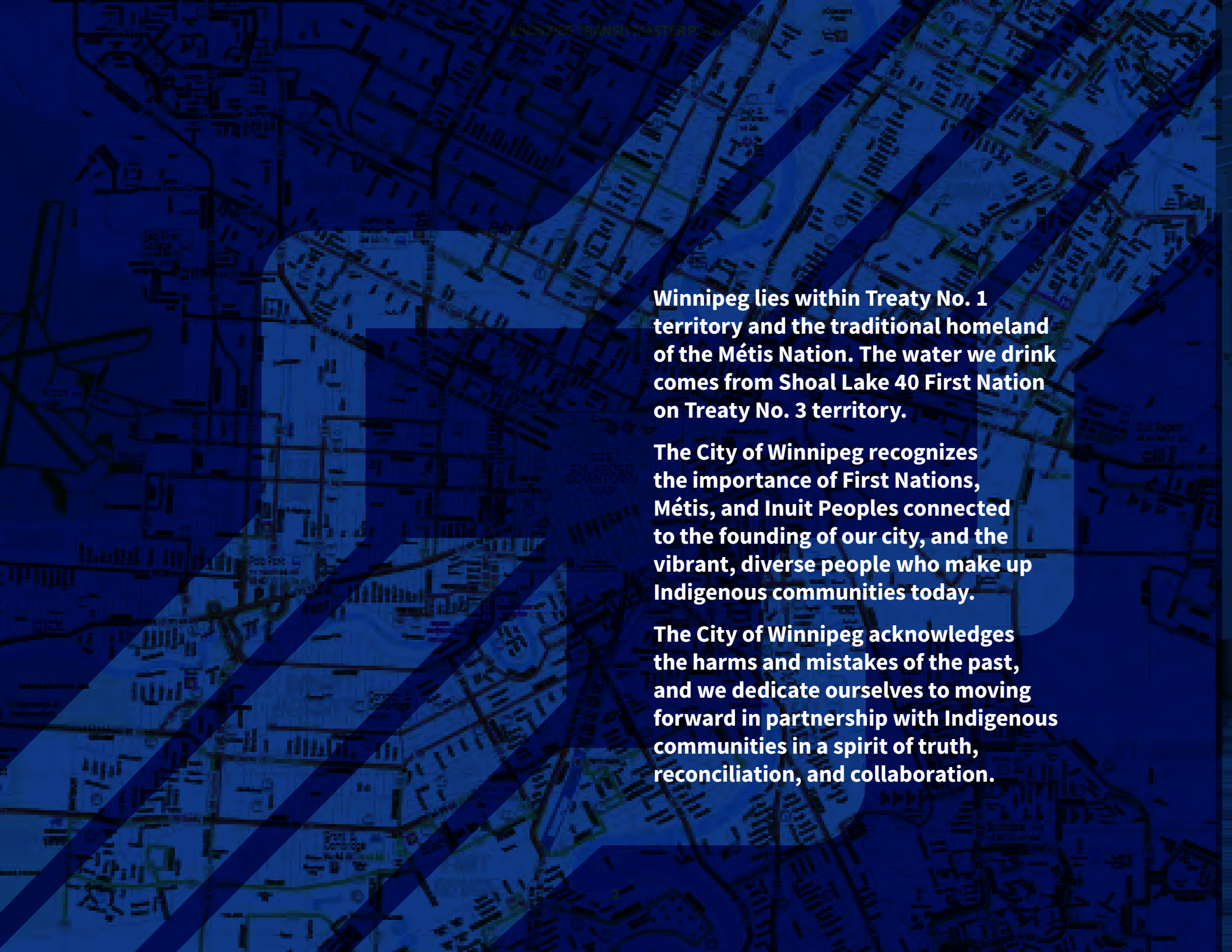
WINNIPEG TRANSIT MASTER PLAN

MARCH 2021



Winnipeg lies within Treaty No. 1 territory and the traditional homeland of the Métis Nation. The water we drink comes from Shoal Lake 40 First Nation on Treaty No. 3 territory.

The City of Winnipeg recognizes the importance of First Nations, Métis, and Inuit Peoples connected to the founding of our city, and the vibrant, diverse people who make up Indigenous communities today.

The City of Winnipeg acknowledges the harms and mistakes of the past, and we dedicate ourselves to moving forward in partnership with Indigenous communities in a spirit of truth, reconciliation, and collaboration.

WINNIPEG TRANSIT A History

Public Transit, in the form of horse-drawn street cars, first ran in Winnipeg on October 20, 1882. | On January 28, 1891 at 7:30 pm on the Park Line near Osborne & Jubilee, the first electric street car was tested. They began running in regular service in the summer of 1892. | July 8, 1906 saw the introduction of Sunday service. | The last all-wood electric street car was built in August of 1914. | On May 1, 1918, the first gasoline-powered bus operated in Winnipeg. | On June 21, 1919, forever known as Bloody Saturday, street car 596 was set on fire by strikers. The car was being run by Winnipeg Electric Railway Company staff members that were not part of the union. | On November 21, 1938, the first trolleybus ran down Sargent Avenue. | From 1939–1945, female street car operators took over from the male operators, who had volunteered to fight in the Second World War. At the peak there were 53 women employed as operators and maintenance workers. | In 1948, the City of Winnipeg celebrated its 75th anniversary. | From 1901 to 1950, the face of public transit changed many times. | September 18th, 1955 was the last day street cars ran in Winnipeg. | In 1965, diesel buses began to replace electric trolley buses. When service was expanded into new areas, overhead lines were taken down and diesel buses ran those lines. | On Friday March 4, 1966, Winnipeg saw one of the worst snow storms in its history. It was the first time since 1905 that the entire transit system was completely shut down due to weather conditions. | The last trolleybus in Winnipeg ran on October 30, 1970. | In 1971, the Transit Department of the Metropolitan Corporation of Greater Winnipeg became the City-owned Winnipeg Transit System. | Winnipeg Transit bought its first low-floor accessible bus in 1994. | In 2005, Winnipeg Transit added its 290th low-floor bus, meaning half the fleet was accessible. | Winnipeg Transit retired its last high-floor bus in 2017, and now has a fleet of 640 low-floor accessible buses that carried over 48,000,000 people in 2019. | The Southwest Transitway opened in two stages - the first 3.6 km in 2012 and another 7.6 km in 2020, giving Winnipeg its first rapid transit line - the BLUE Line. |

Open House Community Engagement Session | The Forks Marketplace

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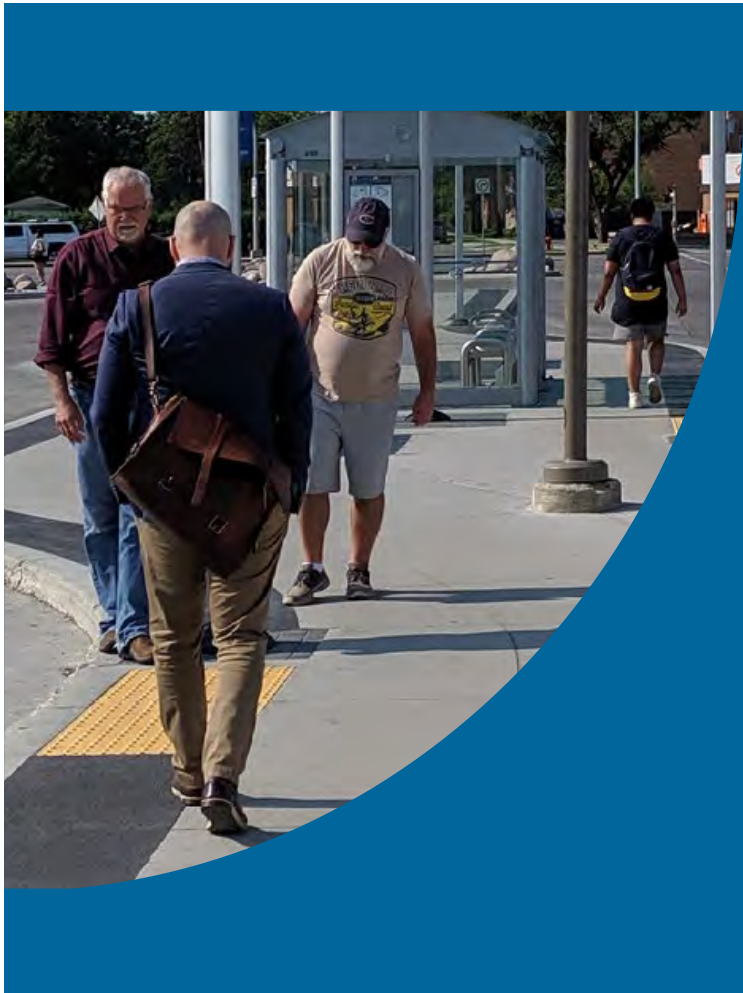
"The new network will be simpler, easier to understand, more intuitive to use, more efficient to operate, and most importantly, more useful for riders. The end result will be a 25-year plan for Winnipeg Transit, showing how the transit network needs to change, when the changes should happen, and what the priorities are for building infrastructure, including new rapid transit corridors."

- Bjorn Radstrom, P. Eng.
Manager of Service Development
Winnipeg Transit



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PANDORA
ST.VITAL CENTRE
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PANDORA
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PANDORA

INTRODUCTION

2.0 INTRODUCTION

2.1 WHY THIS PLAN? WHY NOW?

The Winnipeg Transit system that has been in place for more than a century has seen minimal changes to the network over the past few decades. This has been noted by members of Council and the public, as the existing transit service is no longer representative of the travel patterns of Winnipeggers today.

The system evolved gradually over the years as the city grew, however the extent of the city's growth has far outpaced what can be accommodated with small, incremental changes to the transit network. A fundamental redesign of the transit network is needed to address the city's current and future transportation needs.

The Winnipeg Transit Master Plan (WTMP) presents a future vision of transit services that will offer transportation options to efficiently meet the travel needs of Winnipeggers today and tomorrow.

A GROWING URBAN POPULATION...

The Winnipeg metro area's population is expected to reach one million citizens within 25 years. Accommodating the transportation needs of this growing population requires enhancements to all aspects of the transportation system. The mobility needs of all people, regardless of age and ability, must be addressed in the most sustainable, cost-effective, and reliable manner.

...REQUIRING A SUPPORTIVE TRANSIT NETWORK

According to the Canadian Urban Transit Association, 92% of urban Canadians think that public transit makes their community a better place to live, and 73% feel that transit benefits them personally. Transit services that are affordable, reliable, sustainable, safe, and that serve both low-density neighbourhoods and high-density mixed-use corridors are key to improving connectivity and mobility needs.

A GROWING COMMUNITY...

As cities grow it becomes difficult to serve new areas while still adequately maintaining existing services. Providing service to areas of growth can often mean decreasing service for established areas. Trying to do more with constrained budgets results in route extensions and diversions, reduced frequency, increased schedule complexity, and increased travel times. These consequences of increasing coverage from the existing pool of resources tends to increase the barriers to transit, sometimes resulting in a net loss in ridership.

...REQUIRING A TRANSIT SYSTEM THAT ALIGNS TRAVEL DEMAND WITH SERVICE

Winnipeg Transit currently provides a very geographically extensive service and offers significant coverage of the city, but this results in both inefficiency and duplication. The routing and schedules are complex and can be overwhelming for riders who are not familiar with the services. To be successful, a transit service should be simple and easily understood by current and potential riders, as this promotes transit ridership, helping to reduce existing and future road congestion, and positioning transit as an important part of a multimodal transportation system that serves both current and future generations.

WHY THIS PLAN?

The Winnipeg Transit Master Plan sets a 25-year vision for transit service and infrastructure in the city. The WTMP establishes the long-term vision for transit in Winnipeg, supported by strategic policy guidance that creates structure and transparency. The WTMP includes transit service classification, service guidelines, infrastructure guidelines, Winnipeg Transit Plus recommendations, and a fare strategy. The transit vision is supported by nine objectives that provide better transit options, resulting in a simpler, more efficient, more effective, and more accessible transit system - one that is better positioned to become people's first choice for travelling around Winnipeg.

2.2 KEY CHALLENGES

CHALLENGE: POPULATION GROWTH

The Winnipeg metro area's population is expected to approach one million citizens within 25 years. Accommodating the transportation needs of this future population requires enhancements to all aspects of the transportation system. The mobility needs of all people, regardless of age and ability, must be addressed in a sustainable, cost-effective, and reliable way.

CHALLENGE: FREQUENCY AND RELIABILITY

Service frequency is one of the most important considerations when people decide which mode of travel to choose. In the current transit system, only slightly more than 20% of Winnipeg homes are within a 500 metre (6-7 minute) walk of frequent transit service. Access to frequent transit service (defined as a bus coming every 15 minutes or less) is a tipping point to make transit an attractive and viable choice, as in general riders are prepared to walk further to access more frequent and direct transit service because it means shorter waiting times. A common theme heard during public engagement is that Winnipeg's winter weather makes waiting for the bus even more of a challenge.

Frequency is also a key component of service reliability. If a bus is early, late, or full, the service is much more attractive if you know the next one will arrive in just a few minutes as opposed to a half an hour later.

CHALLENGE: LENGTHY TRIP TIMES

The current radial network funnels over 30 routes through downtown. While downtown is critically important, data analysis shows that less than 20% of trips city-wide have downtown as their destination. With the current transit system, people are often forced to go through downtown to make a connection, even though it might be out of the way. In many cases this makes a transit trip take two, three, or four times longer than it would be by car, or with a direct bus route. A common theme heard during public engagement is that the future Winnipeg Transit system needs to continue to support trips to and from downtown, while also making it easier to take trips to and from everywhere else.

CHALLENGE: INCREMENTAL CHANGE OVER TIME

The transit system has grown and been modified over time as urban development has changed. However, many of these changes have been piecemeal and incremental, resulting in many legacy routes and schedules that don't make sense anymore as they were designed to serve a specific purpose which is no longer relevant, and haven't been updated to reflect that. Often due to financial constraints, new service is tacked onto existing routes at the ends, or midway along a route. Many routes try to serve too many specific audiences with diverse needs at once—doing many things, but not doing any one of them particularly well. Complex route paths and schedules are a barrier for new riders and a challenge for existing riders.

CHALLENGE: EFFICIENT USE OF RESOURCES

Operating expenses increased by 15% between 2013 and 2017, while operating revenue increased by only 3%. However, Winnipeg Transit's operating costs per revenue-hour are the lowest among its peer group, indicating that Winnipeg delivers transit in a more cost-effective way than its peers, and minimizes costs well. With a stagnant ridership base, this means that revenues in the future will be slow to increase and will not match cost increases without either a change in approach to the service or placing a significant burden on the passengers to have revenue income from the farebox match expenses.

CHALLENGE: INEFFICIENT AND LIMITED SERVICE ON WINNIPEG TRANSIT PLUS

Winnipeg Transit Plus has policies that are outdated and can no longer be considered best practice. These policies have resulted in the creation of an inefficient service that subsequently has a higher level of unaccommodated trips, and single-person trips. The prevailing policy rules on trip prioritization, no-shows, and exact booking times negatively impact the use of resources and the ability to provide the best service to customers. This has become an expensive, inefficient, and limiting style of service delivery.

CHALLENGE: CLIMATE CHANGE

The Winnipeg Climate Change Action Plan, approved by Council in 2018, outlines goals for the City of Winnipeg to reduce greenhouse gas emissions (GHG). Key among these is the goal that 15% of all trips in within Winnipeg would be made by public transit by 2030. This represents a substantial increase from the estimate of 7-8% in 2011 by the Transportation Association of

Canada in its 5th Urban Transportation Indicators report. This shift away from private vehicle travel toward more sustainable modes will be an extremely challenging goal that can only be met through the bold and innovative plans that are proposed in the Winnipeg Transit Master Plan.

3.0

PROCESS

3.0 PROCESS

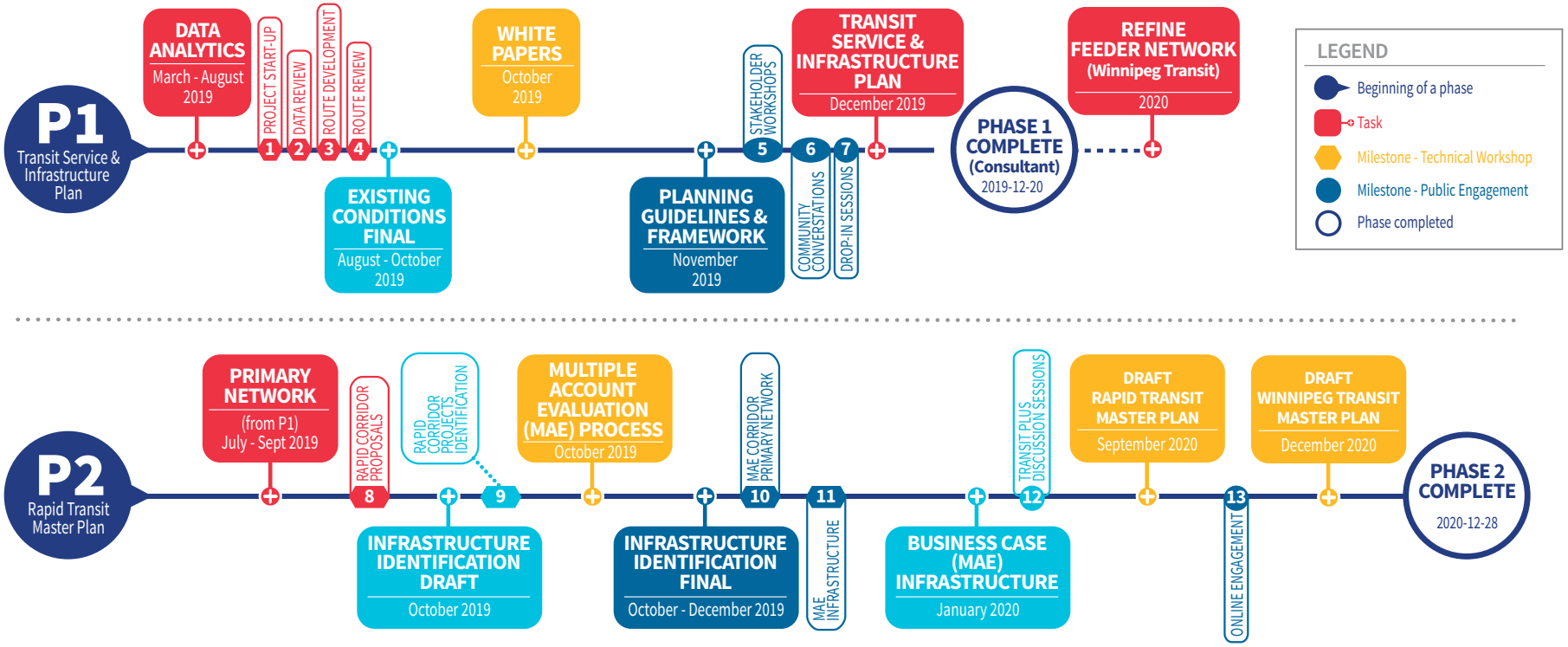
Phase One of the Winnipeg Transit Master Plan was the **Transit Service & Infrastructure Plan**. It was based on the detailed analysis of data and informed by the goals established in the initial public engagement, to create a draft plan for a new transit network including a Primary Network and Feeder Network.

Phase Two of the project was the **Rapid Transit Master Plan**. It was based on identifying which corridors within the Primary Network would most benefit from the construction of Rapid Transit infrastructure to improve their operation.

The draft network plan was reviewed and updated in several iterations, based on feedback received and additional analysis.

The overall plan and critical milestones of the project are summarized below.

OVERALL PROCESS CHART



3.1 DATA

The following are among the inputs that informed the future transit network and the implementation steps required to advance Winnipeg Transit towards the vision of the WTMP:

- Listening to the public to identify their transportation needs/ demands
- Working with Winnipeg Transit staff, including bus operators
- Thoroughly reviewing the existing transit system (automatic passenger counters, General Transit Feed Specification data, automatic vehicle location logs) to identify what is and is not working
- Analyzing smart device data to identify trip patterns of residents and visitors

Individually, each dataset provides a fragmented picture of travel needs and patterns, but when combined, they result in a holistic picture of travel in Winnipeg.

TRANSIT DATA - AUTOMATIC PASSENGER COUNTERS, GTFS, AUTOMATIC VEHICLE LOCATION LOGS

Stantec created a custom data dashboard to enable quick queries and analysis of multiple datasets in one location. Information can be accessed by time-of-day, day-of-week, trip types (home-to-work or work-to-home), route, stop, and boardings, as well as by GIS-based data such as income levels, schools, recreation centres, grocery stores, work locations, population density, etc. This allowed a comparison of stop-level information (how many people used a stop each day or time period) to community-level information to create a robust picture of how the system is being utilized today.

SMART DEVICE LOCATION-BASED DATA

Stantec worked closely with Winnipeg Transit staff and a data vendor to obtain data extracted and anonymized from location-based devices (LBD) for this study. LBD is widely referred to as big data. This type of data provides analysts access to robust information to supplement or replace more traditional, but also expensive, area travel survey data. LBD strengthened the interdisciplinary nature of the transit and transportation research, analysis, and understanding of the relationship between transit services and population movements. With over 25 million GPS data points, the mapping clearly illustrates the following locations as the major employment destinations: Downtown, the Polo Park area, University of Manitoba, the St. Vital Centre area, and the Kildonan Place area.

TRAFFIC MODELING

Traffic modeling was used in the Rapid Transit Master Plan to examine the impacts of the rapid transit infrastructure, particularly along Main Street and Portage Avenue within downtown. The purpose of this study was to determine the anticipated benefits or impacts on future traffic flow on Main Street and Portage Avenue as a result of the proposed rapid transit infrastructure.

