Users, Gender, and Access:

Ottawa's Public Transportation History from 1891 to 2011

Emily Gann

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Abstract

Users, Gender, and Access: Ottawa's Public Transportation History from 1891 to 2011 is a study focused on mobility technologies and services, changing passenger demographics, and issues of access. This work spans from 1891, when electric streetcars were first introduced in the City of Ottawa, to 2011, when OC Transpo's fleet was deemed fully accessible as its conventional fleet was entirely made up of low-floor buses. Over this period, the city and its public transportation offerings witnessed and responded to notable changes in passenger demographics, disability-led legislation regarding design and access, and fluctuations, growth, and resistance to established and new relationships between gender, users, and mobility technologies.

This study is informed by critical concepts and frameworks from Feminist Technology Studies, Feminist Disability Studies, and Science and Technology Studies. As a collective, these studies inform a fluid appreciation of the nuanced and intricate ways in which technology and users shape and are shaped by one another, with respect to different spaces, places, and time periods. These insights support *Users, Gender, and Access*'s attempt to understand and appreciate more recent gendered experiences of urban mobility within the history, legacy, and context of the need, development, and purpose of Ottawa's early public transportation efforts.

In order to explore this history, this study relies on a rich variety of primary sources through a mix-method approach. Archival material pulled from the City of Ottawa Archives, as the primary repository for the city's operational material, alongside oral history interviews and first-person perspectives presented in newspapers offer unique insights for this work. These sources are studied alongside the rich material culture provided by a number of key artifacts and technologies, which ground this study in the built environment and sensorial experience of mobility.

Ultimately, *Users, Gender, and Access* presents a case study for examining the history of access and inclusion, or a lack there of, which is informed by the fluid relationship between users and technology. It offers a unique contribution to the wider fields of transportation, material culture, gender, and disability by demonstrating the value of tracing the history of socio-technical artifacts. As this work argues, decision made in the late 1800s, that were informed by gendered and ableist appreciations of urban mobility and the role of public transportation, continue to influence how this technology is appreciated and experienced in the present.

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Chapter 1

Introduction: A Brief Overview of the History of Ottawa's Public Transportation System and Relevant Context for Approaching the Themes and Insights of *Users, Gender, and Access*

This dissertation draws on historical documents which contain ableist and sexist terminology. Please read with care.

Public transport or public transit is broadly defined as forms of transportation, such as buses, trains, or subways, and their supporting infrastructure, which are available to the public at set fares, at set times, and run on predetermined routes (Walker, 2012). In Canada, municipal public transit services now generally include conventional and specialized services. The central difference between these options, which informs how they operate, is their intended passengers, or users, and the services and technologies of mobility that they require. Conventional public transit systems serve the general public and operate large framed vehicles on mainly fixed routes at scheduled times. Specialized public transit, conversely, provides pre-ordered door-to-door transportation services on comparatively smaller framed vehicles to individuals with disabilities who meet eligibility requirements created by the municipality (National Association of City Transportation Officials, n.d.). Providing conventional and specialized services for the varying needs of passengers, however, is a relatively recent approach to managing public transit services and accommodating riders' mobility needs. Since the introduction of public transit systems and technologies in Canada in the mid-1800s, conventional services have been the central transportation offering, with the first specialized, parallel transit options emerging in the 1960s. This initial focus on conventional services, in lieu of accessible parallel options, was informed by

societal appreciations of the relationship between technology, capitalism, ableism, and gender and has greatly influenced urban growth, public v. private work and the workforce, and norms surrounding mobility, gender, and access.

The beginning of public transit in Canada is really the story of the formation of the country's first cities, their urbanization and industrialization, and technological adoption in both municipal planning and infrastructure. The relocation of people from rural areas to urban centres, coupled with growing populations caused by high domestic birth rates and mostly European immigration, were central demographic developments causing city expansion during the mid-19th century. Alongside these population changes, the investment of private capital, by individuals of means or corporations, provided the foundation for a promising industrial sector based on transportation, energy, services, public works, and their supporting financial institutions. Added to these changes and developments was the introduction of a number of technological innovations that supported the growth of the city, both in terms of population density and urban expansion. As cities grew, conventional public transit emerged as a solution to the issue of personal mobility and the connectedness of ever-growing cityscapes.

