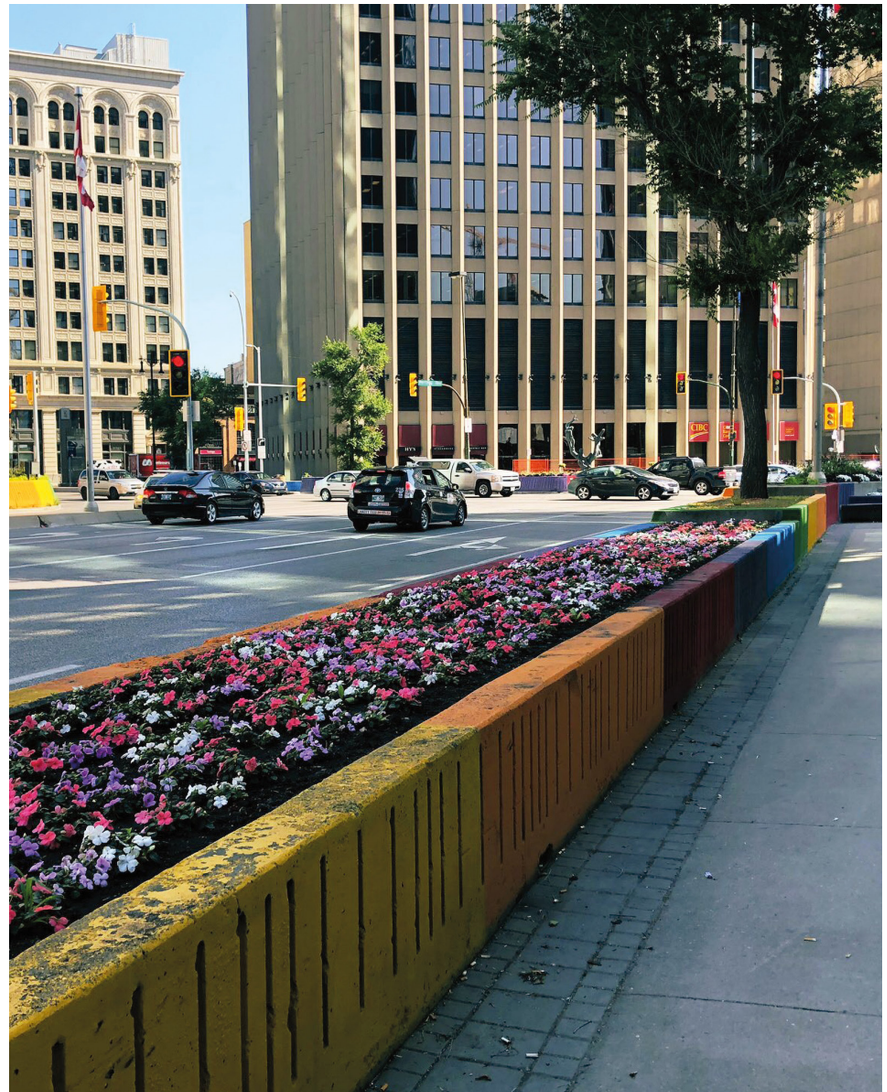



Source: MORR Transportation Consulting. Formatting adapted by IBI Group.

## Exhibit 4.4: Gaps in the sidewalk network




Source: MORR Transportation Consulting. Formatting adapted by IBI Group.



