

# Youth and Public Transit: A Knowledge Synthesis of Recent Publications

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## INTRODUCTION

Historically, youth (13-25) have been one of the most active user groups of public transit in Canada, accounting for one-third of ridership nation-wide, and up to two-thirds in cities such as Moose Jaw, SK and Red Deer, AB (Canadian Urban Transit Association, 2004). Despite their high usage of public transportation, youth as a specific category of riders have received an underwhelming amount of focus by academics and transit authorities. This report synthesizes the last ten years of evidence, policy, and pilot projects related to youth as a public transportation user group in order to provide an up-to-date summary of the state of knowledge in this area.<sup>1</sup> Youth and public transportation research is identified and evaluated, including data sources and gaps. Media coverage of the issue is also considered, as many of the concerns of youth, public debates, and pilot programs related to youth and public transit are only referenced in this format. The final section of this work consists of an evidence-based agenda for future research and policy, with an eye toward enhancing the equity of access to transit systems for youth riders.

## METHODS

Due to the wide-ranging and non-cohesive nature of the literature on this topic that make a traditional systematic review of limited value (Munn et al., 2018, p. 2), the report is based on a scoping review model. A scoping review maps an emerging topic of interest, identifies knowledge gaps, and provides recommendations for future research (Tricco et al., 2016). This process relies on the staged approach set out by Arksey and O'Malley (2005) and further refined by Levac et al. (2010), Colquhoun et al. (2014), and Tricco et al. (2018). Under the guidance of an academic librarian from May-August 2021, research assistants (RAs) searched for relevant literature using four strategies: (1) discovery-layer searches, (2) database-specific searches, (3) Google Scholar searches and citation examination, and (4) internet

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<sup>1</sup> A small number of sources older than ten years are included for context and/or because they are landmark Canadian studies.

searches. All four types of searches were necessary in order to achieve literature saturation (i.e., the point at which no new literature emerges in searches).

(1) Discovery layer Searches: A discovery layer is a software application that is used to conduct multiple searches across article databases and other library holdings (i.e., books, datasets, A/V materials) at the same time. Not limiting the scope to particular databases to start allows the interdisciplinary shape of a particular topic to emerge. For example, in initial literature searches for youth and transit, we found relevant scholarship in health and social sciences databases via discovery layer searching that would not have emerged had we only searched transportation-themed databases. We also found books and datasets that are part of academic library holdings (i.e., not indexed within proprietary databases, and would thus be missed if conducting only database-specific searches). Search phrases include: (youth OR teenagers OR “young adults”) AND (transit OR “public transit” OR “public transportation”).

(2) Database-Specific searches – While discovery layer searches allow for breadth, database specific searches are focused on depth. Individual databases are organized around particular subjects and include search tools that are not available through discovery layer searching. 43 different databases were searched.<sup>2</sup>

(3) Google Scholar searches and citation examination– Having concluded database specific searches, RAs turned their attention to Google Scholar to seek grey literature (i.e., materials not published through regular academic channels, such as government

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<sup>2</sup> Databases include: TRID, JSTOR, Project MUSE, Sociological Abstracts, Taylor & Francis Online, Proquest Dissertations & Theses, SAGE Journals, Web of Science, GEOBASE, Social Sciences Citation Index, Associated Press, Canadian Newsstream, National Observer, Nexis Uni, Proquest Newspapers, and multiple EBSCO databases (Academic Search Premier, AgeLine, Alternative Press Index Archive, America: History & Life, Anthropology Plus, Applied Science & Technology Index, Bibliography of Asian Studies, Bibliography of Native North Americans, Business Source Complete, CINAHL Complete, Communications & Mass Media, Criminal Justice Abstracts, eBook collection, EconLit, Education Source, Environment Complete, ERIC, General Science Abstracts, Global Health, Humanities Source, International Political Science Abstracts, Maclean’s Magazine Archive, MEDLINE, Military & Government Collection, Political Science Complete, APA PsycArticles, APAPsycInfo, Social Science Full Text, SPORTDiscus, Women’s Studies International).

reports, position papers, pilot project reports, conference presentations, etc.). The same search terms used in discovery layer searching were used, but updated for the proper way to search within the Google environment (i.e., no AND OR NOT Boolean logic). Google Scholar also allowed for citation chaining – the practice of seeing who cites a particular document – which enabled RAs to find the most recent literature in a subject area, including materials not yet available via library systems.

(4) Internet Searches – While Google Scholar will return some grey literature, pilot projects involving youth and transit, as well as some advocacy group and governmental reports are often only found using general internet searching. RAs explored the first 100 search results in a general Google search for resources related to youth transit use in Canada. They also conducted an advanced Google search for filetype:PDF, which limits the search to PDFs only. This technique helps surface grey literature reports.