The results of this microsimulation study show that the transit improvements, including Rapid Transit corridors along Main Street and Portage Avenue, are expected to improve mobility in these corridors for transit riders and car drivers alike. Additional technical analysis will be conducted in the future to further refine the modelling.

3.2 PUBLIC ENGAGEMENT

A multi-phase public engagement approach was taken to get public and stakeholder input into the Winnipeg Transit Master Plan using a range of in-person and online techniques. This allowed the project team to capture public input as the plan evolved and allowed Winnipeggers to choose how they wanted to engage. There were three phases:

- Phase One kicked off the planning process by creating awareness of the project and providing information on current transit patterns and ridership. No plans or proposals were shown at this time, and respondents were simply asked to help describe a vision for Winnipeg's transit system of the future. From March 15 to April 20, 2019, Winnipeggers shared their thoughts on what works and doesn't work well in the current network, and what was important to consider in planning transit for a growing city.
- Phase Two presented the first draft of a proposed new transit network. From October 25 to November 24, 2019, Winnipeggers gave their feedback on the draft route network, proposed service hierarchy, and bus stop and station types. On January 13 and 14, 2020, Winnipeg Transit Plus customers were invited to a series of four sessions to discuss proposed changes to that service.
- Phase Three presented the draft Winnipeg Transit Master Plan between October 24 and 28, 2020, and respondents were asked for input on the proposed rapid transit plan as well as specific follow-up questions on Winnipeg Transit Plus.

PHASE ONE

Phase One engagement found that overall, Winnipeggers want a transit system that is more accessible, efficient, frequent, reliable, and affordable, which also promotes health, safety, and environmental sustainability. Key themes heard during the engagement included:

- **Better efficiency**: Respondents indicated they want a more efficient transit system that makes it quick and simple to navigate the city compared to driving.
- **Improve frequency, scheduling, and reliability**: Respondents indicated they were concerned about the lack of frequent service across the city and the unreliability of buses and schedules.
- **More connectivity and coverage**: Respondents noted that it is challenging to attend to their daily needs across the city while relying on transit due to poor connections between destinations, a lack of routes to popular destinations, and a lack of infrastructure to support connections to the transit network.
- **Improve specific routes and locations**: Respondents shared a number of ideas to improve specific routes and their vision on how to improve the routes they frequently use.
- **Suggestions for rapid transit**: Most respondents wanted speed and convenience, with good access from stations to nearby destinations.
- **Promote affordability**: Respondents wanted all individuals to have access to transportation regardless of their income.

- **Enhance accessibility, passenger experience, comfort and safety**: Respondents noted that they want to enhance passenger experience, with suggestions including universal accessibility, convenient peggo card loading, improved wayfinding (apps, websites, signs, maps), along with amenities like bike racks and heated bus shelters.
- **Improve community integration and planning**: Some respondents, especially in new neighbourhoods, felt that their communities had not been integrated into transit plans, further reducing the efficiency of the system. They felt there were a variety of ways to improve land use planning to better support transit on roadways including high occupancy vehicle (HOV) lanes, Park & Ride facilities, and car-free zones.
- **Social equity**: Winnipeggers come from all different backgrounds, and respondents wanted transit to be universally accessible by every demographic regardless of where or who they are.

PHASE TWO

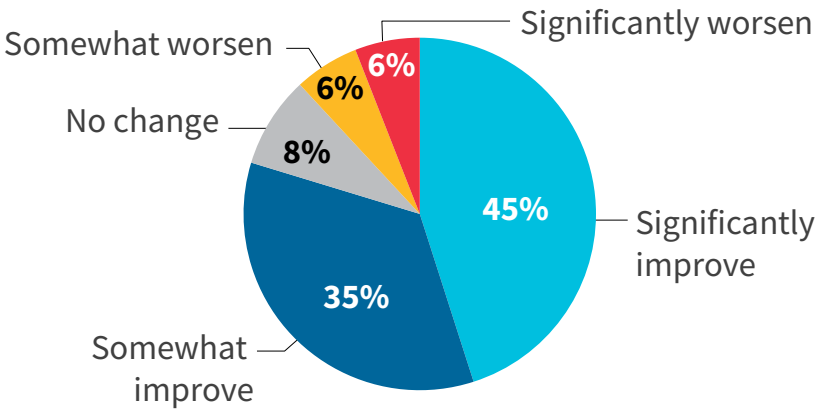
Phase Two engagement found that a majority of respondents supported the proposed network design.

- 43.5% of respondents completely supported the overall network concept, and another 31.5% somewhat supported it. 7.5% of respondents somewhat or completely opposed the concept.
- A majority of respondents felt the proposed primary network will help them get where they need to go: 28% said very well and 35% said well.
- 64% of respondents believed that the proposed network indicates the City is moving in the right direction. 15% disagreed, and 21% didn't have enough information to decide.

PHASE THREE

When asked "How do you think that the plans for rapid transit, including the proposed changes Downtown, will affect how people get around the city?" 80% of respondents said there would be a significant improvement or somewhat of an improvement.

How will the plans for rapid transit affect how people get around the city? (1,143 responses)



4.0

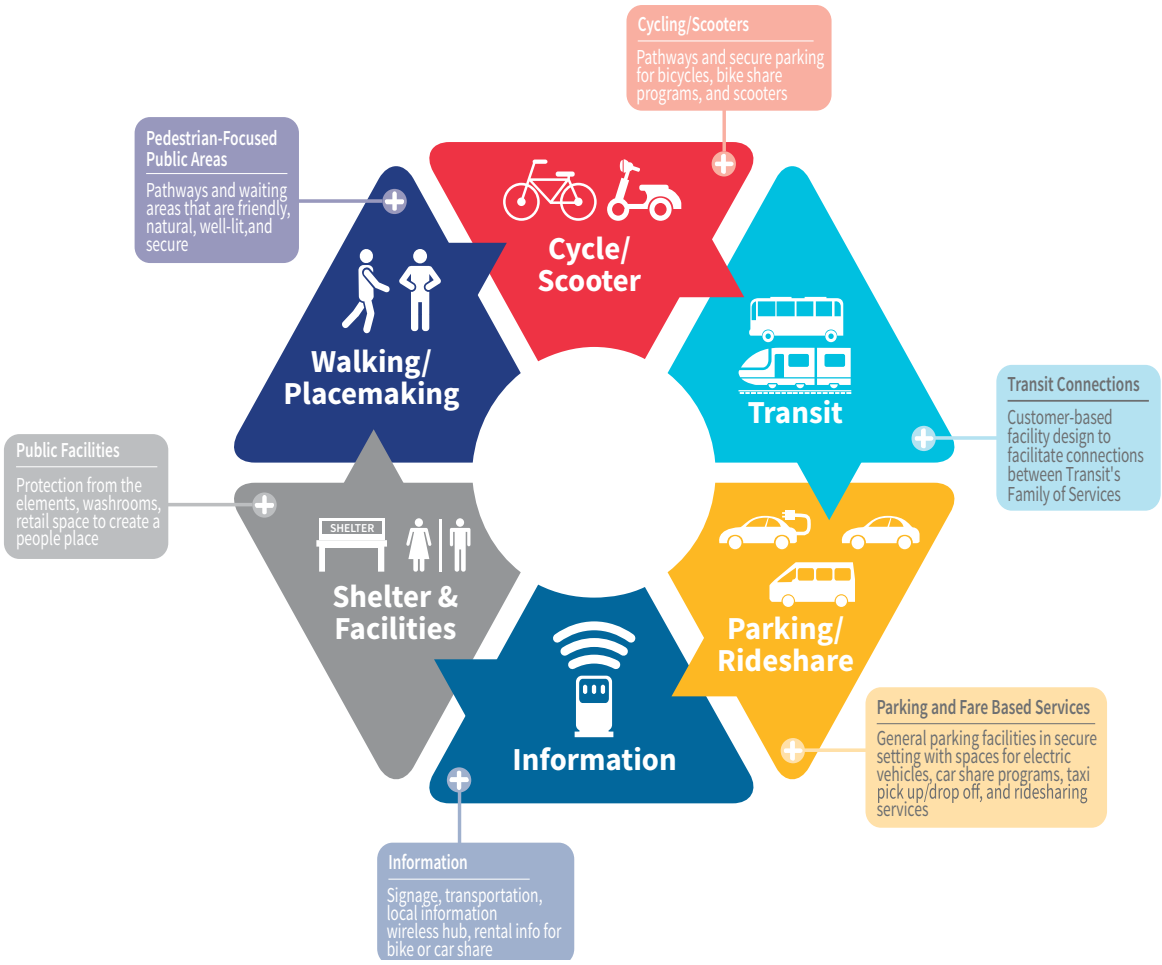
TRANSIT VISION

4.0 TRANSIT VISION

Moving Winnipeg into the future — simply and directly

Simple. Direct. Frequent. Consistent. Purposeful. Equitable. Comfortable.

The future transit network is simple, easier to understand, more intuitive to use, more efficient to operate, and most importantly, more useful for riders — whether using Winnipeg Transit Plus services or any of the other options in Winnipeg Transit's family of services. The Primary Network streamlines service to downtown, making it more frequent, more reliable, and faster. At the same time, new crosstown services enable more direct trips across the city, avoiding the need to connect through downtown. A new Feeder Network allows for better mobility within neighbourhoods, and for better connections beyond individual neighbourhoods.



4.1 NETWORK GOALS

The vision for transit in Winnipeg is upheld by the following nine goals:

1. ENHANCE CUSTOMER EXPERIENCE

Create a consistent and comfortable customer experience.

Transit service and infrastructure guidelines have been developed to provide customers with a comfortable, consistent, and reliable experience. Routes will be consistent and easy to understand. Transit stops and stations will have amenities appropriate to their service class and usage, and will be universally accessible. Access to transit, and connections between routes at transit junctions, will be designed to be simple, accessible, and safe. Pedestrian-friendly amenities will help provide seamless connections between transit and active modes of transportation.

2. INCREASE RIDERSHIP

Focus resources on moving people quickly and efficiently.

The Primary Transit Network lines are **designed to increase ridership** by offering direct and frequent service, every 15 minutes or better for the majority of the day, seven days a week. Increasing ridership is the most significant way Winnipeg Transit can contribute to reducing greenhouse gas emissions in Winnipeg.

3. IMPROVE DOWNTOWN MOBILITY

Create simple and straight routing through downtown, with frequent service. Reduce routes that turn around and terminate downtown to improve mobility for all users.

The current transit network is a hub-and-spoke, or radial system with a significant number of routes focused on Portage Avenue and Graham Avenue as they travel through downtown, which contributes to congestion and makes the system unattractive for short trips across Winnipeg's relatively large downtown. There are few existing crosstown routes that offer more direct connections to travel between adjacent neighbourhoods without having to first travel through downtown.

The future network improves downtown mobility by restructuring it from a radial, downtown-focused system to a modified grid system across the city. The new network minimizes the number of buses that have to turn around downtown, which is currently a major contributor to congestion and delay for all modes of travel.

BUSES LINED UP DURING THE PEAK ON PORTAGE AVENUE

4. COMPLEMENT LAND USE DEVELOPMENT

As transit service will be an integrated part of the urban fabric; service levels and service design will complement the diverse development patterns in Winnipeg.

The proposed network is designed to support the city as it develops, following the plans and policies outlined in OurWinnipeg and the Complete Communities Direction Strategy.

Transit-oriented development (TOD) is an important tool to promote compact urban development around key transit nodes. The city is anticipated to grow by over 200,000 people by 2040, and the transit network needs to work seamlessly with the urban fabric to serve land-uses in the most efficient way possible.

5. IMPROVE MULTI-MODAL MOBILITY

Transit will function as one component of the broader multi-modal transportation network, working seamlessly with the bicycle and pedestrian network and the broader transportation network.

With respect to active transportation, there is a significant network of multi-use paths that span across the city; however, these paths are sometimes fragmented and lack connectivity to the transit network.

Winnipeg Transit will improve multi-modal mobility by:

- Ensuring On-Request services connect to the Primary Network and major neighbourhood activity centres at universally accessible locations
- Providing active transportation connections to stations, junctions, and mobility hubs
- Offering incentives when transferring between transit and shared services (e.g. rideshare, bikeshare, and carshare)
- Continuing to provide active transportation connections alongside new rapid transit corridors.
- Enhancing and defining the use of mobility hubs to support connections between transit and other mobility options

Working in concert with the Transportation Master Plan, the WTMP intends to create a seamless multi-modal transportation system that reflects the travel needs of all Winnipeggers.

Aligning key policy documents and master plans under the banner of OurWinnipeg, including this Winnipeg Transit Master Plan, the Transportation Master Plan, the Climate Change Action Plan, and the Complete Communities Direction Strategy, is of vital importance in building the city Winnipeggers want now and into the future.

6. ENSURE TRANSIT IS INCLUSIVE

Conventional transit service will be available to, and be accessible for, as many people as possible. Winnipeg Transit Plus will be available to anyone who is unable to use the conventional system some of the time or all of the time.

In addition to accessible conventional transit service, Winnipeg Transit Plus is available for people who qualify for the pre-booked, shared-ride service. Winnipeg Transit works to enable as many people as possible to use conventional transit, prioritizing the use of Winnipeg Transit Plus for those who are unable to use the conventional service for some or all of the time. Winnipeg Transit will achieve this by:

- Establishing true fare parity for all transit services
- Eliminating the trip prioritization policy (to be implemented Summer 2021)
- Revising eligibility categories to be consistent with best practice
- Expanding the service boundary to anywhere in Winnipeg (implemented in January 2021)
- Exploring the feasibility of combining trips using modernized On-Request service with paratransit trips under the Family of Services model

7. CONTINUOUSLY INNOVATE

As technology continues to evolve, Winnipeg Transit will use the opportunities it provides to continuously improve customer service and service sustainability.

Thinking strategically will ensure Winnipeg's investments in technology will advance transit. Incorporating zero-emission bus technology to reduce transit's carbon footprint, using app-based trip booking and fare payments to implement real-time on-request services, identifying potential autonomous vehicle routes, and improving real-time passenger information systems are just a few innovative ideas included in this WTMP.

8. EMPOWER HEALTHY COMMUNITIES

Increase access to local essential community services.

In planning the new network, attention was paid to match existing travel patterns within neighbourhoods with convenient access to essential community services such as grocery stores, health care, education, and recreation, ensuring each neighbourhood has access to these vital services and amenities.

9. BALANCE INVESTMENT WITH AFFORDABILITY

Maintain a balance between transit investment and affordability for the transit rider and the taxpayer.

The cost of additional service and transit infrastructure improvements should be implemented in such a way that it does not create an unrealistic financial burden to taxpayers or necessitate drastic increases to transit fares. The WTMP creates focus for investment first by reallocating service hours to more productive routes, by creating straight, simple, and direct routes, and through restructuring the network from a radial, downtown-focused service to a modified grid network. Rapid transit construction costs are kept low by utilizing existing infrastructure where feasible. Investments focus on generating long-term returns by minimizing operating costs per passenger. The long-term legacy of major investments like rapid transit will be a more affordable transportation system for the City of Winnipeg.

4.2 OBJECTIVES

Objectives are used to evaluate and measure transit services to ensure the goals and vision are being implemented. These are questions Winnipeg Transit will use in determining the final routing options for the network during implementation, as well as other details of the implementation of the Winnipeg Transit Master Plan.

SIMPLE - Are the majority of the routes as straight as possible?

The straighter or more direct a route is, the more understandable and attractive it becomes for potential users.

PURPOSEFUL - Are the routes designed with purpose?

Routes designed with purpose improve customer understanding of the route, and do a better job of meeting users' needs.

CONSISTENT - Is there a single route pattern?

Routes are to have a single route pattern, doing the same trip every time, every day.

DIRECT - Are the routes shorter and more direct?

Longer, winding routes are prone to schedule delays and may be more complex in design as they try to serve multiple markets.

COHESIVE - Is the system designed as a cohesive network?

The transit network works cohesively together using clearly defined service classes, with each class doing its specific task as part of a larger integrated network.

EMPOWERING - Does the transit system help people get where they need to go?

The new transit network creates more direct routes, adds service at off-peak times, and reduces the reliance on connections that route though downtown.

INTEGRATED - Does the system promote multimodal and land use connections?

Improved connectivity in the new route network will promote and support OurWinnipeg's goals of increased density and a mix of land uses to better enable people to choose to live without a car, or to drive less.

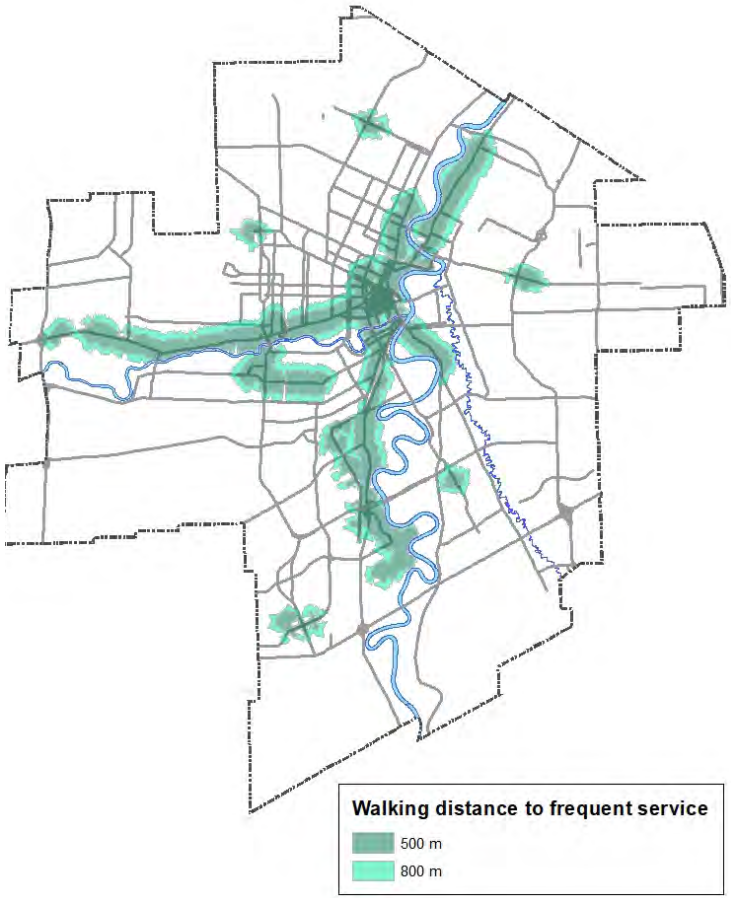
4.3 REALIZATION OF THE VISION

The most important single step Winnipeg Transit can take to achieve goals like enhancing customer experience, increasing ridership, improving reliability, and improving mobility, all while staying affordable, is to transition to a new transit network based around **high frequency service** focused on major corridors.

When the bus comes frequently, using transit means being able to come and go anytime, instead of being limited by a schedule. The new transit network proposed in the Winnipeg Transit Master Plan brings frequent service, defined as a bus coming every 15 minutes or better throughout the day, closer to where most Winnipeggers live. In the new transit network, **almost three times as many homes in Winnipeg will be within a 500 metre walk of all-day frequent transit service**.

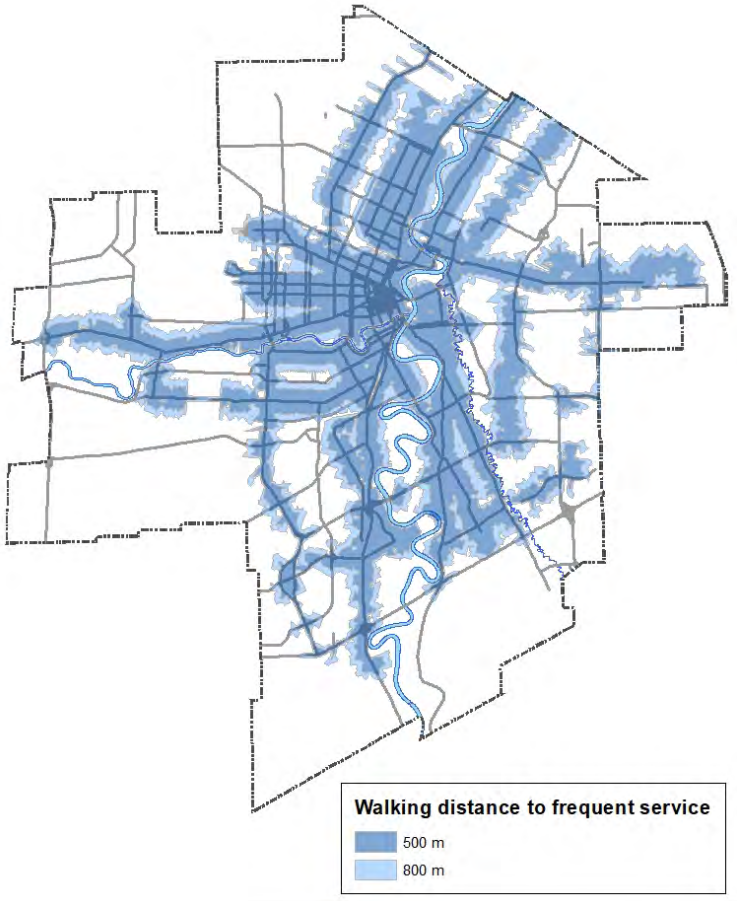
The improved efficiency resulting from the network redesign means that **system capacity is increased by up to 25%**. This can largely be achieved with no additional service-hours or buses being added to the system.

The infrastructure outlined in the WTMP enables this new network to be as effective, reliable, efficient, accessible, and convenient as possible.