# Performance of the existing cycling network

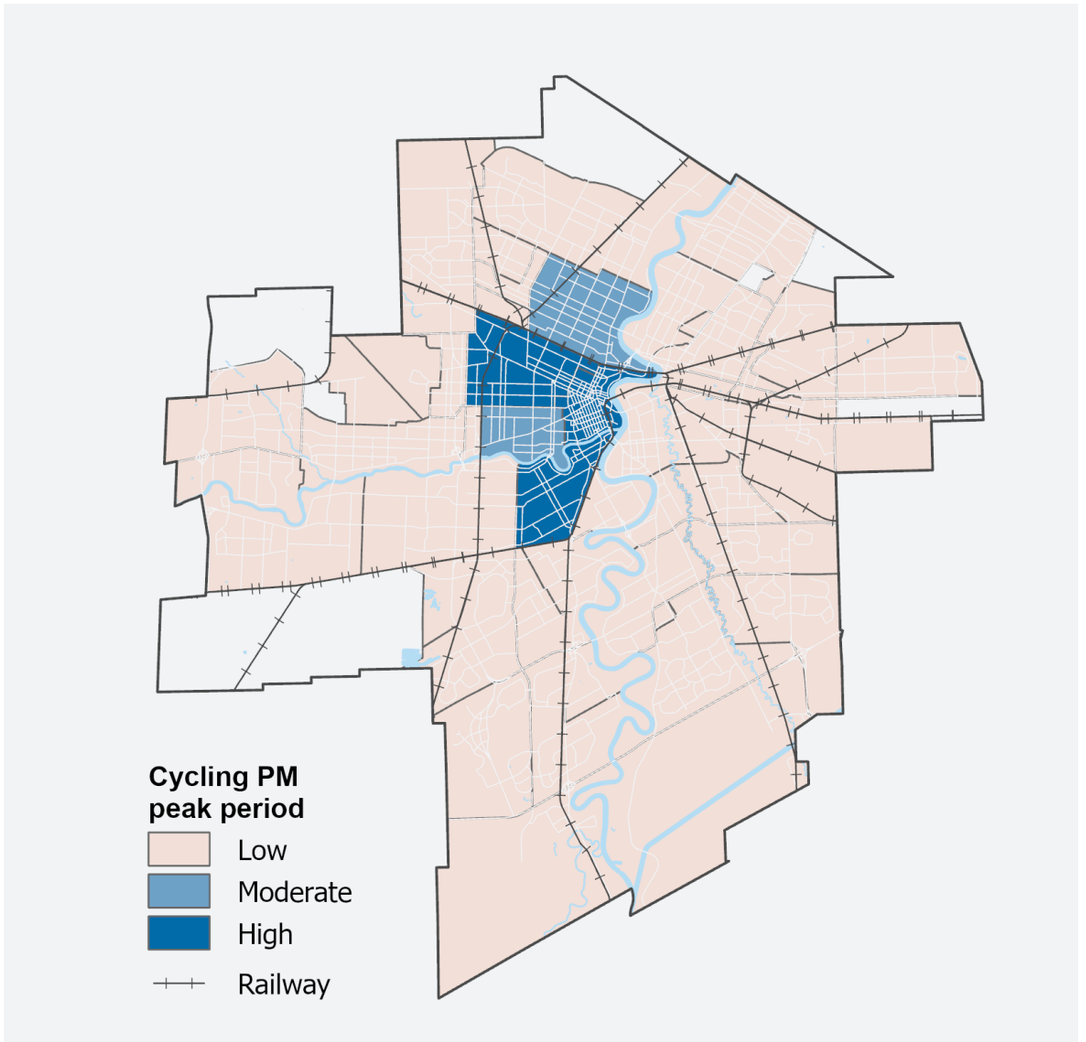
## CYCLING USAGE

Based on data collected at a variety of locations, bicycle activity is highest Downtown at all times of the day. Outside of Downtown, higher volumes are also seen on multiuse pathways further from Downtown, primarily on the Northeast Pioneer Greenway, Transcona Trail, and the Bishop Grandin Greenway. Most cycling trips are inter-neighbourhood, reflecting the higher speeds of bicycles. Levels of bicycle activity in the afternoon peak period are shown in Exhibit 4.5.

## CYCLING NETWORK GAPS

In terms of connectivity, many Winnipeggers noted gaps in the network as the most common reason they had difficulty getting around by bike (87 percent respondents to a statistically significant survey who identified cycling as a common mode of transportation). As with sidewalks, Winnipeg's prominent rivers and rail corridors present challenges for providing direct routes between locations on either side of these barriers, as there are limited corridors that can extend travel distances.

Exhibit 4.5: Levels of bicycle activity (telemetric data) – peak afternoon period




Source: MORR Transportation Consulting. Formatting adapted by IBI Group.



# 5.0 Transit

## Key trends and challenges

- Ridership on Winnipeg Transit increased between 2006 and 2014 but has since decreased.
- While Transit service has increased since 2013 in terms of route, service area, and frequency, it has not kept pace with population growth and therefore has experienced a reduction in overall availability of services per person. This leads to an overall decrease in service convenience to customers.
- Service levels in urbanized areas have been thinned to provide service to expanding areas, with increased subsidies needed in outer-suburban locations.
- Development patterns have resulted in widely dispersed trip origins and destinations, often requiring riders to walk longer distances and make more transfers to reach their destination. This has reduced Transit's ability to compete with personal automobiles.
- Those living in higher-density and higher-poverty areas northwest of Downtown are not served by frequent, all-day Transit and therefore have limited access to travel options.




Photo by Jesse - stock.adobe.com

**Winnipeg's Transit network is an important part of the transportation system, providing almost 50 million rides per year. Growing Transit ridership will need to be a key component of moving more people as Winnipeg's population continues to grow.**

## Existing transit network

Winnipeg Transit currently operates 84 fixed routes using 640 buses. There are four categories of service across its 250 km2 service area

- **Main line routes:** This includes Downtown, crosstown and suburban routes that typically operate daily for 18 hours a day
- **Express routes:** These usually connect the suburbs to Downtown during peak periods only
- **Suburban feeder routes:** These serve lower-demand connections in the suburbs
- **BLUE line:** This is a new rapid transit bus service connecting the University of Manitoba and St. Norbert to Downtown using three branches

Winnipeg Transit also operates three on-demand Dial-a-Ride Transit (DART) services (St. Amant/Plaza Drive, Southdale/Island Lakes, and St. Boniface). Residents in the south and southeast parts of the city can call to request DART services. A fourth option, Winnipeg Transit Plus, is a specialized transit service for persons whose disability prevents them from using conventional transit.