During all four types of searches, PhD and MA research assistants reviewed titles, abstracts, and full-text of resources found using established criteria for relevance (i.e., age range falls into 13-25, subject is public transportation, source is credible). If criteria were met, the resource was logged in a Google Spreadsheet, and imported and tagged in Zotero, a free open-source citation management software. Zotero tags were used to organize results and allowed team members to analyze the literature found. To enhance accuracy, regular team meetings were held to discuss issues that arose and consider examples of materials with questionable relevance.

34 scholarly journal articles, 63 news/magazine stories, 14 reports, 4 academic theses, 4 websites, 1 book chapter, 1 book, and 2 conference papers were included as relevant, in that they had at least a brief reference to the subject area. While these references come from six continents, this report emphasizes the Canadian context as much as possible.

In order to ensure this study is replicable, the authors can provide upon request: the specific details of search terms, number of items found, number of items included in this review, and a spreadsheet of all literature included catalogued by database searched.

## THEMES IN THE LITERATURE

The included literature coalesced around particular themes, which are considered in turn below: demand for public transit among youth, barriers to youth accessing public transportation, youth involvement with transportation authorities, youth-led advocacy, employment, free or reduced-fare transportation, active transportation, schools and university transit pass programs (i.e., UPASS).

### DEMAND

An important piece of information for transit planners is current and projected ridership, and thus it is important to understand youth transit-use trends. Recent statistics, however, are largely unavailable. With no clear national data source on transit ridership, it is difficult to say definitively which way youth ridership is trending. Research conducted in the 2000s found increased use of car travel among youth (e.g. Dargay & Hanly, 2007; Matas & Raymond, 2008; Thakuria et al., 2010), and policy documents were constructed around this observation (e.g., Davis et al., 2012a; Grimsrud & El-Geneidy, 2013a, 2014b; Kuhnimhof et al., 2012a; Newbold & Scott, 2018b). However, studies based on limited data from the 2010s found this trend reversing itself: youth are using public transportation at a higher rate than adults and reducing private vehicle usage (Davis et al., 2012a; Delclòs-alió & Miralles-guasch, 2019). This includes Canadian scholarship demonstrating that youth transit usage in certain metropolitan areas is high but drops as cohorts age and acquire licenses and vehicles (Agarwal, 2017; Grimsrud & El-Geneidy, 2013a, 2014b; Marzoughi, 2011b). Others have documented that urban youth are increasingly using transit compared with previous generations (Davis et al., 2012b; Grimsrud & El-Geneidy, 2013a, 2014b; Kuhnimhof et al., 2012a; Newbold & Scott, 2018a), and that even when an automobile becomes an option, youth in downtown Toronto, for example, do not give up on transit and walking (Marzoughi, 2011b).

In the American context, National Household Travel Survey data found that while the size of the 16-34 year old bracket decreased by 2% compared to previous decades, this group reduced their private vehicle trips by 15% and private vehicle miles-per capita by 23%, and travelled 40% more miles using transit compared to earlier generations in the same age range

(Davis et al., 2012a). These changes have been attributed to transportation costs, urbanization, and urban planning policies (Kuhnimhof et al., 2012b). More recent data from the US noted that 22% of bus riders are under 25 (Clark, 2017).

A key question in the literature is if high transit use will continue as young riders age. Research from Montreal attempted to answer this question comparing work and school commuting data from 1998, 2003, and 2008 in Greater Montreal. They found that young people use transit at an increased rate compared to similar cohorts in previous years, although this usage decreases over time until stabilizing in the 30s (Grimsrud & El-Geneidy, 2014a). At this point of stabilization, however, transit usage remains much higher than previous generations, and the authors expect this trend to continue (Grimsrud & El-Geneidy, 2013b). However, Agarwal (2017) argues that it is important not to assume that Canadian youths' eschewing of private vehicles for transit will continue, as does Brown et al. (2016) in a US context. Agarwal (2017) and Newbold & Scott (2018b) both note that investment in useful, reliable, and safe transit must occur to support the continued use of transit.

## **BARRIERS**

### **Accessibility**

Accessibility is the notion that everyone should have access to barrier-free public transportation regardless of finances, physical and mental abilities, racial/ethnic identity, gender identity, or other social locations. A lack of accessible public transit leads youth to report physical, economic, and social barriers to full participation in society (e.g., Fresh Voices, 2018; Kersten et al., 2020; Wayland et al., 2020).