It will come as little surprise that Toronto, as a busy commercial hub by the mid-1800s, was the first Canadian city to adopt public transit. In 1849, with a population on the brink of the 30,000, Henry Burt Williams, a local cabinet and coffin maker, built four omnibuses (Filey, 1994). These horse-drawn vehicles could hold six passengers and were similar in design to a closed carriage, only larger (Figure 1 on page 4). Williams Omnibus Line's initial route was along King Street and Yonge Street, starting at the St. Lawrence Market and ending at the village of Yorkville, at the Red Lion Hotel. This trip took roughly ten minutes to complete and cost a sixpence or equivalent to $3.50 today (Filey, 1994). This service was immediately popular with local users and, within a

year, Williams expanded his fleet to include five new, larger 10-seater omnibuses (Filey, 1994). A decade later, in 1861, Toronto's population had grown to almost 45,000 and the Williams Omnibus Bus Line was overburdened. While this provider and the omnibus, as a technology of urban transit, could not sustain the increased demands placed on them by the mobility needs of Torontonians, they certainly demonstrated the public need and appetite for such a service. As William's shuttered his operations, the Toronto Street Railway emerged in its place and introduced a new, more efficient form of public transit: the horsecar, also referred to as a horse-drawn tram or horse-drawn streetcar (Filey, 1994).

Figure 1: A Williams Omnibus vehicle in front of the northern terminus of the line, the Red Lion Hotel, ca. 1850. Credit: Special Collections Toronto Public Library/Owen Staples.

Horse-drawn streetcars were a marked improvement to their predecessor, the omnibus. Unpaved urban streets, worn and uneven by weather and traffic, were not compatible with the omnibuses' tall and narrow wheels nor did they make for easy pulling for the one or two horses harnessed to each vehicle. The efficiency of this system left much to be desired by both passengers

and operators. On the other hand, horse-drawn streetcars required track to function. The low rolling resistance of wheels on rails made the work much easier for the horsepower and noticeably smoother for passengers but was a major undertaking for transit providers, who typically included the construction of such infrastructure in their operating bids to municipalities. In 1861, informed by a proven system in Philadelphia, Montreal and Toronto became the first Canadian cities to operate horse-drawn streetcars. These cities, and others who adopted horsecars, came to be known as 'tracked cities' as their transportation was dominated by vehicles mounted on tracks (Schaeffer & Sclar, 1975). Tracked transportation networks facilitated residential development outward from the city centre while the city's economic activities still remained concentrated in the urban core (Nader, 1975). In spite of the need to substitute sleighs for the streetcars in the winter, Toronto and Montreal's operations functioned well. By the end of the 19th century, horse-drawn streetcar services were available in Winnipeg, Hamilton, Quebec City, Halifax, Saint John, and Ottawa. (Schaeffer & Sclar, 1975).

As cities grew, existing urban transit technologies struggled to keep up with user demand. This was made especially difficult by the equine influenza, commonly referred to as 'The Great Epizootic', that broke out in Canada in 1872 (Powell, n.d.). The equine influenza first appeared in late September in horses boarded outside of Toronto and within days most of the animals in the city's crowded stables had caught the virus (Powell, n.d.). The flu symptoms were minor at first, with horses presenting with a slight cough and/or low energy levels. Horses could develop, however, a rasping cough, high fever, and complete loss of appetite. The 1874 *Report of the Commissioner of Agriculture* estimated that this virus killed 2% of nearly 8 million horses in all of North America over a 3-year period (USA Department of Agriculture, 1874). This fast spreading equine epidemic created major horsepower shortages across Canada, hitting Toronto

and Montreal particularly hard. This virus, coupled with the overhead costs and physical spaces, like stabling, required to care for a fleet of working horses, demonstrated the vulnerability and cumbersome supporting infrastructure required to operate the horsecar.

With the introduction of electric power in the 1880s, Canada's public transit providers were quick to adapt their operations to this energy source. In 1884, the Toronto Industrial Exhibition demonstrated the potential of electric railway by motorizing a Grand Trunk flatcar with a third-rail line (a conductor rail used to provide electric traction power through the tracks) as can be seen in Figure 2, to the left. This operation was named the Van Depoele Industrial Exhibition Electrical Railway and was the initiative of a local electrician, John Joseph Wright, who later became superintended of the Toronto Electric Light Company, and Belgian proponent of electric traction, Charles Van Depoele (Unknown, n.d.). In 1885, this service was converted to trolley-pole operation using Van Depoele's technique of overhead wires, in lieu of conductor rails, to provide electrical power to the train. This experimental exhibition line operated until 1893 when it was replaced by regular streetcar service.

