

Getting Around to Age in Place

Meeting Older Canadians' Mobility Needs via Public Transportation

Progress Report 2022–2024



BUS
VÉHICULES
AUTORISÉS
SEULEMENT

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Rosemont

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UN BUS = 50 AUTOS
DE MOINS SUR LA ROUTE

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UN BUS = 50 AUTOS
DE MOINS SUR LA ROUTE

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All photos and maps used in this report have been sourced from the Transportation Research at McGill (TRAM) lab.

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Territorial Acknowledgment

We would like to acknowledge that McGill University is located on unceded Indigenous lands. Tiohtià:ke/Montréal has long served as a site of meeting and exchange amongst Indigenous peoples, including the Kanien'kehaì:ka of the Haudenosaunee Confederacy, Huron/Wendat, Abenaki, and Anishinaabeg, among others. TRAM recognizes and respects these nations as the traditional stewards of the lands and waters. We respect the continued relationship these diverse Indigenous peoples have with the territory upon which we now gather.

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Summary

Older adults represent a rapidly growing age group in Canada and worldwide and many rely on private vehicles as their main mode of transportation for their daily travel. Despite the risk of having to give up driving as they age, the impact of driving cessation on older adults' well-being and ability to get around is still poorly understood. The Aging in Place project adopts an age-friendly approach that centers older adults' perceptions of their travel patterns and how daily mobility affects their lives. This report presents the first two parts of the multiyear Getting Around to Age in Place project conducted by the Transportation Research at McGill (TRAM) research lab and funded by the National Research Council Canada (NRC). Based on the first and second waves of the Aging in Place survey (N = 3,551 and N = 1,966), this report begins with a brief overview of the current literature on older adults' mobility and follows with the methods used in this research and the trends identified in the survey data.

Key Findings

- The six studied regions, **Toronto, Montréal, Vancouver, Halifax, Victoria** and **Saskatoon**, are selected for their variety in geography, population, and public transit provision. Census tracts which combine lower levels of public transit accessibility and higher populations of older adults are selected to focus part of the data collection.
- A majority of older Canadians believe that daily travel contributes positively to their **quality of life**, and continuing to travel **independently** is very important to them.
- A majority of respondents believe the public transit in their region allows them to satisfy their **daily needs**, and are more satisfied in the three larger cities.
- Across all six regions, respondents commonly consider **30 minutes** as the most reasonable public-transit travel time.
- Public-transit users tend to mostly use the **bus** and **rapid transit** (metro/subway/SkyTrain), and use public transit to reach recreation or leisure activities, medical appointments, and to visit friends and family.
- Those living in **more walkable areas** believe they will be more likely to maintain their quality of life after stopping to drive.
- Older Montrealers have not significantly changed their public transit use since the **free transit fare** has been implemented.

Sommaire

Les personnes âgées, un groupe démographique en croissance au Canada et dans le monde, comptent souvent sur les véhicules privés pour leurs déplacements quotidiens. Malgré le risque de devoir arrêter de conduire en vieillissant, l'impact de cette cessation sur le bien-être et les déplacements des personnes âgées est encore mal compris. Le projet Vieillir chez soi adopte une approche centrée sur les perceptions des personnes âgées de leurs habitudes de déplacement et de la façon dont la mobilité affecte leur vie. Ce rapport présente les premières étapes du projet Vieillir chez soi mené par le laboratoire de recherche Transportation Research at McGill (TRAM) et financé par le Conseil national de recherches Canada (CNRC). Basé sur les deux premières vagues de l'enquête (N = 3551 et N = 1996), le rapport suivant présente un bref aperçu de la littérature actuelle sur la mobilité des personnes âgées et suit avec les méthodes employées dans cette recherche ainsi que les tendances qui ressortent des données des sondages.

Principaux Résultats

- Les six régions à l'étude, **Toronto, Montréal, Vancouver, Halifax, Victoria et Saskatoon**, ont été choisies pour leur diversité géographique, démographique et en matière de transport en commun. Dans chacune des six villes, des secteurs de recensement caractérisés par une pauvre accessibilité par transport en commun et des populations plus élevées de personnes âgées ont été sélectionnés pour focaliser une partie de la collecte des données.
- Une majorité de Canadiens âgés croient que leurs déplacements quotidiens contribuent positivement à leur **qualité de vie** et que le transport en commun dans leur région leur permet de répondre à leurs **besoins quotidiens**. Il est aussi très important pour eux de continuer à se déplacer de façon **autonome**.
- Dans les six régions, la plupart des répondants ont indiqué que **30 minutes** est un temps de déplacement en transport en commun raisonnable.
- Les usagers du transport en commun utilisent principalement l'**autobus** et le **métro** (métro/subway/SkyTrain) et utilisent le transport en commun pour se rendre à des activités récréatives ou de loisirs, à des rendez-vous médicaux et pour rendre visite aux amis et à la famille.
- Ceux qui habitent dans **les quartiers les plus propices à la marche** ont plus tendance à croire qu'ils maintiendront leur qualité de vie lorsqu'ils arrêteront de conduire.
- Les Montréalais âgés n'ont pas changé leur utilisation du transport en commun depuis que le **tarif gratuit** a été mis en place.

1 Introduction

One in six people around the world will be 60 years or older by 2030 (World Health Organization, 2021). Aging is associated with an increased susceptibility to a series of chronic diseases, frailty, and disability which can affect the ability to conduct daily life activities (National Institute on Ageing, 2020). Moreover, older adults present different travel behaviours when compared to other segments of the population as they tend to make fewer (Spinney et al., 2009) and shorter trips (Wasfi & Levinson, 2007). Thus, this demographic shift will require changes in land use and transport planning approaches to support the travel needs of the aging population.

In Canada, older adults rely mostly on private vehicles as their main mean of transport (Newbold et al., 2005). Nonetheless, as they age, many have to regulate their driving or even stop it altogether (Musselwhite & Shergold, 2013). The lack of other adequate transport options

limits older adults' access to important daily activities, such as healthcare and socialization (Choi & DiNitto, 2016; Kandasamy et al., 2018; Mezuk & Rebok, 2008). Thus, leaving older adults with many unmet travel needs, especially leisure trips such as visiting family and friends (Luiu et al., 2017).

Driving cessation is associated with several adverse outcomes, such as decreased participation in activities, poor mental health outcomes, and overall quality of life (Musselwhite & Shergold, 2013; Qin et al., 2020). Moreover, it is common among those who do not drive to become dependent on family and friends for their transport needs (Choi & DiNitto, 2016; Jones et al., 2018). Consequently, even though cars are the most common travel mode among older adults (Wasfi & Levinson, 2007), aiming to support healthy aging that focuses on car travel may be counterproductive (Musselwhite & Shergold, 2013).



Public transport can be a great alternative to the automobile for two reasons. An efficient public-transit network is low-cost and environmentally friendly, thus, benefiting multiple populations, including older adults. Moreover, it can help provide independent mobility as people age as well as promoting well-being through maintaining a sense of freedom and autonomy (Latham-Mintus et al., 2022). However, despite its potential, research on older adults' public-transport use is still limited, especially in the Canadian context (see Ravensbergen et al., 2022). Understanding older adults' mobility needs is critical in helping them remain in their current homes for longer.

Beyond the importance of public transport for older adults, urban planners have promoted integrating transport with land use planning to achieve more sustainable and equitable urban futures. One good urban performance measure to promote integrating transport with land use is known as accessibility, broadly understood as the ease of reaching opportunities, which is relevant in this study. Even though empirical studies deriving insights based on accessibility to guide transport planning processes across North America have grown, there is little work on applying this concept to older adults – a rapidly growing population group in Canada (Statistics Canada, 2023). Little work studies the needs and barriers older adults face when reaching the services and destinations they need across urbanized areas in Canada.

This project addresses how well public-transit services across Canada support the needs of older adults, including aging in place. The research aims to achieve four objectives:

- Generate new and refined evidence-based transport accessibility measures focused on older adults' needs.
- Provide a more nuanced understanding of how older adults subjectively experience accessibility and its role in meeting their needs and improving well-being.
- Quantify the relationship between accessibility and social outcomes for older

adults.

- Facilitate the broader adoption of tested transport accessibility measures to plan public-transport services that serve the needs of older adults.

To explore different contexts and levels of transit service across Canada, the funding agency, National Research Council Canada (NRC), alongside key stakeholders, selected six Census Metropolitan areas (CMA) to collect primary and secondary data: Toronto, Montréal, Vancouver, Halifax, Victoria, and Saskatoon.

Contextualizing the study and giving insight into how older adults' daily travel is currently understood, a literature review revealed a lack of consistent research, especially in the Canadian context. In each studied city, priority areas which combined higher concentrations of older adults and poor public-transport accessibility were selected to disseminate a survey, which focused on older adults' perceptions of their daily travel and of the public transport in their area, and how much transport contributes to their well-being. Said survey was administered to Canadians 65 and older in the six selected CMAs, and 3,551 complete and valid responses were collected. A second wave was administered in fall 2023 to examine the impact of seasonality and to evaluate the impact of Montréal's free fare for older adults, counting 1,966 responses.

This report focuses on the findings of the literature review conducted by Ravensbergen et al. (2021), the methodology used to select the priority areas and to collect and validate the survey responses. The sections which follow cover the findings from the survey concerning sample characteristics, daily travel perceptions and public-transport use. The report also explores the relationship between walkability and quality of life, the impact of seasonality on perceptions of transit, the impact of Montréal's free transit fare program, and the links between gender, disability and mobility. We conclude by outlining the next steps, including conducting in-depth interviews.



2 Literature Review



The first step of this research project, which was done in the Fall of 2021, was conducting a systematic literature review to identify methodological and conceptual gaps in the current literature.

To begin, titles, abstracts and keywords were searched in various online databases for synonyms of “older adults” and “accessibility”. In this case, the relevant definition of accessibility, meaning the ease with which public-transit systems allow people to get to destinations, was used. After filtering, 18 studies were retained, most from 2019 or more recent, in western urban and rural contexts.

The studies identified many inequalities in accessibility among older populations. Overall, older adults were found to have lower levels of accessibility compared to other population segments, and have higher accessibility by car compared to levels by public transit. Levels of accessibility were also found to decrease over time, as people age, and decreased during the COVID-19 pandemic.

When comparing the studies, huge variations were also found among how older adults were defined, what destinations were considered in the accessibility calculations, what public-transit modes were considered and how accessibility itself was calculated.

It was therefore concluded that subsequent research should study destinations and travel time thresholds defined by older adults, should make sure age cut-offs be segmented into different categories, as travel for a 65 year old, for example, can be quite different to that of an 85 or 90 year old, that the public-transit modes that are included in the accessibility calculations be region-dependent, and throughout the entire research process, one should critically reflect on potential sources of ageism, stemming both from the research processes and inherent to the study settings.

For a more complete overview of the literature review, we suggest consulting the [full paper](#) published in the Journal of Transport Geography (Ravensbergen et al., 2022).



3 Methods



3.1 Region Selection

Initially, ten Canadian CMAAs were selected as potential study areas, as represented in Figure 3.1. The final selection process involved studying each regions' demographics such as the presence of indigenous populations, relevant policies, and growth of older population. Moreover, it was important that the selected areas have relevant publicly available data as well as reflect interesting regional differences. After this rigorous process, which included review by the program advisory committee and consulting with key stakeholders, the final six regions were selected, as represented in Figure 3.1. The final selected regions are, in order of population size, Toronto, Montréal, Vancouver, Halifax, Victoria and Saskatoon.

3.2 Accessibility by Public Transit

In order to select areas to distribute the survey and collect responses from older Canadians, accessibility by public transit (PT) for each region was calculated. It was measured at the census tract-level for each of the six regions for

a 30-minute travel time and a typical weekday transit schedule at 10AM, as most older adults tend to travel outside of peak hours. It is important to note that a census tract is the geographical subdivision used to disseminate the Canadian Census.

To complement these accessibility considerations, an effort was made to identify areas where there is a higher population of older Canadians. Using census data, we calculated the proportion, number, and density of older adults residing in each census tract in the six selected regions. It was determined that combining these three measures into one index resulted in the best representation of the older adult population for this research.

To select the targeted areas, the census tracts which were in the bottom fiftieth percentile of public-transit accessibility and top fiftieth percentile of the older adult index of each respective region were retained, and are represented in Figure 3.2. For more details on the method presented, we invite to refer to the [full paper](#) in the Journal of Applied Geography.

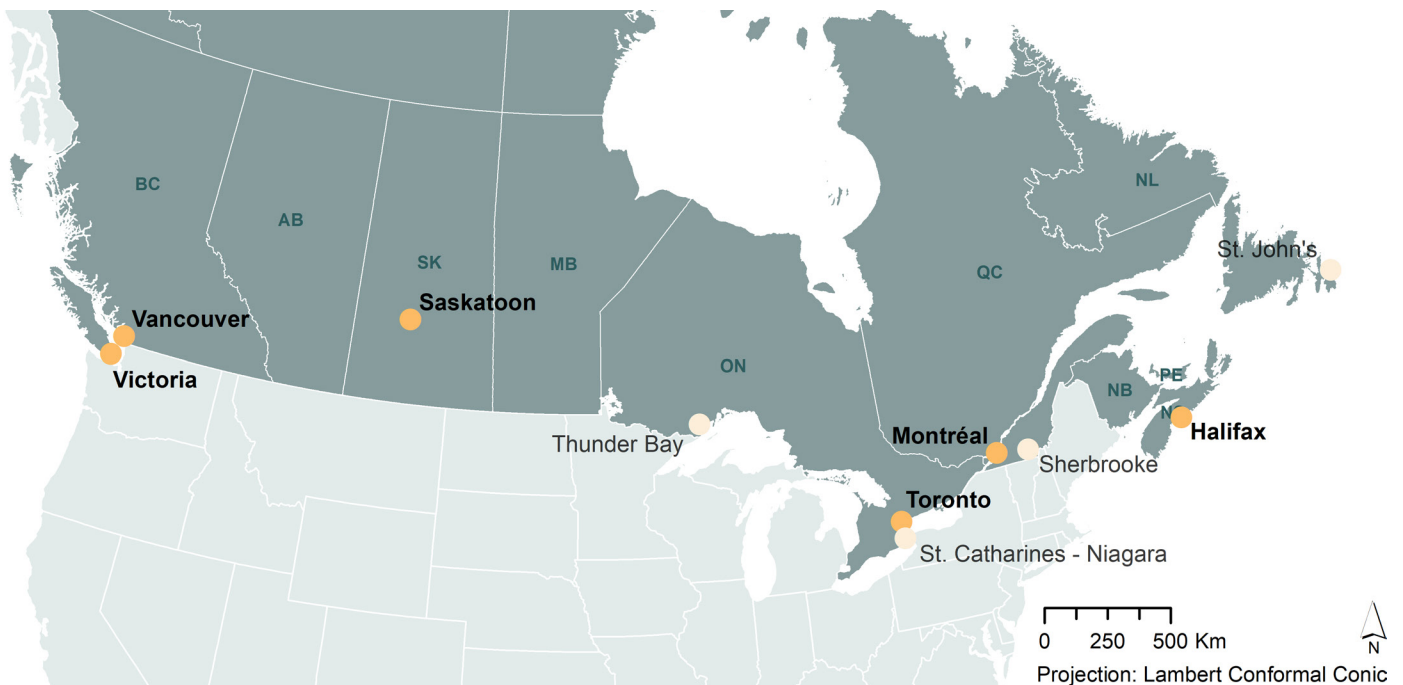


Figure 3.1 Initial and final region selection (final regions in bold)