Under the Current Network (left), only **21%** of dwellings are within a 500 metre walk of frequent service, and only **32%** of dwellings are within an 800 metre walk.

Under the proposed **Long-Term Network Plan** (right), **58%** of dwellings are within a 500 metre walk of frequent service, and **73%** of dwellings are within an 800 metre walk.



5.0

TRANSIT NETWORK

5.0 TRANSIT NETWORK

5.1 THE NEED FOR A NEW NETWORK

The Winnipeg Transit Master Plan proposes a new route network that is simpler, more efficient, and easier to understand.

Different areas of the city have different needs for transit service. For example, there are usually more riders along major streets and fewer riders in suburban residential areas. The existing network provides coverage of the city with a complicated network of routes, with each individual route trying to do too much, often not doing it very well.

Changes and tweaks to the existing network would not allow for the vision and goals of the WTMP to be met. A completely new route network needed to be proposed.

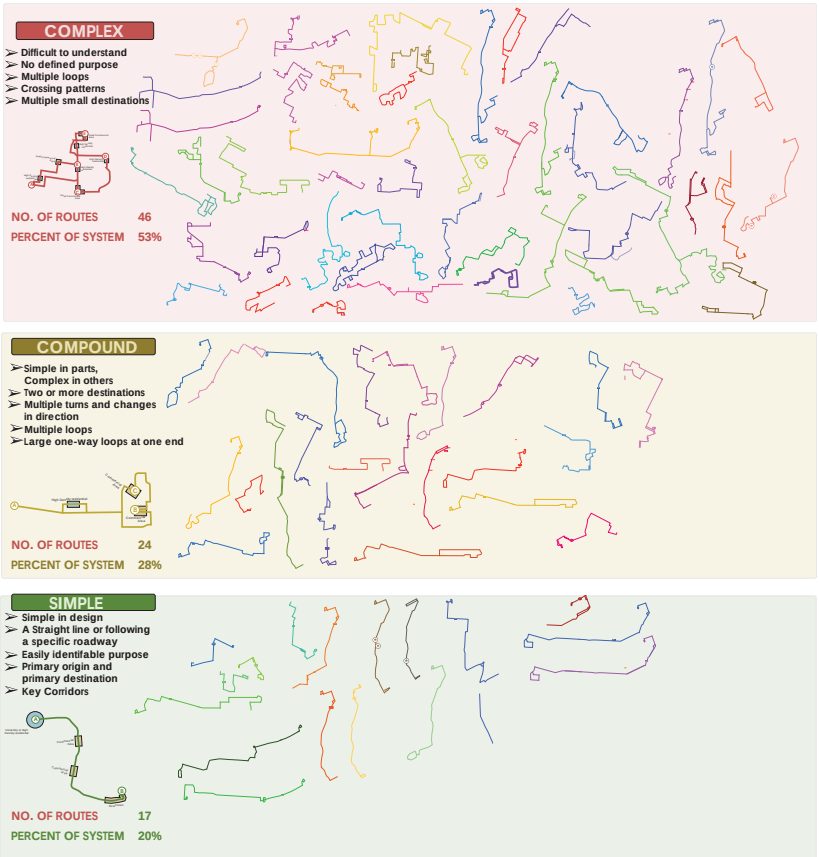
Route Simplicity

An evaluation of existing and proposed routes was undertaken that classified routes into three categories:

- **Simple routes** – simplistic design, with an identifiable purpose that connect major origins and destinations along key corridors
- **Compound routes** – simple and complex components with multiple turns and large one-way loops serving multiple destinations
- **Complex routes** – multiple loops serving many destinations indirectly with crossing patterns that make them difficult to understand

The straighter or more direct a route is, the more understandable and attractive it becomes for users. As a route increases in complexity, the more challenging it becomes because customers need to decipher maps and schedules to use the service. Complex routes act as a barrier to people unfamiliar with them and increase the perceived and real trip times.

ROUTE SIMPLICITY CLASSIFICATION
EXISTING TRANSIT NETWORK



ROUTE SIMPLICITY CLASSIFICATION

PROPOSED TRANSIT NETWORK

COMPLEX

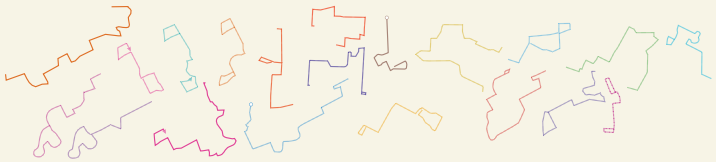
- Difficult to understand
- No defined purpose
- Multiple loops
- Crossing patterns
- Multiple small destinations

NO. OF ROUTES 0

PERCENT OF SYSTEM 0%

COMPOUND

- Simple in parts, Complex in others
- Two or more destinations
- Multiple turns and changes in direction
- Multiple loops
- Large one-way loops at one end



NO. OF ROUTES 21

PERCENT OF SYSTEM 33%

SIMPLE

- Simple in design
- A Straight line or following a specific roadway
- Easily identifable purpose
- Primary origin and primary destination
- Key Corridors

NO. OF ROUTES 43

PERCENT OF SYSTEM 67%

The evaluation of existing routes revealed that over half of the routes are Complex and less than a quarter are Simple.

In the proposed **Long Term Network Plan** no routes are Complex, and about two-thirds are Simple.

The result is a route network that is simpler, more direct, faster, more efficient, and easier to understand.

The redesigned route network increases system capacity by 25% with no additional resources

5.2 SERVICE CLASSIFICATION

The proposed Service Classification makes it easier for transit customers, current residents of Winnipeg, and people moving here for the first time to understand what to expect from each type of route and service. With this information, people can make decisions about where to live and work or where to open a business, knowing what to expect from the transit service near them.

Different services have different characteristics and standards relating to purpose, frequency, and stopping patterns. These characteristics provide minimum service commitments for each **Service Class**.

These Service Classes (sometimes known as layers) have been adapted from key transit concepts to create this flexible system for Winnipeg that features two main networks of services – the Primary Network and Feeder Network.

This service classification allows for significant **flexibility and resiliency**, as individual routes can have their frequency scaled up or down based on demand. In other words, a Feeder Route can have its frequency changed independently of the Primary Routes it connects to. This is not possible with the current route network.

This type of flexibility and resiliency would have been very useful during the coronavirus pandemic, or other disaster scenarios.

	Service Class	What does it do?	How often do buses run?*	How far apart are the stops?
Primary Network	**Rapid lines**	Frequent service with transit-only right of way where needed to bypass congestion and move more quickly across the city	Every **5-10** minutes	At least a 10 minute walk (700 metres)
	Stop spacing			
	Frequent lines	Buses run along major streets to help people travel across the city	Every **10-15** minutes	At least a five minute walk (350 metres)
	Stop spacing			
	Direct lines	Buses run along main streets to help people travel between neighbourhoods	Every **10-20** minutes	At least a three minute walk (200 metres)
	Stop spacing			
Feeder Network	**Connector routes**	Connect people to primary network and help them move around the city	Every **15-30** minutes	At least a three minute walk (200 metres)
	Stop spacing			
	Community routes	Help people travel within their neighbourhoods, to nearby services, connector routes, and the primary network	Every **30-60** minutes	At least a three minute walk (200 metres)
	Stop spacing			
	On-request	Available in areas that have very low demand, to help people access transit	N/A	N/A
	Accessible	Enable eligible customers to access other transit services and get around the city	N/A	N/A

*other than late at night

5.3 PRIMARY NETWORK

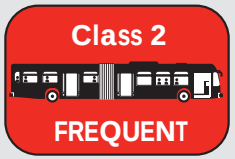
Primary Transit Lines form the essential structure of the transit network. They provide high frequency services and use the most direct routes available to link each major destination or corridor in their path.

Primary Network Lines are simpler and straighter than many current routes. Simple, straight lines mean transit reaches its destination faster and can run more frequently. Because they will run frequently, customers will not need to follow a schedule - they can simply show up and a bus will arrive shortly.

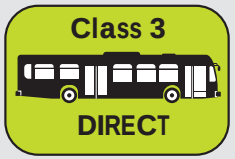
The Primary Network includes the Rapid, Frequent, and Direct transit layers — all of which are designed to carry the most riders by having the highest levels of service, enhancements to the service like transit priority measures, and additional customer amenities.

The Primary Transit Network is frequent and direct, and is intended to be a permanent, defining feature of the city. It will allow people to plan important decisions like where to live or where to locate a business, if access to frequent transit service is important to them.

RAPID Lines provide very high frequency transit services that are reliable, and consistent along the main corridors in the city



FREQUENT Lines provide high frequency transit services along main corridors that are not served by rapid lines



DIRECT Lines provide service along corridors where anticipated demand falls short of justifying Class 2 service, but where directness of travel is a critical consideration to connect to Rapid and Frequent Lines. Many are candidates for future upgrade to Frequent service

Winnipeg Transit Long Term Network Plan

Service Overview

PRIMARY NETWORK

Rapid Lines
Service every 5-10 minutes
High Frequency, high capacity transit service with transit-only right of way where needed to bypass congestion and move more quickly across the city.

Frequent Lines
Service every 10-15 minutes
Frequent bus service running along major streets to travel downtown or across the city.

Direct Lines
Service every 10-20 minutes
Regular bus service running along major streets to travel downtown or across the city.

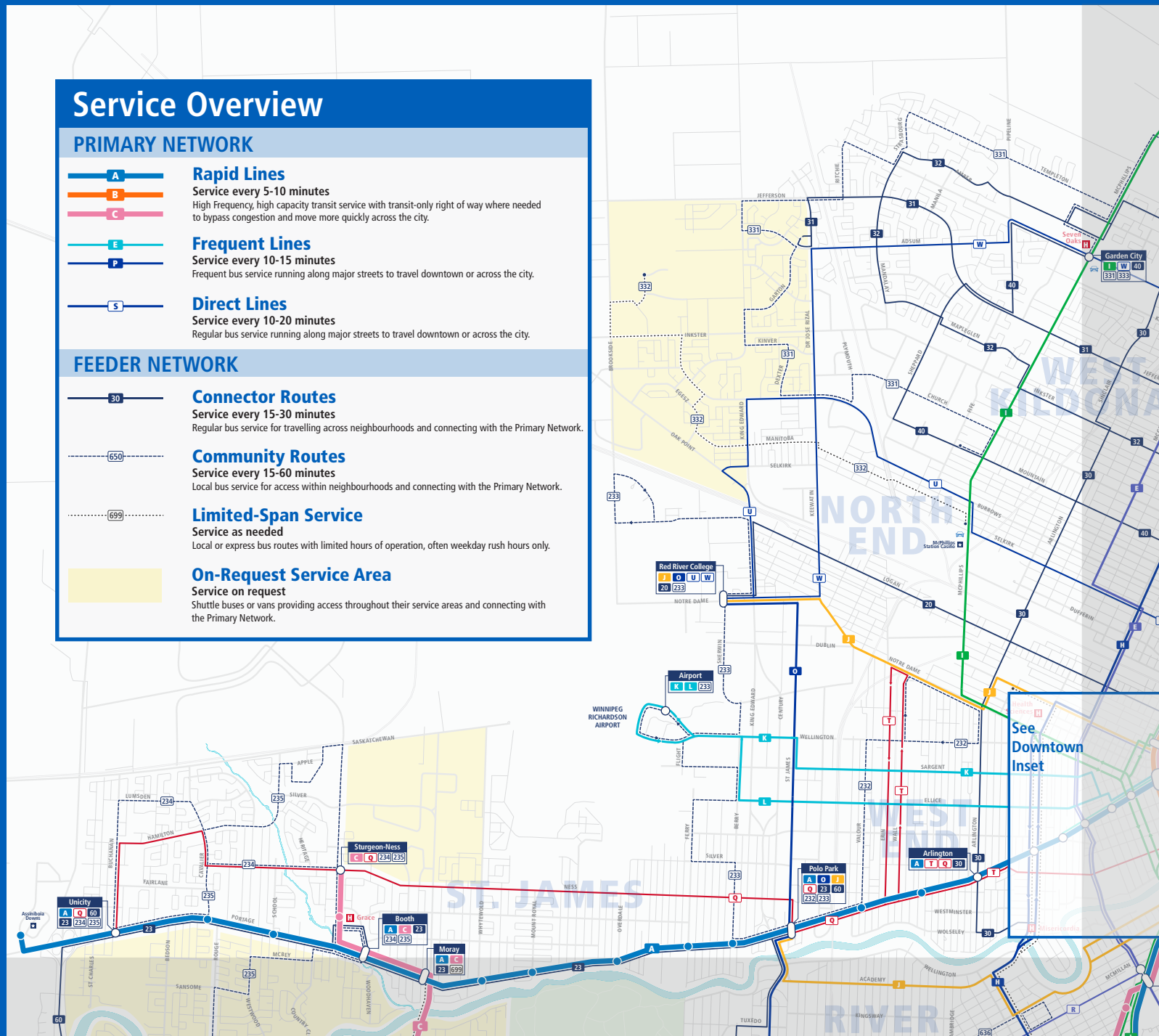
FEEDER NETWORK

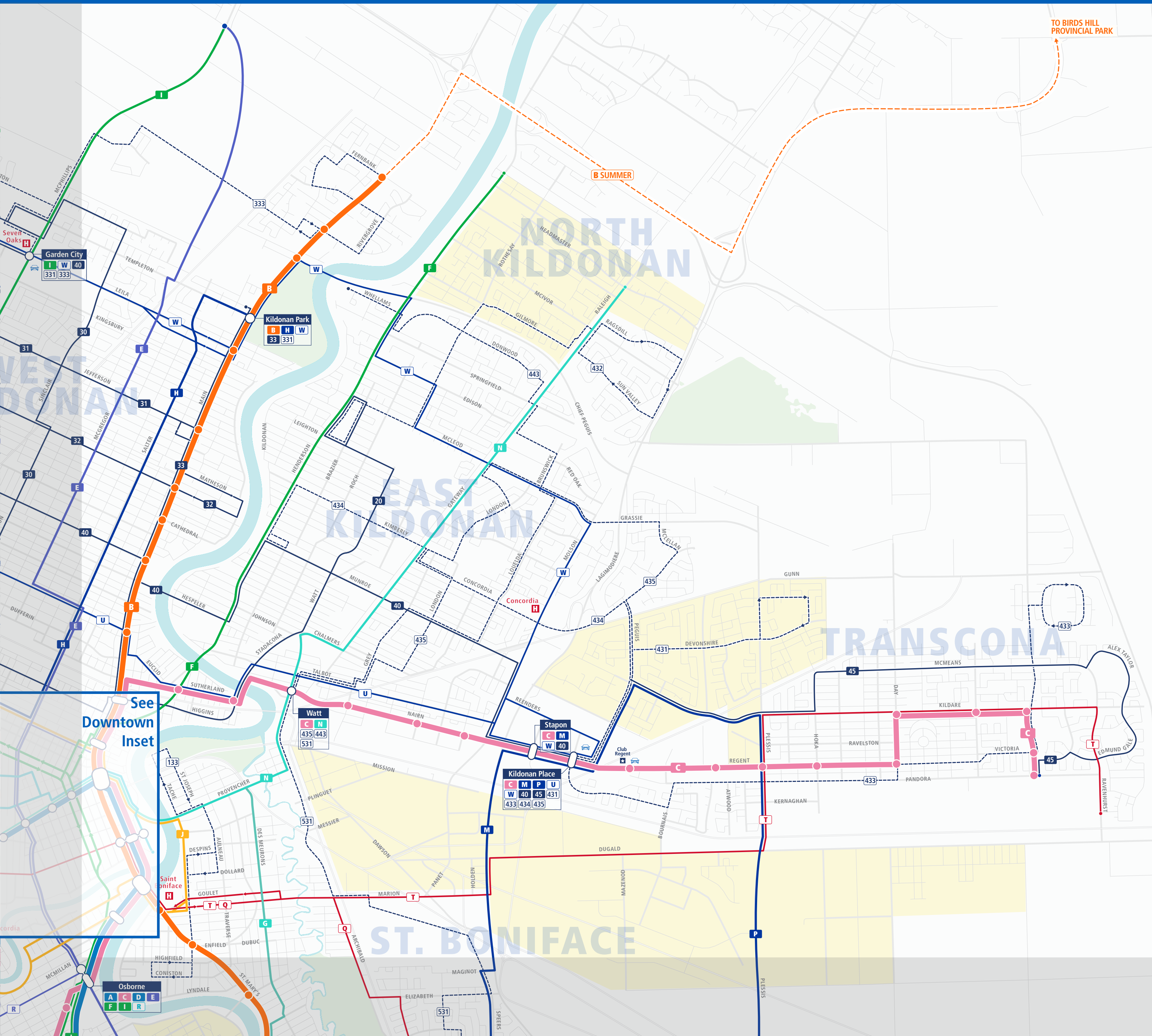
Connector Routes
Service every 15-30 minutes
Regular bus service for travelling across neighbourhoods and connecting with the Primary Network.

Community Routes
Service every 15-60 minutes
Local bus service for access within neighbourhoods and connecting with the Primary Network.

Limited-Span Service
Service as needed
Local or express bus routes with limited hours of operation, often weekday rush hours only.

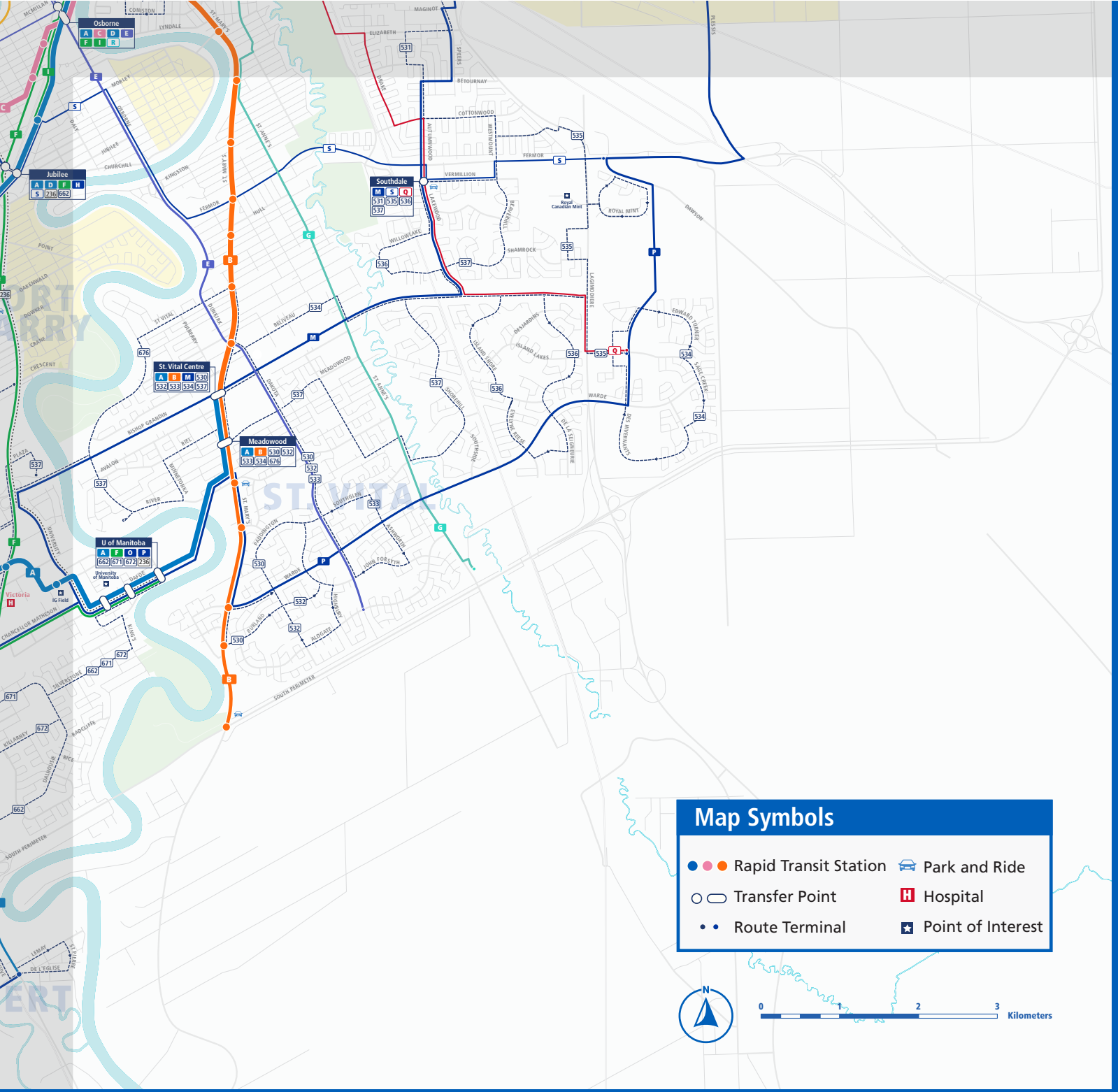
On-Request Service Area
Service on request
Shuttle buses or vans providing access throughout their service areas and connecting with the Primary Network.