The cost of transit is routinely cited in the literature and media reports as being a key barrier to youths' use of public transportation. For example, in the Greater Toronto Area, Marzoughi (2011a) found that cost of transit was the second most cited concern among youth after frequency of service. Researchers in Australia ("Free Public Transport Needed for Students," 2016) and the US (Los Angeles County School Attendance Task Force, 2012; Stein & Grigg, 2019) noted that financial hardship is a barrier to youth taking transit to school. The

problem is compounded when youth do not pay a fare and are caught, as the fines imposed are an addition financial barrier to further transit use (Novak, 2019).

Auguste et al. (2020) considered the effect of socio-economic status on the travel behaviour of youth in Connecticut in general. Focusing on private vehicle driving behaviour, they found that socioeconomic factors were not associated with respondents indicating driving as their main source of transportation, and they suggest that if public transit is widely available, teenagers from a variety of socio-economic backgrounds might use these services. Key, however, is their assertion that while many youth from less populated areas drive or are driven out of necessity, how much and how freely they drive may connect to socioeconomic factors. Thus, expanded public transit is one way of enabling all youth, but especially those living in poverty, to travel around their regions.

In addition to finances, consideration of racial/ethnic identity and citizenship status in youth transit ridership is essential. A report on the experiences of immigrant and refugee youth in Vancouver found that transit is particularly integral to this group's ability to access workplaces and schooling, and participate in their communities; newcomer youth reported using transit at a rate of 49% versus 29% of the general Metro Vancouver population (Fresh Voices, 2018; Saltman, 2018a). Suggested improvements include increasing service levels during peak times, especially in areas where newcomers are living; a subsidized transit pass, and a transit orientation programming from settlement services.

While racial/ethnic identity effects mobility (Seiler, 2009), no studies selected for inclusion in this study mentioned racialized youths' experiences with public transportation, other than the Fresh Voices report cited above. Roberts et al. (2019) uses an intersectional lens to consider how racial identity, class, and gender affect youths' of colour use of active transportation modes, but does not get into the specifics of public transit. The experiences of Black, Indigenous, and Youth of Colour is an area that requires further research.

Aside from racialization and citizenship status, research has found that disabled youth experience barriers to using transit, including challenges for accessible seats, bullying and intimidation, and receiving unwanted assistance (Wayland et al., 2020). The authors also note that these difficulties are driven by visibility (or lack thereof) of one's disability, age, gender,

and narrow understandings of disabilities. In a study with autistic youth, Kersten et al. (2020) found that dealing with the challenge of using inaccessible transit led to increased feelings of vulnerability and exhaustion.

Canadian researcher Sally Lindsay's work focuses on solutions to the barriers that youth with disabilities encounter in accessing public transportation. Lindsay and Stoica's (2017) literature review considered factors that affect driving and public transportation among youth with acquired brain injuries, while Lindsay and Lamptey's (2019) literature review reviewed best practices for inclusion, stressing the importance of travel training. A later study (Lindsay, 2020) compared the thoughts of transportation stakeholders to those of youth with disabilities and their parents based in Toronto. The groups felt that the following actions would assist in making transit more accessible: training for transit employees to increase awareness, training for youth with disabilities on how to use transportation systems, increased funding for accessibility initiatives, use of transportation consultants, upgrading transit stops to make them physically accessible, prompt snow removal and improving efficiency of accessible buses.

The call for youth training found in Lindsay's (2020) work was put into practice in Birmingham, England; the town council trained six school support staff to empower youth with disabilities to use public transportation ("Happy to Travel on My Own," 2008). These individuals assisted youth to access their community and increase their self-esteem. As public transit use increased, minibus trips decreased, saving the town 70,000 pounds. Likewise, a study in Germany of young students with intellectual disabilities found that after three years of various types of interventions – largely focused on various types of training for youth and drivers - use of public transit to get to school increased from <1% to 65% of the 124 participants (Haveman et al., 2013).

Little research has been conducted into lesbian, gay, bisexual, transgender, queer, and intersex youth experiences with transit, but among the few studies that do exist, risk of harassment and victimization is heightened in some countries (Ceccato & Loukaitou-Sideris, 2021). Despite the lack of studies, it is likely that LGBTQI+ youth experience harassment and violence on transit, as similar studies with transgender and gender non-conforming adults in Portland, OR found this to be a common experience (Lubitow et al., 2017, 2020).