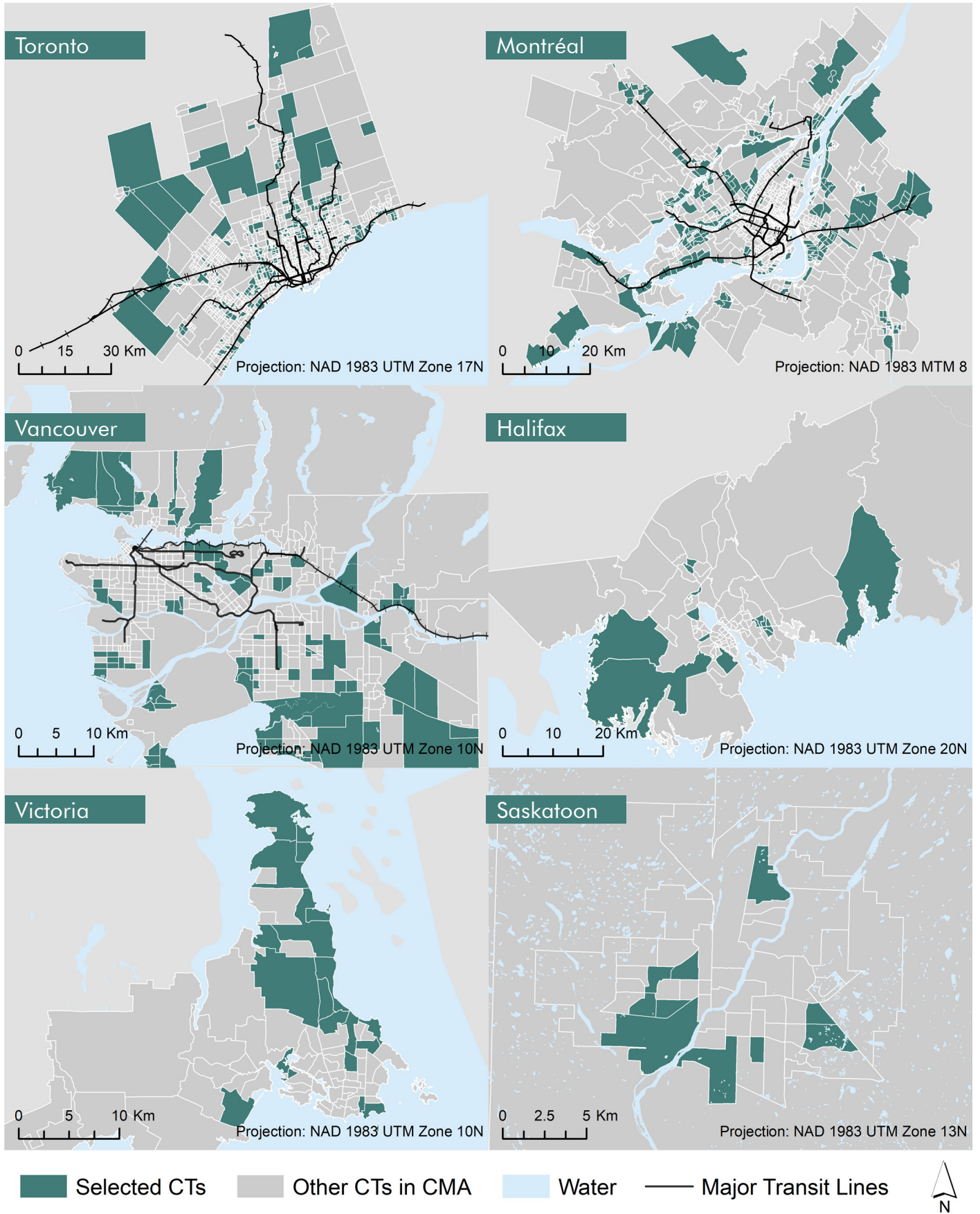


Figure 3.2 Selected census tracts with high populations of older adults and low PT accessibility
 Data Sources: Statistics Canada, TTC, Metrolinx, ARTM, STM, Translink, and Survey Data

3.3 Survey Design and Recruitment

The survey was designed and fine-tuned over the course of the summer and fall of 2022. This process involved the TRAM team, NRC project managers, the project advisory committee members, and the appointed Experts by Experience who provided invaluable recommendations on question wording, survey structure, and incentive choice. The main focus of the survey was to collect first-hand accounts of older Canadians' public-transit use and experience, or lack thereof, and better grasp the impact of their daily travel on their well-being. It was estimated the survey would take respondents 20 to 25 minutes to complete. The full survey can be found [here](#).

The survey was launched in early February 2023 among older Montrealers who had participated across the six selected regions and the recruitment period lasted till mid-March 2023. The second wave of the survey was launched in mid-september 2023 among first wave respondents who indicated being willing to participate further in the study.

As recommended by Dillman et al. (2014), we used various recruitment techniques to ensure the representativeness of the collected sample. The online survey was circulated in French and English, using the following two URLs respectively: mobiliteagee.ca and agingmobility.ca.

For the first wave, both in-person and online recruitment methods were employed. In-person methods included distributing around 6,000 flyers advertising the survey (Figure 3.3) to various willing community centres and older-adult residences in the six CMAs. In early March, the remaining flyers were sent out on Canada Post routes that passed through priority areas previously identified (i.e., low transit accessibility and higher populations of older adults) and on routes that passed by many older-adult residences in Victoria, Halifax and

Saskatoon with hopes to increase the sample size from these three regions. The number of flyers that were distributed in each region is summarized in Table 3.1. Online methods included a paid advertisement campaign on Facebook which targeted all Facebook users over 65 years old located in the six studied regions. Initially, the campaign targeted residents living in the previously identified areas of interest (i.e., low transit accessibility and higher populations of older adults) but was soon expanded to the entire CMA to increase the collected sample size. Additionally, Leger, a Canadian firm specializing in public opinion and surveys, was hired to recruit respondents

Table 3.1 Number of physical copies of the flyer distributed in each CMA

	Community Centre distribution	Canada Post route distribution
Toronto	90	
Montréal	1,007	
Vancouver	75	
Halifax	270	2,017
Victoria	442	1,295
Saskatoon	40	756
Total	1,924	4,068

from their proprietary pool of potential survey takers. Leger's recruitment campaign was done in parallel to the Facebook advertisement campaign. Leger participants answered the same survey as the Facebook respondents, with a few exceptions (i.e., no personal email).

To increase awareness and the number of respondents in all six regions, an informational brief with the initial findings was prepared and sent out to various French and English media outlets in February 2023. This resulted in several newspaper and radio interviews with TRAM members both at the local (Montréal) and national level.



Figure 3.3 Flyer advertising the survey (English version)

Finally, as recommended by Dillman et al. (2014), incentives were used to encourage survey participation for both waves. The following prizes would be distributed to survey respondents based on a draw:

- iPad Air and iPad
- Fitbit watch
- Amazon Kindle Fire HD10
- Amazon Fire TV sticks 4K
- Amazon Kindle Paperwhites
- Wireless headphones
- Portable speakers
- \$100 The Bay gift cards
- \$25 Amazon gift cards

3.4 Data Cleaning

After data collection, a thorough data-cleaning procedure was applied to both the Facebook and Leger raw databases, both for the first and second wave of the survey.

The data-cleaning process consists of filtering the survey responses according to specific criteria to ensure the validity of the responses and is subdivided into several sequential steps. The total number of valid responses remains the same or is reduced after each step is applied. Some steps derive from abnormalities in the survey-taking and others from specific questions in the survey. The following outlines each step of the cleaning process, which were applied sequentially in the order presented here:

1. Incomplete answers: All surveys that were not answered to completion were dropped.
2. Age below 65: All survey respondents who indicated they were not 65 years old or older, which was a yes or no question included at the beginning of the survey, were dropped.
3. Multiple IP addresses: For Facebook responses, if more than two surveys were

submitted from the same IP address, all observations from this address were dropped, as it was assumed at most two people in the same household (i.e., same IP address) could have completed the survey. For Leger, if more than one survey was submitted from the same IP address, all observations from this address were dropped.

4. Multiple email addresses: If the same email was submitted for more than one survey, all observations from this address were dropped. This step only applies to Facebook respondents, as Leger respondents do not provide their email.
5. Age above 95: All survey respondents who indicated they were 95 years old or older were dropped.
6. Invalid home locations: If the respondent's home location was either not provided, outside of the respective CMA, or located in an invalid location (e.g., on water or on a bridge), the observation was dropped.
7. Invalid public-transit destination: If the public-transit destination location was outside of the respective CMA, or in an invalid location (e.g., on water or on a bridge), the observation was dropped.

This step applies to those respondents who indicated having made a public-transport trip in the last two weeks, as they had additional related questions to answer.

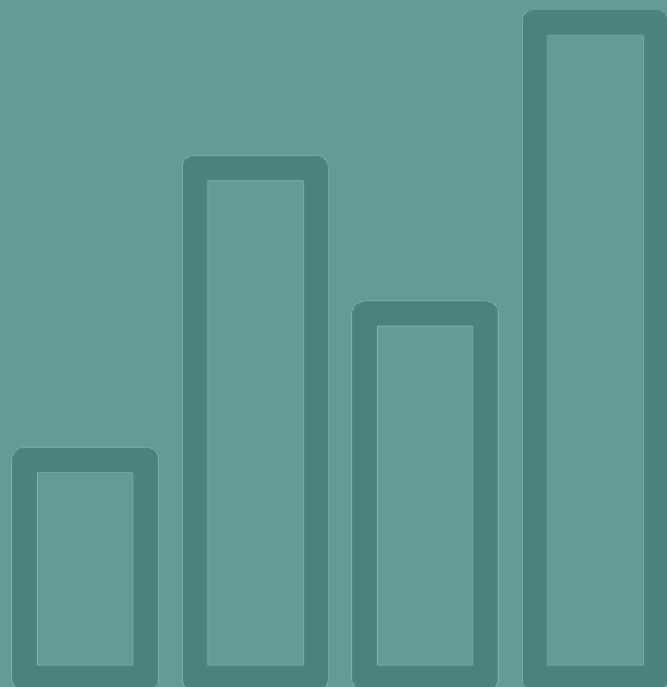
8. Invalid non-public transit destination: If the non-public transit destination location was in an invalid location (e.g., on water or on a bridge) or unrealistically far from the respondent's home location, the observation was dropped. This step applies to those respondents who indicated having made a trip in the last two weeks using any mode but public transit.
9. Surveys in the top 2.5% of speed of completion were dropped. It is important to note that survey respondents were classified into specific speed groups according to the type and number of questions they were given, and the speed validation reflected this grouping.

Table 3.2 summarizes the cleaning process for wave 1 and indicates how many responses were dropped with each sequential step. The same cleaning process was followed for wave 2, resulting in a final sample size of 1,966.

Table 3.2 Number of dropped and validated observations in Wave 1 by filtering step

	Step	Dropped	Remaining
0	Raw database		5,964
1	Complete answers	1,757	4,207
2	Age above 65	93	4,114
3	Multiple IP addresses	90	4,024
4	Multiple email addresses	16	4,008
5	Age below 95	3	4,005
6	Invalid home location	202	3,803
7	Invalid public transit destination	114	3,689
8	Invalid non-public transit destination	44	3,645
9	Answer speed	94	3,551
Final wave 1 cleaned database		3,551	

4 Project Results



4.1 Sample Characteristics

To gauge how representative the survey respondents are of the older population of the entire respective CMA, characteristics from our two samples were compared with data from the 2021 census. As can be observed in Tables 4.1

and 4.2, the number of survey respondents in each region followed the order of population for the CMAs, except in Montréal, which had more respondents than Toronto, and Victoria, which had more respondents than Halifax. Across the six regions, women tend to be well represented in the sample of respondents compared to the

Table 4.1 Demographic characteristics for Toronto, Montréal, and Vancouver compared with the older populations in the CMA censuses

		Toronto		Montréal		Vancouver	
		Survey	CMA	Survey	CMA	Survey	CMA
Total N		936 100.0%	1,002,580 16.2%*	1,435 100.0%	772,425 18.0%*	642 100.0%	460,770 17.4%*
Gender	Man	436 46.6%	449,080 44.8%	641 44.7%	341,114 44.2%	245 38.2%	211,080 45.8%
	Woman	489 52.2%	553,575 55.2%	787 54.8%	431,330 55.8%	383 59.7%	249,740 54.2%
	Other	11 1.2%	-	7 0.5%	-	14 2.2%	-
Age	65 to 74	639 68.3%	567,470 56.6%	1,065 74.2%	424,845 55.0%	437 68.1%	265,640 57.7%
	75 to 84	267 28.5%	301,885 30.1%	353 24.6%	243,745 31.6%	177 27.6%	136,030 29.5%
	85+	30 3.2%	133,145 13.3%	17 1.2%	103,875 13.4%	28 4.4%	59,115 12.8%
Household Income (CAD)	< 30k	107 11.4%	-	258 18.0%	-	95 14.8%	-
	30k - 60k	199 21.3%	-	358 26.8%	-	157 24.5%	-
	60k - 90k	178 19.0%	-	277 19.3%	-	114 17.8%	-
	90k - 150k	200 21.4%	-	212 14.8%	-	94 14.6%	-
	> 150k	99 10.6%	-	63 4.4%	-	53 16.7%	-
Work Status	Employed	187 20.0%	-	219 15.3%	-	125 19.5%	-
	Not in WkF/ Retired	749 80.0%	-	1216 84.7%	-	517 80.5%	-

* Represents the proportion of the older population (65+) of the total CMA population (2021 census)

respective CMA. Respondents also tend to be younger, mostly aged 65 to 74, compared to the CMAs. The sample is well distributed across incomes in all regions, with a small proportion of very high earners. Across all the regions surveyed, at least 80% of respondents were retired/not working.

Survey respondents' home locations are well distributed across residential areas in all six CMAs, as can be observed in Figure 4.1. In general, respondents are mostly concentrated near the CMA downtown areas and those further from downtown live near major transit or highways.