TO BIRDS HILL PROVINCIAL PARK
B SUMMER
NORTH KILDONAN
EAST KILDONAN
WEST KILDONAN
TRANSCONA
ST. BONIFACE
Seven Oaks
Garden City
Kildonan Park
Concordia
Watt
Stapon
Kildonan Place
Club Regent
Saint Boniface
Osborne
See Downtown Inset
FERNBANK
RIVERGROVE
WHELLAMS
HEADMASTER
ROTHESAY
MCIVOR
GILMORE
DONWOOD
SPRINGFIELD
EDISON
MCLEOD
RALEIGH
RAGSDILL
SUN VALLEY
CHIEF PEGUIS
TEMPLETON
LEILA
KINGSBURY
JEFFERSON
MCGREGOR
SALTER
MAIN
MATHESON
CATHEDRAL
HESPELER
DUFFERIN
EUCLID
SUTHERLAND
HIGGINS
LEIGHTON
HENDERSON
KILDONAN
BRAZIER
ROCH
GATEWAY
KIMBERLY
LONDON
CONCORDIA
LOUELDA
MUNROE
JOHNSON
STADACONA
WATT
CHALMERS
TALBOT
GREY
NAIRN
REENDERS
BRUNSWICK
RED OAK
MOLSON
GRASSIE
MCLELLAN
LAGIMODIERE
PEGUIS
DEVONSHIRE
GUNN
MCMEANS
KILDARE
DAY
PLESSIS
HOKA
RAVELSTON
VICTORIA
REGENT
PANDORA
KERNAGHAN
ATWOOD
BOURNAIS
ALEX TAYLOR
EDMUND GALE
RAVENHURST
MISSION
PLINGUET
MESSIER
DAWSON
PANET
HOLDEN
MAZENOD
DUGALD
MARION
ARCHIBALD
MAGINOT
ELIZABETH
SPEERS
PROVENCHER
ST JOSEPH
TACHE
DESPINS
AUBERT
DOLLARD
DES MEURONS
GOULET
TRAVERSE
ENFIELD
DUBUC
HIGHFIELD
CONISTON
LYNDALE
ST MARY'S
MCMILLAN

RIVER HEIGHTS
TUXEDO
CHARLESWOOD
FORT GARRY
WAVERLEY WEST
ST. NORBERT
Jubilee
Seel
Victoria
Bridgwater Ctr
Downtown Winnipeg
Health Sciences
University of Manitoba
Red River College
City Hall
Manitoba Museum
Centennial Concert Hall
Portage & Main
FORT DOUGLAS PARK
WHITTIER PARK
STEPHEN JUBA PARK
PARC ELZEAR GOULET
CENTRAL PARK
Edmonton
Donald
Colony
Spence
University of Winnipeg
Winnipeg Art Gallery
RBC Convention Centre Winnipeg
Bell MTS Place
Canadian Museum for Human Rights
Union Station
Children's Museum
The Forks
Stradbrook
BONNYCASTLE PARK
Manitoba Legislative Building
MOSTYN PLACE PARK
FORT ROUGE PARK
LYNDALE DR PARK N
Misericordia


Osborne
A C D E
F I R
Jubilee
A D F H
S 236 662
Southdale
M S Q
531 535 536
537
St. Vital Centre
A B M 530
532 533 534 537
Meadowood
A B 530 532
533 534 676
U of Manitoba
A F O P
662 671 672 236
ST. VITAL
Map Symbols
Rapid Transit Station
Transfer Point
Route Terminal
Park and Ride
Hospital
Point of Interest
N
0
1
2
3
Kilometers

PRIMARY NETWORK
CLASS 1: RAPID TRANSIT

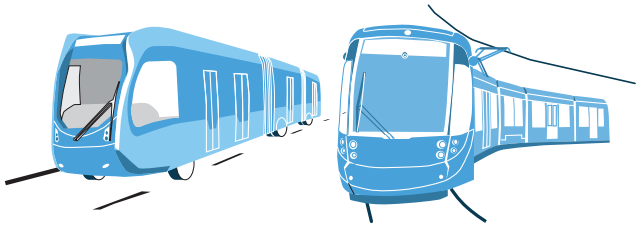
The backbone of the Primary Network is **Rapid Transit**, which serves key destinations throughout the city and enables seamless transfers from other Primary and Feeder Network services. Rapid Transit features high frequency service that is reliable in its service pattern. High frequency service between 5 minutes in the peak hours and 10 minutes in the off-peak hours enables customers to access stations with confidence they will not be waiting long. Reliable service is achieved through protected rights-of-way and transit priority, which enables on-time movement and prevents Rapid Transit service from bunching in congested areas.

PRIMARY NETWORK
CLASS 2: FREQUENT TRANSIT

Frequent Transit Lines serve areas of the city with busy trip origins and destinations at a slightly lower level of service than the rapid corridors. The Frequent Network is intended to run in mixed traffic, with some ability around intersections and areas of high congestion to include transit priority measures which will maintain a reliable service pattern for customers.

PRIMARY NETWORK
CLASS 3: DIRECT TRANSIT

Direct Transit Lines provide transit service levels along secondary corridors, and provide supporting or connecting services to Rapid Lines and Frequent Lines. Direct Lines offer frequent service during some parts of the day, and have the potential to become Frequent Lines as the city grows.



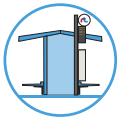
RAPID TRANSIT CHARACTERISTICS

Service every 5 minutes or better in peak periods

Service every 5-10 minutes most of the day, and every 10-15 minutes at night

Consistent headway (time between buses)

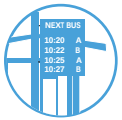
Consistent reliable travel time



Stations not bus stops

Off-board fare payment

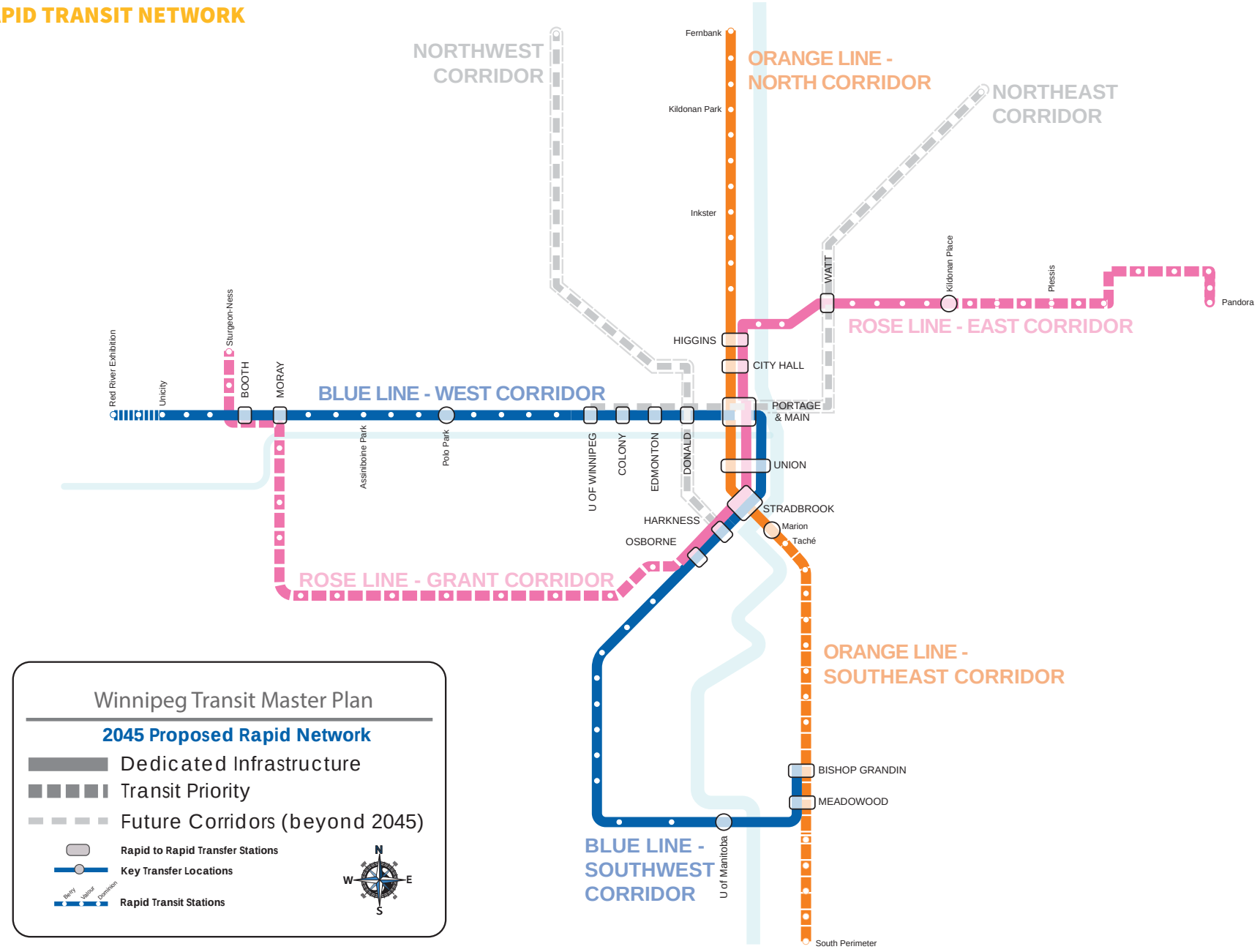
All-door boarding



Real-time passenger information

Level door boarding

RAPID TRANSIT NETWORK



5.4 FEEDER NETWORK

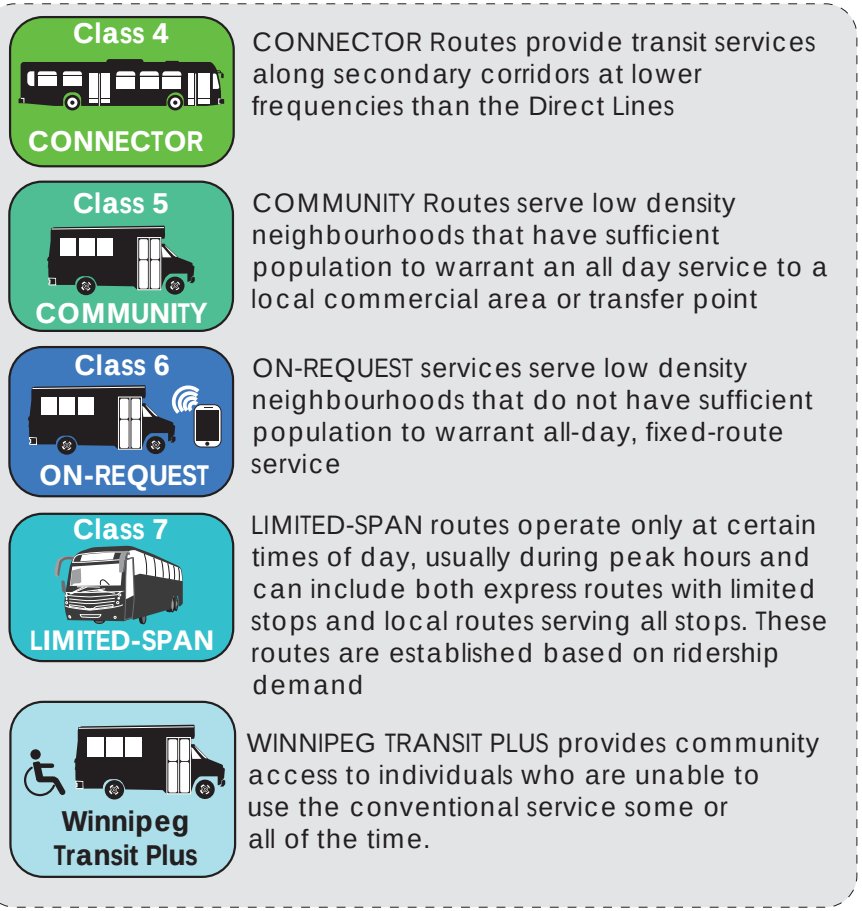
The Feeder Network forms the layer of service that supports the Primary Network, connecting customers to the Primary Network and within their neighbourhoods to local destinations including schools and shopping.

The Feeder Network includes the Connector, Community, and On-Request transit routes to connect transit users to the Primary Network. Integration under the Family of Services model allows Winnipeg Transit Plus to operate as part of the Feeder Network.

Feeder Network routes will avoid congested areas to allow services to stay on time more often. Only Primary Network lines will run Downtown. Transit stations around Downtown will allow people to connect between the Rapid, Frequent and Direct Lines on the Primary Network. Over time, infrastructure will be built to provide transit priority and speed up trips to provide more reliable services.

The Feeder Network is focused on connecting neighbourhoods, lower-density areas, and developments on the periphery of the city to the Primary Network and to local neighbourhood services. Limited-Span services include express routes and other services that are designed with a specific purpose that only operate at certain times of the day or week. In some cases, a limited-span fixed route would replace an On-Request service during peak times.

The Feeder Network is intended to evolve and expand over time. As the city and its neighbourhoods and the associated demand for transit changes, Feeder Network routes will change too. For example, On-Request services may evolve into scheduled Community routes, and Community routes may warrant evolving into Connector routes with higher service frequencies.



5.5 NETWORK IMPROVEMENT IMPLEMENTATION

The Winnipeg Transit Master Plan proposes expanding Rapid Transit service to much of the rest of the proposed network in two to five years, once approved by City Council. One advantage of bus rapid transit is that the service can be introduced before special infrastructure is built, and infrastructure investments can be targeted to where they are needed most to bypass congestion.

The short-term network implementation will be based on existing infrastructure and expected ridership. In some cases, when rapid transit service begins on a new line, the bus may not initially travel to the end of the line as proposed in the longer-term plan. For example, the Line B (Orange Line) short-term plan (Main Street and St. Mary's Road) proposes that Rapid Transit service will initially terminate at St. Vital Centre. In the long term this line will extend south to the Perimeter Highway, but even when implemented, perhaps only every second bus may go to the Perimeter Highway due to the level of demand, with every other bus turning around at St. Vital Centre until there are enough riders on the southern portion of the line.

As Rapid Transit service is introduced on a corridor, current bus routes in that area will change to connect people to the rapid transit line and the rest of the Primary Network.

In order to achieve the minimum service commitments outlined in this plan, an increase in service hours and related operating costs of approximately 12% would be required. This is entirely attributable to additional weekend service quality. Weekday service improvements can be implemented with no increase in total service hours or number of buses relative to the approved 2020 Operating Budget.

6.0

WINNIPEG TRANSIT PLUS

6.0 WINNIPEG TRANSIT PLUS

Winnipeg Transit Plus exists to meet the needs of individuals that cannot use conventional service some or all of the time. The Accessibility for Manitobans Act (AMA) is recent provincial legislation which mandates accessibility regulations that are not elective and must be met. The transportation regulations themselves are currently in development, and are expected to be issued soon.

In January 2019, The Manitoba Ombudsman made a series of recommendations for improvements to Winnipeg Transit Plus service.

In order to provide Winnipeggers with uncompromising transit service, it is recommended that a proactive approach be taken to meeting forthcoming AMA transportation regulations, and to meet the recommendations found in the January 2019 Ombudsman's report.

The Winnipeg Transit Master Plan identifies several areas for Winnipeg Transit Plus service improvements in the short and long term. The majority of these issues relate to outdated policies that have an impact on the efficiency of delivering door-to-door paratransit services.

One of the keystones of improved independence and community access for Winnipeg Transit Plus customers is the **Family of Services** model. This model offers better integration of services allowing customers to transfer seamlessly from Winnipeg Transit Plus vehicles to conventional transit service and back again, based on their abilities.

6.1 SHORT TERM

Eliminate Trip Prioritization Policy

Once commonplace in the paratransit industry, prioritizing trips is no longer considered best practice. It misaligns the service with Human Rights legislation and is considered to be a discriminatory practice. Trip prioritization will be eliminated in 2021, which will allow for improvements to the optimization of trip scheduling.

Enhance Access to Service

Winnipeg Transit Plus will leverage the use of new technologies to provide customers with trip notifications, a customer self-service portal, and a mobile app. These technologies will allow better, more seamless integration with the Family of Services in the future.

Restructure No-Show Policy

Winnipeg Transit Plus will abandon its current financial disincentive approach and establish a hybrid program. This new policy will focus on public education and will assist customers in managing their use of the service while recognizing that there are circumstances that are sometimes beyond a person's control. Corrective measures should be adopted and applied progressively for those customers with a documented frequency of no-shows within a certain time-frame.

Increase the No-Show/Cancellation Window

The current 30-minute timeframe is not conducive to redeploying vehicles to other customers that require service when a no-show or cancellation occurs. By adopting an increased timeframe that will align with industry best practice, Winnipeg Transit Plus will achieve increased operational flexibility and be able to use resources more efficiently.

Change No-Show Appeal Process

Winnipeg Transit Plus will develop a list of criteria that clearly identifies what is considered a no-show to eliminate ambiguity and improve the customer experience in appealing a no-show.

Implement Booking and Trip Delivery Windows

Winnipeg Transit Plus should review booking and trip windows to align with industry best practices.

Implement Fare Parity

To ensure a completely fair and equitable service, Winnipeg Transit Plus must ensure full fare parity between its fare structure and the conventional transit fares.

As part of this review Winnipeg Transit should eliminate the use of free transit passes, which were previously used as an incentive to encourage Winnipeg Transit Plus customers to trial the new accessible conventional bus fleet, now that the entire fleet is accessible.

Pilot Co-Mingled Service Arrangements In On-Request Service Areas under the Family of Services Model

The proposed new transit network includes On-Request service areas. Winnipeg Transit Plus users in these areas could be transported by co-mingling with other riders using the On-Request conventional transit buses rather than dedicated Winnipeg Transit Plus vehicles. A pilot project would help the service assess the need for future refinements.

This is an important step toward the implementation of an integrated Family of Services model.

Expand boundary of Winnipeg Transit Plus service area to incorporate any location within the City of Winnipeg.

This service area extension was implemented on January 1, 2021.

Expand Travel Training Program

To ensure the success of the Family of Services model, an expansion of the Travel Training Program is required. This program offers information and practical training on how to use the conventional service.

6.2 LONG TERM

- Revise eligibility categories to be consistent with best practice
- Re-certify all existing Winnipeg Transit Plus customers based on revised eligibility categories
- Adopt the Family of Services delivery model of integration
- Deliver co-mingled trips with paratransit and conventional riders
- Investigate the feasibility of alternative partnerships related to the delivery of dialysis trips

7.0

RAPID TRANSIT

7.0 RAPID TRANSIT

7.1 RAPID TRANSIT LINES

The Winnipeg Transit Master Plan proposes key changes to both rapid transit service and rapid transit infrastructure.

Rapid transit service is transit that has limited stops, and that runs frequently, all day, every day.

Rapid transit infrastructure includes the built features that make sure rapid transit service is frequent, reliable, and efficient. Rapid transit infrastructure can range from small things like intelligent traffic signals to larger features, such as a proposed elevated transitway through Union Station.

The Winnipeg Transit Master Plan proposes three rapid transit lines that cover six corridors or major routes throughout the city. All three rapid transit lines will converge downtown on Main Street between Portage Avenue and Stradbrook Avenue.

Rapid transit corridors are proposed to be developed over the next 25 years, including stations where passengers can transfer between the rapid lines, as well as between rapid transit service and other routes.

Rapid Transit Service

Rapid transit service is defined by three main factors:

- **High frequency:** Buses every five minutes in rush hour, never more than a 15-minute wait
- **Few stops:** At least a 10-minute walk (700 m) between stops outside Downtown
- **Longest operating hours:** Runs seven days a week during all hours of transit service

The newest phase of rapid transit service began in Winnipeg on April 12, 2020, with the launch of Blue Line (part of the proposed Line A) using the Southwest Transitway.

The Winnipeg Transit Master Plan proposes expanding rapid transit service to much of the rest of the proposed network in two to five years following Council approval of the WTMP.

To start, rapid transit will be put in place using buses. Each line has the potential to be changed to light rail in the future based on demand. By using buses, rapid transit service (very frequent service with limited stops) can be established before special infrastructure is built, and infrastructure investments can be targeted to where they are needed most to bypass congestion. This approach will allow for the provision of rapid transit to more people sooner and for less cost than light rail transit.

As rapid transit service is introduced on corridors, current bus routes in that area will change to provide connections to the rapid transit line.

Rapid Transit must meet two main criteria for passengers:

- Standardized running times regardless of external traffic
- Consistent headway (time between the buses)

Rapid Transit Infrastructure

The WTMP proposes to build rapid transit infrastructure based on what is specifically needed on each corridor to make sure that rapid transit is frequent, reliable, and efficient. The most basic rapid transit infrastructure is on an existing street. In places with little congestion, there is likely no need to build new infrastructure for many years, and rapid transit service can be provided on the existing street.

Where needed, rapid transit will use one of two types of infrastructure to improve reliability: priority infrastructure or fully separated infrastructure.

Priority Infrastructure

Priority infrastructure means targeted changes that can be made to existing roads that allow transit to bypass congestion and move more reliably across the city. These infrastructure changes may include:

- Diamond lanes (full-time or part-time, shared with taxis, vehicles making right turns, and bicycles)
- Short transit-only lanes known as queue jump lanes at busy intersections
- Priority traffic signals
- Changes to on-street parking
- Changes to bus stop locations and configurations

Infrastructure changes will be prioritized based on where they are needed most to ensure that rapid transit is frequent, reliable, and efficient.

Fully Separated Infrastructure

Over time, fully separated transitways can be developed on the entire proposed rapid network. These can take many forms, but always provide space that can only be used by transit vehicles. All fully separated transitways will be designed to be able to be converted to light rail in the future.

Fully separated transitways are different from diamond lanes. Taxis, bicycles, and turning vehicles share diamond lanes— they do not share fully separated transitways. Only transit vehicles are allowed on fully separated transitways.

There are a number of different options for fully separated transitways which are summarized in Section 8 Supporting Elements.

Rapid Lines

Six rapid corridors have been identified based on extending north-south and east-west connectivity in the city together with the pairing of services that display the same level of demand. These pairings create three Rapid Transit Lines.