## **Safety**

Safety while undertaking public transportation journeys is of concern to youth in multiple countries. In Canada, Marzoughi (2011a) reports safety issues related to waiting at bus stops – especially those not well lit and without shelters in cold and rainy conditions. Wiebe et al. (2013) found that American youth expressed increased fears of being assaulted when taking public transit compared to other forms of transportation. In a later study involving 153 Black male youth in Philadelphia, nuance was added to the previous research: feelings of safety diminished after dark, particularly on subways and in areas where alcohol could be purchased (Wiebe et al., 2014).

Young women are particularly at risk for sexual violence on transit; globally, it is a common occurrence that is highly under-reported (Ceccato & Loukaitou-Sideris, 2021). Around the world, young women reported changing their behaviours to lessen their risk levels (i.e., not going out at night, avoiding certain areas), which affects their independence and travel choices (Ceccato & Loukaitou-Sideris, 2021). Young women expressed transit-related safety concerns in Jordan (Youth for the Future, 2014) and in multiple African nations (Porter et al., 2011). In a study of young Swedish university students (n = 1122), 61.6% of women reported being sexually harassed or assaulted while using transit, with younger female riders (18-29) most at risk (Ceccato et al., 2020).

## **Lack of Knowledge**

In addition to safety concerns, another barrier to transit use by youth can be a lack of knowledge. Auguste et al. (2020) note that promotion of existing public transit services is needed among teenagers, while Thomas (2010) recommends that a transit planning module be taught in high schools and universities. One youth-led transit education initiative was reported in Minneapolis, MN (Jacobson, 2014).

## **Geographic Location and Frequency of Service**

How often public transportation services are available – if at all – are another barrier to youth transit use, particularly for those who live in suburban and rural communities. In the US, Auguste et al. (2020) found that teenagers from lower socio-economic status homes and/or those in rural areas have less access to public transit, and thus face barriers in accessing resources and opportunities. Litman (2017a) noted the importance of public transit access to youth in rural communities, especially those who cannot drive. He further posits that service is a public safety issue; more youth taking transit reduces private vehicle usage, and with fewer cars on the road, traffic crashes should decrease (Litman, 2016).

Aside from rural youth, those living in the suburbs of the Greater Toronto Area noted that infrequent service, poor placement of stops, and lack of coordination between transit authorities were serious barriers to their mobility (Marzoughi, 2011a). In Metro Vancouver, youth in suburbs reported experiencing a “transit curfew” – the need to get home before the last bus left – that limited their independence (Thomas, 2010, p. 104). Thomas (2010) notes that infrequent or non-existent transit curtails youth independence and encourages private vehicle travel. Marzoughi (2011a) suggests that improving the frequency of trips along suburban routes and extending service hours (particularly on weekends) would assist youth, as would clearer information about using various transit authorities across one trip.

A study in Spain found that youth (18-29) in urban areas spend more time on transit than do older adults, and less time engaging in active transportation and using private transportation (Delclòs-alió & Miralles-guasch, 2019). When examining the same data rurally, the division was even more stark, with youth spend significantly more time on public transit than adults. The authors attribute the increased rural youth use of transit to this group not having the economic means to access private vehicles. The authors also note that in both types of environments, trip purpose corresponds to life stage; work and study are the main purposes of youth transport, while trips related to taking care of oneself/others are undertaken significantly less than adults.

## **YOUTH INVOLVEMENT WITH TRANSPORTATION AUTHORITIES**

Transportation system officials are attempting to boost youth ridership numbers, and involving youth in public transportation planning is seen as one avenue in which to accomplish this goal. In Jordan, a youth-led study found that transit systems were key to youth employment and development (Youth for the Future, 2014), while others have investigated how to engage Bangladeshi youth in public transportation planning (Anik et al., 2020). The International Association of Public Transport works to involve youth through project awards and transit-themed Youth Parliaments (Harnack, 2008), while transit authorities in multiple cities report soliciting youth opinions related to public transportation (e.g., Moussly, 2011; Richards, 2014)

Other adult-led transit projects relate to advertising. The authors of a Portland, OR research report worked with youth to create and assess transit messaging aimed at increasing ridership and positive attitudes toward transit (Shafer & Macary, 2018). A key finding is that messaging aimed at teens should be routed via parents/guardians, as they are the ones endorsing and distributing these messages. Aside from parents/guardians, teens reported being reached through the city's transit app, YouTube and Instagram ads, advertising near bus stops, and via youth-oriented radio. Text messaging was found to be ineffective, and Generation Z (born late 1990s to mid 2000s)-targeted ads were disliked. Youth reported feeling unsafe on transit, and thus they deemed safety-focused messages to be inauthentic. Shafer & Macary (2018b) conclude that advertising should tap into the positive associations that youth already have with various modes of public transit, including messaging that centers potential autonomy.