Table 4.2 Demographic characteristics for Victoria, Halifax, and Saskatoon compared with the older population in the CMA censuses

		Halifax		Victoria		Saskatoon	
		Survey	CMA	Survey	CMA	Survey	CMA
Total N		165 100.0%	80,845 17.4%*	294 100.0%	92,930 23.4%*	79 100.0%	46,970 14.8%*
Gender	Man	71 43.0%	36,305 44.9%	123 41.8%	41,790 45.0%	29 36.7%	20,770 44.2%
	Woman	91 55.2%	44,560 55.1%	167 56.8%	51,175 55.1%	50 63.3%	26,245 55.9%
	Other	3 1.8%	-	4 1.4%	-	0 0.0%	-
Age	65 to 74	113 68.5%	48,935 60.5%	138 62.2%	52,700 56.7%	59 74.7%	27,205 57.9%
	75 to 84	45 27.3%	23,685 29.3%	101 34.4%	27,745 29.9%	20 25.3%	12,935 27.5%
	85+	7 4.2%	8,245 10.2%	10 3.4%	12,450 13.4%	0 4.4%	6,920 14.7%
Household Income (CAD)	< 30k	19 11.5%	-	47 16.0%	-	14 17.7%	-
	30k - 60k	51 30.9%	-	78 26.5%	-	17 21.5%	-
	60k - 90k	36 21.8%	-	53 18.0%	-	12 15.2%	-
	90k - 150k	21 12.7%	-	57 19.4%	-	14 17.7%	-
	> 150k	5 3.0%	-	18 6.1%	-	2 2.5%	-
Work Status	Employed	24 14.6%	-	53 18.0%	-	13 16.5%	-
	Not in WkF/ Retired	141 85.4%	-	241 82.0%	-	66 83.5%	-

* Represents the proportion of the older population (65+) of the total CMA population (2021 census)

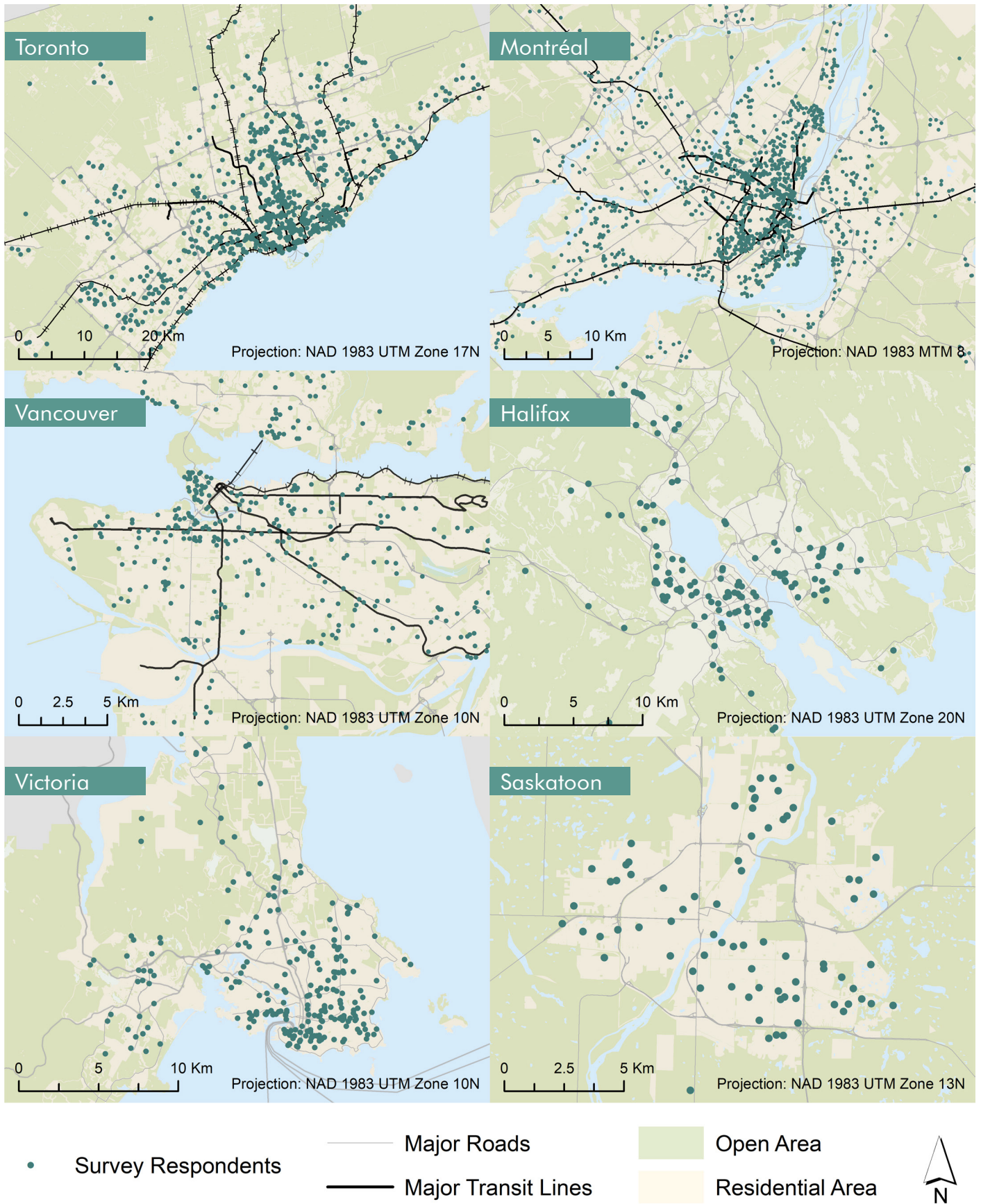


Figure 4.1 Respondents' home locations (some respondents not shown due to scale)
 Data Sources: Statistics Canada, TTC, Metrolinx, ARTM, STM, TransLink, and Survey Data

4.2 General Travel Perceptions

One of the survey’s main objectives was to collect data on the daily travel perceptions and experiences of older adults across Canada. Figure 4.2 illustrates the agreement of respondents with two statements that were measured on a 3-point Likert-scale from agree

to disagree. In the figure, it stands out that over 70% of older adults across all regions believe that daily travel positively impacts their quality of life. To an even greater extent, respondents agree that they wish to continue travelling independently as they age, reinforcing the need to provide transport options that aid older adults to keep traveling independently.

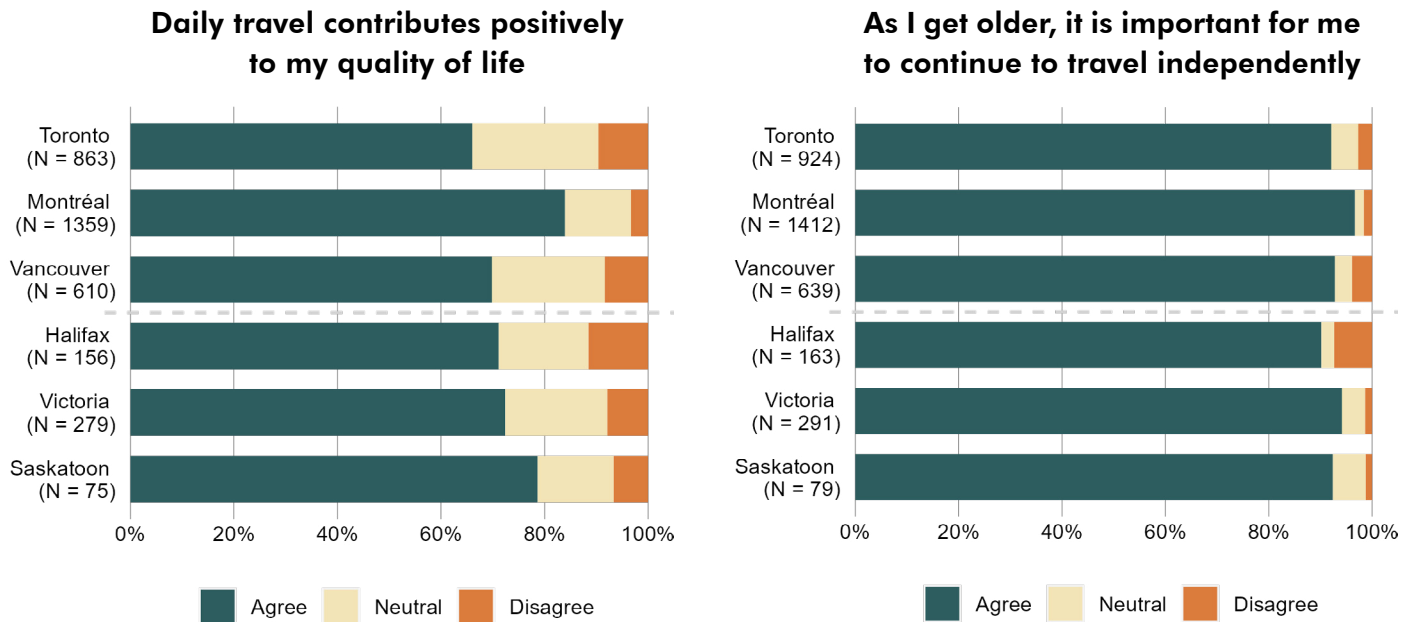


Figure 4.2 General travel perceptions of respondents by region



4.3 Public Transit Perceptions

Public transit meeting older adults' needs

As one of the main goals of this research is to understand how well current public-transit services across the country serve older adults, all respondents were asked if the public-transit services in their region meet their daily travel needs. Figure 4.3 shows that most of the respondents across all CMAs feel that the public transit in their region meets their needs. However, respondents living in more populous CMAs were more likely to be satisfied with the transit in their region than those living in the smaller CMAs. Indeed, Toronto residents were the most in agreement with the statement, followed closely by Montréal and Vancouver residents. In the smaller CMAs, Halifax and Victoria respondents had similar levels of agreement with the statement.

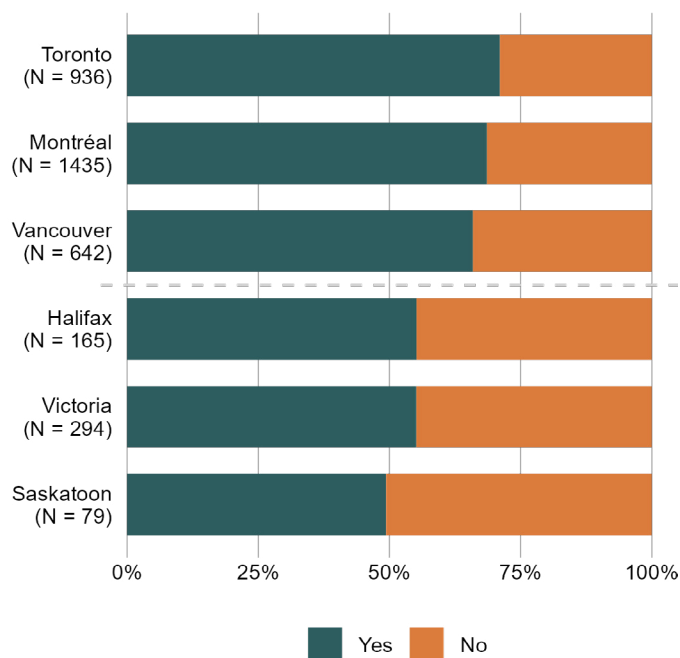


Figure 4.3 Older adults' perceptions of whether or not public transit meets their needs

Moreover, respondents who have used public transit in the past year were more likely to be satisfied with the transit services in their area than respondents who did not. This makes

sense as those who are satisfied with their public-transit services believe that their desired destinations are accessible by public transit and therefore use the mode to reach them. Thus, the higher levels of satisfaction observed in the larger CMAs are also probably in part due to higher public-transit use. When considering the relative extensiveness of the network in these cities, it is probable that they allow older people to reach their destinations more easily than in the smaller CMAs.

Reasonable travel time

When planning public transit for older Canadians, it is important to consider service characteristics that suit their daily travel needs rather than use generalized performance measures. Survey respondents were asked what they consider to be a reasonable time to reach their desired destinations by public transit. Figure 4.4 shows that 30 minutes stands out as the most frequently chosen reasonable travel time, with around 30% of respondents selecting it in each region. In Saskatoon, 20 minutes was chosen at the same frequency as 30 minutes. It is interesting to note that in the three bigger regions, the distribution is spread around the 30-minute mark, whereas for the smaller cities, the desired travel times tend to be lower, i.e., 30 minutes or less. The results suggest that what is considered a reasonable public-transport travel time does not depend on the size of the CMA or how extensive the public transport network is. Service in all six regions should be planned and optimized to ensure more older travelers can reach their destinations in 30 minutes. This can be achieved by improving the public transit service in the CMAs, especially around where older people reside. This could mean increasing service frequency, and especially at times when older adults travel, which is usually during the day, outside of commute peak hours. Increasing the number and variety of destinations available to older adults by public transit could also reduce their travel time as well as increase their satisfaction with their public-transit service.

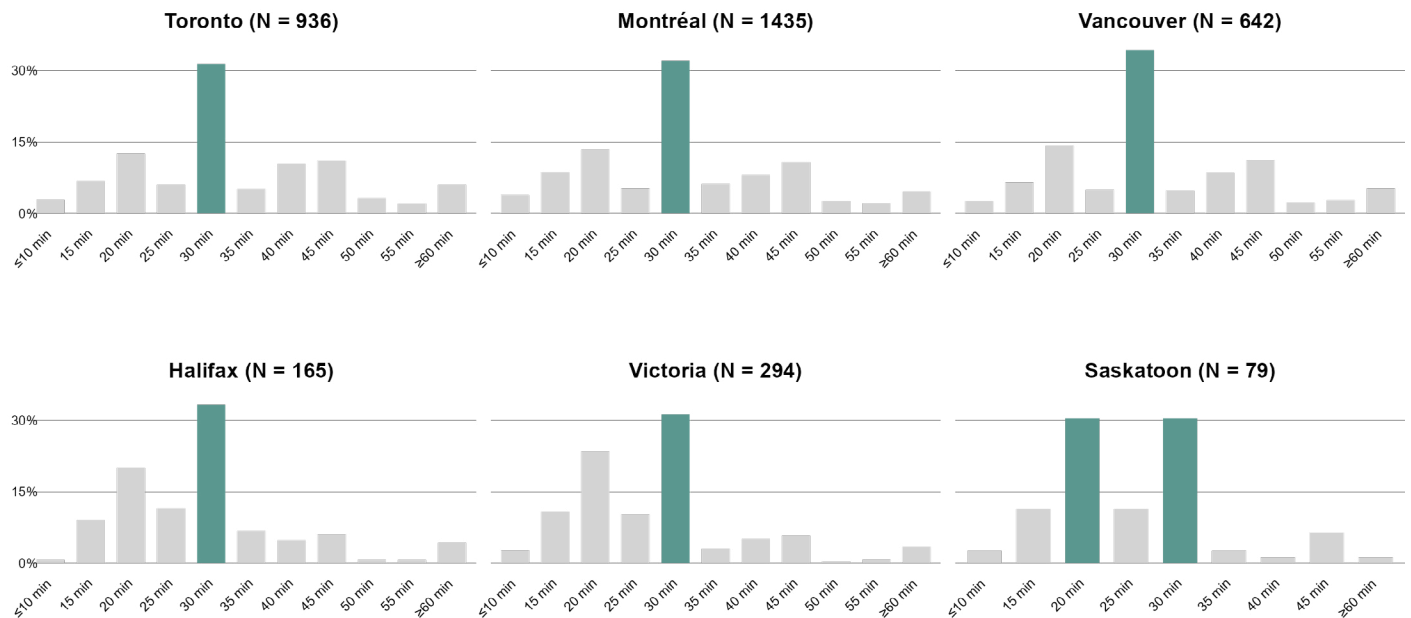


Figure 4.4 Reasonable public-transit travel times by region

Access to destinations

Figures 4.5, 4.6, and 4.7 show 30-minute public-transit accessibility for each region. The darkest areas in the maps have the highest levels of accessibility. As explained in Section 3.2 above, to calculate the cumulative opportunity accessibility measures and map the relative levels in each region, we used jobs as a proxy for the number of destinations that can be reached within a certain time threshold from someone's home using the CMA's public-transit network. We chose 30 minutes as the threshold for public-transit accessibility based on the results presented in Figure 4.4 above.

As can be expected, public-transit accessibility is higher in the downtown core, where the number of activities tends to be the highest, and decreases as distance from the centre increases in all six regions. In Toronto, Montréal, and Vancouver, accessibility is also high along major rail transit lines. This is particularly evident in Montréal around the metro lines, as can be observed in Figure 4.5. Since the accessibility calculations are done at the census tract (CT) level, the high levels of public-transit accessibility observed in Saskatoon's outskirts are most likely

due to the area and number of jobs in the CTs themselves rather than ease of access to jobs in other CTs, given the lack of public-transit service in those areas.