In addition, there are currently 11 park-and-ride locations that provide convenient vehicle–public transit travel options. Exhibit 5.1 illustrates the extent of the current public transit network and the location of the park-and-ride facilities.



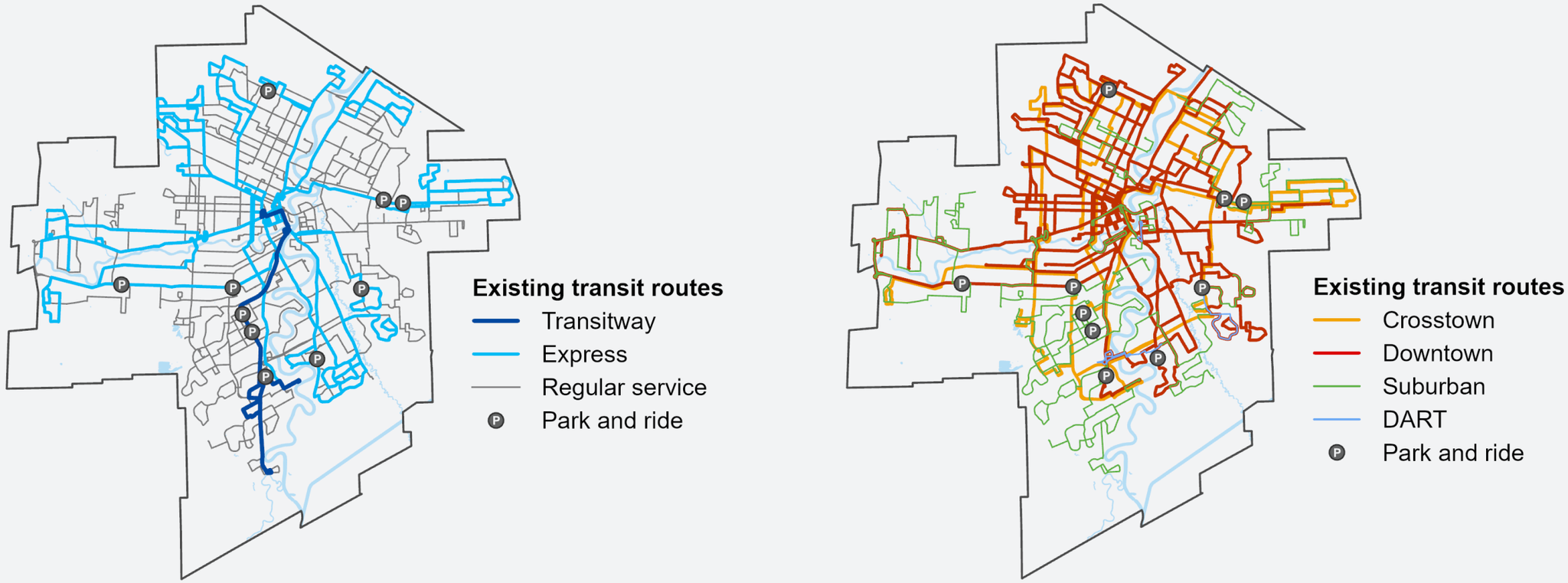

**In April 2021, City Council approved the updated Transit Master Plan, which will guide changes to Winnipeg's transit infrastructure and service in the coming decades. This plan recommends an easier-to-understand grid network of high-quality bus service and an expansion of the rapid transit system.**

### REGIONAL TRANSIT NETWORK

At this time, there are no public transit options for residents living in the region outside of Winnipeg to travel to and from the city. Furthermore, Winnipeg Transit's park-and-ride lots are not conveniently located for regional residents, reducing their access to Winnipeg Transit services.

As the population in the region grows, it will be increasingly important to provide good alternatives to car travel, particularly because demographic trends indicate the population outside of the city is aging.

## Exhibit 5.1: Current transit service maps (2021) by type of route and service




Source: IBI Group. Adapted from data provided by Winnipeg Transit.

## Transit network performance and peer comparison

Winnipeg's transit system consistently performs well, providing service for almost 50 million rides per year. However, transit ridership has been declining since 2014. There are two key metrics that are helpful for understanding transit network performance: the availability of service (measured by revenue hours per capita) and the utilization of service (ridership per capita).