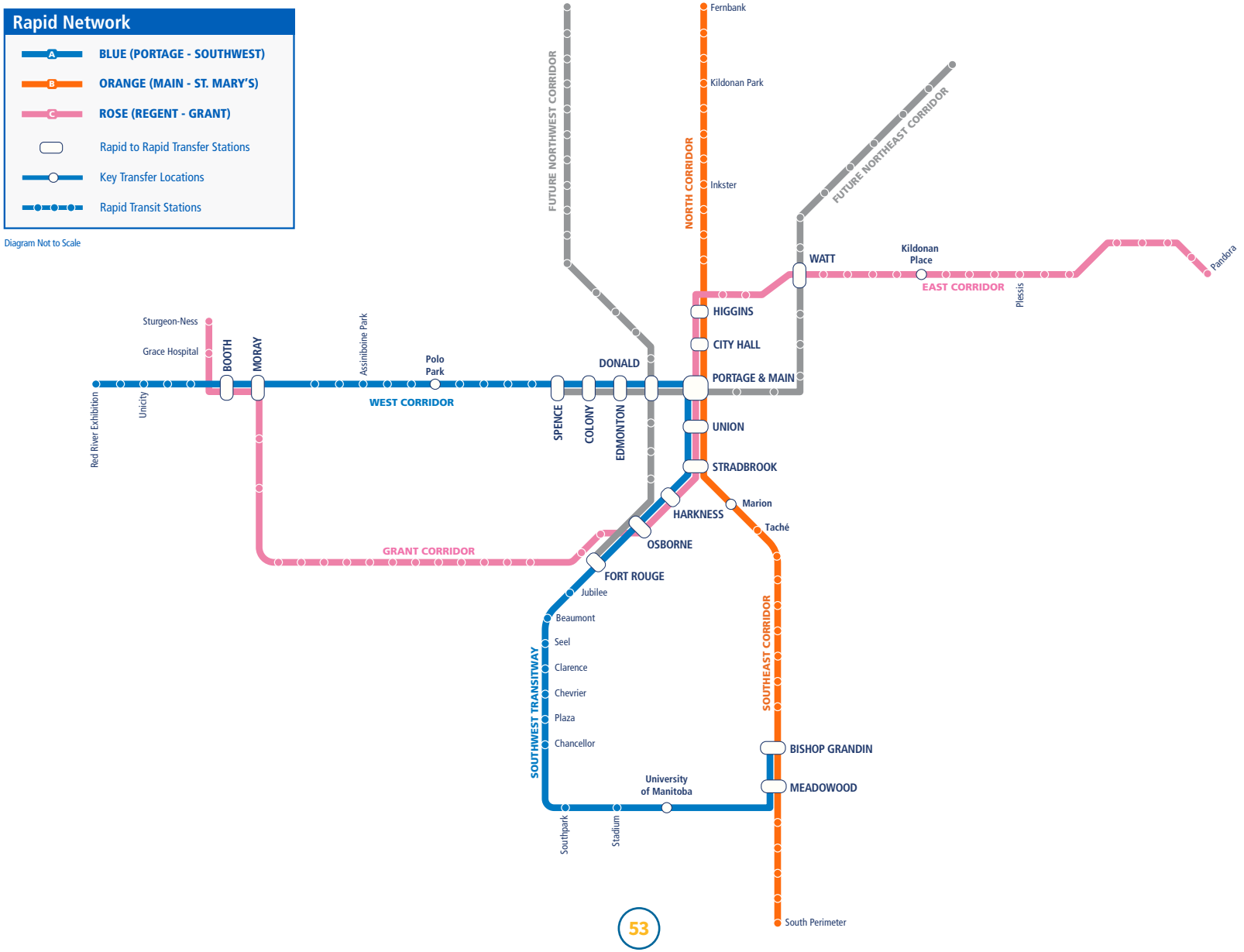
- **A: BLUE Line (Portage Avenue – Southwest)** – this route connects the Portage Avenue corridor from Unicity shopping centre via Polo Park and Downtown to Main Street, and then along the Southwest Transitway to the University of Manitoba, across the Red River on a new transitway bridge to St. Vital. These two corridors demonstrate similar levels of demand and therefore need similar levels of service. They represent two of the busiest existing transit corridors in the city.
- **B: ORANGE Line (Main Street – St Mary's Road)** – this route provides a direct north-south connection through the city, and upgrades Main Street to become a major transit corridor through downtown.
- **C: ROSE Line (Regent Avenue – Grant Avenue)** – this route forms the primary east-west connector providing a direct connection from Transcona in the east to Grace Hospital in the west, making use of the rapid transit infrastructure proposed for both the BLUE and ORANGE Lines through downtown.

In addition to the six corridors identified for rapid transit within the 25 year span of this plan, two additional corridors are identified for future consideration: a Northeast Corridor along Raleigh Street or Gateway Road, and a Northwest Corridor along McPhillips Street.

This plan recommends introducing Frequent Transit (Class 2) service on these corridors (identified as Line I and Line N) in the short term. This will enable people to start using the service in the short-term, well in advance of their potential upgrade to Rapid Transit (Class 1) service and infrastructure.

RAPID TRANSIT LINES

Winnipeg Transit Long Term Network Plan | Rapid Transit Diagram



7.2 RAPID TRANSIT - KEY INFRASTRUCTURE

Key infrastructure areas have been identified that are required to improve either the movement of rapid transit, the interchange between services, or to assist passengers in moving to the rapid transit corridors. Some of the major areas are noted below.

PORTAGE AND MAIN

The intersection of Portage Avenue and Main Street is a critical meeting point in the city, where multiple traffic lanes from both major arterials meet Downtown. While attempts to address the congestion at this intersection have been made, such as the elimination of pedestrian crossings in 1979, the current configuration does not serve transit passengers or transit operations well.

The proposed network design includes seven primary network lines that travel through Portage and Main (three Rapid and four Frequent lines), and the need to create a transit station at Portage and Main that enables people to make connections between transit lines has been identified. This station will be the subject of a separate study that will include further technical analysis, design, as well as significant public and stakeholder engagement.

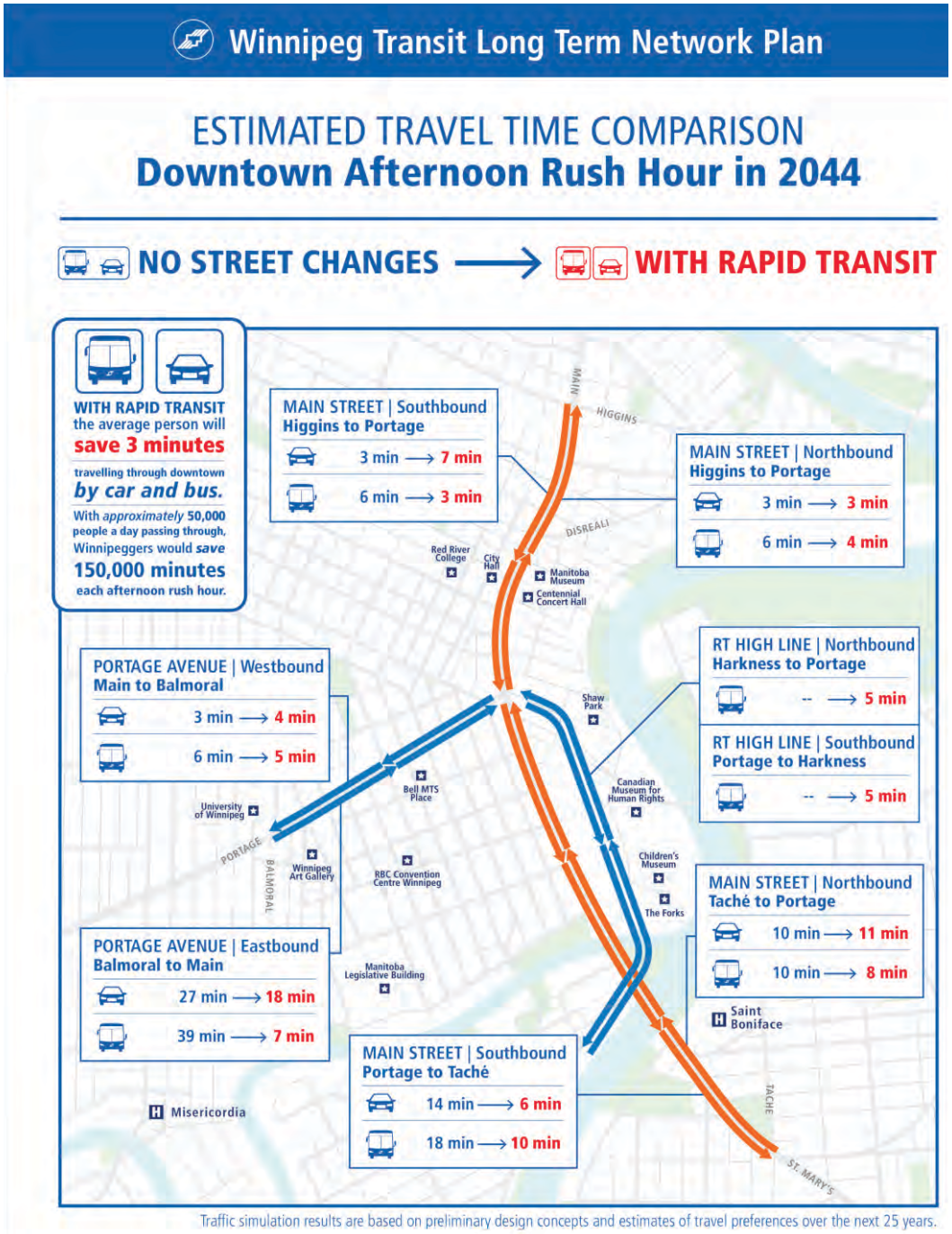
TRANSIT IMPACT ON DOWNTOWN TRAFFIC

The introduction of the rapid transit network improvements in the downtown were modeled using a traffic simulation program to examine the change in travel times from today. The modeling indicated that system improvements in the downtown are expected to improve the overall mobility of all people in the study area.

The graphic compares estimated travel time downtown during the afternoon peak hour in 2044 with no street changes, to estimated travel times with rapid transit in relation to existing conditions. With the rapid transit infrastructure in place, the average person will save three minutes travelling through downtown by car and bus. With approximately 50,000 people traveling through downtown each day, it will result in a total time savings of 150,000 minutes in the PM peak alone. The overall time savings per person is largely attributable to an increase in the average speed of buses.

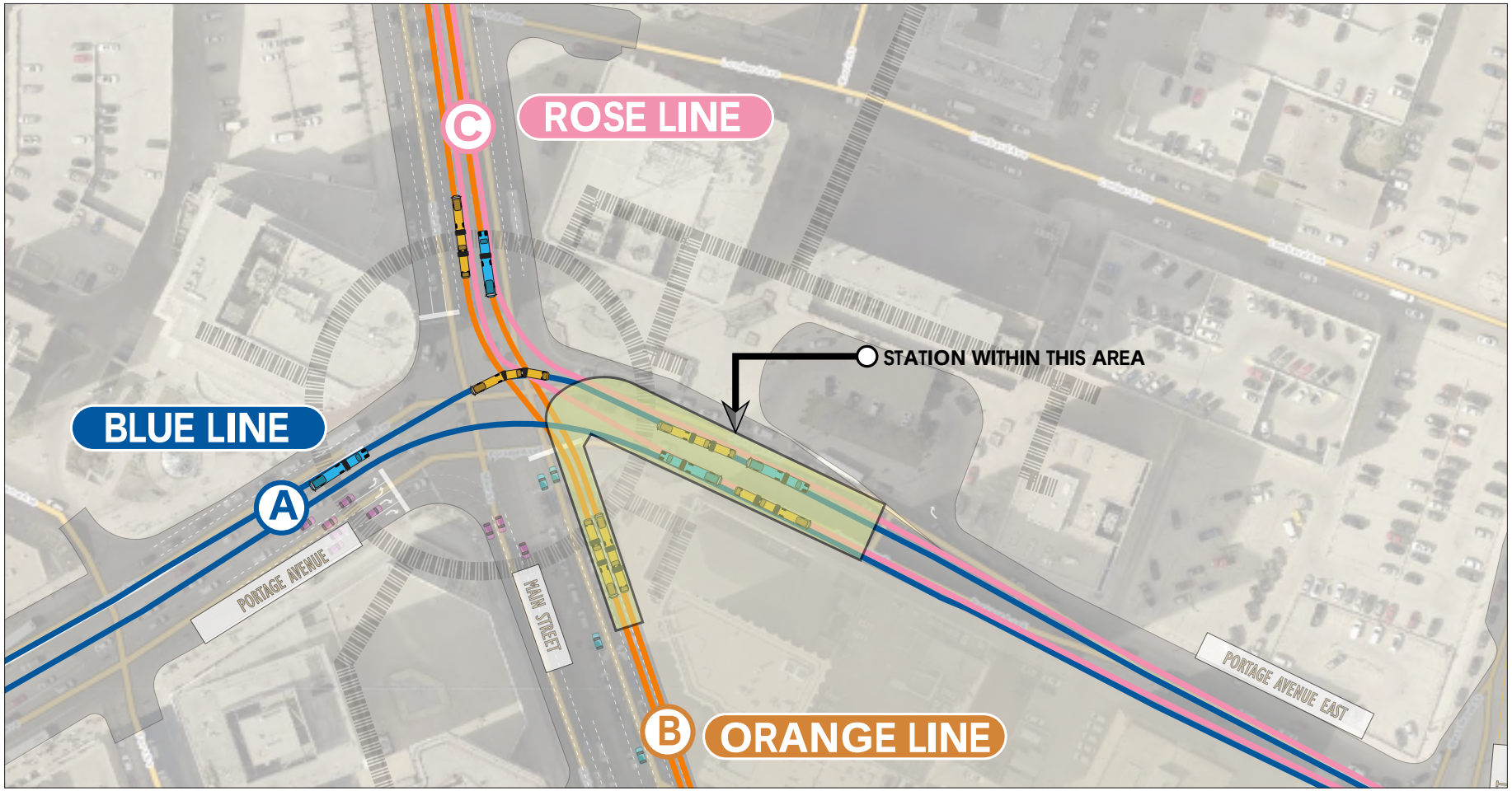
If no action is taken, buses will experience additional delay along Portage Avenue, Graham Avenue, Broadway, and Main Street, which will affect the bus service downtown. Overall, the rapid transit corridor is expected to improve bus mobility, reduce delays on some portions of the vehicular traffic network, and reduce overall delay on a per person basis.

As part of the next round of technical analysis, including the upcoming update to the Transportation Master Plan, the modelling of Winnipeg Transit activity throughout the city, and particularly in the downtown, will continue to be refined.



Traffic simulation results are based on preliminary design concepts and estimates of travel preferences over the next 25 years.

PORTAGE AND MAIN - FUTURE ROUTING



UNION STATION

Union Station provides a central focal point where multiple lines converge, enabling access to the entire city. The opportunity to connect on-street and off-street transit services enables a major system interchange serving all three Rapid lines.

Union Station will be the central hub of the rapid transit network. All three Rapid Transit lines (A, B, and C) and five other Frequent and Direct lines (D, K, L, Q, and T) will be routed through three locations:

- At street level on Main Street (lines B, Q, and T)
- Within the station on an elevated transitway (lines A, C, and D)
- At street level on Israel Asper Way behind the station (lines K and L)

The proposed plans for Union Station include improvements for accessibility. The pedestrian crossing at Broadway and Main Street will be improved and there will be better pedestrian access to The Forks. There will also be new and improved bike paths to connect Union Station to The Forks. There will be a drop-off zone for Winnipeg Transit Plus customers and the general public.

The use of Union Station as a transit hub has long been a desire of many citizens of Winnipeg and was strongly supported during recent public engagement. However the existing station configuration of two platforms prohibits the accommodation of all three Rapid lines through the station due to capacity limitations (number of buses accommodated simultaneously) on the platform.

STRADBROOK

Several iterations of grade separation were evaluated before recommending one that sees the Orange Line remaining on Main Street and shifting the Blue and Rose Lines eastward onto a grade-separated corridor from Union Station to Harkness Station. This solution proposes a corridor adjacent to the elevated rail line on the east side of Union Station, and a new structure over the Assiniboine River between Main Street and Stradbrook Avenue to maintain at-grade transfer activities.

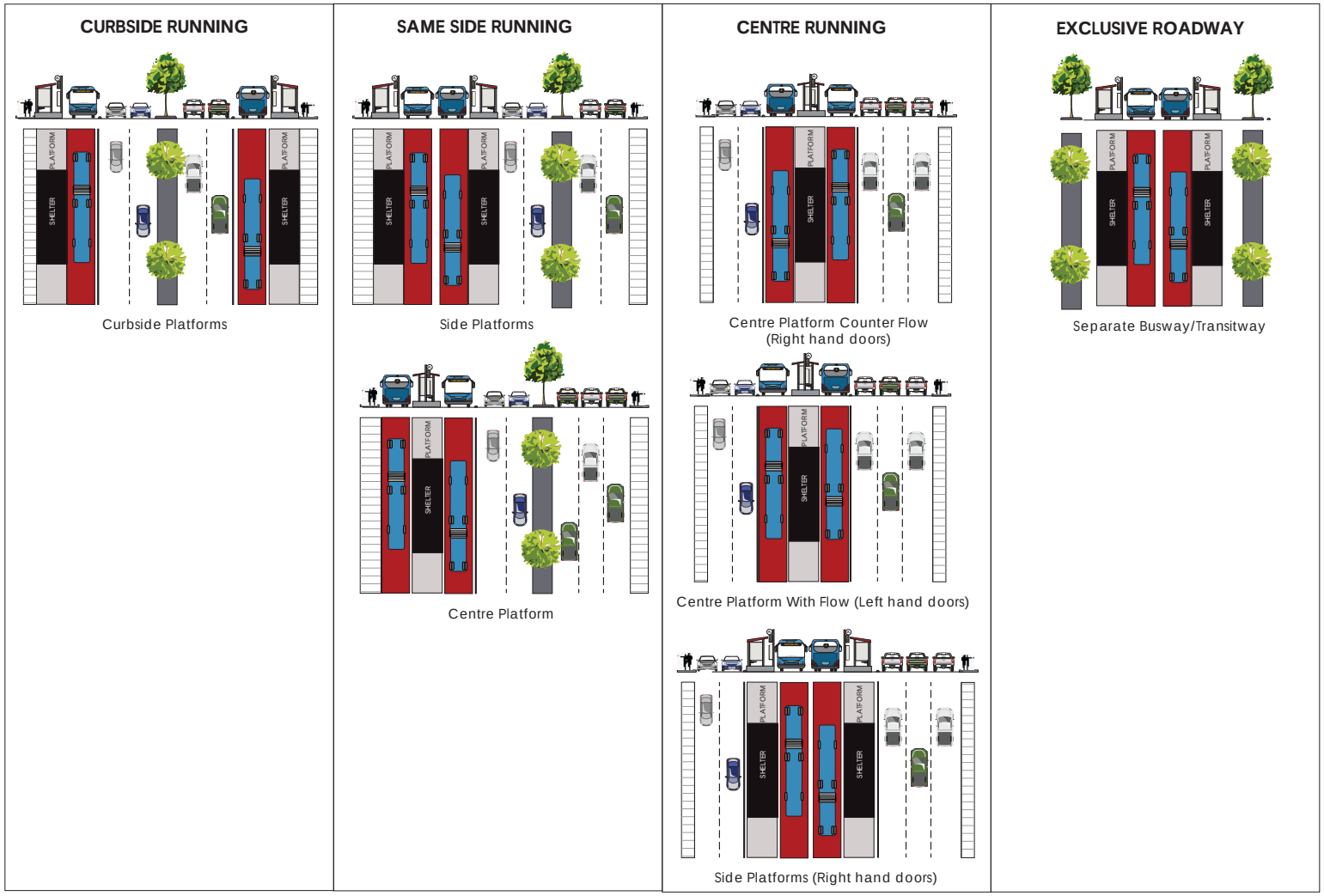
There will be a transit station on the east side of the intersection of Queen Elizabeth Way & Stradbrook Avenue, at both street level and on the elevated transitway, with access between levels via an elevator, ramps, stairs, and potentially an escalator. Stradbrook Avenue will become a one-way street (eastbound), and Mayfair Avenue will change directions to connect westbound traffic from Queen Elizabeth Way to River Avenue. A bridge will link pedestrians and bicycles across the street, to the station, and beyond. The north sidewalk and bike lanes of the Norwood Bridge will be reconfigured. Bicycles and pedestrians will still have access in both directions, on both sides of the bridge.

Modeling indicates that traffic congestion increases considerably if transit movements between the side-running Main Street busway and the Southwest Transitway were at grade. To alleviate this congestion, it is proposed that the Blue and Rose Rapid lines be shifted off Main Street and elevated to route over Queen Elizabeth Way and through Union Station. This develops better pedestrian access to the Rapid lines but requires the reconfiguration of the operation the Stradbrook – Mayfair – Harkness traffic movements.

7.3 TRANSITWAY RUNNINGWAYS AND ON-STREET OPERATIONS

A transitway is a roadway that is only used by transit. The diagram shows four different types of separated transitways that may be used in different locations throughout the city.

The different options for fully separated transitways will be used based on what works best for the specific area to keep transit and vehicle traffic from crossing paths too often, while providing pedestrian access to transit stops and stations.