Aside from research and advocacy bodies, other transit authorities are using art co-created with youth to foster a positive relationship between community, youth, and public transportation systems, including murals in stations ("Australia : Youth-Led Art Piece to Transform High Wycombe Station Entry," 2021; "Bayswater Wall Mural Completed," 2018) and promotional materials ("Poetry in Motion Returns to MTA Buses," 2018).

## **YOUTH ADVOCACY**

Outside of working directly with transit authorities, youth are leading public-transportation advocacy efforts to: (1) increase Minneapolis, MN transit ridership for the purposes of independence and flexibility (Jacobson, 2014), (2) counter “auto-centric culture” in Glendora, CA, and provide safe transportation for independent travel (“California: California City Solutions: Glendora Creates Mode of Transportation for Teens,” 2016), (3) make Newcastle, UK’s public transport more effective so people will use it and counter traffic congestion (Caldwell, 2014), (4) help reduce traffic congestion in Malta (“Youth Suggest Four-Day School Weeks to Combat Traffic,” 2015), (5) address the rising cost of living in Malaysia (“Spotlight on Rising Cost of Living,” 2015), (6) make transit less cost prohibitive for youth in Pakistan (“Framework for Student Discount Card Launched,” 2011), (7) improve youth public transport experience in South Yorkshire, UK (“Young People Have Their Say on Public Transport,” 2020), (8) improve public transit for young people by finding out what youth think is important in Bolton, UK (Thorpe, 2013), and (9) push for investment in infrastructure to renew affinity for Philadelphia, PA public transit (“Invest in America’s Youth: Invest in Public Transit,” 2013).

## **FREE AND REDUCED-FARE TRANSPORTATION**

Free and reduced-fare transit for youth and/or students is a subject of increasing interest globally, including among Canadian municipal governments (e.g. Saltman, 2018b; Tank, 2016) and citizens (e.g. Relf, 2012; Schreck, 2020). The media and researchers cite multiple reasons for such pilot programs, including:

- to encourage students to use public transit and increase their independence and participation in employment and civic life (Akiyama, 2017; Gillmore, 2012; Relf, 2012; Sullivan, 2017; Tank, 2016),
- as a way to close the equity gap and to reduce poverty (Cleverley, 2017; Griffin, 2019; Isitt, 2020; McManus, 2018; Van Brenk, 2016),
- for sustainability reasons (Isitt, 2020; Kines, 2020; Schreck, 2020),

- to incentivize a shift to transit by youth and families traveling by car (Todd, 2020),
- to take the pressure off parents to drive their teenagers around (Tweedie, 2007),
- to provide access to those youth who need it (Thistle & Paget-Seekins, 2017; Van Brenk, 2016),
- to encourage youth to continue to use transit and not rush into obtaining their drivers licenses (“Free Bus Scheme for 18-Year-Olds to Kick in on Sunday,” 2016),
- to increase ridership (“Surplus Used to Sustain Free Public Service for Young People,” 2019),
- to offer savings to teenagers or their parents (Tweedie, 2007), and
- to decrease the number of accidents involving young drivers (Tweedie, 2007)

In 2012 Kingston, ON became the first municipality in Canada to provide high school students with free transit passes. Assessment of the program demonstrated that ridership among this demographic has increased, and that students undertook a greater number of independent trips, allowing for increased participation in activities (Sullivan, 2017). Whitehorse, YK and Peterborough, ON tried small-scale versions of the initiative in 2012 and 2017, respectively (Akiyama, 2017; Gillmore, 2012). In 2018-19, the All On Board campaign in BC led to Vancouver and New Westminster city councils endorsing the idea (Griffin, 2019; McManus, 2018). City council in Victoria, BC implemented free transit for youth in 2019 (Bailey, 2019). The province of British Columbia eventually made transit free for children under 12 as of September 2021 (*B.C. Rolling out Free Transit for Kids Starting in September, 2021*). Outside of Canada, there are a patchwork of free transit fare schemes in areas such as Seattle, Malta, Estonia, and Luxembourg (Isitt, 2020; Magri, 2019; Saltman, 2018b).

Despite increased adoption of free transit policies, there is little scholarly assessment of their actual effect. The most thorough to date is Saphores et al.’s (2020) *A Review of Reduced and Free Transit Fare Programs in California*, in which they collected survey responses from 59 California transit agencies about the effect of their policies. While most respondents to the survey deemed that the policies increased ridership, many expressed concerns about the financial losses associated with the programs – despite almost half of the respondents not

actually knowing the fiscal impact. A central concern for city officials is how to fund free-fare programs (Bailey, 2019; Van Brenk, 2016). Victoria, BC covered the cost with the implementation of parking fees on Sundays (Bailey, 2019).