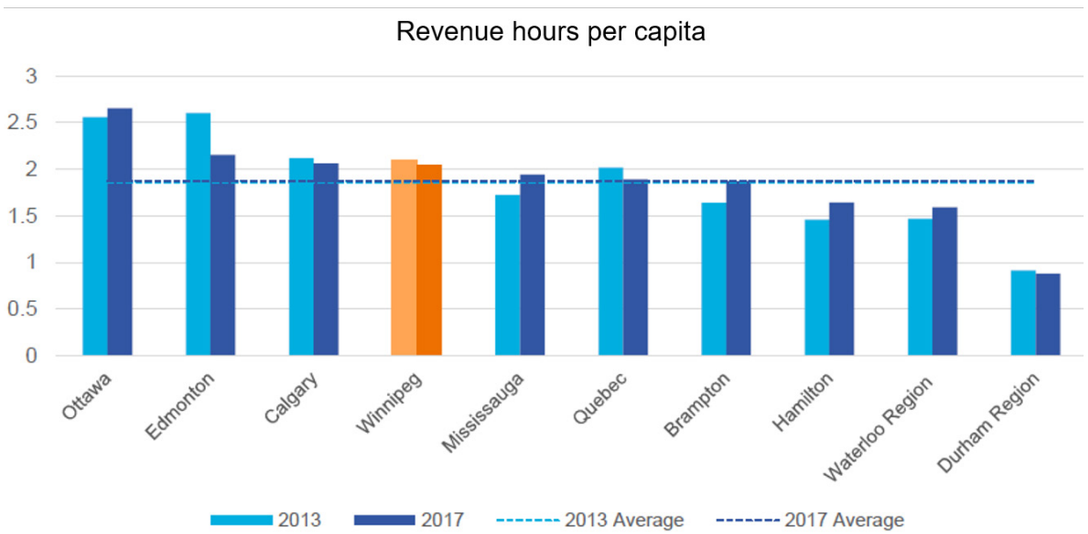



Photo by Alex Regiec

## AVAILABILITY OF SERVICES (REVENUE HOURS PER CAPITA)

Over the years, Winnipeg Transit has increased the number of revenue hours (the amount of service it provides) however it has been outpaced by population growth meaning there is less service available per person now that there was in 2013 (Exhibit 5.2). This can impact the convenience of taking transit and can lead to more people using other modes of transportation.

### Exhibit 5.2: Revenue hours per capita – Winnipeg Transit compared with peer municipalities (2013 and 2017)

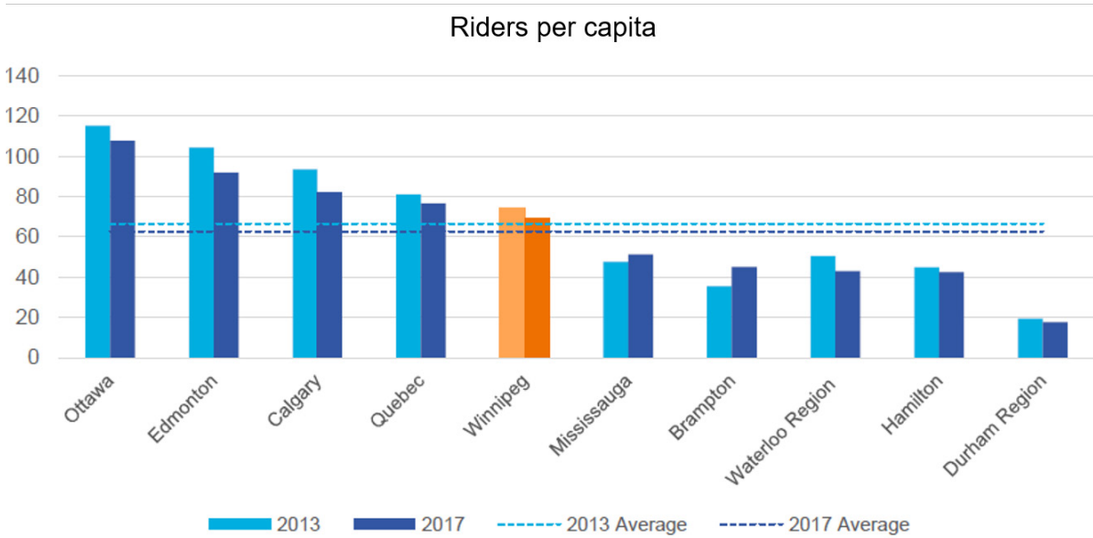



Source: Phase 1 Winnipeg Transit Service and Infrastructure Master Plan by Stantec, Argyle, HTFC Planning and Design, and MORR Transportation Consulting (p. 3.5).

## UTILIZATION OF SERVICES (RIDERSHIP PER CAPITA)

Ridership per capita indicates the average number of transit trips made per year per person and illustrates changes in utilization. Exhibit 5.3 shows that Winnipeg's transit ridership per capita is decreasing, indicating that fewer people are using transit to meet their transportation needs.