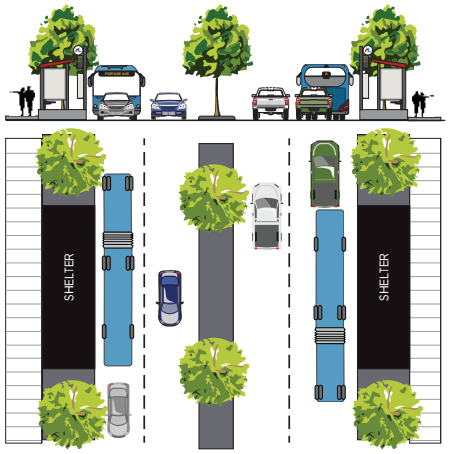


Most fully separated transitways outside of Downtown will be centre-running, including most of Portage Avenue and Main Street.

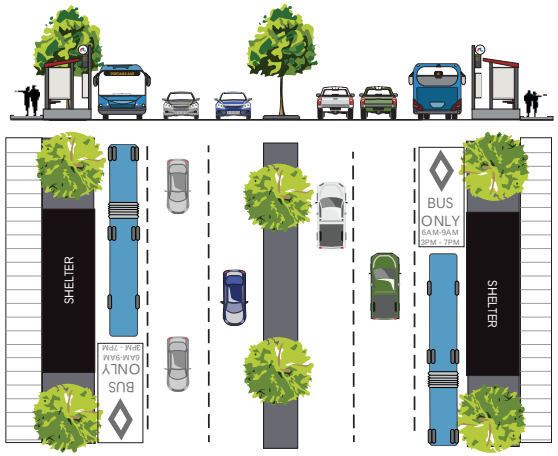
Transitways in other areas, including Downtown, will be based on the physical constraints of the existing roadways in those neighbourhoods.

Where transit operates in mixed traffic, infrastructure improvements can be implemented to provide priority to transit movements to improve service reliability.

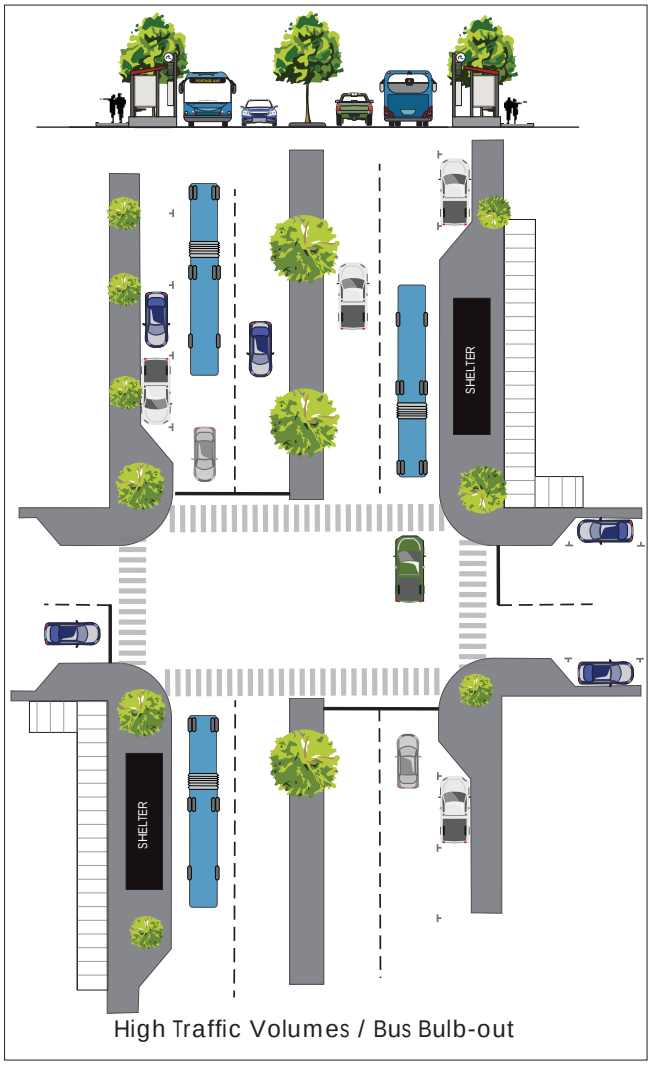
MIXED TRAFFIC OPERATIONS



Low Traffic Volumes / No Priority



High Traffic Volumes / Transit Priority Lanes



High Traffic Volumes / Bus Bulb-out

7.4 MULTIPLE ACCOUNT EVALUATION OF RAPID AND FREQUENT SERVICES

The Winnipeg Transit Master Plan requires a full implementation of the new network. The use of a Multiple Account Evaluation (MAE), also called a Multiple Criteria Analysis, is a well-established tool for this type of evaluation.

An evaluation was established through identifying the high-level accounts, understanding criteria that make up that account, and identifying metrics that can be measured. The basic framework is this:

- Accounts are broad categories that are important to the project
- Criteria are components that make up an account
- Metrics are specific measurable variables that enable evaluation of that criteria

The Winnipeg Transit Master Plan identifies four accounts that were weighted equally:

TRANSPORTATION SERVICE - This account was defined as the need for the project to serve a transportation function. Criteria were identified which enable analysis of that function.

URBAN DEVELOPMENT - Identified to ensure that the Winnipeg Transit Master Plan serves a function of enabling the type of development that will shape the future of Winnipeg, as outlined in OurWinnipeg and its subsidiary plans and policies.

DELIVERABILITY - The deliverability account was identified as many of the recommended corridors require significant capital investment to deliver, and the criteria identified responded equally to the level of design in the project as the potential constraints.

POLICY / STRATEGY - The policy/strategy account reflected the need of the Winnipeg Transit Master Plan to fit in the direction for the city, including OurWinnipeg and its subsidiary plans and policies, the Transportation Master Plan, and the Climate Change Action Plan. Each of the metrics in this account are based on alignment with these and other existing City policies and strategies.

7.5 INVESTMENT PROGRAM

The evaluation of the Rapid corridors using benefit over cost evaluation (B/C) enables the determination of reflective value of the project and project components in a comparative format. The purpose of the benefit cost analysis is to evaluate the value, both positive and negative, of the rapid corridor proposals established in this plan. Supplementary purposes of the benefit cost analysis include providing a metric for comparative evaluation between corridors and to provide a high-level business case for progression of the project in whole or in part.

The programs and their priority order are based on a number of factors, including construction and operating costs, benefits to riders, vehicle impact, complexity, and social factors. The priorities provide a proposed guideline for investment, and the programs can be built in part or in whole depending on available funding.

The benefit/cost evaluation undertaken for this study is at a preliminary level. It considered only cost savings through changes in mobility, both for the transit agency and passengers, using industry-standard values for the value of people's time. Benefits related to increased livability, development potential, and changes to development demands and associated tax revenues are not included at the master planning level of detail. Assessing these benefits would be expected to improve the benefit/cost score. Quantifying these benefits would require significant resources, and is recommended as part of future work under the umbrella of OurWinnipeg and its subsidiary plans.

A general investment program was created that shows the estimated project phasing in the corridors based on the cost-benefit analysis.

INVESTMENT PRIORITIES

PRIORITY 1 – DOWNTOWN RAPID TRANSIT INFRASTRUCTURE

Transitways will be built along Main Street from Higgins Avenue in the north to St. Mary's Road & Taché Avenue in the southeast and along Portage Avenue from the University of Winnipeg to Westbrook Street. Key infrastructure in this program includes an elevated transitway through Union Station from William Stephenson Way to Harkness Station.

PRIORITY 2 – NORTH TRANSITWAY, EAST TRANSITWAY, SOUTHWEST TRANSITWAY EXTENSION

North transitway: Transitway infrastructure from Main Street & Higgins Avenue to Inkster Boulevard.

East transitway: Transitway infrastructure from Sutherland Avenue & Main Street to the Louise Bridge.

Southwest transitway: Transitway infrastructure to connect St. Vital Centre to the University of Manitoba, including a new rapid transit and active transportation bridge across the Red River that functions as an extension of the Southwest Transitway, as well as interchange stations between the Southwest and Southeast corridors at St. Vital Centre and Meadowood.

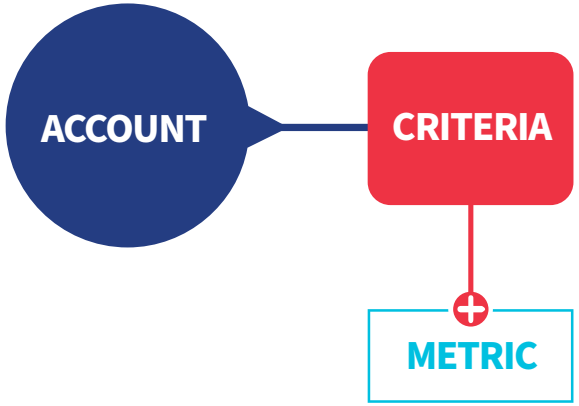
On the existing Southwest Transitway, this program also includes an expansion of Jubilee Station to connect to Pembina Highway.

PRIORITY 3 – GRANT AND SOUTHEAST PRIORITY CORRIDORS, NORTH TRANSITWAY EXTENSION

Grant corridor: Priority infrastructure on Grant Avenue from Pembina Highway to William Clement Parkway/Moray Street, on Moray Street from Grant Avenue to Portage Avenue, and on Sturgeon Road from Portage Avenue to Ness Avenue.

Southeast corridor: Priority infrastructure on St. Mary's Road from Taché Avenue to St. Vital Centre. Key infrastructure includes a bridge to the Riverview neighbourhood across the Red River suitable for pedestrians, cyclists, and small-scale autonomous shuttle buses.

North transitway: Fully separated transitway on Main Street from Inkster Boulevard to Kildonan Park and priority infrastructure on Main Street from Kildonan Park to Fernbank Avenue.

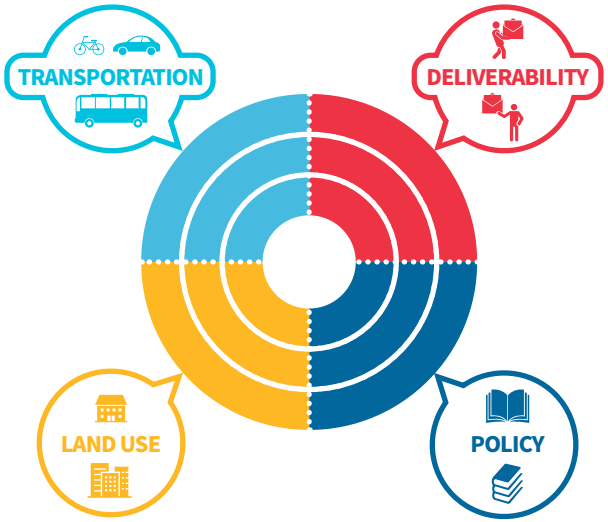


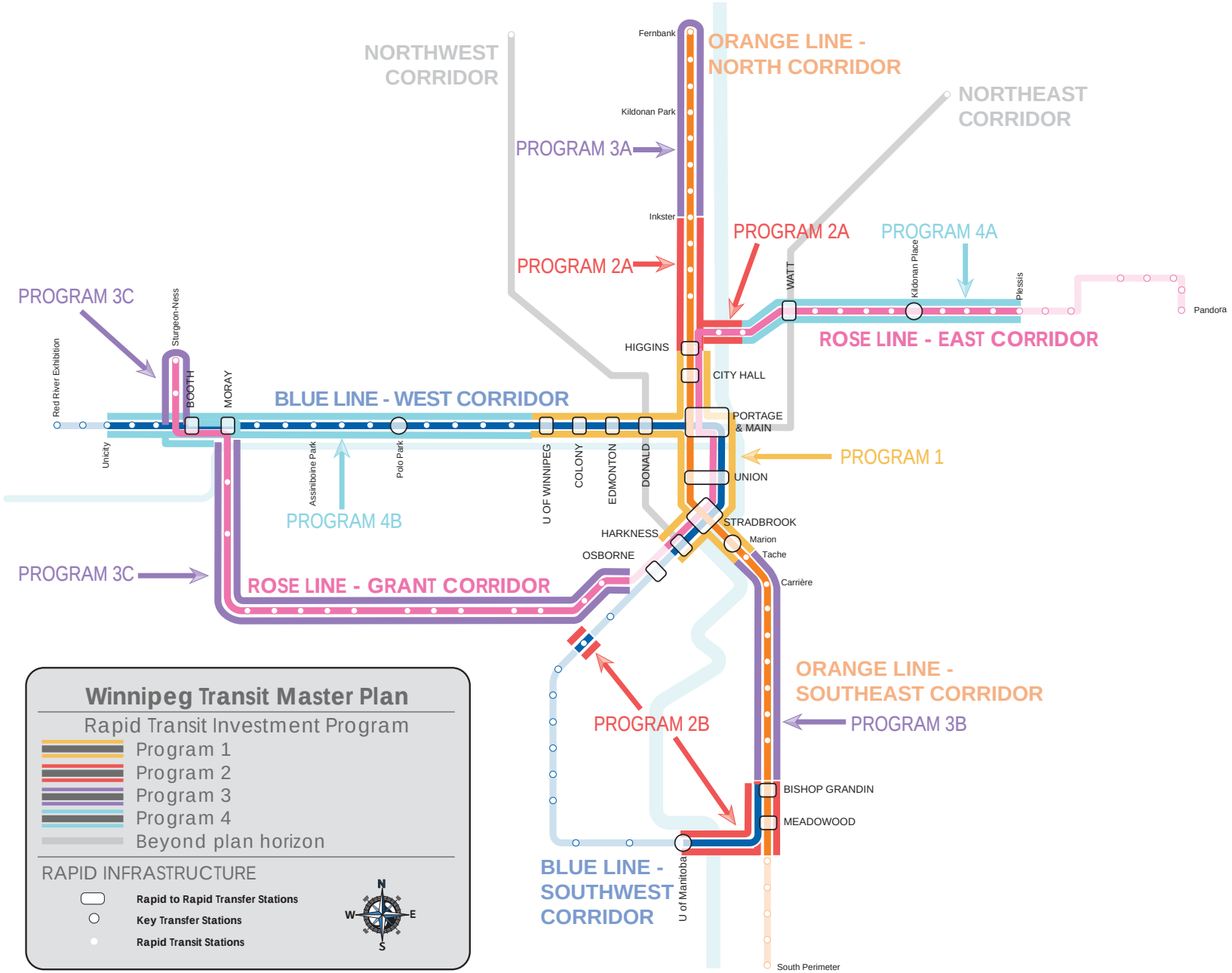
PRIORITY 4 – EAST AND WEST TRANSITWAYS

East transitway: Fully separated transitways on Nairn Avenue and Regent Avenue to Kildonan Place. Priority infrastructure on Regent Avenue from Kildonan Place to Plessis Road. Key infrastructure includes:

- Nairn Avenue overpass of CP main line
- Lagimodière Boulevard overpass

West transitway: Fully separated transitways on Portage Avenue from the University of Winnipeg to Unicity. Key infrastructure includes a mobility hub at Polo Park that provides access to and from the transitway on Portage Avenue.




NORTHWEST CORRIDOR
ORANGE LINE - NORTH CORRIDOR
NORTHEAST CORRIDOR
Fernbank
Kildonan Park
Inkster
PROGRAM 3A
PROGRAM 2A
PROGRAM 2A
PROGRAM 4A
PROGRAM 3C
Red River Exhibition
Sturgeon-Ness
BOOTH
MORAY
WATT
Kildonan Place
Plessis
Pandora
ROSE LINE - EAST CORRIDOR
HIGGINS
CITY HALL
BLUE LINE - WEST CORRIDOR
PORTAGE & MAIN
PROGRAM 1
UNION
Unicity
Assiniboine Park
Polo Park
U OF WINNIPEG
COLONY
EDMONTON
DONALD
PROGRAM 4B
STRADBROOK
HARKNESS
Marion
Tache
OSBORNE
Carrière
PROGRAM 3C
ROSE LINE - GRANT CORRIDOR
ORANGE LINE - SOUTHEAST CORRIDOR
PROGRAM 2B
PROGRAM 3B
BISHOP GRANDIN
MEADOWOOD
BLUE LINE - SOUTHWEST CORRIDOR
U of Manitoba
South Perimeter
Winnipeg Transit Master Plan
Rapid Transit Investment Program
Program 1
Program 2
Program 3
Program 4
Beyond plan horizon
RAPID INFRASTRUCTURE
Rapid to Rapid Transfer Stations
Key Transfer Stations
Rapid Transit Stations
N
W
E
S

PROGRAM	CORRIDOR	RAPID LINES	ESTIMATED PROJECT COST RANGE*	
			LOW	HIGH
1	Downtown	Blue, Orange, Rose	$191 million	$355 million
2A	North and East	Orange, Rose	$19 million	$35 million
2B	Southwest and Southeast	Blue, Orange	$35 million	$65 million
3A	North	Orange	$82 million	$152 million
3B	Southeast	Orange	$48 million	$90 million
3C	Grant	Rose	$18 million	$33 million
4A	East	Rose	$90 million	$168 million
4B	West	Blue	$105 million	$195 million
* Class 5 estimates. 2020 dollars. Does not include inflation and financing charges				

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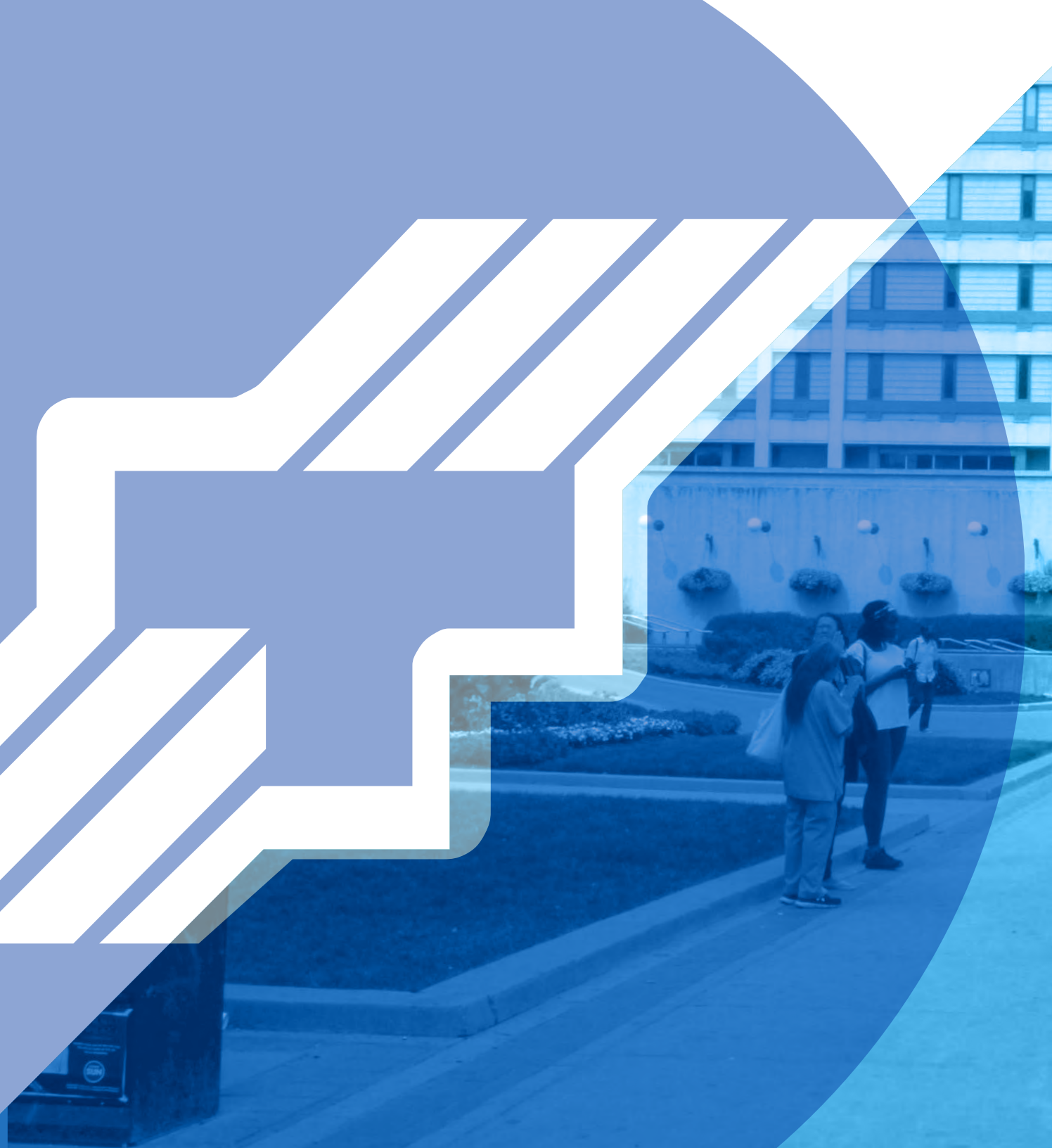


SUPPORTING ELEMENTS

8.0 SUPPORTING ELEMENTS

8.1 PRIMARY TRANSIT NETWORK INFRASTRUCTURE

The creation of a new transit route network requires a significant amount of infrastructure, specifically where there are connections between multiple routes in the Primary Network, or to routes in the Feeder Network.

In the proposed new transit network, several new routes require dedicated bus loops to avoid the need for buses to circle residential blocks to turn around. Many new bus loops will require comfort stations for bus operators to ensure staff have access to washroom facilities.

New traffic signals are required where buses will be turning onto or crossing major streets, or where customers will need to cross safely to make a connection between buses. Bus stops need to be constructed in pairs, with safe accessible crossings between them. In many cases this will require a new traffic signal.

As part of the conversion to a decentralized network that provides improved options for cross-town travel, many customers will make transfers at new locations, where previously most transfers occurred downtown. Construction of bus stops, junctions and mobility hubs as part of the Primary Transit Network Infrastructure are needed to ensure universal accessibility. These will include passenger amenity upgrades at the most critical locations.