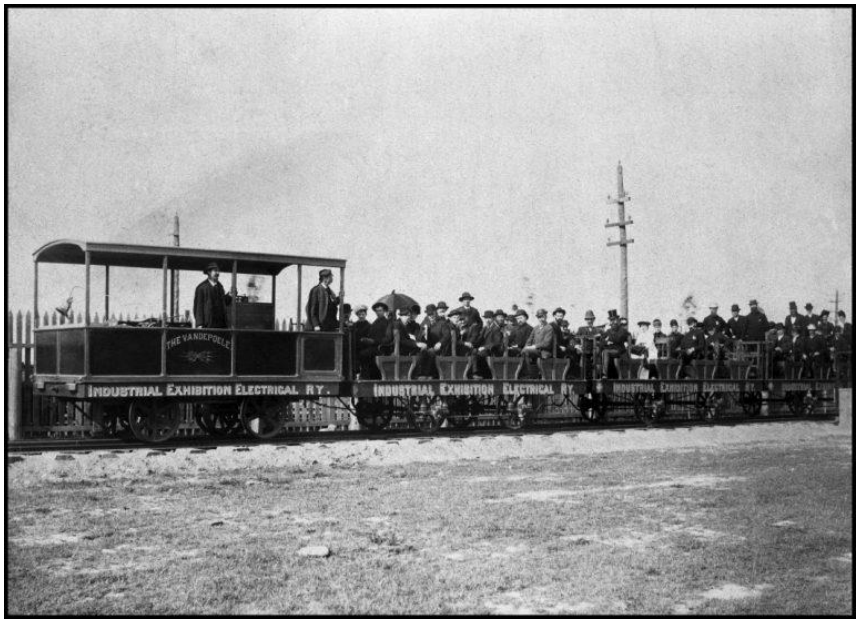


Figure 2: A black and white image highlighting the Grand Trunk flatcar in use. Credit: Library and Archives Canada, Image Number C3206.

Between this line's introduction and its replacement almost a decade later, electric streetcars had become an established form of public transit in cities across North America. The costs of

refurbishing existing track lines and operation were low, which allowed streetcar services to spread rapidly. Windsor, Ontario, installed the first Canadian electric streetcar system, just two years after Toronto's expo (mentioned previously), in 1886 (Sullivan, 2015). Vancouver followed in 1890, Winnipeg in 1891, Montreal, Hamilton, and Toronto in 1892, Edmonton in 1908, Calgary in 1909, and Regina in 1911; Ottawa operated its first electric streetcar in 1891 (Canadian Urban Transit Association, 1993). By the start of the Second World War, 48 Canadian cities and towns boasted electric streetcar systems (Canadian Urban Transit Association, 1993). In most Canadian cities, this technology was the leading form of urban transit until the introduction of the bus or trolley-bus in the late 1950s/early 1960s. Busses with pneumatic tires were popular options for both inter and intra-urban travel throughout the second half of the 20th century.

Until the late 1800s, service providers predominantly purchased new horsecars and electric streetcars from American companies. John Stephenson Company, based in New York City, NY and founded in 1831, was a major manufacturer of carriages, horsecars, cable cars, and, later, streetcars. Between 1876 and 1891 alone, this builder constructed some 25,000 cars for distribution across North American (White, 1974). Towards the end of the 19th century, three street railway equipment companies emerged in Western Ontario which established the region as a manufacturing hub for this industry. The first on the scene was the Ontario Car and Foundry Company (OCFC) which was incorporated in London, Ontario, in 1872 (Bailey & Parker, 2002). The next notable builder was the Ottawa Car Company (OCC). Originally a carriage building operation owned by William Wylie, in 1891 the OCC began producing streetcars and snow sweepers; Ottawa was this company's primary market (Knowles, 2003). The Toronto Railway Company, the operator of Toronto's streetcar system between 1891 and 1921, manufactured its own streetcars and rail work vehicles, and produced cars for other providers. These builders all

produced relatively similar looking cars. The supporting infrastructure, of tracks and horsepower or electric trolley power, dictated the width and weight of these vehicles and limited the types of materials that could be used in their construction, as well as their size and design. Across the country, however, city transit providers painted their vehicles different colours so that their fleet maintained a uniform aesthetic. While builders were left with very little room for creativity, Canada's urban transit technologies were unique and colourful.