### Exhibit 5.3: Ridership per capita – Winnipeg Transit compared with peer municipalities (2013 and 2017)




Source: Phase 1 Winnipeg Transit Service and Infrastructure Master Plan by Stantec, Argyle, HTFC Planning and Design, and MORR Transportation Consulting (p. 3.5).

**Despite seeing a decrease in riders per capita and revenue hours per capita, Winnipeg performs above average on both of these indicators when compared with peer municipalities.**

## Access to frequent transit services

In Winnipeg, access to frequent transit service is primarily along urban and regional corridors converging Downtown (Exhibit 5.4). This largely aligns with the areas of the city that have the highest density of people and jobs, which is beneficial for encouraging higher transit ridership. However, several mid- to high-density areas are not within 500 m of a frequent-service transit stop, including areas immediately adjacent to Downtown as well as north and west end neighbourhoods, in particular.

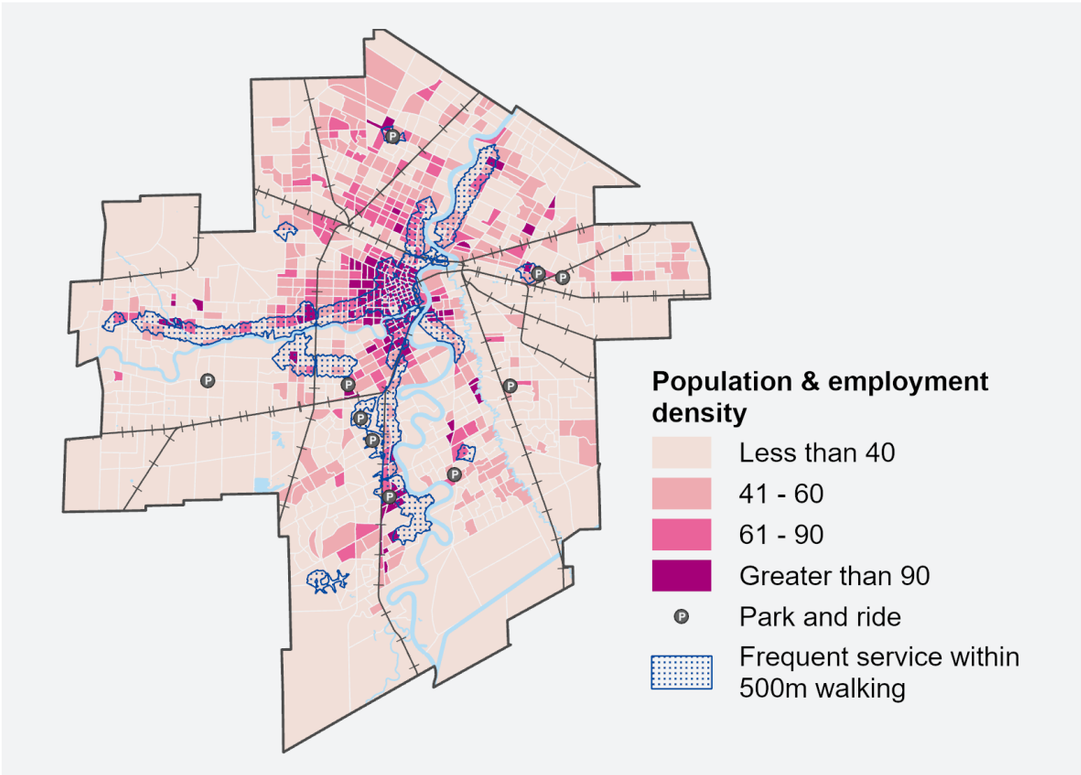
Further, several areas of Winnipeg that are experiencing poverty at higher levels do not currently have access to a frequent-service transit stop within a 500 m walk, including neighbourhoods northwest of Downtown and several more suburban locations (Exhibit 5.5).

Transit provides a more affordable travel option that can lead to improved prosperity; thus, access to frequent transit service is particularly important in areas experiencing higher levels of poverty. Transit can therefore play an important role in connecting people to each other and to opportunities such as employment and services, potentially enabling them to increase their well-being and income.