Respondents were asked whether they could comfortably take public transit to reach their desired destinations in their region. Responses were recorded on a 5-point Likert scale from strongly agree to strongly disagree. The yellow points in the figures represent the home locations of the respondents who said they strongly agreed, agreed, or were neutral. The red points represent the home locations of the respondents who disagreed or strongly disagreed with the statement. Overall, there is a correlation between the level of accessibility of a respondent's home CT and their likelihood of indicating that they can comfortably reach their desired destinations using public transit, although there are some exceptions. Indeed, in the three larger CMAs, with their more developed and established public-transit networks, most respondents agreed with the statement. This could explain why there are a significant number of respondents who agree, though they live in areas with lower levels of accessibility, as observed in Figures 4.5 and 4.6.

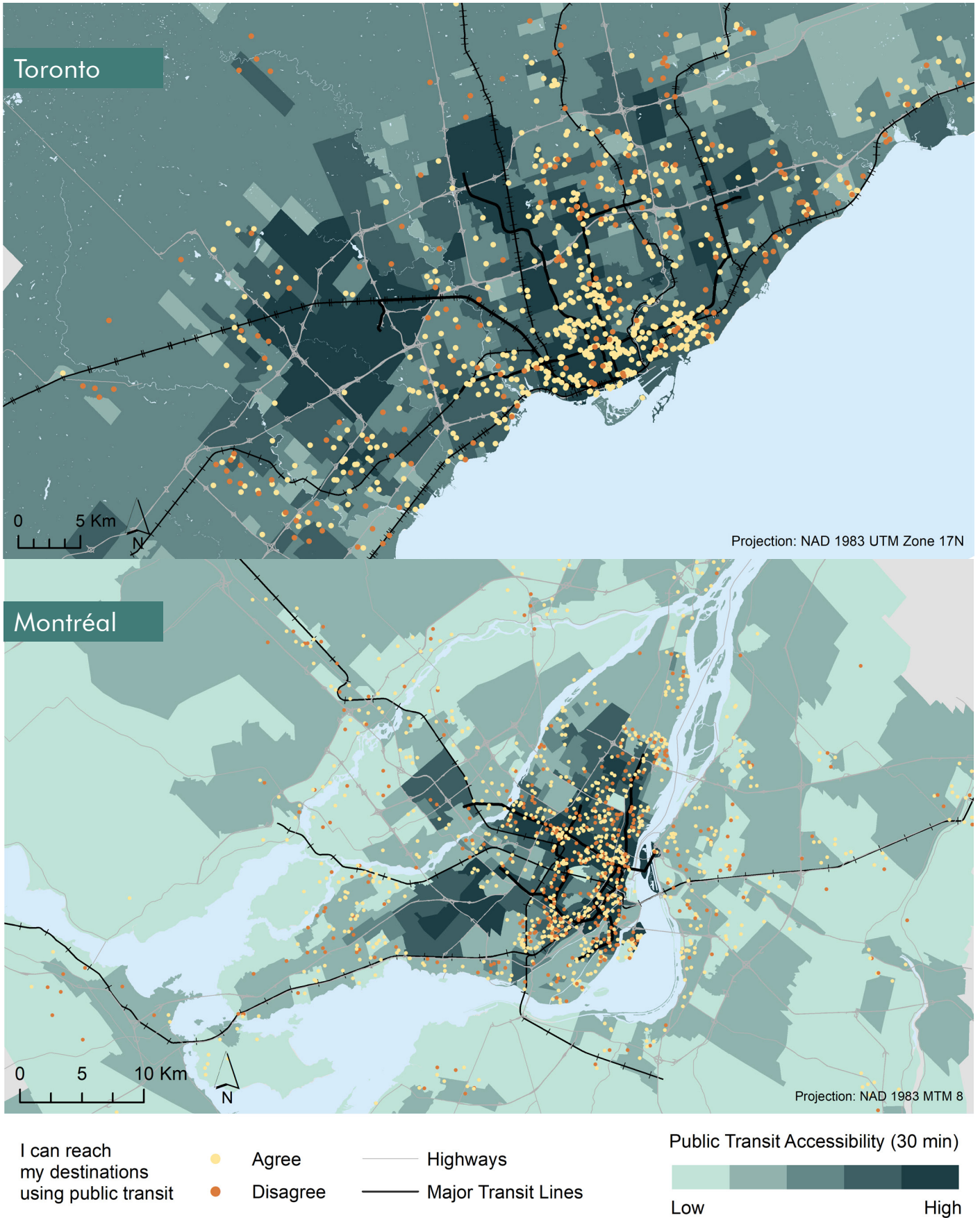


Figure 4.5 30-minute public-transit accessibility for Toronto (above) and Montréal (below)
 Data Sources: Statistics Canada, TTC, Metrolinx, ARTM, STM, and Survey Data

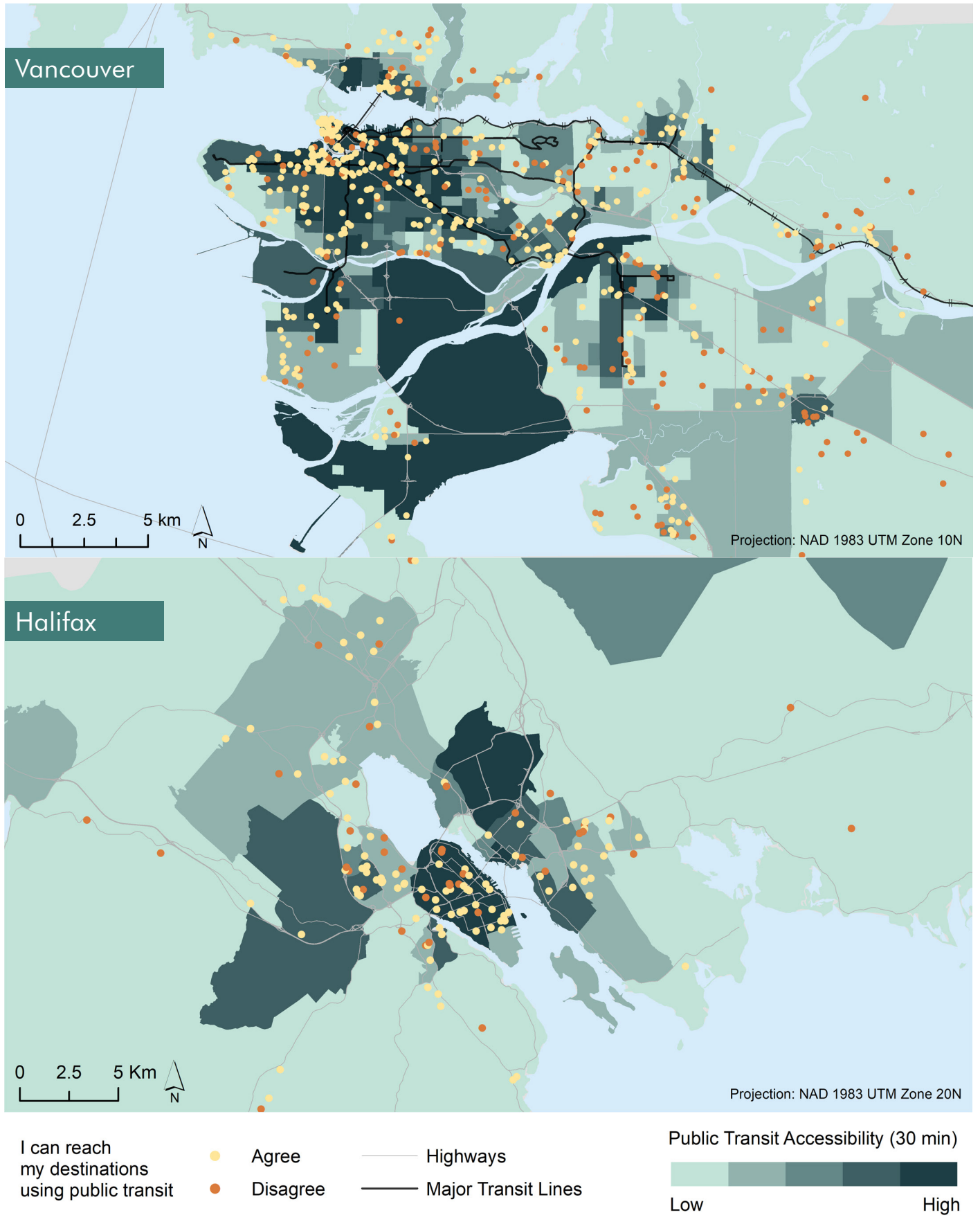


Figure 4.6 30-minute public-transit accessibility for Vancouver (above) and Halifax (below)
Data Sources: Statistics Canada, TransLink, BC Ferries, MetroTransit, and Survey Data

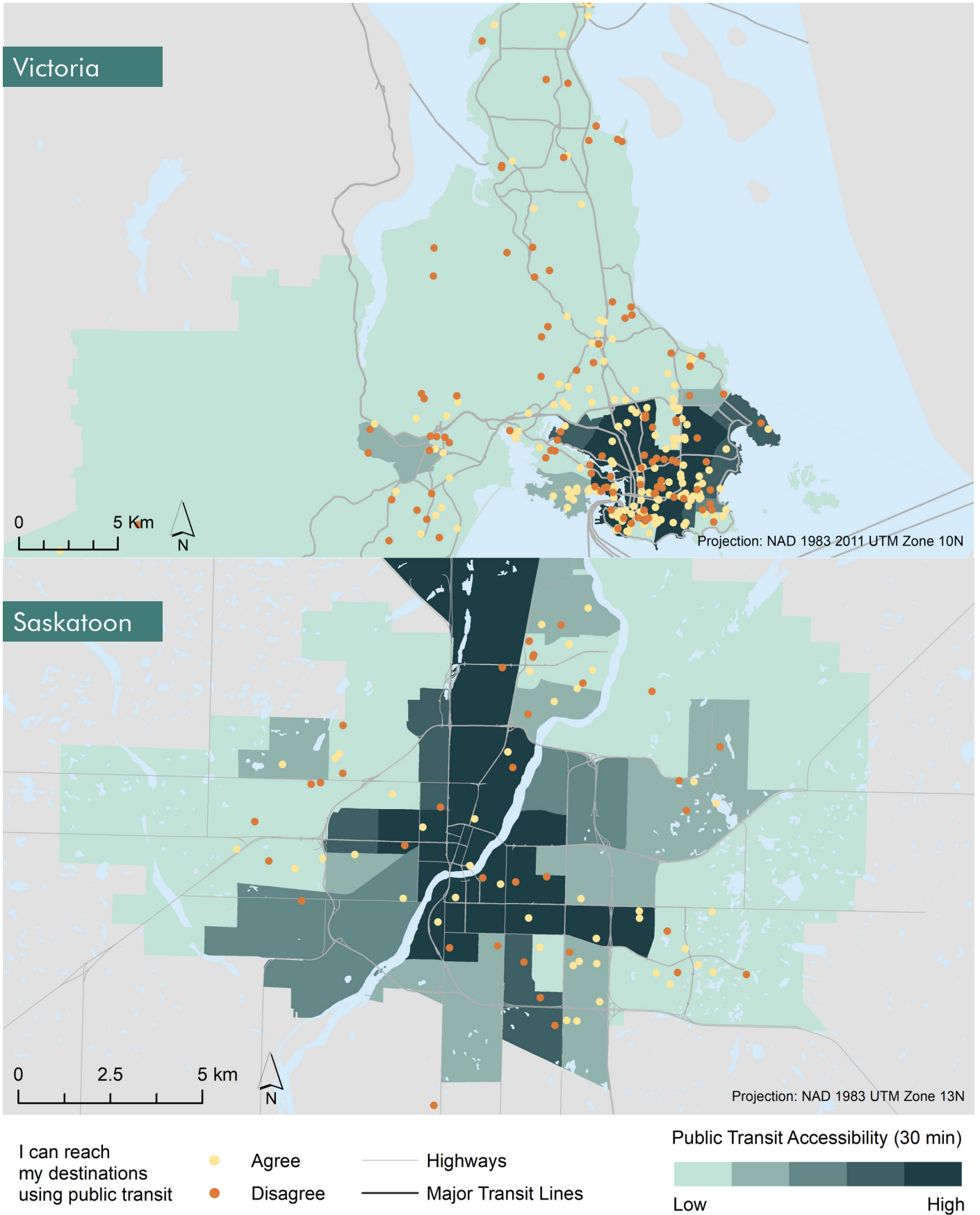


Figure 4.7 30-minute public-transit accessibility for Victoria (above) and Saskatoon (below)
 Data Sources: Statistics Canada, BC Transit, BC Ferries, Saskatoon Transit, and Survey Data

4.4 Public Transit Use

Frequency of use

Figure 4.8 illustrates the frequency of public-transit use in each region. Frequent users are defined as people who used public transit once a week or more. Infrequent users include people who used public transit at least a couple times a year but less than once a week. The bigger CMAs had a larger proportion of frequent public-transit users than the smaller CMAs.

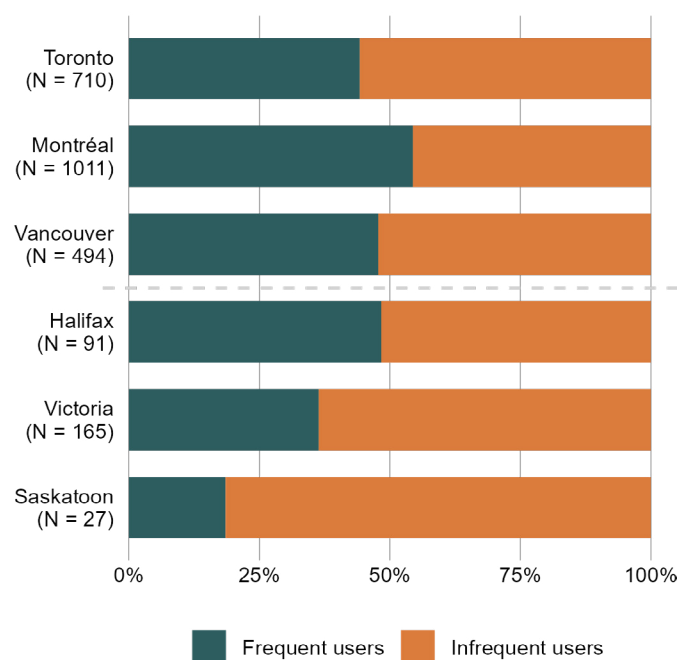


Figure 4.8 Frequent vs. infrequent users by region

Last Public Transit Trip

Modes

Figure 4.9 illustrates the mode split of respondents' last public-transit trip. If respondents indicated using more than one mode, they were then asked to identify their main mode. In the larger cities, the metro/subway/SkyTrain is dominant with the bus as the second most used mode whereas in the smaller cities the bus is overwhelmingly the most used mode. We can also observe an increase in bus use with a decrease in population size of the larger cities. Commuter rail also represented a

small proportion in the larger cities as well as the streetcar in Toronto. Paratransit was the least used mode across all cities, as the eligibility requirements tend to be quite stringent.

Destinations

Figure 4.10 shows the destinations accessed by respondents during their last public-transit trip. While many categories were available to respondents, this figure illustrates the four most common destinations and groups the others. The most common destination was recreation/leisure activities followed by medical appointments, working/volunteering, and visiting friends and family. While the proportion of the four main destinations is similar across all cities, recreation and leisure activities represent a slightly larger proportion in the larger cities. Smaller cities also have a higher share of other destination types than larger cities. Respondents were also asked what destinations they reached in the past year. The most accessed destination was again recreation and leisure activities, but shopping replaces work and volunteering as the third largest category. Locations for respondents' last public-transit destination were also collected. For all major destination types, the activities were located along major transit lines and concentrated in the city centers.

4.3 Housing Considerations

Who is considering moving from their home?