The first few decades of public transit operation in Canadian cities was a period of rapid experimentation and development. In response to growing cityscapes and the mobility needs of local citizens, public transit became a means to an end as it allowed for the scheduled movement of people, which, in-turn, provided a rationale for continued urban growth. Since the introduction of public transit service near the middle of the 19th century, the function, operation, and accessibility of these systems have developed in response to innovative technologies, evolving passenger demographics, governance structures, and, more recently, new disability focused legislation. Within this larger confluence of technology, use, and development, the impact and implications of a changing ridership, coupled with new accessibility codes and safety regulations deserves particular attention. It is by examining the categories of technology, gender, and access, in particular their nuances, influence, and disconnectedness at the city-level, that one can begin to comprehend the broader history of public transit in Canada, the relationship it has with society, and the role of personal mobility for equity seeking groups. Ottawa's public transportation history presents a unique and compelling case study that demonstrates the reciprocal connection between urban transit and the roles of users in shaping these technologies and systems. This is especially evident in how the city has approached its specialized public transit services, called Para Transpo, and, ultimately, adapted its conventional lines to meet the mobility needs of specific categories of

passengers. Given this rich history of technology, adaptation, and use, *Users, Gender, and Access* will explore Ottawa's public transportation service from the 1870s to 2011 in order to explore, contextualize, and understand the ways in which this service was shaped and gendered. This study will examine how certain categories of passengers, notably women and riders using mobility devices, such as strollers and wheelchairs, challenged these norms. Ultimately, this work will demonstrate the impact and influence that a technology's initial design, function, and role can have on its sociotechnical legacy and the ways in which marginalized users can advocate for and effect change in the function and materiality of technology.

Ottawa's Unique Public Transportation Situation

There are several key and interconnected reasons to study Ottawa's public transit history as it relates to gender, access, and mobility. While these justifications overlap with one another, they can be broken down into three major categories that include: 1) Ottawa's location and urban landscape; 2) the role, functionality, and use of technologies of mobility within this urban landscape; and 3) the city's approach to improving access to public transportation.

In terms of its geographic location, Ottawa is situated in the Province of Ontario, on unceded Algonquin Anishinaabeg traditional territory. It is adjacent to the Ottawa River, which forms a natural geographical boarder with the Province of Quebec. Ottawa's proximity to this waterway has informed its urban development pattern (Banu, 1985) as it has served to connect the city east-to-west, while also presenting a geographical barrier which hindered the growth and industrial development of the capital to the north. Significant development and urbanization have, as result, expanded the city to the east, south, and most notably, to the west. The city's proximity and connection to Quebec has also resulted in Ottawa maintaining a public transit governance structure

that is unique in Canada. Ottawa is one of only three public transit systems in the country that is governed by regulations and legislation at all three levels of government. While it is standard practice for urban public transportation to adhere to municipal and provincial authorities, because Ottawa's transit system passes into Quebec, it must also respect Federal regulations as they relate to transportation standards and labour regulations.

Ottawa's urban transportation history is also compelling because the role of public transit in connecting the edges of the city to its center was never a forgone, or obvious, conclusion. Up until the late 1960s, urban planners and engineers were convinced that building a city that supported and relied on the use of the automobile would ensure a connected and well-designed cityscape. This approach took a serious detour after public consultation in the early 1970s indicated that urban transit needed to play a central role in the organization and growth of the capital for sustainability and environmental reasons. In response to calls for greater public transportation services, Ottawa introduced the first North American bus rapid transit (BRT) system in the 1980s, based on the Brisbane busway program (Cervero, 1998). The BRT allowed for designated bus lanes throughout the city and a transitway (an exclusive separate corridor or busway) connecting the city along an east-west corridor. Ottawa's transit system is internationally recognized by many urban and transport planners as a successful model; one that has been replicated in other cities, as it can provide similar results to a light rail system at a fraction of the cost and reduces automobile use during rush hour(s). As urban planning and transit scholars, Sami Al-Dubikhi and Paul Mees, have noted in their analysis of Ottawa's transit system, "even with a decline in public transport mode share between the mid-1980s and mid-1990s, Ottawa remains among the least automobile-dominated of North American cities" (Al-Dubikhi & Mees, 2010, p. 10).

At the same time as Ottawa's public transit provider, the OC Transpo, was improving the efficiency of its offerings through the BRT, it was also beginning to address the ableism inherent across its services. In 1974, the OC Transpo began a short-term experimental service for passengers using mobility devices, such as wheelchairs, who could not otherwise use the inaccessible conventional service; standard buses at this time were high-floor and unable to kneel, which meant that users in wheelchairs had no way of entering the bus, and passengers with walkers or strollers had to lift their mobility devices into the bus in order to board. In 1981, the OC Transpo formalized this parallel specialized public transit service and renamed it Para Transpo. Even with increases in the accessibility of conventional services, Para Transpo remains as a shared-ride, book-in-advance, public transit option intended for customers who are unable to take conventional transit either some or all of the time.