**Frequent service is defined as a route that has a bus coming every 15 minutes or less throughout the day. A distance of 500 m was used to determine a walkable distance to a bus stop with frequent service.**



## Exhibit 5.4: Access to frequent transit service, 2021 land-use population and employment density

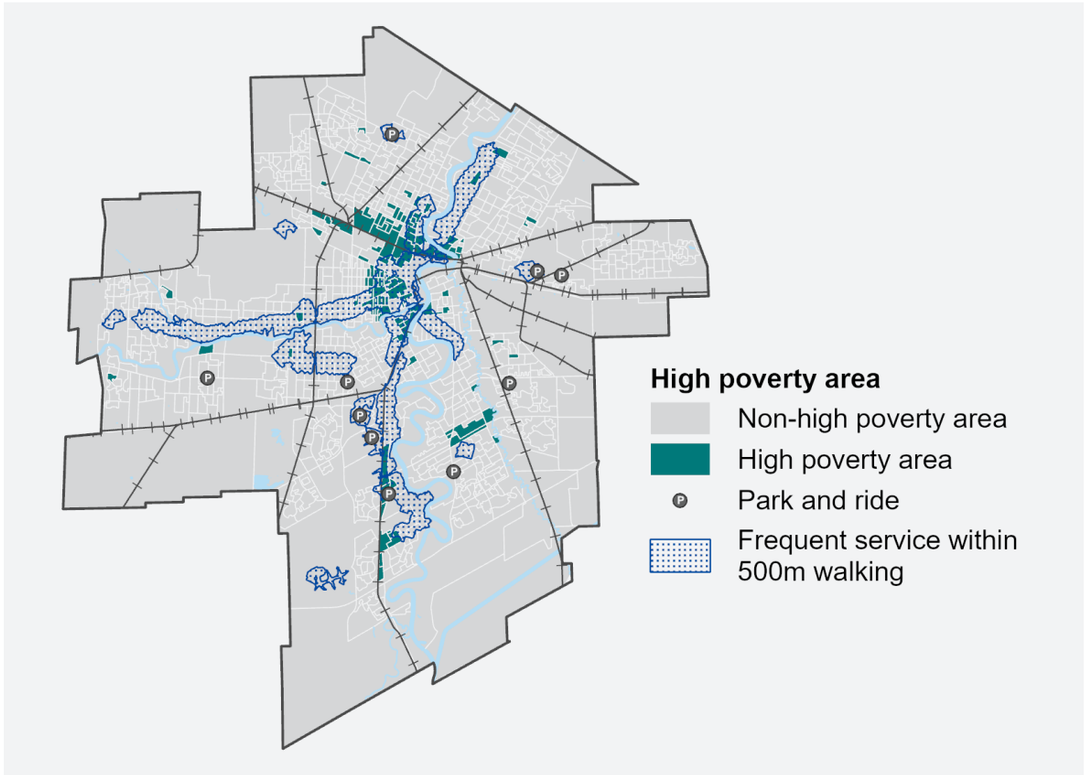



Source: IBI Group. Adapted from Winnipeg Transit Master Plan, 2020 and population and employment data from the Planning and Land Use Model (PLUM).

### CORRIDORS WITH THE HIGHEST LEVEL OF TRANSIT SERVICE

- Portage Avenue
- Henderson Highway
- Main Street (between Downtown and Inkster Boulevard)
- Pembina Highway
- The Southwest Transitway Corridor

## Exhibit 5.5: Current transit service coverage – higher-poverty areas (2021)




Source: IBI Group. Adapted from the 2020 Winnipeg Transit Master Plan and City of Winnipeg Open Data Portal, map of the higher needs areas, https://data.winnipeg.ca/Census/Higher-Poverty-Areas/gg4w-peq6 (accessed April 1, 2021).

**In 2021, approximately 15 percent of the population (116,300 people) and 31 percent of employment (111,050 jobs) are located close to a frequent-service transit stop (i.e. within a walking distance of 500 m).**



# 6.0 New mobility and emerging technologies

**Over the past two decades, new technologies and business models (often referred to as new mobility options) have introduced a variety of travel options to people. New technologies have also aided in the advancement and efficiency of existing modes of transportation. Looking forward, emerging technologies will continue to advance mobility in new and ever-changing ways.**

# New mobility options in Winnipeg

### SHARED-USE MOBILITY SERVICES

Shared-use mobility services are mobility options that are not owned by a single user but, rather, are shared by all users. These services have gained significant popularity in recent years, supported by technologies that simplify access to their services by the public. Two types of shared-use mobility services are currently operating in Winnipeg:

- **Car sharing:** Peg City Car Co-op has been providing Winnipeg residents with short-term and affordable car-rental services outside of traditional car-rental agencies since 2011. This service provides people with convenient access to a vehicle to drive themselves when needed, reducing the need to own a vehicle full time. This service is based on the idea that most trips can be served effectively by transit or active transportation; however, sometimes, access to a personal vehicle is needed or desired.
- **Ride sourcing:** Currently, two personal transportation providers (PTPs) provide ride-sourcing services in Winnipeg: TappCar and Uber. These services are ordered by using an internet-connected mobile device to book and pay for travel with one of the PTPs and travelling as a passenger for a single trip.