All respondents were asked whether they were considering moving from their home in the next five years. Figure 4.11 represents the inclination of respondents across the six CMAs to move to a new location. Breakdowns of attitudes by age, gender, employment status, income, household size, public-transit use, and years lived in respondents' current home yielded no trends. Overall, most respondents in all CMAs do not intend to move in the next five years and no single characteristic pointed to a

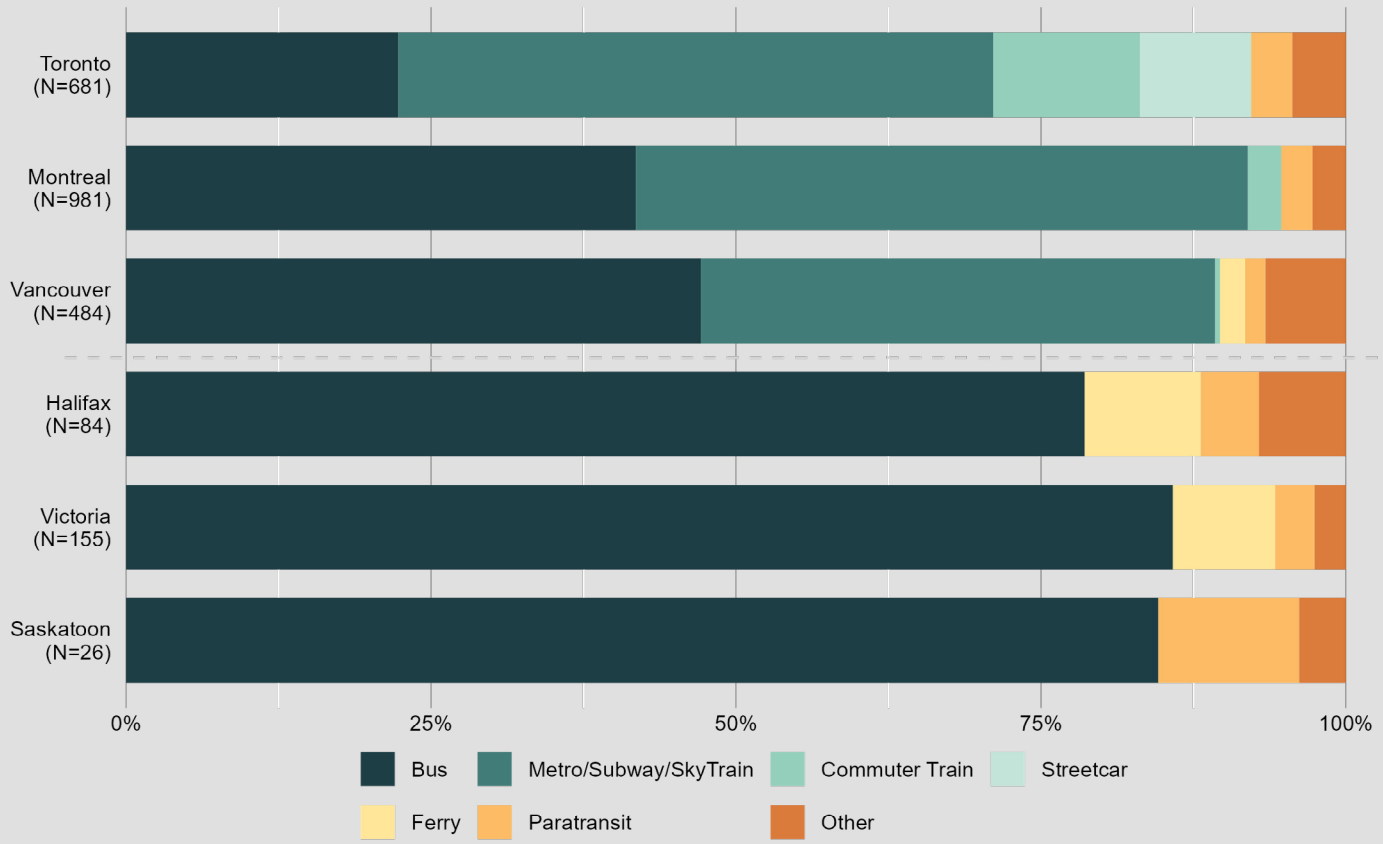


Figure 4.9 Modal split by region for last public-transit trip

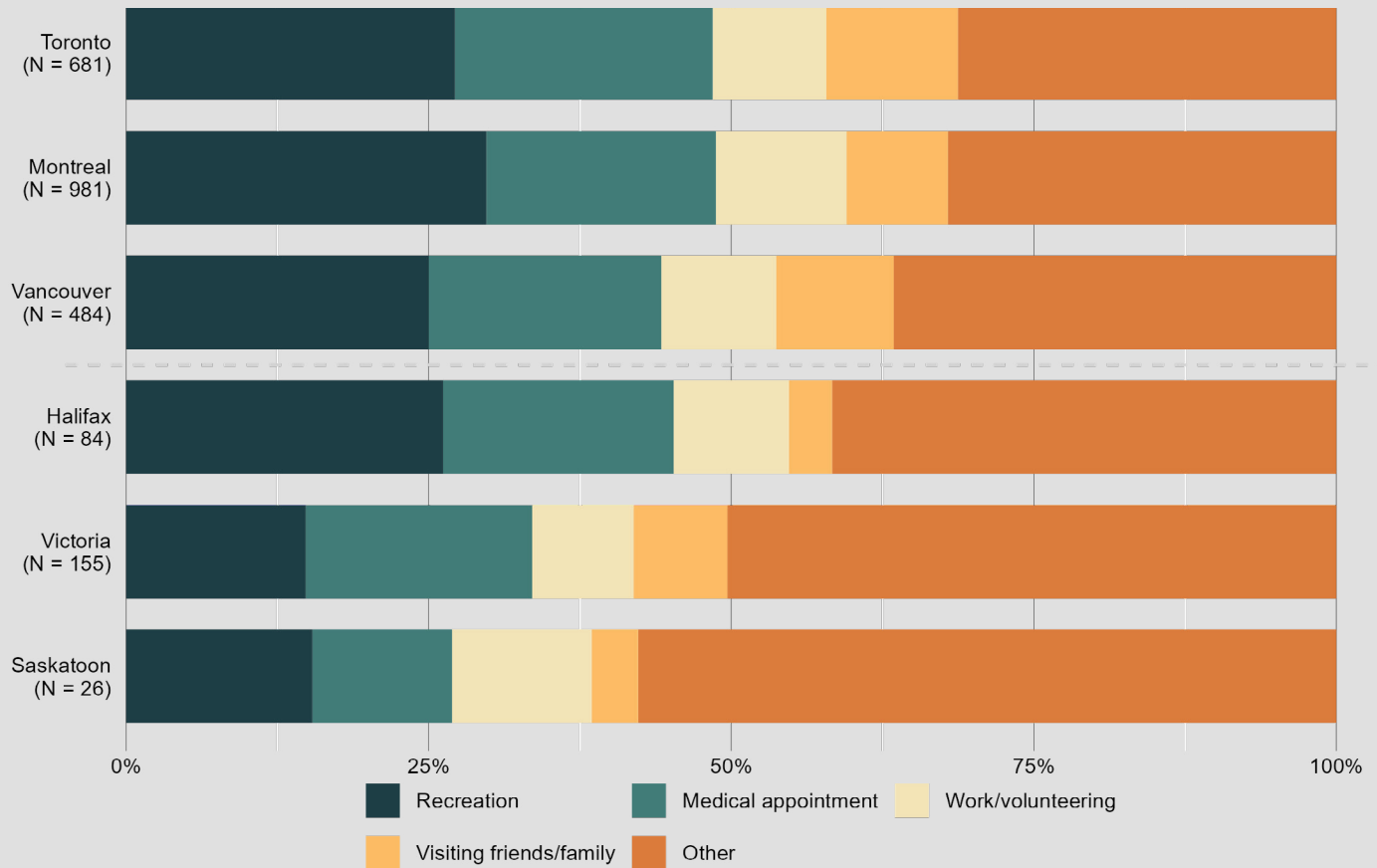


Figure 4.10 Destinations split by region for last public-transit trip

higher likelihood of considering a move. This suggests that most older adults want to stay in their homes for the immediate future.

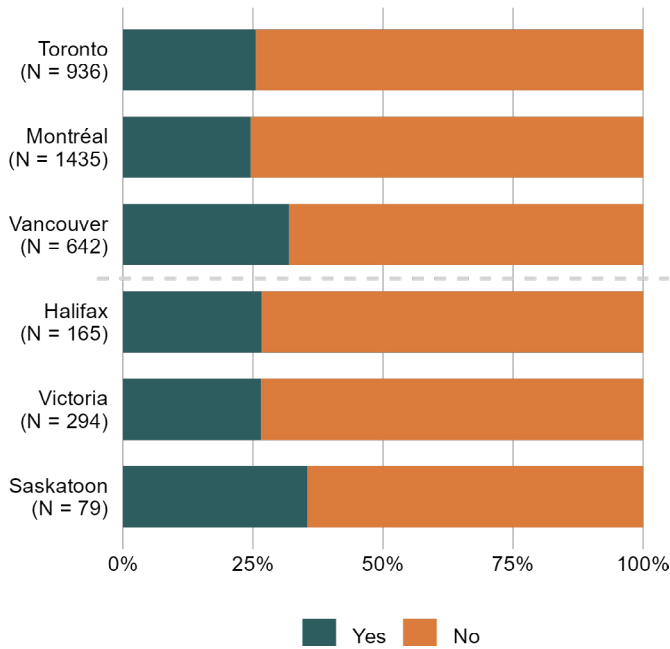


Figure 4.11 Inclination to move homes

What factors are leading to this decision?

Respondents who indicated that they were considering moving in the next five years were asked which factors are contributing to their consideration of moving. Of the twelve factors surveyed, affordability and walkability were identified as the top factors contributing to older adults' consideration of moving, shown in Figure 4.12. Most respondents (53%) identified affordability as factor, with respondents in the larger CMAs and Victoria being slightly more likely to cite it as a concern. Older adults living in these more expensive housing markets are likely more worried about their ability to remain in their homes. Just under half of respondents who were considering moving (43%) identified neighbourhood walkability as a factor. This could indicate a desire to live in areas which allow for independent mobility and with more services nearby, reachable on foot. Being in a region with better public transit was not cited as a concern nearly as often, with only 29% of all respondents reporting it as a factor.

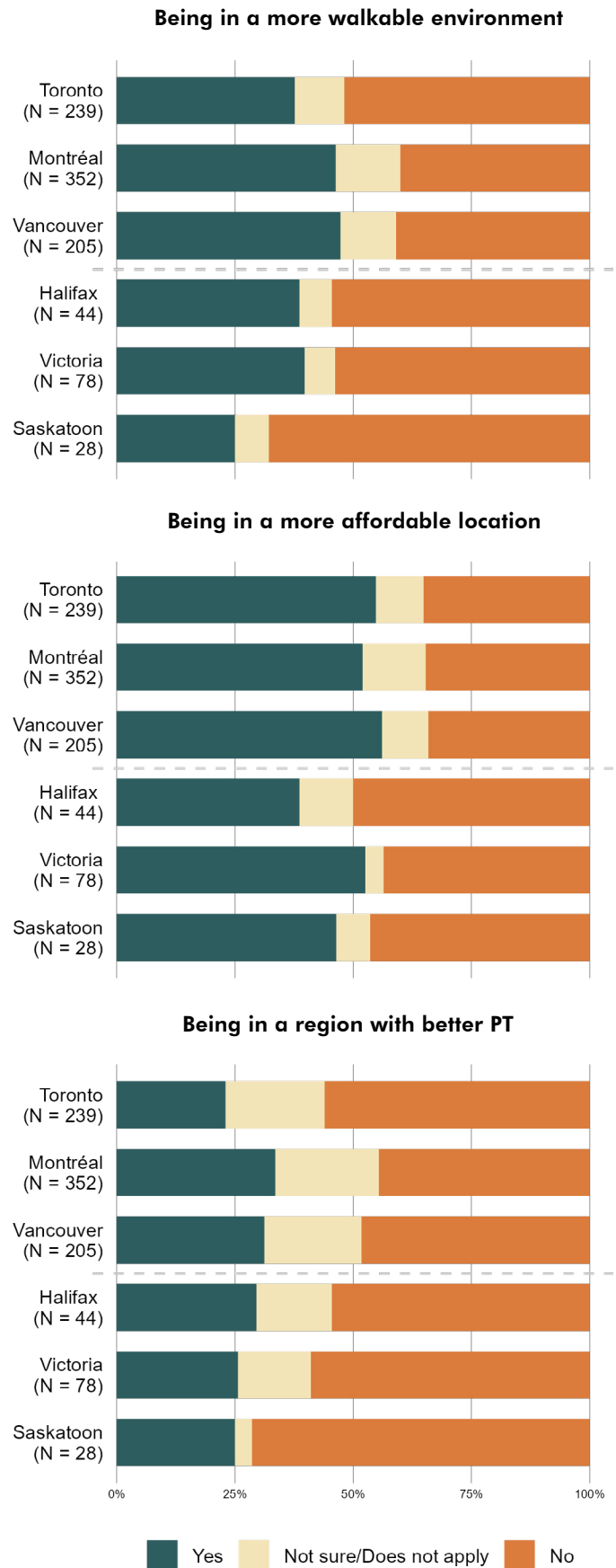


Figure 4.12 Factors contributing to older adults' desire to move homes



1 SPRING GARDEN
TO BRIDGE TERMINAL

0070

41

HALIFAX

VERB

URBAN
OUTFITTERS

4.5 Travelling with a Disability

Figure 4.13 illustrates the proportion of respondents who identified as having a disability or health condition, whether temporary or permanent, that limit their mobility. For the total sample, across all regions, 31% of respondents identified as having a disability. The proportion of people with disability was higher in the smaller cities and lowest in Montréal.

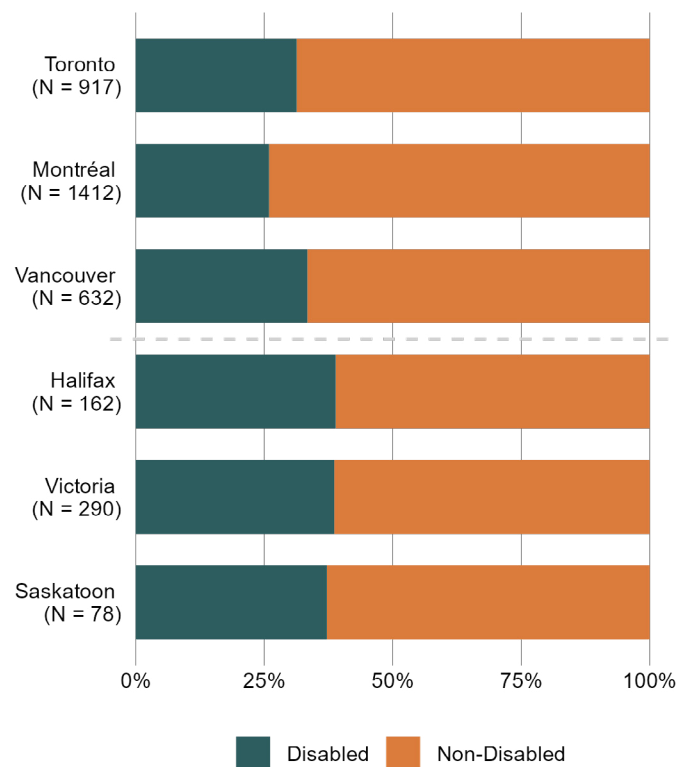


Figure 4.13 Respondents with disabilities by region

Disability type

Figure 4.14 shows that the most common disability by far, across all regions, is physical disabilities or physical conditions that limit any physical activities, representing 66% of all disabilities. The second most common disability is deafness or hearing impairment at 12% followed by blindness or vision impairment. 16% of all disabilities fell under the other category. Learning and intellectual disabilities were the least prevalent types of disabilities. The distribution of disability types is consistent across all regions.