OC Transpo's approach to accessible transit is an especially interesting case study as it has been directed by international and federal action, and informed by provincial regulations, such as the Accessibility for Ontarians with Disabilities Act (AODA) as of 2005. It has also been guided by municipal committees, such as the Accessibility Advisory Committee and the Transportation Committee, as well as local equity seeking transit advocates and advocacy groups. Notably, these local disability mobility advocates and activists have been instrumental in creating a more inclusive public transportation network of services in Ottawa and their dedicated efforts demonstrate the power and impact of individuals in challenging established understandings of technology. In response to these influences and as a result of these efforts, with particular attention and respect to individual contributions, Ottawa became one of the first cities in North America to offer adaptive parallel and conventional public transit services (Ontario Human Rights

Commission, 2001). In 2011, OC Transpo announced that its fleet was fully accessible (*OC Transpo Formalizes Its Accessible Customer Service Policy*, 2011).

A Brief History of Ottawa's Public Transportation Systems and Offerings

The history of urban transit development in Ottawa dates back to 1866 when a group of businessmen in the Village of New Edinburgh initiated the first public transportation service. This service, which will be explored in Chapter 4: "Men on Streetcars Allowed to Smoke": Gender and the Role and Rise of Public Transportation in Ottawa, Ontario, was intended to support existing workers and industries and provide a connection to Ottawa's first railway line, the Bytown and Prescott Railway (BPR). The public transit line was supported by Thomas McKay, an influential timber business owner, as a means of servicing his lumber operations in New Edinburgh and at Rideau Falls (Banu, 1985). This new transit service transported timber in the evenings, while focusing on the transportation of passengers during the day; it carried 273,000 people in its first year alone (Powell, 2020). The Ottawa City Passenger Railway (OCPR) was incorporated by an Act of Parliament in 1866, which provided the company with a perpetual running right on the city's streets (McKeown, 2006). The OCPR did not provide regular transit service until 1870 when its six horse-drawn trams began regular operation between New Edinburgh, in Ottawa, and Chaudière Falls, in Hull (Bowes and Brady, 1973; Bond, 1984). This route responded to labour demands by facilitating transport to industrial and other worksites, while also providing connections to Ottawa's residential neighbourhood and central government hub. In so doing, it set in place a public transit throughway that would shape the built environment of the capital and inform its growth for the next 150+ years.

By the late 1880s, public pressure was mounting in favour of the introduction of electric cars which resulted in the incorporation of the Ottawa Electric Street Railway Company (OESR) in 1891. A few years later in 1894, OCPR and OESR amalgamated and became the Ottawa Electric Railway Company (OER). Over the next half-century, the OER expanded its service operations to cover a larger geographic area of operation in order to better serve an expanding city and a continuously growing ridership. While there were two periods of limited route expansion and growth (between 1921 and 1927 and then in connection to the Great Depression of the 1930s), Ottawa's transit system maintained a steady expansion of its routes and services until the late 1940s. Throughout this period, transit demand led to numerous extensions of the OER's system and new residential and business centers developed along streetcar lines (Canadian Urban Transit Association, 1983). For example, Ottawa's first urban sprawl was attributed to the extension of streetcar line's westward to Britannia in 1890, while the Bank Street line and the Experimental Farm line were also catalysts in distributing the city's population to the south and south-west of the central hub (Federal Planning Commission, 1915). This increase in demand and use, prompted the OER to purchase a fleet of larger streetcars in the 1920s which was well timed as wartime material shortages prevented the provider from adding new vehicles to its roster when it needed them most. As will be examined in Chapter 5: "Ladies will kindly refrain from using abusive language": Female Passengers Challenging Public Transportation Norms from 1939 to 1959, passenger use spiked during the Second World War as a result of automobile shortages and an increasingly large home front workforce, made up primarily by women, who relied on these services for daily mobility (Keshen, 2004).