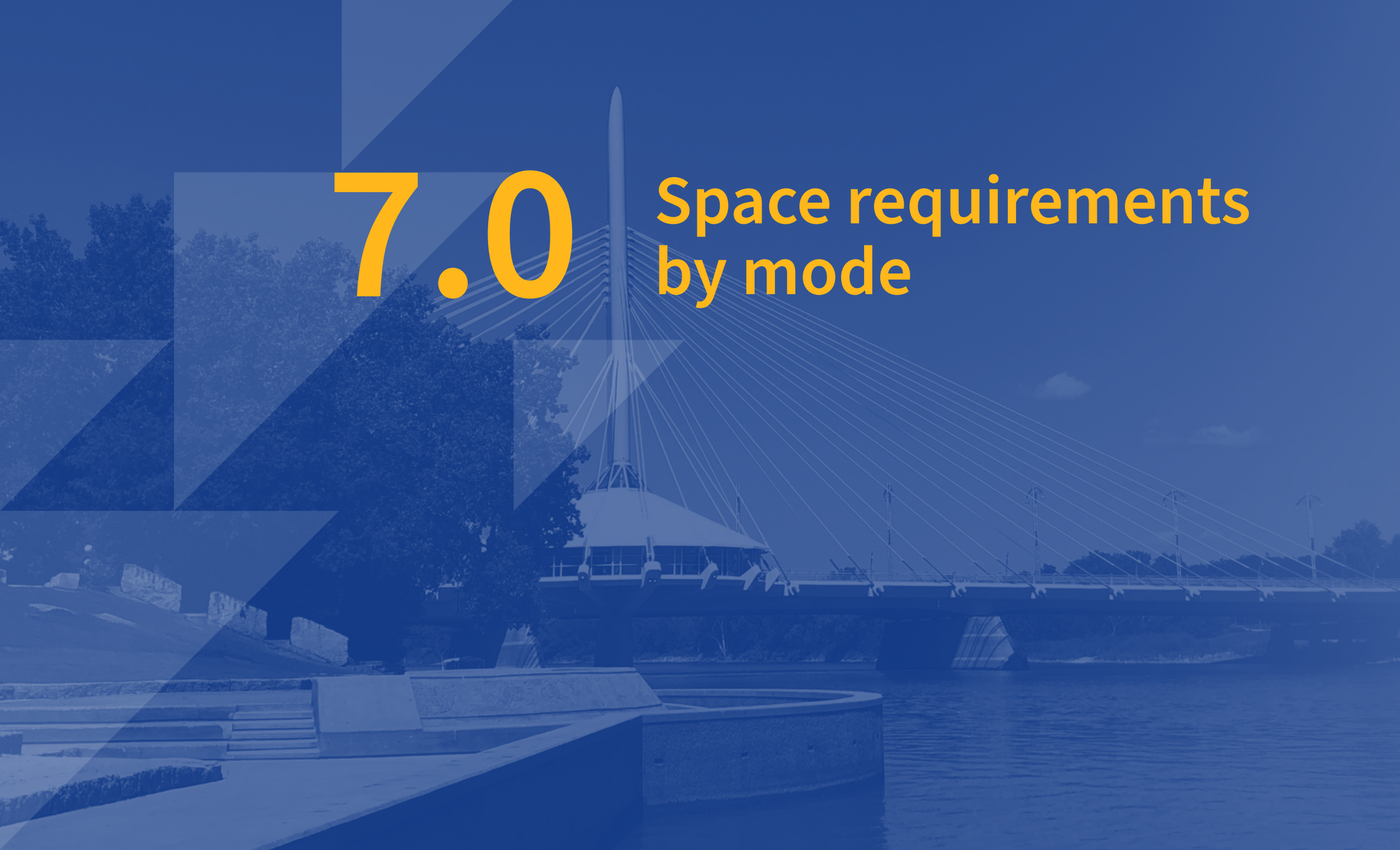
Winnipeg previously enjoyed a shared bike service known as Pedal in the Peg, which enabled users to make point-to-point trips on rented bikes distribuetd throughout the community.

### AUTOMATED VEHICLES

Currently, automated vehicles operate solely at Winnipeg Airport, which deploys automated snow removal to clear runways. While automated mobility has improved significantly in the past decade, there is still debate as to when, and even if full automation will be available. It is likely that autonomous vehicles will soon be used for goods movement and for more straightforward travel needs, such as shuttles that travel regular routes between predetermined destinations.

### ELECTRIC VEHICLES

Electric vehicles are an emerging technology that have the potential to significantly reduce the environmental impact of the transportation system, in line with Winnipeg's objectives. However, the widespread adoption of electric vehicles will also require the implementation of new public infrastructure, specifically with regard to the charging of vehicles. Winnipeg has introduced two charging stations for electric vehicles to evaluate operational performance. Winnipeg Transit also recently released a report for the future of the zero-emission fleet. Over the next 10 years, Winnipeg Transit intends to operate 100 zero-emission buses.