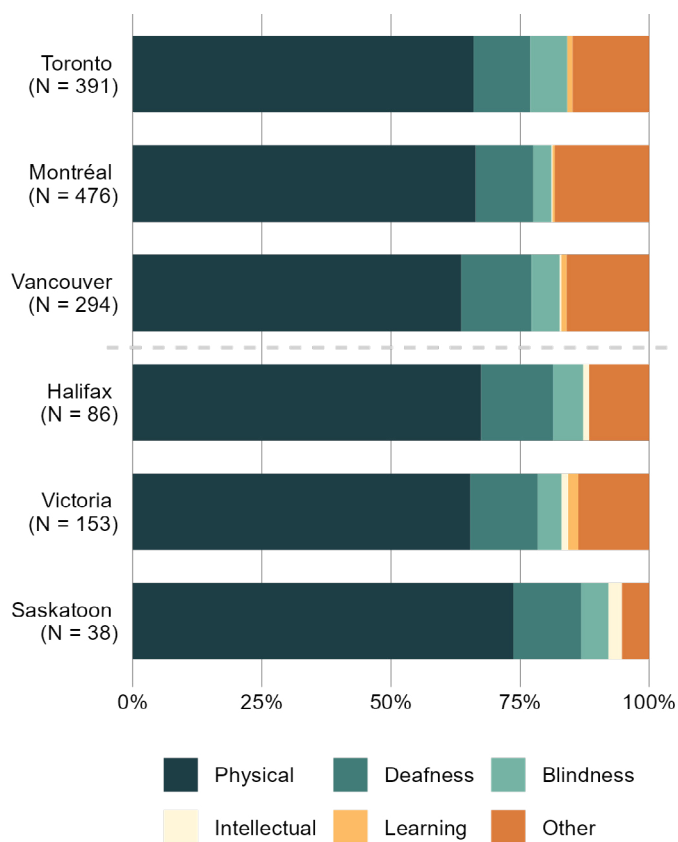


Figure 4.14 Disability types by region

Public transit use

Figure 4.15 shows the public-transit use of respondents who identify as having a disability compared to respondents who do not identify as having a disability. This categorization is based on their frequency of public-transit use, including paratransit, over the past year. Non-users were identified as people who never take public transit, don't remember taking public transit in the last year, or people who do not have public transit in their area. Frequent users are defined as users who take public transit at least once a week, and infrequent users take it at least a couple times per year but less than once a week. In the bigger CMAs, people identifying as having a disability are more likely to be non-public transit users compared to those who do not identify as having a disability. In Halifax and Victoria, people with disabilities are only slightly more likely to be non-users, and in Saskatoon people who don't identify as having a disability are less likely to not have used public transit.

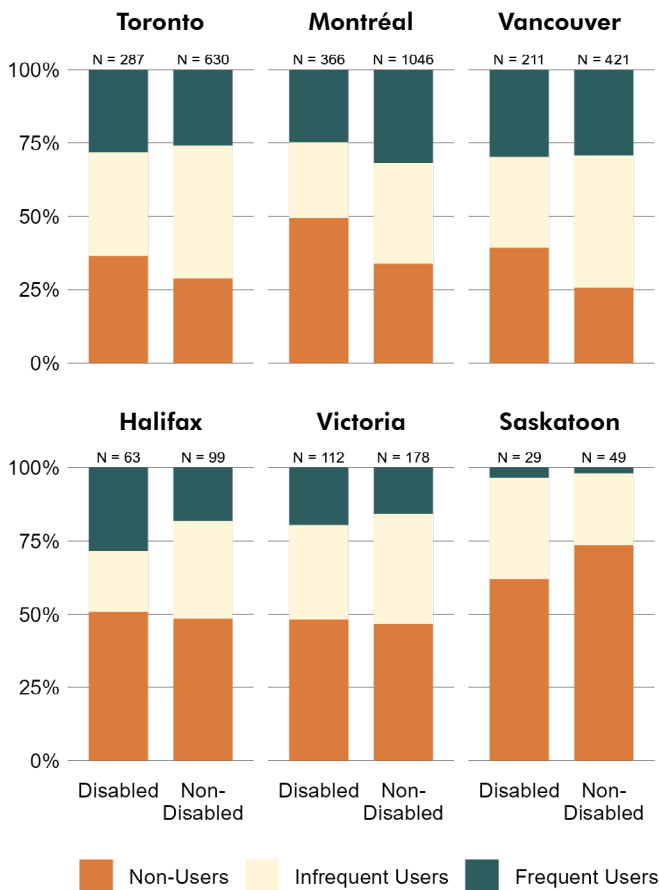


Figure 4.15 Frequency of PT use by disability

Public transit meeting the needs of older adults with disabilities

All respondents were asked if public transit in their region meets their daily travel needs. Figure 4.16 demonstrates that people with disabilities are more likely to feel that their public-transit needs are not met compared to people without disabilities. This pattern is

found across all six CMAAs. This difference in level of satisfaction is more pronounced in the larger CMAAs despite satisfaction with public transit among all respondents being generally higher in these regions. The difference is less significant in the smaller CMAAs, with the exception of Greater Victoria which has a similar trend to the larger cities.

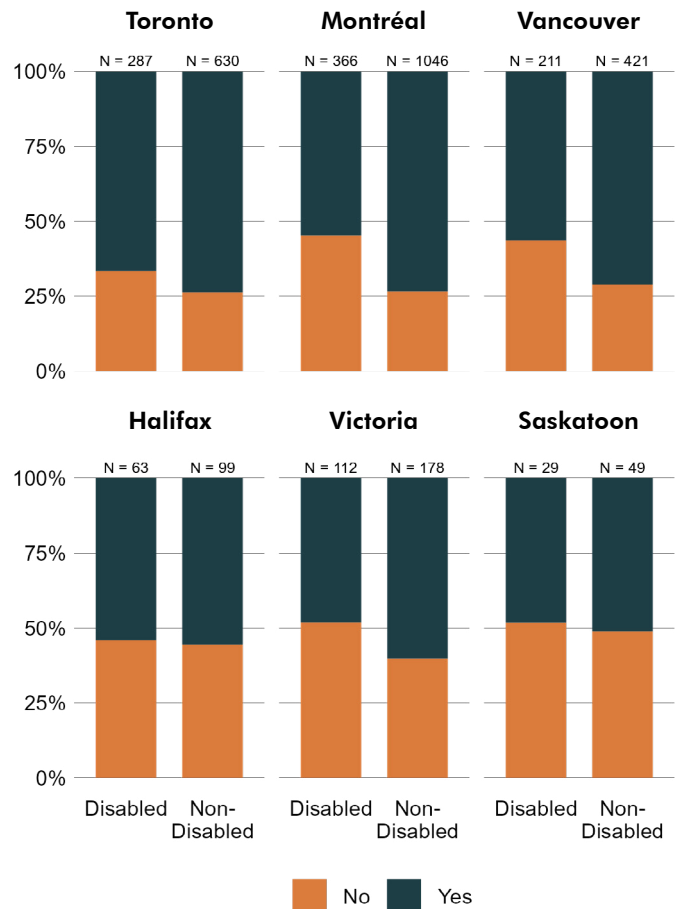


Figure 4.16 Older adults' perception of whether or not PT meets their needs by disability



Walking and driving cessation

The importance of public transit in helping individuals with disabilities access destinations is underscored by the walking difficulties that were reported. In all six regions, disabled respondents were less likely to agree with the statement that they can comfortably walk to destinations in their neighbourhood. The gap was greatest in Montréal, where 75% of non-disabled individuals were able to walk to their destinations comfortably, compared to only 35% of disabled respondents. The gap was smallest in Saskatoon, but this was driven by lower agreement among non-disabled individuals.

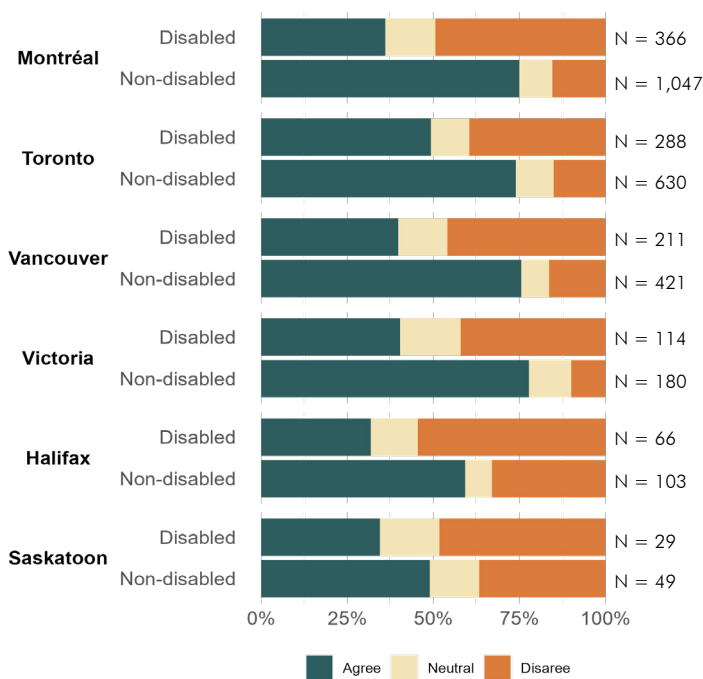


Figure 4.17 Agreement with “I can comfortably walk to destinations in my neighbourhood”

Given disabled respondents increased difficulties walking, it is unsurprising that they are less likely to maintain their quality of life after stopping to drive. While 78% of non-disabled individuals felt that they had maintained their quality of life after driving cessation, this was true for only 47% of disabled respondents. Notably, though disabled respondents made up 31% of the overall sample, they constituted 50% of those who had stopped driving.

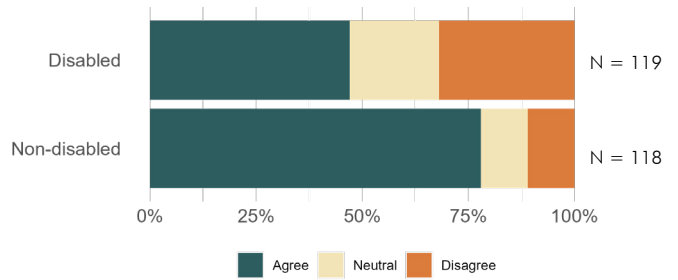


Figure 4.18 Agreement with “Since I stopped driving, I have maintained my quality of life”

Likelihood of moving

In line with this theme, respondents who identified as having a disability were more likely to anticipate needing to move after they stop driving. Figure 4.19 shows that 54% of disabled respondents agree with the statement, compared to only 34% of non-disabled respondents.

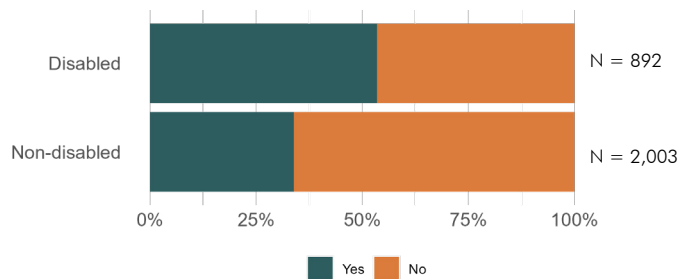


Figure 4.19 Agreement with “If I were to stop driving, I would have to move from my neighbourhood”



Impact of weather

Winter weather can impact older adults' confidence in using different modes by making it easier to slip. Mobility aids like wheelchairs and walkers can also be harder to use in winter conditions. Some older adults prefer to travel when it is light out, and the shorter days during the winter months make this preferred travel window shorter. It is plausible that winter weather would have a greater impact on disabled groups. Since the surveys were administered in different seasons, we were able to study the impact of weather on the transport perceptions of older adults with and without disabilities.

In both Wave 1 and 2 of the survey, disabled and non-disabled groups agreed at high rates with the statement "I enjoy conducting my daily activities independently." Both groups were more likely to agree with the statement in Wave 2, which was conducted in September, compared to Wave 1, which was conducted in February. Agreement from disabled respondents rose more between the two waves. The gap between disabled and non-disabled respondents is more pronounced in Wave 1 (83% vs. 89%) compared to Wave 2 (91% vs. 93%).

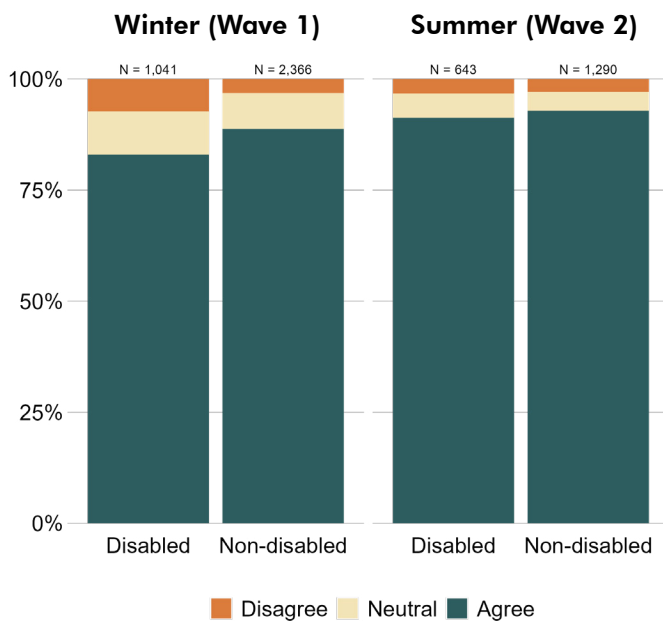


Figure 4.20 Agreement with "I enjoy conducting my daily activities alone/independently"

The effect of winter weather on the mobility of people with disabilities was hypothesized to be greater in regions with colder winters (i.e., Montréal, Toronto, Halifax, and Saskatoon) compared to regions with more temperate winters (Vancouver and Victoria). People living in the former regions are more likely to face icy or slippery conditions than those living in the latter. We did not find evidence that people's perceptions of neighbourhood walkability were materially different based on the harshness of their winter. Agreement with the question "I can comfortably walk to destinations" were similar for disabled and non-disabled groups living in cold and temperate regions (see figure 4.21).

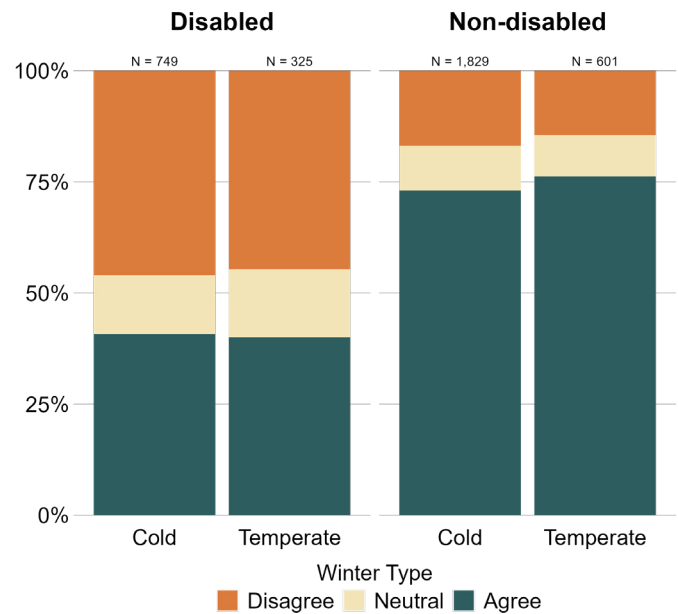


Figure 4.21 Agreement with "I can comfortably walk to destinations in my neighbourhood"

Individuals with disabilities living in areas with colder winters were less likely to indicate that they could comfortably walk to destinations in Wave 2 (administered in the summer) as compared to Wave 1 (32% vs. 41%, wave 1 having been administered in the winter). In temperate areas, responses were similar in both waves. This might be because the summer also poses challenges (e.g., hot, humid weather) that may impact the walking conditions and comfort levels of older adults.