When considering the results of free transit initiatives, it is critical to note that they must be integrated into broader comprehensive policies and strategies. Saphores et al. (2020) specify this includes ensuring the transit needs of intended recipients are understood; coupling free transit policies with other initiatives to reduce private vehicle use; and providing transit that is useful, safe, and clean. The authors' suggestions were borne out in Kingston, ON, which implemented free transit for youth in 2012, but found that simply making transit free was not enough on its own. Jeremy DaCosta, the city's director of transit and fleet services, noted: "Don't think just because it's free that youth are going to start to use [transit]. You still need a transit system that provides a level of service that people are going to want to use. You can't just make it free and assume that all of a sudden, you have got a service that is desirable" (Bailey, 2019). A similar conclusion was reached by Sukor et al. (2021) with regard to free bus service for youth 18-25 in Penang, Malaysia that did not achieve ridership goals: free transit is not enough if transit service is not useful and reliable. Additionally, lack of real-time transit information (i.e., the ability to check where the bus is at any time) and negative symbolic status (i.e., the bus being "uncool") were cited as reasons why the program did not work as expected (Sukor et al., 2021). In the US, Zhou's (2016) research with university students found that not only were affordable and/or subsidized passes necessary to promote not driving alone, but a decent transit system that provides students with proximity to bus stops and a short waiting time are also critical to shift individuals away from private vehicle usage.

While the press often covers announcements of free transit programs, it is rare to see follow-up news of program assessment. Only one instance was found, in which politicians in Malta deemed their experiment with free transit for 16-20 year-olds a success, citing an increase in ridership rates among this demographic by 12% over the previous year ("Press Release by The Ministry For Transport, Infrastructure And Capital Projects More Positive Results in Public Transport Usage Youths Continue Making Use of the Free Transport Benefit," 2019).

Instead of completely free fare programs, other jurisdictions have implemented reduced-fare policies for youth. For example, Boston piloted a reduced-fare program for all youth under 18 and those 19-21 who demonstrated financial need (Thistle & Paget-Seekins, 2017). The pilot was successful, with transit trips among participants significantly increased. However, Thistle & Paget-Seekins (2017) note that administrative barriers for demonstrating need posed a problem. To remove this barrier, when the program was made permanent, it was expanded to all youth without the necessity to prove need. In Spain, Arranz et al. (2019) found that Madrid's subsidization of youth transit passes benefited medium and high-medium households the most in terms of reducing transportation costs. However, they also found that the program assisted low-income households to increase their access to transportation.

## **ACTIVE TRANSPORTATION**

Active transportation (AT) is another area in which there is investigation into adults and children but little research on youth. Active transportation is any form of human-powered travel (i.e. walking, cycling). As almost every transit trip begins and/or ends with a form of active transportation, transit systems are frequently included in this scholarship. Research in this area tends to focus more on children than youth, examining the link between public transit, free fares (Pesola et al., 2020a), and school travel (Voss et al., 2015a). Roberts et al. (2019) consider how youth inhabiting disadvantaged racial, gender, and class social locations engage in active transportation less than privileged youth.

Jones et al. (2012) consider a common question among researchers and policy-makers: does the provision of free transit for youth affect the amount of active travel they do, and consequently, their levels of physical activity? Conducting interviews and focus groups with youth in London, UK, the authors found that while some walking trips are replaced with bus travel, a free fare program in and of itself does not encourage reduced physical activity. Aside from the activity of increased walking to/from transit stops, the authors found that “this [free] fare policy opened-up the bus network as a set of public spaces for young people” (Jones et al., 2012, p. 611). They argue that social contact is a key component of wellbeing, and that “active transportation” should be defined more broadly than simply walking or biking.

While Jones et al. (2012) consider the active transportation question qualitatively, a Finnish study is underway to engage the question quantitatively. Pesola et al. (2020b) published a study protocol comparing children in a town with free transit to those in a neighbouring town without free transit, aiming to measure the level of physical activity and independent mobility of youth. While not coming at the issue from the perspective of free transit, a Vancouver, BC-based study found that using public transit to get to school provided a meaningful contribution toward daily physical activity (Voss et al., 2015b).

Gase et al. (2014) connects active transportation with free and reduced-fare transit programs, viewing them through the lens of health. They advocate that stakeholders considering the provision of free youth transit conduct a Health Impact Assessment. They explain this model in their article, additionally concluding that a free fare program for youth in Los Angeles, CA would increase school attendance, decrease contact with the justice system, increase funding for schools, and create healthier individuals and communities (Gase et al., 2014).