# 7.0 Space requirements by mode

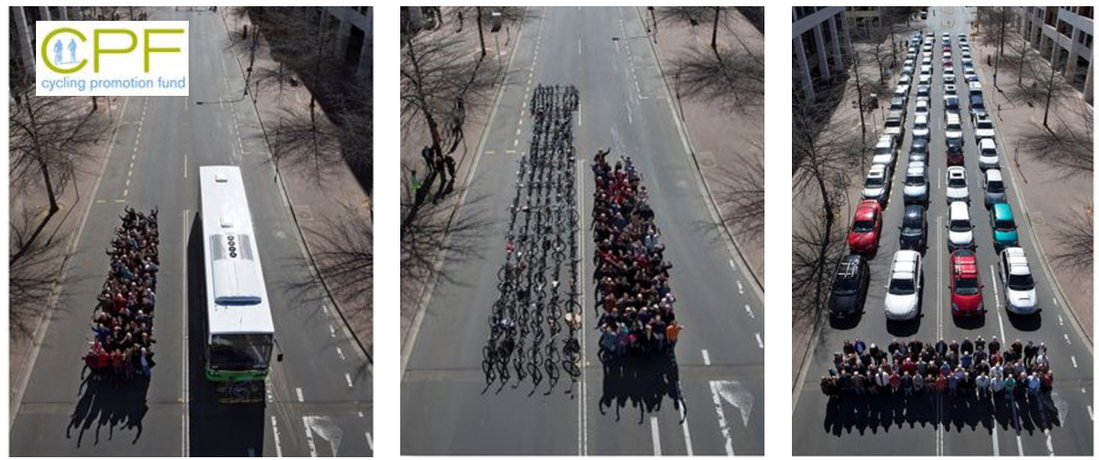
**Winnipeg's population is expected to grow significantly by 2050, with an associated increase in employment. This growth will increase travel demand which will need to be managed to support a high quality of life and efficient mobility options for all. The amount of space that each mode of transportation uses to move people is a key consideration when planning how to manage this increased travel demand, particularly in an urban environment where road space is limited.**

Automobiles require the largest amount of space to move people, compared with all other modes (see Exhibit 7.1). This is exacerbated by the fact that, on average, each car in Winnipeg is only carrying 1.3 people meaning a large amount of space is needed to move a small number of people. As a result, the people-moving capacity of streets becomes limited due to the large amount of space each person needs to move through a corridor in an automobile.

Transit, walking, and cycling, on the other hand, have the ability to move more people using significantly less space with much lower associated maintenance costs. In cities, where space is limited, increased travel demand will need to be accommodated by increasing the people and goods-moving capacity of the existing transportation corridors. This can be done by increasing the utilization of space-efficient modes (transit, cycling, and walking) and through effective land-use planning that makes these alternative modes more attractive and viable.

**People-moving capacity refers to the number of people who can comfortably travel through a transportation corridor across all modes of transportation.**

**Exhibit 7.1: Space requirements by mode – 60 people walking on transit, on bicycles, and in cars**




Source: Originally produced by the Australian Cycling Promotion Fund and accessed at https://humantransit.org/2012/09/the-photo-that-explains-almost-everything.html.

## Induced demand

Adding more space for automobiles in the form of new or expanded roads for automobile use can also lead to induced travel demand. Induced travel demand is where additional transportation capacity encourages new trips that were not made prior to new infrastructure being built. For example, widening a road will temporarily improve travel speed along a corridor, but it will also result in more people choosing to drive and, eventually, result in slower travel times than what existed before the widening. As a result of the induced demand and potential behaviour changes, any additional space provided for vehicles is likely to eventually lead to transportation challenges, such as congestion and travel delays.

Induced demand can similarly be experienced across all modes of transportation. For example, new bus routes or bike lanes are typically associated with increased ridership, which can be positive for the overall efficiency of the transportation system, as it can move more people with less space.



# 8.0 Conclusion

# 8.0 Conclusion

**Winnipeg comprises a mix of lower-density neighbourhoods that have a high reliance on cars and higher-density areas that see greater use of Transit and active modes of transportation. With its population and employment numbers continuing to grow, combined with the needs of its prominent industrial and manufacturing sectors, Winnipeg will have to manage increasing travel demand through to 2050.**

Winnipeg has a well-developed transportation network, however to achieve the vision and goals outlined in the OurWinnipeg initiative, the City will need to build on this strong foundation. This will include making improvements to the transportation network and more efficient utilization of land to facilitate sustainable use of the various modes of transportation.

The analysis presented in this report, along with input received throughout the public engagement process, will inform the development of recommendations and supporting strategies in a later phase of this study.



Photo by Robert Linsdell