4.6 Impact of walkability

We examined the link between older adults' quality of life and their neighbourhood walkability. We supposed that adults living in more walkable neighbourhoods are better able to manage driving cessation, retaining their independence by walking to access goods and services. To assess walkability, we collected the Walk Score® of the respondents' neighbourhoods using their home location. Walk Score® is a publicly available measure of neighbourhood walkability, calculated based on the neighbourhood's proximity to amenities. We then examined the link between respondents' neighbourhood Walk Scores® and their answers to a variety of travel-related questions.

Walkability and quality of life

Respondents living in the most walkable areas were more likely to state that daily travel contributed positively to their life than those in the least walkable areas (80% compared to 68%) – see Figure 4.22. As Figure 4.23 shows, they were also more likely to enjoy conducting daily activities independently (91% to 82%).

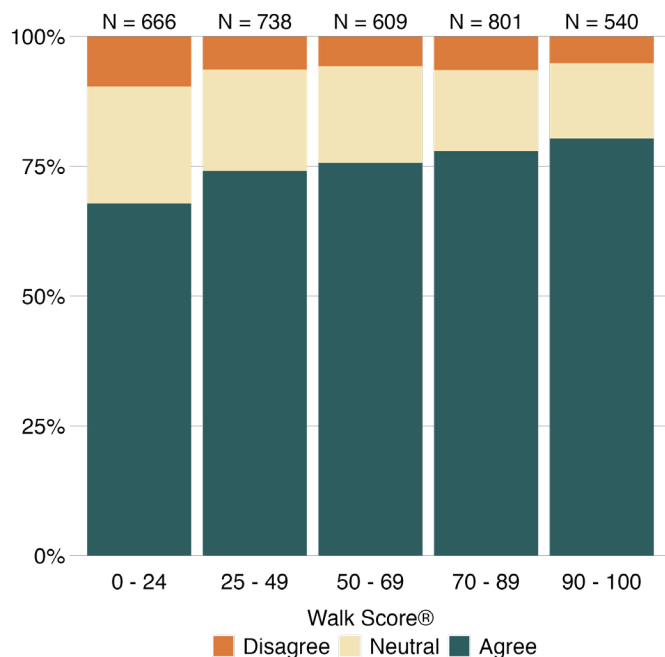


Figure 4.22 Agreement with "Daily travel contributes positively to my life"

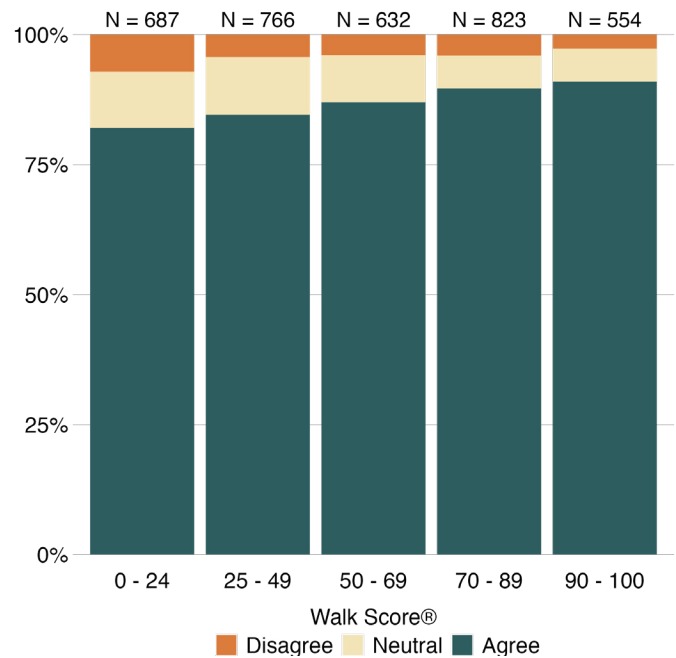
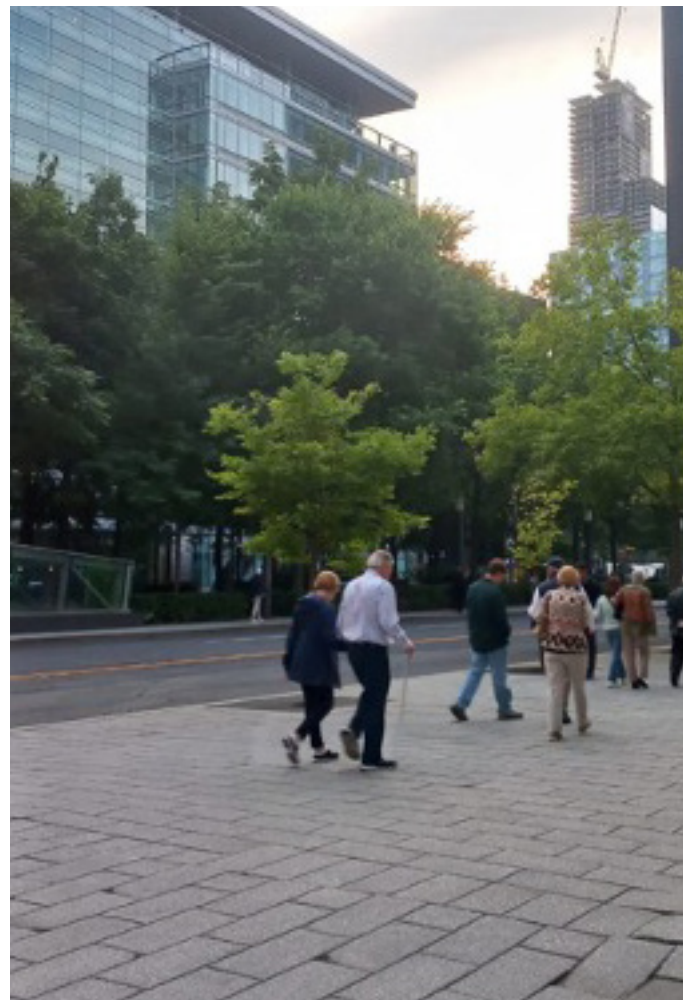


Figure 4.23 Agreement with "I enjoy conducting my daily activities alone/independently"



Life after driving

Respondents in more walkable areas indicated they were more able to comfortably walk to local destinations than those in unwalkable areas. Both respondents who continued to drive and those who had stopped driving identified a link between driving cessation, walkability, and quality of life. Drivers in the most walkable areas were more confident that they could maintain their lifestyle if they were to quit driving compared to those in the least walkable areas (32% vs. 15%) (Figure 4.24).

While sample sizes were small, we found that 71% (n = 73) of former drivers in the most walkable neighborhoods were able to maintain their quality of life, compared to only 33% (n = 21) of those in the least walkable areas (Figure 4.25). Beyond the link between walkability and quality of life, there is a material gap between older adults' perception of how their quality of life would change if they were to stop driving (Figure 4.24) and the actual experiences of those who have quit driving (Figure 4.25). This difference may be influenced by a systematic underestimation of how walking and public transit can help satisfy one's transportation needs.

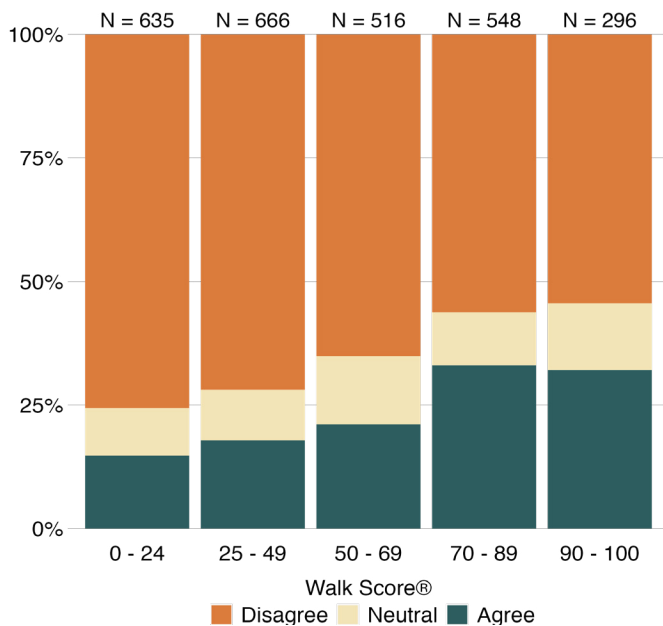


Figure 4.24 Agreement with "I could maintain my lifestyle if I were to stop driving"

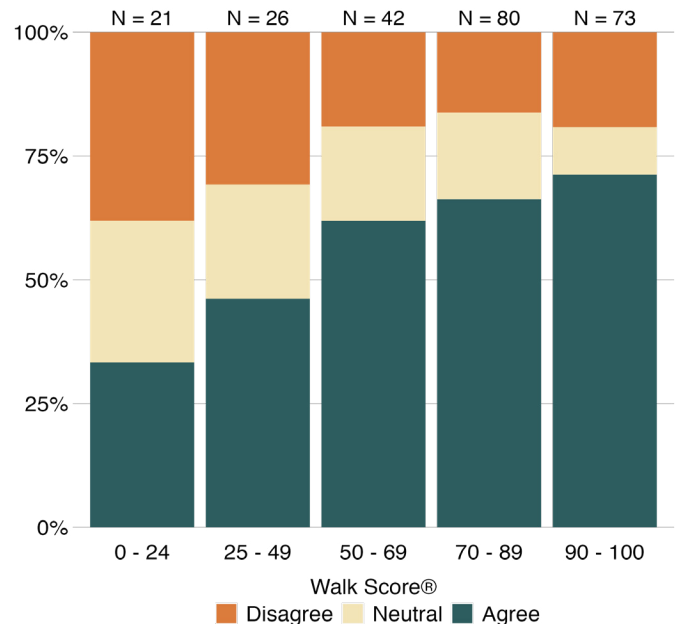


Figure 4.25 Agreement with "Since I stopped driving, I have maintained my quality of life"

Impact on moving from home

The results suggest that beyond simply impacting quality of life, walkability can lead older adults to considering moving neighborhoods. Those in the least walkable areas were more likely to believe that they would need to move out of their neighborhood after they stop driving than those in walker's paradises (51% to 31%). Regional differences were investigated but no between-region disparities were observed.

Policy implications

These results imply that neighborhood walkability is vital for older adults' independence and quality of life as they age and give up driving. Two policy recommendations can be derived from this research. First, new housing developments that cater to older adults should be carefully located in areas with higher local accessibility. Second, areas with higher concentrations of older adults are good candidates for land use zoning changes that aim to increase walkability. These changes include permitting more diverse land uses to increase the number of nearby destinations, and interventions that make built environments more friendly to pedestrians.

4.7 Seasonality

A second wave of the survey was run in September 2023. This wave was only sent to individuals who had previously responded to the survey's first wave in Spring 2023. It was intended to examine whether seasonality affected older adults' perception of mobility and public transit, and investigated the impact of free fares for older adults on transit ridership and satisfaction.

Impact of seasonality

The impact of seasonality was examined by reviewing whether survey responses meaningfully differed across the two waves. If seasonality played an important role, older adults might be more satisfied or comfortable using transit in the summer, as compared to the winter. Instead, we found that attitudes towards transportation were remarkably stable across the two waves. As Figure 4.26 shows, individuals' satisfaction with taking transit was stable across the two waves in the five largest cities. The small sample size in Saskatoon makes it impossible to reach any conclusions based on the observed shift in attitude. Perceptions were stable across

other questions including satisfaction with trip length, comfort using transit, and comfort walking. The stability of these findings implies that most older adults' perceptions of transit are relatively fixed. Even if taking transit in the winter can be challenging, this discomfort does not appear to impact older adults' general perceptions of public transportation.

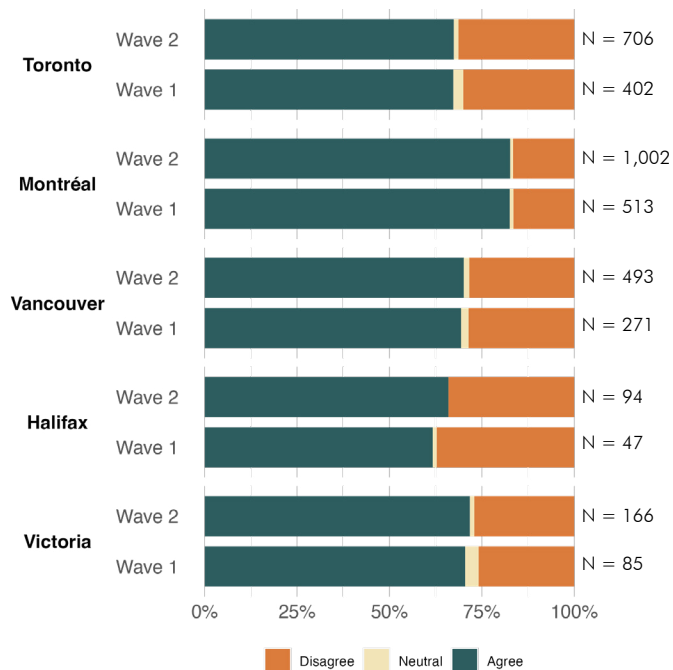


Figure 4.26 Agreement with “I am satisfied with transit services in my region”



4.8 Free Transit Fares

As of July 1st, 2023, older adults living on the island of Montréal are eligible to ride public transit for free. The free fare aims to encourage an increase in public transit use among older adults in the region, attracting new older riders, and aid in countering the effect of inflation.