## **SCHOOLS**

Transportation plays a key role in the educational opportunities and choices of youth (Vincent et al., 2014). A lack of convenient and affordable transportation is known to be a barrier to school attendance (Los Angeles County School Attendance Task Force, 2012; Stein & Grigg, 2019). The provision of free transit passes is one avenue through which it is speculated that this barrier may be reduced. In a large-scale study of 289 schools in Miami-Dade County, Florida from 2010-2017, Patel et al. (2020) found that free transit among students classified as experiencing transportation vulnerability led to an increase in attendance at schools and community-based recreation programs. Gase et al. (2014) estimate that free transit in Los Angeles would decrease unexcused absences by 1 to 5%. The authors note that even this 1% is significant; LA schools are funded based on average attendance, and 1% increase in attendance would result in \$125,000 USD additional funding per year. Instead of free passes, some districts are subsidizing youth passes as a supplement to yellow school buses (Vincent et al., 2014).

Noting the trend of American public school districts allowing students to choose the schools they attend regardless of where they live, Bierbaum et al. (2021) advocate for this issue to be examined within a mobility justice framework. They argue that it is critical to consider transportation equity when assessing if students from marginalized social groups have equal opportunities to select their schools. For example, attendance at a “good” school is only available to those who can routinely get there; if transit systems do not provide safe, reliable, regular access to this school, students who rely on transit will not be able to attend, being forced to receive their education at less desirable schools.

Travel safety – particularly for younger children – is cited as a reason that parents drive their children to school, instead of using public transit (Ermagun & Samimi, 2015, 2018). Other factors found to negatively influence the use of public transportation systems for school commuting include: convenience, reliability, travel distance and time, poor infrastructure, distance to transit stops, car ownership, adult preference for private vehicular travel, and departure times that coincide with rush hours (Ermagun & Samimi, 2018; Mehdizadeh et al., 2019; Mitra & Buliung, 2015; Zhang et al., 2017).

## **U-PASS**

Universal access transit programs (U-Pass) are found at many universities and colleges, and are frequently funded by an insurance-style model, in which a large body of students pay into a program that not all will use. Most academic research demonstrates that these programs work in increasing ridership and decreasing private vehicle use (Han et al., 2019; Zhou, 2016), and are beneficial to both students and transit programs (Saphores et al., 2020). In Canada, however, most program assessments and guides concerning the implementation of U-Pass programs are more than a decade old (e.g. Faucher, 2011; Noxon Research Associates, 2004; Wu et al., 2004), reflecting the fact that these programs are well-established in some institutions. Exceptions include North Island College in BC (“Mandatory Discounted Transit Pass Proposed for Comox Valley College Students,” 2018) and some schools in Ontario. With regards to the latter, the Ford government’s Student Choice Initiative – which limits compulsory ancillary fees – is cited as the reason for recent cancellations of proposed U-Pass programs

(Butler & Sweet, 2020; “No Discounted Public Transit Pass for Sheridan College Students in Oakville,” 2019). One recent scholarly article used a market equity vs. opportunity equity model to explore the potential financial consequences for students of a proposed (but never implemented) Toronto U-Pass (Butler & Sweet, 2020).

## EMPLOYMENT

The trend of youth using public transit to get to employment sites is a global theme. A media report of research done in Australia made the link between youth unemployment and poor transit service clear, and advocated improving the latter to reduce the former (Wirsu, 2016). A Jordanian youth-led research project working closely with government and non-governmental organizations found that transportation is a significant barrier to youth employment – particularly for females, due to harassment (Youth for the Future, 2014). The authors note that many youth quit their jobs within six months because of disorganized service, poor reliability, limited hours/service areas, and high cost. In Canada, a study in Vancouver demonstrated the importance of transit to immigrant and refugee youth to access employment (Fresh Voices, 2018; Saltman, 2018a).

## RESEARCH GAPS

While the research, media, and policy related to youth and public transit clusters around the particular themes outlines above, even these topical concentrations are far from thoroughly studied. Multiple researchers note the need for further study and policy concerning transportation and young adults. Delclòs-alió & Miralles-guasch (2019) call for further research into the experiences of rural young people, who must cope with longer travel times and distances. Grimsrud & El-Geneidy (2014a) call for transit agencies to set a goal of increasing youth ridership, suggesting that one way to do this is to specifically examine the location and travel patterns of urban individuals in their 30s – the age at which transit ridership stabilizes. Noting the lack of rigorous research, Saphores et al. (2020) call for assessment of the effect free or reduced-fare transit programs on travel behaviour.