The construction of junctions and mobility hubs will allow for the seamless integration of transit service under the Family of Services model, and will also allow multi-modal connectivity with active transportation, taxis and transportation network companies, and car-share services.

An inventory of universal accessibility at bus stops in the new transit network has been established to inform future accessibility improvement programming.

Planning and constructing this infrastructure also includes activities such as public engagement, communications, and marketing to ensure Winnipeg Transit customers and the broader public are aware of proposed changes and their impacts, and how to use the new infrastructure.

The construction of this infrastructure also involves the installation of new bus stop signage, the removal of discontinued bus stop infrastructure, advance notice of change signs, and other similar elements required to transition the city-wide transit network over the next three to five years.

The cost to plan, design, and construct the Primary Transit Network Infrastructure, and to implement its use in the proposed network, is estimated at $20.4 million, including $2.4 million for active transportation paths and other active transportation infrastructure to improve access to current and future transit routes.

8.2 TRANSIT ACCESSIBILITY

ACCESSIBILITY AND WINNIPEG TRANSIT PLUS

Throughout the public engagement process the need to make transit more accessible to people of all ages and abilities, and to make transit safer and more useable for people with disabilities, was clearly identified.

Improving accessibility and integrating Winnipeg Transit Plus with conventional transit under the Family of Services model are important goals of the Winnipeg Transit Master Plan to enable people of all ages and abilities to move around the city. To understand the current issues and develop proposed changes, the following was undertaken:

- Review of the Manitoba Ombudsman's report on Winnipeg Transit Plus, the *Accessibility for Manitobans Act*, and what is being done for accessible transit in other cities
- A review of over 1,100 bus stops for accessibility based on the City of Winnipeg Accessibility Design Standards
- Two engagement sessions with Winnipeg Transit Plus users

Based on this information, the following changes are proposed to Winnipeg Transit Plus and the rest of the transit system to enable people with disabilities to access transit and make use of it with greater convenience, flexibility, and safety under the Family of Services model:

- Update Winnipeg Transit Plus policies as noted in Section 6 of the Winnipeg Transit Master Plan
- Identify places where two or more transit routes meet and where people are likely to transfer, and prioritize these for accessibility improvements to be completed with other transit infrastructure projects and roadway renewal projects
- Pilot an option for some customers to use Winnipeg Transit Plus and conventional transit together - providing more freedom and flexibility to these customers and enabling Winnipeg Transit Plus to serve more customers overall

BUS STOPS, JUNCTIONS, RAPID TRANSIT STATIONS, AND MOBILITY HUBS

The Winnipeg Transit Master Plan identifies four types of places where people connect to the transit network:

- **Stops:** Marked locations along any transit route where riders can access transit.
- **Junctions:** This is a new concept which designates a collection of bus stops as a single unit for planning and design. Transit Junctions will be designed to make these connections as safe, efficient, and accessible as possible, both through infrastructure design and the provision of customer amenities. Transit Junctions will be high priorities for accessibility improvements, including through road renewal projects and through the existing Transit Accessibility program.
- **Stations:** These are located on Rapid Transit corridors. Typically, many people are getting on and off the bus here, and there are often connections with other routes and services. Adjacent bus stops that serve these connecting routes will be considered as part of the station, and connections will be

designed to minimize walking/rolling distances, and to be universally accessible. Stations will have amenities like larger shelters, real-time transit information, and bicycle parking. They may have car pick-up and drop-off areas, car-share parking, or other multi-modal connections.

- **Mobility Hubs:** These are places where several different lines meet, and many different intermodal options can be provided. Walking, rolling, cycling, driving, car-share, bike-share, scooter-share, taxis, or any future transportation type, are examples of modes that could connect with transit at Mobility Hubs. Hubs can also include features like wifi, food service, and shops, or be integrated with larger shopping or other activity centres.

BUS STOP ACCESSIBILITY

The Winnipeg Transit Master Plan commits to making transit junctions, stations, and mobility hubs fully accessible. This includes making sure that:

- Transit stops are near each other on opposite sides of the street, allowing riders to start and end trips near the same place
- Transit stops are near crosswalks at intersections
- Sidewalks connect with transit stops, junctions, stations, and hubs
- Sidewalks, crosswalks, traffic lights, and curbs are universally accessible
- The distance to walk or roll between transit routes is as short as possible
- There are heated shelters and real-time transit information available
- New stations and all other infrastructure improvements follow the City's Accessibility Design Standards and the Accessibility for Manitobans Act

The bus stop review identified that about one-third of stops scored as "good," meaning they are generally accessible to people with visual, cognitive, and physical disabilities. Eight percent of stops failed, meaning they are not accessible and it is difficult to get on and off the bus safely.

The results of the bus stop review audit will be used in two ways:

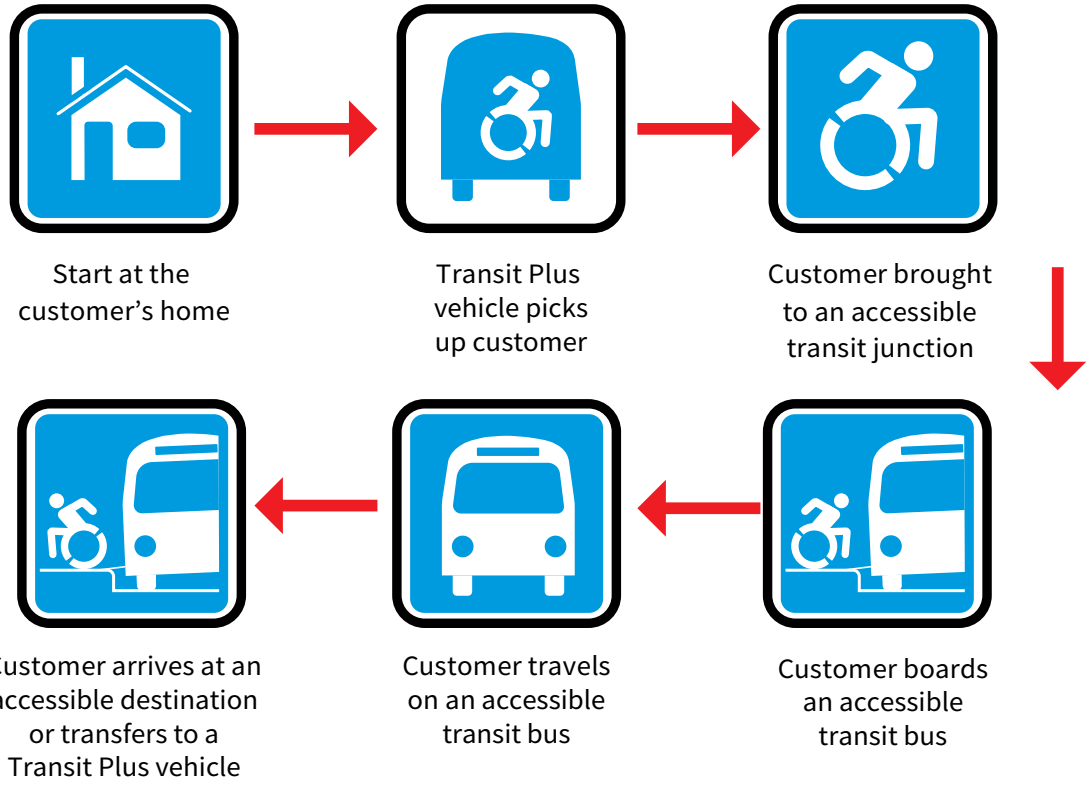
- Transit stops with "good" scores can be part of a pilot project for some Winnipeg Transit Plus customers to use a combination of Winnipeg Transit Plus and conventional transit to travel around the city
- Locations with a low score that will become Transit Junctions, Stations, or Mobility Hubs in the proposed network will be prioritized for accessibility improvements when other infrastructure improvements are being made as part of the Rapid Transit investment priorities, and when the Primary Transit Network Infrastructure is constructed.

WINNIPEG TRANSIT AS A FAMILY OF SERVICES

By making conventional transit more accessible, more travel options for people with disabilities can be provided. One of these options is to combine Winnipeg Transit Plus service and conventional transit for customers whose abilities allow it, providing them more freedom and flexibility.

This integration of Winnipeg Transit Plus with conventional service is known as the **Family of Services** model.

In this option, a Winnipeg Transit Plus vehicle brings customers from their home to an accessible transit junction, or from an accessible transit junction to their destination, or both. Winnipeg Transit Plus staff will have the information and training they need to help customers plan combined trips. Winnipeg Transit also will provide travel training to assist customers in making combined trips door to door.



Before piloting this type of service integration within the Family of Services model, the following infrastructure and support needs to be in place:

- **Accessible Transit Junctions, Stations, and Mobility Hubs:** Locations where customers can easily walk or roll to connect to conventional transit.
- **Accessible buses:** All of Winnipeg Transit's buses are low-floor, with audible next stop announcements and visual display of next stops. Subject to funding, existing buses will be retrofitted with new wheelchair securement systems. As buses are replaced, new vehicles will include updated wheelchair securement systems. Winnipeg Transit will also improve signage and public education about priority seating areas to encourage riders to make sure these areas are available for those who need them.
- **Accessible destinations:** Winnipeg Transit Plus will identify and track destinations that can be reached by an accessible path from Rapid Transit stations and hubs.
- **Trip planning system and eligibility criteria:** Winnipeg Transit Plus will upgrade its scheduling system to include information about accessible transit junctions, stations, and hubs and accessible destinations The eligibility criteria for Winnipeg Transit Plus will also be updated to identify customers who are able to use both conventional transit and Winnipeg Transit Plus under the Family of Services model, enabling spontaneity and flexibility for customers. Winnipeg Transit Plus staff will be able to help customers plan trips that use the full spectrum of the Family of Services model, connecting Winnipeg Transit Plus to the conventional system at accessible locations.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8.3 FARES

Winnipeg Transit's fare structure and policies are complex and can be confusing, making it difficult for users to determine the best fare option for their needs. This complicated structure also creates a significant administrative burden. Several changes are recommended to simplify the fare structure and improve policies:

- **Reduce complexity** — Providing too many fare options is confusing for passengers, creating another barrier to using transit.
- **Eliminate redundancy** — Simplifying the fare structure allows for the elimination of products that are very similar.
- **Increase the discount on unlimited-use passes relative to single-use fares** — By maintaining monthly pass discount levels while single-use fares are raised, riders will be encouraged to move to an 'unlimited use' model.
- **Re-invest revenue into service improvements** — Fare revenue from increased ridership should be reinvested in targeted service improvements. This should focus on improving weekend service, or dealing with capacity constraints that arise from ridership growth.
- **Focus on the low-income WINNpass as the means to provide discounted fares to those in need** — Eliminate youth and senior discounts on cash fares and day passes. Consolidate existing youth and senior discounts into a single discount level priced similarly to the existing youth rate. Expand eligibility of the WINNpass to include seniors and youth. Phase out free conventional transit passes for Winnipeg Transit Plus users now that the entire bus fleet is accessible, and phase out free CNIB passes.
- **Maintain existing fare-free travel for Children 11 and Under** — Beginning in January 2021, children aged 11 and under are no longer required to pay a fare to ride transit when accompanied by a fare-paying customer.
- **Invest in youth riders to build a culture of transit ridership** — Through partnerships with local school divisions, the cost of a potential program that promotes transit can be shared, allowing for significant increases in student independence and mobility.
- **Phase out physical fare media in favour of digital payment methods** — In addition to existing peggo smart-card-based payments, Winnipeg Transit will be moving toward open payments and/or mobile ticketing. Open payment systems allow for passengers to pay with existing "tap" technology on credit and debit cards. Mobile ticketing systems enable passengers to purchase tickets and passes on their mobile devices prior to boarding.

The future fare structure removes redundancy and improves legibility. By streamlining the fare table, the transit system is made more accessible to new users, and additional ridership is encouraged by promoting longer-term pass options such as the 7-day or monthly passes in lieu of relatively unpopular current offerings, such as the 3-day or 14-day passes. The table below summarizes the proposed simplified fare structure.

PROPOSED SIMPLIFIED FARE STRUCTURE

	CURRENT FARE STRUCTURE				PROPOSED FARE STRUCTURE	
FARE PRODUCT	**FULL**	**YOUTH**	**SENIOR**		**FULL**	**REDUCED**
CASH	✓	✓	✓		✓	X
PASSES						
E-CASH	✓	✓	✓		✓	X
24 HOUR	✓	✓	✓		✓	X
3 DAY	✓	✓	✓		X	X
5 DAY	✓	✓	✓		✓	✓
7 DAY	✓	✓	✓		✓	✓
14 DAY	✓	✓	✓		X	X
21 DAY	✓	✓	✓		X	X
28 DAY	✓	✓	✓		✓	✓
MONTHLY	✓	✓	✓		✓	✓
WINNPASS	✓	X	X		✓	✓
ANNUAL	✓	✓	✓		✓	✓

8.4 LAND USE AND TRANSIT-ORIENTED DEVELOPMENT

The Primary Network is intended to be permanent, other than future extensions, while the Feeder Network is intended to be flexible, evolving into other route classes as transit demand changes over time, or as neighbourhoods develop. The permanence of the Primary Network enables the City to create land use policies that are based on it. This is achieved through OurWinnipeg and the Complete Communities Direction Strategy.

Mobility Hub is a term used for locations that integrate many different modes of transportation, anchored by a high-quality transit node, like a Rapid Transit station with multiple connecting lines. Along with a Rapid Transit station, a Mobility Hub could include secure bicycle parking and bike-share services, parking for car-sharing services, Kiss & Rides, and pick-up and drop-off areas for Winnipeg Transit Plus, taxis, and transportation network companies.

Mobility Hubs should be the focal points for land use policies that encourage the highest level of intensification. The Complete Communities Direction Strategy outlines the policies to guide this and other types of Transit-Oriented Development based on the Rapid Transit network and the Primary Transit network.

Mobility Hubs will serve ridership along an upgraded system that includes more direct, frequent, and rapid services throughout the network. These locations are determined in part, by the existing transit network, development patterns, zoning, and analysis of the location-based data from observed device sightings along the roadways.

Union Station is proposed as Winnipeg's flagship Mobility Hub. Other locations could be adjacent to shopping centres, major healthcare facilities, or educational institutions.

Mobility hubs will generally be located on major corridors identified in Complete Communities that align with the Winnipeg Transit Master Plan's Frequent Network.

8.5 VEHICLE TECHNOLOGY

Zero-emission buses (ZEBs) currently use either chargers or hydrogen fuel cells to charge a battery that powers an electric motor to propel the bus without emitting harmful pollutants, like those emitted from internal combustion engines running on fossil fuels. There are two types of ZEBs considered for operation in Winnipeg's transit fleet: **fuel-cell battery-electric buses (FC-BEBs) and battery-electric buses (BEBs)**. FC-BEBs are refueled with hydrogen while BEBs can either charge on-route or at a depot/transit garage.

Each technology has advantages and disadvantages. Rapid-charge battery-electric buses recharge very quickly, but have limited range and must return to a charger at a fixed location at regular intervals throughout the day. Long-range battery-electric buses can travel for many hours between charges, but need to be connected to a charger for long periods of time, potentially hours, before they can be redeployed. FC-BEBs have very long range and refuel very quickly, but the electricity that powers them comes indirectly from hydrogen, which is generally less efficient and more expensive than charging.

All ZEBs have the advantage of lower maintenance and predictable fueling cost. However with BEBs, complexities associated with scaling charging infrastructure will drive significant operational changes and may be expensive to implement. FC-BEBs have superior range, low cost infrastructure at a large scale, would be more similar to diesel to plan, schedule, and operate, but the cost and availability of hydrogen remains a barrier to large-scale implementation of this technology.

In parallel with this plan, Winnipeg Transit has been developing a **Transition to Zero-Emission Bus Program** for the purpose of setting the direction for establishing a zero-emission fleet, and following through on initiatives around the integration of zero-emission transit.

Beginning in 2022, Winnipeg Transit proposes to purchase a transition fleet of 12 to 20 zero-emission buses of various types, including 60-foot articulated and 40-foot standard lengths. This **Transition Fleet Project** is the first step in the larger Transition to Zero-Emission Bus Program. By 2030, Winnipeg Transit expects to have its fleet be comprised of 30% zero-emission buses, with transition of the full fleet to zero-emission expected by 2050.

The transition to zero-emission is purposely planned to be gradual to allow Winnipeg Transit sufficient time to plan and adjust its zero-emission roll-out strategy based on data collected through in-service validation and testing. Zero-emission bus technology is constantly evolving and the Winnipeg Transit needs to be flexible to adapt to these changes.

The current route network is very complex and subsequently little opportunity exists for targeting particular vehicle types and technologies where they make most sense. The same buses are used to deliver service in residential neighbourhoods as those that run downtown, with the result that they may be too big for the neighbourhood parts and too small for the downtown parts of the same routes. Simpler routes will allow for dedicating appropriate vehicle types, ranging from automated vehicles, small or large buses, zero-emission buses, or eventually light rail, according to the service needs.

Similar to today, most future transit service in Winnipeg would use standard, low-floor 40 foot buses. As the diesel fleet is replaced over time with zero-emission buses, these routes can be served equally well with 40 foot zero-emission buses. The WTMP also proposes a significant expansion of the 60-foot articulated bus fleet, all of which could become zero-emission buses over time.

There may also be an option to expand this portion of the fleet with double decker buses. These large zero-emission buses can be used on Rapid Transit and other Primary Network Lines. If even more capacity is required in the future, 90-foot bi-articulated buses (sometimes known as trambuses) could be considered. Station platforms on the Southwest Transitway could already accommodate these, and the WTMP recommends ensuring all future Rapid Transit station platforms can as well.

Community Routes and On-Request Service could be delivered with smaller, lighter, and more efficient 20 to 30-foot zero-emission buses or small autonomous vehicles.

Autonomous and connected vehicles (AV/CVs) are starting to appear in pilot projects across Canada. Legislation and regulations around emerging technologies such as driverless vehicles are still in development, and any future integration of this technology would need to be implemented in a manner that prioritizes safety. If properly implemented these vehicles have the potential to improve safety, reduce traffic congestion, and decrease travel time. Generally, the AVs being tested today are small, accommodating fewer than 12 passengers, and travel at fairly low speeds. However tests with large 40-foot autonomous buses operating in dedicated transit corridors are also underway.

Utilizing small AVs may be appropriate for some of the shortest feeder routes, or for introducing new service where full-sized buses are inappropriate, such as connecting the Zoo to Rapid Transit on Portage Avenue through Assiniboine Park.

Large AVs may be the next evolution of zero-emission transit, but it may also be possible to retrofit an existing zero-emission fleet with autonomous driving features if wide spread adoption of this technology accelerates.

	L0 No Automation	L1 Driver Assistance	L2 Partial Automation	L3 Conditional Automation	L4 High Automation	L5 Full Automation
DRIVER	The driver performs all drivings tasks	The driver controls the vehicle	The driver must remain engaged with the driving task and monitor the environment at all times	The driver is neccessary, but not required to monitor the environment	The driver has the option to take full control over the vehicle	The driver may have the option to take control over the vehicle
VEHICLE	Zero autonomy	Some driving assist features may be including in the vehicle design	The vehicle has combined automated functions, like acceleration and steering	The vehicle can take full control over automated functions, like acceleration and steering	The vehicle is capable of performing all driving functions under certain conditions	The vehicle is capable of performing all driving functions under all conditions

8.6 OFF-BOARD PAYMENT, ALL-DOOR BOARDING, AND FARE ENFORCEMENT

All-door boarding can significantly reduce the time spent at stations and speed up service. It is required for the proposed West Rapid Transit Corridor on Portage Avenue, which would use vehicles with doors on the left side, where passengers would enter without passing the driver. All-door boarding requires off-board payment systems such as mobile ticketing or fare validators installed on station platforms, and staff for fare inspections and enforcement.

Because all-door boarding will require off-board fare payment, sufficient resources in Winnipeg Transit's Information Systems and Plant & Equipment divisions will be required for the planning, procurement, installation, and maintenance of fare validators, and potentially fare vending machines, and also the implementation of mobile ticketing systems.

There are a number of legal and operational issues that will need to be resolved before all-door boarding can be implemented. Identifying the issues and working through them should begin immediately so that payment and enforcement systems can be put in place and properly tested, so that any issues can be resolved before construction of the West Rapid Transit Corridor.