Changes in frequency of PT use

To better understand the impacts of the fare policy, respondents were asked in the first wave of the survey their frequency of public transit use, ranging from every day to never, and whether they anticipated a change following the free fare implementation (i.e., increase, no change, decrease). The same respondents then reported their frequency of public transit use in the survey's second wave, which was disseminated a couple of months after the free fare was put into effect. Both respondents who did not anticipate a change in their frequency of public transit use (Figure 4.27) and those who anticipated an increase (Figure 4.28) did not, in actuality, increase their frequency of use

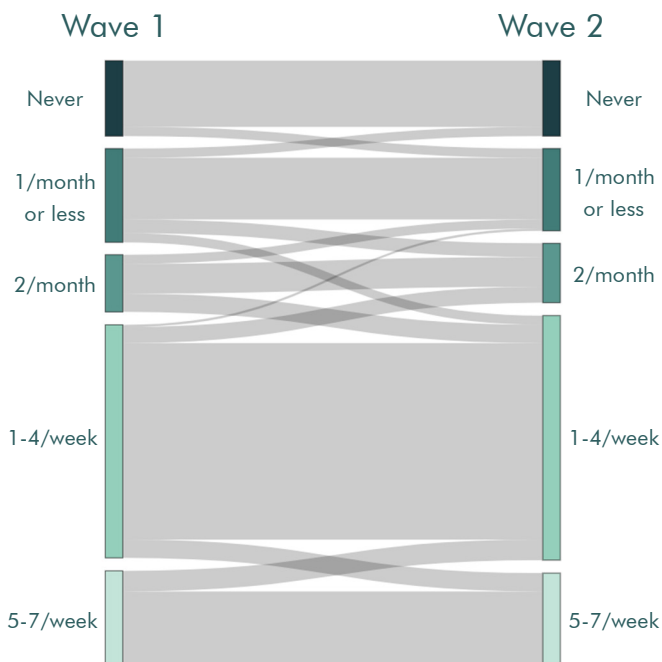


Figure 4.27 Change in public transit use of those who did not anticipate a change

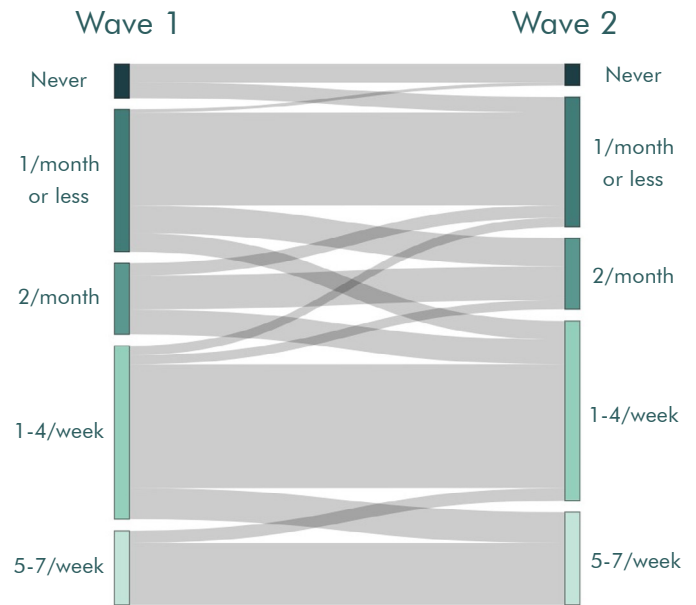


Figure 4.28 Change in public transit use of those who anticipated an increase in frequency

following the implementation of the free fare. The small number of respondents (N=68) who did report increasing their public transit use were mainly already frequent public transit users.

Changes in perceptions and satisfaction

Respondents who use public transit were asked, on a 4-point Likert scale, their perception of public transit's reliability and convenience, as well as their overall satisfaction with the public transit services in Montréal. Generally, perceptions of reliability of public transit did not change, but on-island residents did see a statistically significant increase in their perception of public transit's convenience, rising from 3.4 out of 4 to 3.53 out of 4. Their overall satisfaction with public transit in the region did not increase significantly.

Observing changes in travel behaviour might take a significant amount of time following an initiative such as changes in fare, especially since older Montréalers already benefited from a reduced fare beforehand. A more nuanced understanding of the impacts of the free fare could be gained from more qualitative sources of data, such as in-depth interviews.

4.9 Gender

The differing transportation experiences and preferences of older men and women were also investigated. The responses of men and women with respect to independence, walking, and transportation use were examined for each region, across both waves of the survey.

Likelihood of moving

Across five of the regions, women were more likely to agree with the statement that “If I were to stop driving, I would have to move from my current home/neighbourhood”. 43% of women agreed with the statement, compared to 36% of men. Of the five most populous regions, the gap was most pronounced in Halifax, where women were 12 percentage points more likely to agree with the statement. More research is required to understand the reason for this gap. It may be that differences in travel patterns between men and women - women tend to be most responsible for mobilities of care - lead women to be more concerned about how they will manage the transition once they quit driving.

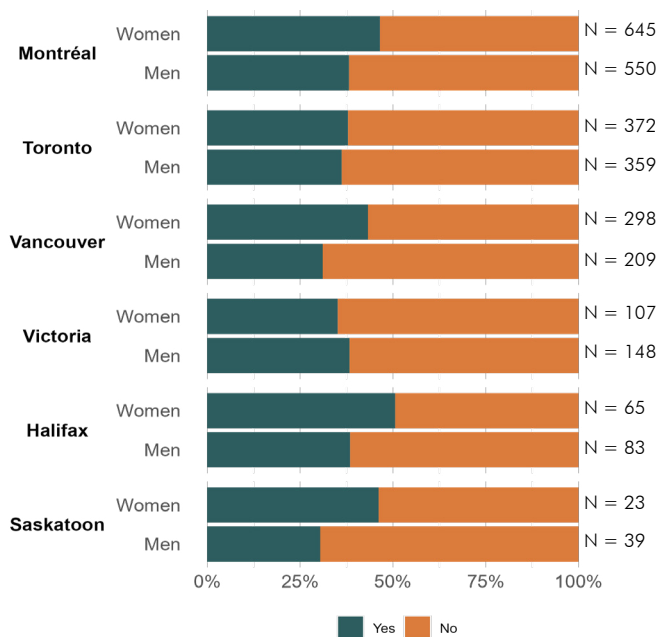


Figure 4.29 Agreement with “If I were to stop driving, I would have to move from my current home/neighbourhood”

Transit use

In the majority of regions, women were more likely to state that they rode the transit frequently (two or more times a week). 29% of women indicated that they were frequent riders, compared to 22% of men. The number of occasional users was similar across both groups. The gap was highest in Montréal, where 34% of women reported being frequent users, compared to 23% of men. This finding aligns with literature, as women tend to make up a greater proportion of transit users. However, our earlier observations indicated that women were more likely to anticipate needing to move after giving up driving. This suggests that while women are more likely to use transit, they feel unable to depend on it for all their needs.

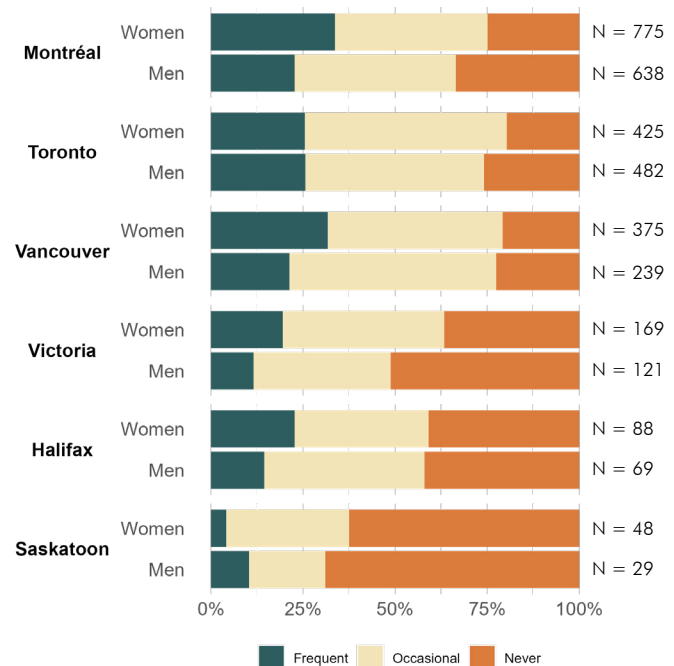


Figure 4.30 Transit usage by gender



4.10 Impacts of Travel Time on Satisfaction with Public Transit

Respondents who took public transit were asked, on a 4-point scale, about their satisfaction levels with their last public transit trip. Figure 4.31 illustrates the agreement with the statement “Overall, I was satisfied with my experience with public transit” based on respondents’ travel times. Respondents with higher travel times tend to indicate lower levels of trip satisfaction by transit. For instance, 22% of those with trips that were 50 minutes or longer were dissatisfied while only 4% of those with trips lasting 15 minutes or less were in the same category.

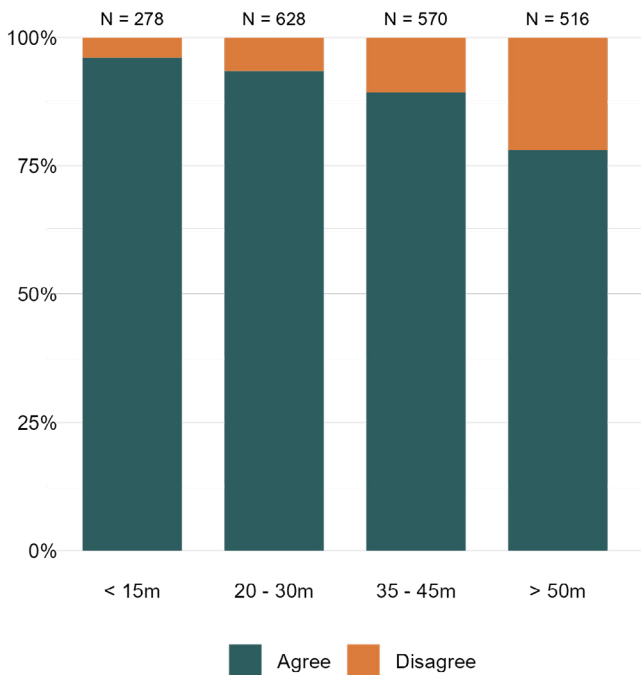


Figure 4.31 Respondents satisfaction levels with public transit by travel time

The impact of travel time on trip satisfaction for various subgroups was also investigated. This was done by splitting the sample by socio-demographic variables, such as gender and age. In terms of gender differences, women with longer travel times for their most recent public transit trip are significantly more dissatisfied with their last trip when compared to men in the same category (25% vs. 19%), as shown in Figure 4.32.

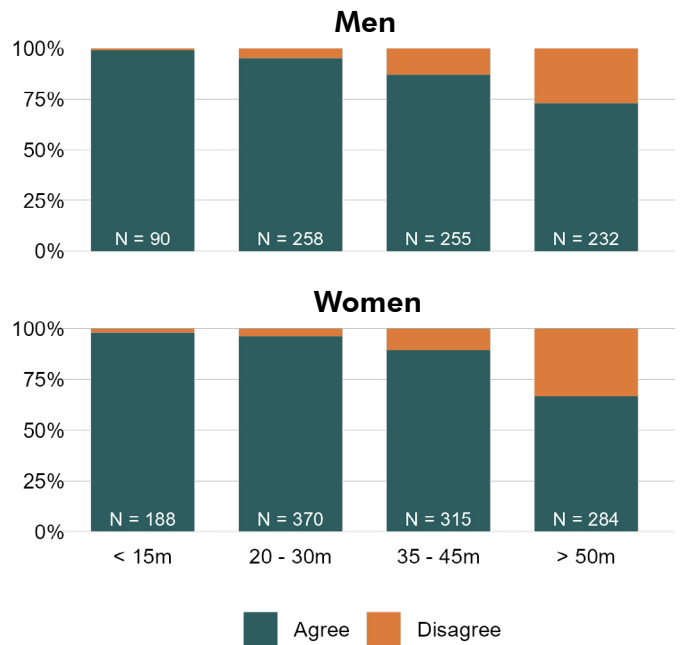


Figure 4.32 Respondents’ satisfaction levels with public transit by travel time

For both respondents between 65 and 74 years old and those older than 74, those who travelled for 35 to 45 minutes are significantly more satisfied compared to those who travelled longer. This finding is intuitive, considering that many respondents reported a reasonable travel time to be 30 minutes (Figure 4.4).

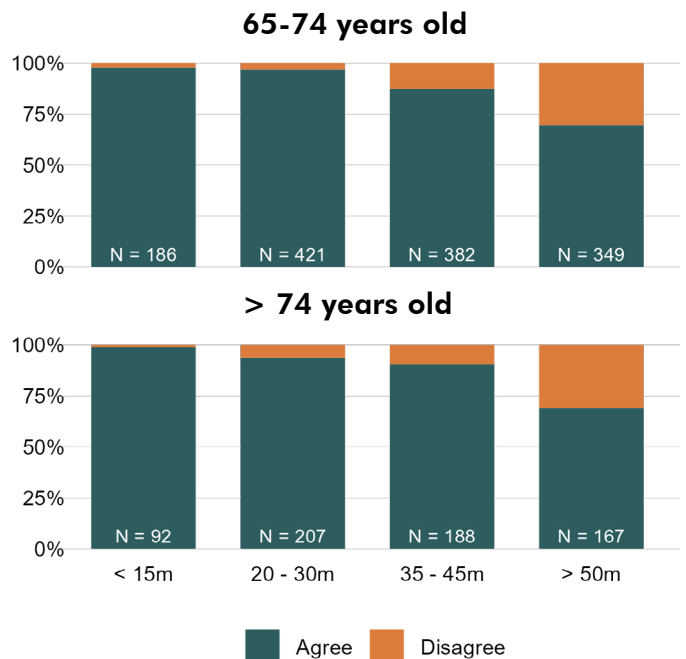


Figure 4.33 Respondents’ satisfaction levels with public transit by travel time and age

5 Conclusions and Further Steps

As our populations ages, understanding older adults' daily travel needs and behaviours is essential in ensuring they are provided with adequate transport options. Adapting transit services to their needs could contribute significantly to their independent mobility and reduce car dependency, all the while allowing them to age in place. This report presents the preliminary results of the Aging in Place research project, conducted by the Transportation Research at McGill lab at McGill University and funded by National Research Council Canada.

A literature review found that older adults live in areas with lower accessibility, and it is more difficult for them to get around their area using transit compared to driving. There is a lack of consistency in how older people's experiences and perceptions of accessibility are studied. Subsequent steps focused on destinations and travel characteristics defined by older adults themselves to better capture their realities.

The study areas, Toronto, Montréal, Vancouver, Halifax, Victoria, and Saskatoon, were chosen to ensure a mix of regional differences, population size, the extensiveness of the public-transit network, and service provision. Within the six CMAs, certain census tracts were determined to be of interest for this research as they combined lower levels of public-transit accessibility and higher populations of older adults.

An online bilingual survey, aiming to capture first-hand accounts of older Canadians' use and perceptions of public transit in their region, as well of how daily travel impacts their well-being, was launched in Winter 2023. The collected sample of respondents was fairly representative of the older populations of the CMAs, especially in terms of gender, but respondents were around the ages of 65-74, which could be attributed to the survey being conducted online. A second wave of the survey was conducted in the Fall of 2023 in order to capture the impact of seasonality on older adults' public-transit use and general mobility, in a similar format to the first wave.

The results the first wave of the survey indicate that most older Canadians want to continue travelling independently, which reinforces the need for adequate modes of transport which allow them to reach their destinations independently.

Older people living in the larger CMAs believe more strongly that the public transit in their region meets their daily travel needs compared to the smaller three cities, which could be attributed to their public-transit networks being more developed and well-established. They also perceived their public-transit accessibility to be higher than those living in the smaller regions, which matches the objective measures.

Across all six regions, older people seem to choose 30 minutes as a reasonable public-transit travel time, which could give transit providers insight into improving service for older populations. Older transit users mainly travel by bus and rapid transit, and mainly use transit to reach leisure/recreation activities, medical appointments, and visit friends and family.

Those considering moving in the next five years – a minority of the sample – state affordability and neighbourhood walkability as their main concerns going forward. Those living in walkable areas are less likely to feel that they would need to move after stopping to drive.

The responses from the second wave of survey strengthened the collected results and revealed that seasonality did not play a material role in influencing older adults' perception of transit. It also revealed that Montréal's free transit fare for older adults has not yet resulted in any increase of use among this age group.

The next steps consist of studying the open-ended comments to gain more insight into older Canadians' experiences and perceptions of their daily travel. In addition, the team will conduct sixty in-depth interviews in the summer of 2024 with willing survey respondents, and will begin analyzing this qualitative data in Fall 2024.

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Please visit the [Aging in Place page on the TRAM website](#) to view the full survey



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