Over the last decade, transportation equity – the study of how transportation-related costs and benefits are distributed – has grown as an area of study (e.g., Litman, 2017b; Sanchez et al., 2017). More recent work has pushed for a shift towards mobility justice, focusing on the role of the state in perpetuating injustice (e.g., Cook & Butz, 2019; Karner et al., 2020; Sheller, 2018). However, we found no work that utilizes a mobility justice paradigm to consider the experiences of youth and public transit systems. Future work in this area is vital if transit systems are to be made truly welcoming to all.

## DATA SOURCES

The academic literature cited in this report often reflects a lack of collected and/or published transit data – on both youth and in general – in the Canadian context. Some Canadian researchers (e.g. Newbold & Scott, 2018a, 2018b) rely on national “Time Use” cycles of the General Social Survey, which appear every 5-6 years, and one question about transportation to and from work in the Canadian Census for persons aged 15 and older. Otherwise, Canadian academics rely on a patchwork of regional data, including the Transportation Tomorrow Survey in south-central Ontario (Marzoughi, 2011a), and origin-destination surveys in Montreal (Grimsrud & El-Geneidy, 2014b). US researchers (e.g. Blumenberg & Taylor, 2018; Brown et al., 2016) have access to the US National Household Travel Survey, which is the only source of national American data that allows for the analysis of personal and household travel.

## RECOMMENDATIONS FOR POLICY & PRACTICE

### **Record and Publish Data Related to Ridership Statistics and Demographics**

A national-level, centralized and open data portal to which all transit authorities contribute yearly ridership and demographic statistics could assist in elucidating youth transit ridership trends, and serve as a basis for future research. Standardized categories should be employed for ease of comparison.

### **Establish Youth Transit Advisory Committees**

A decade ago, Thomas recommended that Metro Vancouver “establish a youth planning committee to assist with data gathering and future studies on youth and young adults’ travel patterns” (2010, p. 105). While it is helpful to have youth involved in research, expanding the scope of such a committee can assist transit organizations with advertising, outreach, accessibility, and planning. In responding to sexual violence, Ceccato et al. (2020) advocate for young riders’ views to be centrally featured in any transit authority responses.

### **Implement or Improve Transit Education**

As noted above, several sources advised implementing or improving transit education in schools and post-secondary institutions. Transit authorities should consider hiring youth to educate other youth, and use curriculum and messaging that is developed in partnership with youth to ensure needs are being met and content resonates.

There is also a need to help youth with disabilities who are capable of navigating transit systems to do so. This could include individuals within a transit system who act as accessibility guides and training youth and adults within schools and organizations to teach others to use public transport.

### **Improve Safety**

Ceccato and Loukaitou-Sideris (2021) call on transit authorities to expand their research from on the vehicle safety to whole-journey travel safety, noting that the last mile is of particular importance to many women using public transit. The authors also call for research into local crime dynamics, the effectiveness of campaigns to decrease sexual violence, the under-reporting of sexual violence, and different safety needs of users. A policy of “on-demand stops” – particularly at night – may assist in enhancing feelings of safety (Ceccato et al., 2020).

Related to different safety needs, it must be understood that safety does not necessarily mean an increase in policing and surveillance. For example, Black, Indigenous, and Youth of Colour have a history of negative interactions with police in comparison to their white counterparts due to racial profiling and stereotypes (González & Kaeser, 2021). This is only one example of why it is important that any research undertaken includes a broad spectrum of

participants based on racial/ethnic status, Indigeneity, gender identity, class, sexual orientation, etc.

### **Improve Service at Night and on Weekends**

Multiple Canadian studies (i.e., Marzoughi, 2011a; Thomas, 2010) found that youth are constrained by a lack of service – particularly at night and on weekends. Improving service during these times would enable more youth to participate in employment and community events, as well as socialize. However, geographic-specific research should be undertaken to determine the best service improvements.

### **Work within a Transportation Equity or Mobility Justice Framework**

As documented throughout this report, transportation experiences differ depending on racial/ethnic status, Indigeneity, gender identity, class, sexual orientation, ability, etc. A helpful lens through which to consider how youth experience transit is a transportation equity framework that assesses the fairness of the benefits and costs distribution for different groups of people, and/or a mobility justice framework that goes beyond equity to consider the role of the state and environmental policies. Key to both approaches is an understanding that policies are not neutral. For example, related to transit safety interventions, Ceccato et al. (2020) call for a shift away from policies that are supposedly gender neutral, noting that sexual violence is not experienced equally among riders (including not being homogeneously distributed among female transit users). An equity or justice focus should be employed not only at the planning and policy stage, but also in training with front-line employees.

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