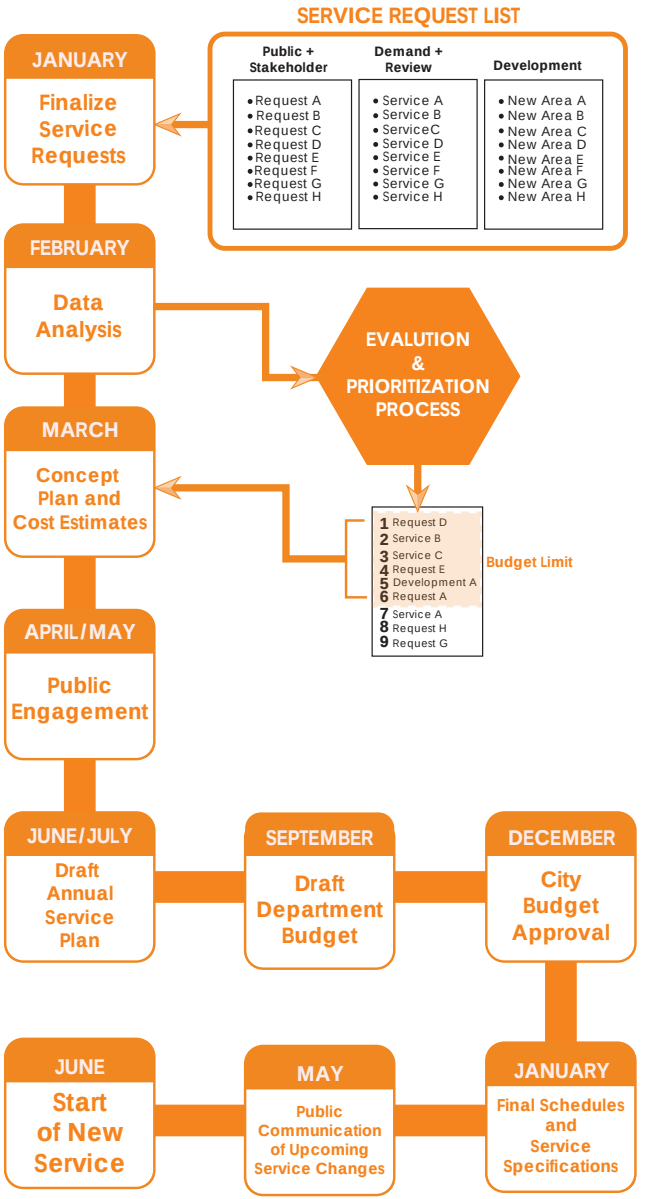
8.7 SERVICE PLANNING CHANGES

Winnipeg Transit currently has no formal process for creating an annual service plan to incorporate new service requests and improvements into a Service Plan process that is understood and followed by everyone.

Service requests generally come in three forms:

- Those from the public or stakeholders (including bus operators and other Winnipeg Transit staff)
- Those from an internal review of services that result in a need for new or changed services
- Those from new developments

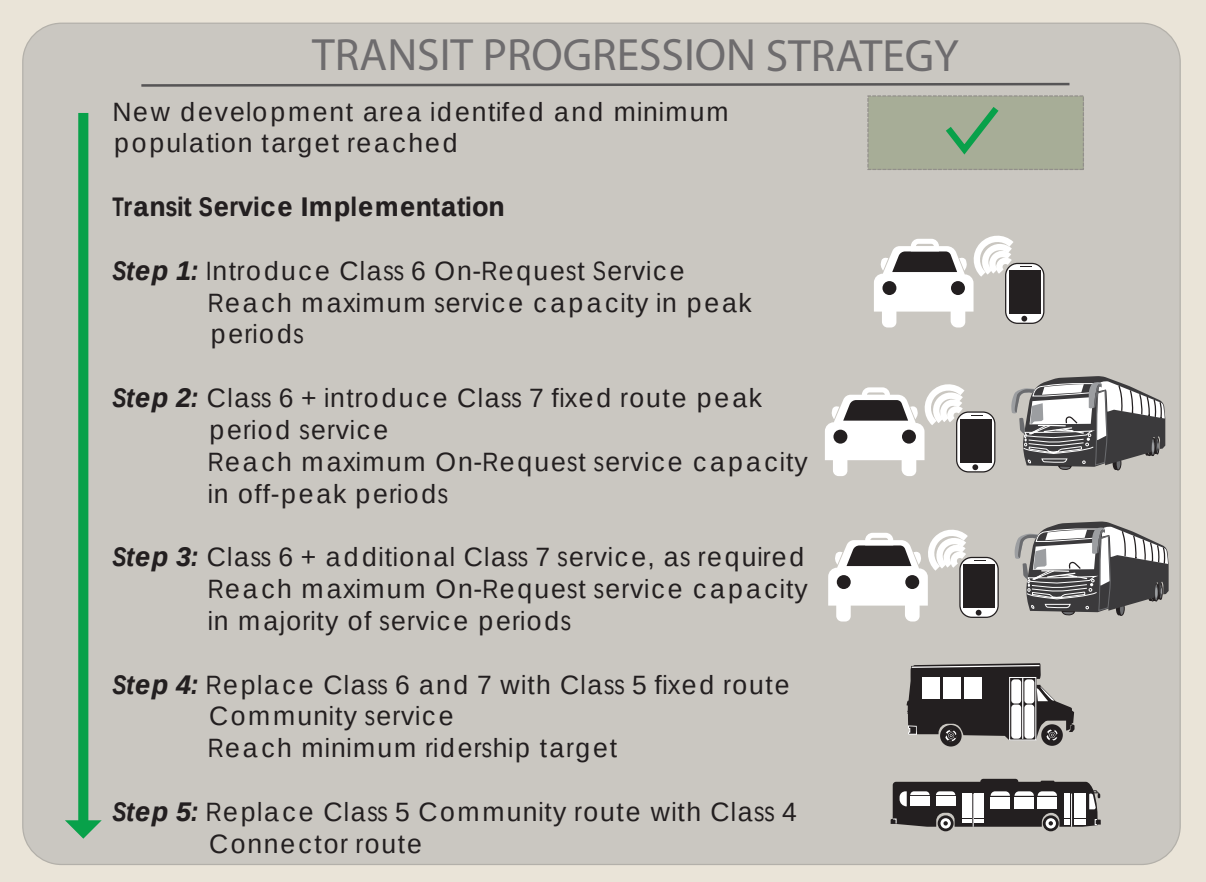
Winnipeg Transit's Service Development Division intends to carry out an annual review of all potential service changes, and consult with stakeholders and the public with the service proposals that are developed. These would then be put through an evaluation process to rank the service requests, and incorporated into an annual service change report brought to the appropriate committee of Council for consideration. Those requiring additional funding would be considered in time for the development of annual budgets. Approved service changes would then be implemented in June or September of each year.



TRANSIT PROGRESSION IN NEW AND DEVELOPING NEIGHBOURHOODS

A transit progression strategy has been developed to provide a framework for considering service improvements as demand increases, by evaluating existing developments and transit service performance. This process allows transit service to be more closely aligned with the needs of the community and to provide a highly responsive approach - particularly in the initial three steps of the service. As a community is developed (or an existing community has been defined as being more suitable for Class 6 service) then an on-request concept would be the preferred starting point. This allows residents to create the mobility platform that works for them. As ridership increases, the progression strategy starts to introduce fixed route services until Step 4 when a full route can accommodate the mobility requests. After that, the progression of service is entirely dependent upon demand to evolve from Class 4 towards Class 1 services.

It is recommended to adopt this guideline as part of the Service Change process described above.



8.8 TRANSIT BUS FLEET

One of the advantages of the proposed route network and service plan in the Winnipeg Transit Master Plan is that the improved efficiency of the network translates into a 25% increase in overall capacity, with no additional buses or service hours.

A plan to transition Winnipeg Transit's bus fleet to zero-emission by 2050 was presented to the Standing Policy Committee on Infrastructure Renewal & Public Works in February 2021. While this addresses the propulsion system of the vehicles, and the strides toward meeting the goals of Winnipeg's Climate Change Action Plan, the composition of the bus fleet in terms of vehicle size is a separate issue.

In order to fully make use of the added capacity that comes through the redesign of the route network, the number of 60-foot articulated buses in the fleet needs to increase relative to the number of standard 40-foot buses.

Winnipeg Transit's existing Bus Replacement Program has no consistent source of funding. Winnipeg Transit's proposed ICIP funding plan provides the opportunity to fund bus replacements as part of the Transition to Zero-Emission Bus Program through 2027. Beyond 2027, a consistent source of funding for the Bus Replacement Program is required to ensure buses are replaced at the end of their servicable life, reducing long-term maintenance costs and out-of-service time.

BUS FLEET COMPOSITION

As various elements of the Winnipeg Transit Master Plan are implemented, the following bus fleet size and composition will allow for the most effective operation of the system:

BUS TYPE	CURRENT	5-10 YEAR	20-25 YEAR
60-FOOT ARTICULATED BUSES (LEFT-HAND DOOR)	-	-	40
60-FOOT ARTICULATED BUSES	45	85	105
40-FOOT BUSES	584	535	405
SMALL/COMMUNITY BUSES	13	30	100
AUTONOMOUS SHUTTLES	-	-	5
TOTAL	642	650	655

The fleet size and composition should be re-assessed regularly, and modified as needed. Substantial growth in ridership may require future growth in the fleet size or a change in the projected fleet composition, including the addition of double-decker or 90-foot bi-articulated buses.

ADDITIONAL ON-BOARD EQUIPMENT

All new buses will be purchased with automatic passenger counters (APC) in order to improve data collection for future service planning. Less than 25% of the existing bus fleet is equipped with APCs, which is insufficient for achieving proper sample sizes on the proposed route network.

Feedback from the public has consistently supported having bike racks mounted on the front of buses year-round, but current garage storage capacity does not allow for this. Once a replacement for the aging North Garage facility is constructed, Winnipeg Transit will be able to pursue this goal.

All buses in Winnipeg Transit's fleet are equipped with wheelchair securements. However older styles of securement are not expected to meet the upcoming regulations of the Accessibility for Manitobans Act. New buses will come equipped with modern securements that meet the standard, however existing buses need to be retrofitted with new securements.

8.9 BUS STORAGE AND MAINTENANCE FACILITIES

Winnipeg Transit has three facilities for bus storage and maintenance, with a combined capacity of 727 40-foot equivalent buses if completely full. In order to allow space for maneuvering buses within the facilities, to store auxiliary equipment, to perform facility maintenance, and to commission new buses, the functional capacity is approximately 660 40-foot equivalent buses.

With Transit's current fleet of 642 buses being comprised of 30-foot, 40-foot, and 60-foot buses, the fleet size is equivalent to 662 40-foot buses for storage capacity. Winnipeg Transit is therefore already beyond its storage capacity.

With an additional 16 buses projected to be added to the fleet as part of the zero-emission Transition Fleet Project, operations will be constrained even further, and there is no room to grow the bus fleet or to replace 40-foot buses with 60-foot buses.

FORT ROUGE GARAGE

Winnipeg Transit's largest facility, Fort Rouge Garage at 421 Osborne Street can store up to 435 buses, and houses the department's heavy maintenance facility. Although the facility is functional for current needs, it was built in the late 1960s and was not designed to accommodate articulated buses, zero-emission buses, or buses with bike racks. As Transit's fleet grows and evolves, an overhaul of the facility will be required to accommodate these new vehicle types.

A recent expansion of the maintenance facility will allow Transit to better maintain its existing fleet, and to begin its transition to a zero-emission bus fleet with a higher proportion of 60-foot articulated buses. This expansion was designed to a LEED Silver standard.

BRANDON GARAGE

Brandon Garage at 600 Brandon Avenue, which opened in 2014, is Winnipeg Transit's newest bus storage facility, and is a LEED Silver certified facility. It was designed to the latest standards and can accommodate both articulated buses and buses with bike racks, and can store up to 157 buses.

This facility will be used to store and charge buses as part of the Zero-Emission Bus test fleet, and with the installation of charging infrastructure, to store and charge up to 100-110 zero-emission

buses once the transition of the full bus fleet to zero-emission is underway.

Under the proposed Transition to Zero-Emission Bus Program, electrical service constraints would restrict any future expansion of the zero-emission bus fleet at Brandon Garage beyond 2027.

NORTH GARAGE

North Garage at 1520 Main Street is Winnipeg Transit's oldest facility, having opened in the 1930s as a streetcar storage facility called North Car House. The facility is functionally obsolete, and is in poor condition. The risk of North Garage becoming unusable due to further deterioration of the facility is likely Winnipeg Transit's most significant operational risk.

North Garage was designed for vehicles of another era, and cannot accommodate articulated buses, buses with bike racks, or even the newer buses in Transit's fleet equipped with roof-mounted air conditioners. It cannot be upgraded to accommodate zero-emission buses.

The design and construction of a replacement for North Garage is one of Winnipeg Transit's highest priority infrastructure projects. It is vital for the replacement to be constructed as soon as possible in order to mitigate the current risks to Winnipeg Transit's operations, to allow for the replacement of 40-foot buses with 60-foot buses, and to allow for the expansion of the zero-emission bus fleet beyond 2027.

The added capacity of a replacement for North Garage is also needed for Transit to be able to consider the adoption of new vehicle types, such as smaller community buses, autonomous shuttles, bi-articulated buses, double-decker buses, and para-transit vehicles.

8.10 PASSENGER INFORMATION SYSTEMS

Since Winnipeg Transit first introduced real-time passenger information displays in 2008, along with real-time bus arrival information on its desktop and mobile web pages, expectations regarding up-to-date information for riders have increased.

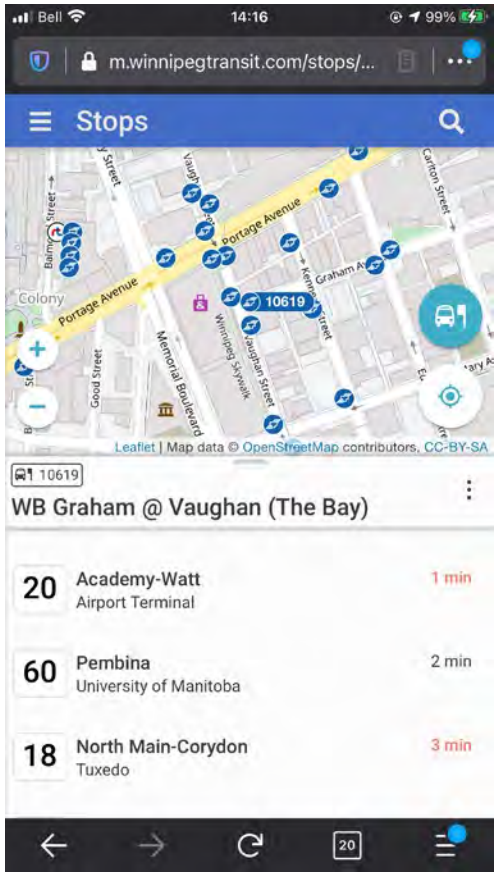
In order to meet these needs in the coming years, Winnipeg Transit's Information Systems Division has outlined a roadmap for improving and innovating how real-time information is provided to passengers.

MOBILE APP

Information about transit service is increasingly being consumed on mobile devices, and apps are the primary means of organizing and consuming this information. A mobile app developed specifically for mobile devices will deliver a better user experience than the current mobile-first website, and will allow riders to more easily find and access the app via the app stores they are accustomed to using.

REAL-TIME BUS LOCATIONS

Upgrades currently underway to install cellular technology on Winnipeg Transit's bus fleet will enable the exact location of each bus to be known more accurately than is currently possible. This information will be used for passenger information, and passengers will be able to see exactly where their bus is, and not only when it is estimated to arrive. This will include not only real-time locations of buses, but also real-time updates in the case of detours and reroutes.



Winnipeg Transit's data is shared with Google Transit and other 3rd-party applications using the industry-standard GTFS (General Transit Feed Specification) format. Since this was implemented, GTFS and Google Transit have been updated to include real-time transit information. Winnipeg Transit will begin to publish data using the GTFS Real-Time standard, enabling real-time transit information in Google Transit and other applications that use the standard.

INTEGRATION OF ON-REQUEST AND WINNIPEG TRANSIT PLUS BOOKINGS WITH CONVENTIONAL TRANSIT SERVICE

Once Winnipeg Transit moves beyond its pilot of On-Request Service, and toward full integration of On-Request Service with Winnipeg Transit Plus and conventional transit under the Family of Services model, passengers will be able to plan and book seamless trips with a single application that makes use of trips on all three types of service.

PASSENGER INFORMATION DISPLAYS

When Stage 2 of the Southwest Transitway opened in April 2020 with service on the new BLUE rapid transit line, stations were outfitted with modern passenger information displays. These high-resolution, high-visibility, versatile displays are flexible enough to allow for future technology developments, such as maps showing the real-time position of buses as they make their way to the station.

As new Rapid Transit Stations and Mobility Hubs are constructed during the roll-out of the Winnipeg Transit Master Plan's service and infrastructure, similar displays will be installed throughout the city. New technologies such as e-ink displays at minor stops will also be explored.

8.11 STAFF RESILIENCY FOR CHANGES

Winnipeg Transit is organized in a way that is compatible with present day operations, however the existing staff complement will not be sufficient for some of the changes proposed in the Winnipeg Transit Master Plan.

The potential staff changes outlined below are meant to provide a high-level overview of anticipated future needs. Actual changes to Winnipeg Transit's staff complement will be brought forward to Council for consideration either as part of the annual budget process in future years, or when individual projects and programs are initiated.

WINNIPEG TRANSIT MASTER PLAN IMPLEMENTATION TEAM

Winnipeg Transit has successfully managed the construction of the Southwest Transitway through the Asset Management Office (AMO) for construction and other Winnipeg Transit divisions such as Service Development and Operations for the planning and implementation of a new southwest route network.

A similar “project team” focused specifically on implementation that borrows full time employees (FTEs) from a diverse range of divisions across Winnipeg Transit would have a mandate to focus on all elements of the WTMP implementation including operational and service updates, and the related nuances, in addition to the capital projects.

STATIONS, MOBILITY HUBS, HEATED SHELTERS, AND ALL-DOOR BOARDING

As Winnipeg Transit constructs new Rapid Transit stations, mobility hubs and heated shelters, additional personnel will be needed to properly maintain these facilities, and to ensure the safety and security of passengers.

When the time comes for Winnipeg Transit to consider the implementation of all-door boarding, sufficient personnel will need to be in place to ensure proper fare payment by passengers.

FLEET MAINTENANCE

Given the industry best practice ratio of one mechanic to six buses, Winnipeg Transit’s maintenance department is sufficiently sized for its current operations, but should seek to ensure the size of the Maintenance Division continues to grow proportional to fleet and service-hour growth. Sufficient personnel and training will also be needed for Zero-Emission Buses and any other new vehicle types employed in Winnipeg Transit's operations in the future.

PASSENGER INFORMATION SYSTEMS

Winnipeg Transit has limited resources for developing and providing customer information in a clear and timely manner. Positions involving graphic design, information systems (IS), communications and marketing, and customer service provide the technologies and the means for the front line of interaction with current and future customers. These should be considered high priority positions for filling vacancies and resourcing sufficiently to avoid breakdowns in communication, and to properly communicate the changes to service that are proposed in the WTMP.

SERVICE DEVELOPMENT

The Service Development Division's current complement of three transit planners, four schedulers, and three analysts is likely insufficient for the implementation of the WTMP service plan, and the design of the infrastructure. Consideration should be given to add additional resources as it relates to a potential WTMP Implementation Team.

MARKETING & COMMUNICATIONS

Employing a new communications and marketing specialist may help foster a culture of being proactive in attracting new Winnipeg Transit customers. Such roles typically have a favourable return on investment in the form of ridership growth for the transit agencies that employ them.

CLIENT SERVICES AND WINNIPEG TRANSIT PLUS

The shift toward a Family of Services model involves the introduction of wide-spread On-Request Service, and better integration of Winnipeg Transit Plus with conventional service. These changes will require additional systems analysts for the technological enhancements, to support the new scheduling system, and integration with conventional service. Additional Client Services Division staff will also be required as a result of the revised eligibility categories and the expanded travel training program.

Also needed will be personnel dedicated to planning, maintaining, and improving accessibility throughout the network, especially as it relates to the physical infrastructure that provides connections between conventional transit and Winnipeg Transit Plus under the Family of Services model.

9.0 NEXT STEPS

The path forward
Getting started on making the vision a reality

The **Winnipeg Transit Master Plan** outlines the vision of what the transit system will become over **the next 25 years**, and what is needed to make it happen. A significant amount of work will be required to implement this vision, and upon approval of the Winnipeg Transit Master Plan by Council, Winnipeg Transit intends to begin immediately working toward implementation in several separate areas:

CREATING THE NEW TRANSIT NETWORK

A detailed implementation plan will be developed to begin the transition of the route network in 2-5 years, including the creation of the Frequent Network and the Feeder Network.

Work will also begin to plan for internal changes required as a result of the new transit network that cross multiple divisions within Winnipeg Transit, such as changes to operations, policies, the bus fleet and other infrastructure.

MAKING CHANGES TO WINNIPEG TRANSIT PLUS

An implementation plan will be developed to outline the steps to achieve the short and long-term goals of technological enhancements, process/policy revisions, and internal operational changes to restructure Winnipeg Transit Plus service delivery.

Continued work with internal and external stakeholders lay the foundation required to successfully align Winnipeg Transit Plus with the conventional service as we move towards a Family of Services model.

BUILDING THE INFRASTRUCTURE NEEDED FOR THE PRIMARY NETWORK AND RAPID TRANSIT

Upon approval of the Winnipeg Transit Master Plan and ICIP Plan by Council, Winnipeg Transit intends to submit an application for funding under the Investing in Canada Infrastructure Program - Public Transit Infrastructure Stream (ICIP-PTIS). The list of Winnipeg Transit's highest-priority projects originated either as part of the WTMP, or as priorities identified by Winnipeg Transit through the City's established asset management process. All projects were evaluated to determine their relative priority:

PRIORITY	PROJECT	COST ($M)
1	Bus Radio and Intelligent Transportation Systems (ITS) Replacement	$17.279
2	North Garage Replacement	$200.066
3	Transition to Zero-Emission Bus Program	$280.391
4	Rapid Transit (Downtown Corridors) Preliminary Design	$7.000
5	Primary Transit Network Infrastructure	$20.400
6	Wheelchair Securements Retrofit	$13.750
TOTAL		$538.886

All projects funded under ICIP-PTIS must be completed by 2027, so work on these projects would need to begin immediately after funding is approved.

OTHER CHANGES

Winnipeg Transit will begin work on the implementation of the policy and operational changes outlined in the Winnipeg Transit Master Plan, and will report to Council or the appropriate committees of Council as needed.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