In 1948, the City of Ottawa acquired the Ottawa Electric Railway Company and established the Ottawa Transportation Commission (OTC). At this time, the OTC had only six streetcar lines

and four bus lines, all of which operated entirely within the city limits, with the exception of the Britannia line that ran beyond the city to Britannia Park (Greber, 1950). OER first introduced motorbuses in 1924 as a means of connecting, or servicing, several outlying areas in the city. Between 1939 and 1948, the OER made a more concerted effort to incorporate buses into its fleet (McKeown, 2006). During this period, there were also a number of private bus companies that served various parts of the national capital region (Greber, 1950). As Bilkis Banu notes in her study of transit planning in the capital:

> In the southwestern zone of the city of Ottawa, there suburban bus companies, the Capital, Richmond, and Nepean Bus Companies provided local services. The southern part of the city had two suburban bus companies. The "Greer Bus Company" served the communities adjacent to the Merivale Road. The "Upland Bus Company" provided suburban services as far as the airport on Bowesville Road and the National Research Council building on Morrisburg highway. It also served the newly developed subdivisions in the Billings Bridge area. The eastern zone was served by two suburban bus routes. First, the Cyrville Bus Company provided services for the market gardeners of Cyrville and intervening points. Second, the East View Bus Company served the town of East View, the village of Overbrook, the New Manor Park subdivision, the Air Force station at Rockliffe and the National Research Council. (Banu, 1985, p. 51)

These services were eventually acquired by the OTC during the annexation of Gloucester Township and Nepean Township by the City of Ottawa in 1950 (McKeown, 2006).

The post-war public transit landscape in Ottawa was not as functional and profitable as one might have assumed given the uptake in ridership during the Second World War. Despite the acquisitions mentioned above, the densely travelled areas of the central business district remained

relatively underserved by existing streetcars and lines. Fifty to sixty thousand streetcar and bus passengers passed daily through Sparks, Queen, and Rideau Streets, while Bank, Albert, and Elgin witnessed about ten to thirty thousand transit passengers each day (Banu, 1985). Traffic congestion was becoming a major problem in the core and, unfortunately, OTC's solution, which was to use flexible routed buses as suburban feeders to the higher capacity streetcar system in the central city, was not particularly successful. Regrettably, "relatively slow urban street car service and the need to transfer provided little competition to the increasing use of the automobile by the suburban resident" (Banu, 1985, p. 54). As such, OTC extended transit service area did not translate into an increase in the number of daily riders. Rather, there was a sharp decrease in ridership from 1951 to 1957, with numbers holding steady 1957 to 1960 but dropping again between 1960 and 1965 (Banu, 1985). This reflects the inefficiency of Ottawa's public transit operation during the post-war period in the face of increased suburbanization and the appeal of the increasingly affordable automobile.

The Regional Municipality of Ottawa-Carleton was established in 1968 as a second-tier municipality covering the former City of Ottawa and 15 surrounding municipalities; in 2001, these cities were amalgamated into the City of Ottawa (Al-Dubikhi and Mes, 2010). A National Capital Commission (NCC), established by the Federal Government and covering the Ottawa and Hull regions, played a significant role in regional planning in the 1950s and 1960s, but has since exercised "a largely advisory role" (Al-Dubikhi and Mes, 2010, p. 408). During the mid-century, the French architect-planner Jacques Gerber prepared a *Plan for the National Capital* (1950). Based on established post-war land-use policies and regional transport standards from across North America, Gerber's plan proposed a greenbelt, satellite cities, and an automobile-centred transport system for the capital region (Al-Dubikhi and Mes, 2010, p. 411). As Al-Dubikhi and Mes note in

their study of bus rapid transit in Ottawa, "railways and tramways were to be removed to facilitate traffic flow, parkways and expressways built to replace them, and employment decentralised to reduce traffic congestion" (2010, p. 411). Most of the recommendations outlined in the *Plan for the National Capital* were implemented over the next two decades, however "development beyond the greenbelt took the form of suburban sprawl rather than planned satellites, and employment remained more centralised than Greber had intended" (Al-Dubikhi and Mes, 2010, p. 411).

Gerber's plan did not anticipate the population growth caused by the 'Baby Boom' generation nor the calls from transport planners for a policy that balanced automobile and public transit use. These unexpected influences prompted the *Ottawa-Hull Area Transportation Study* (De Leuw, Cather & Company of Canada, 1965) which put forth new recommendations for the planning of the capital region including more extensive freeways, roads through existing neighbourhoods, and the recommendation of a bus rapid transit system operating as a connector to and for radial freeways (a highway leading to or from an urban centre). This system was "intended mainly for central business district commuters, and was framed as a supplement to the freeway system, not an alternative" (Al-Dubikhi and Mes, 2010, p. 412). Based on this study, the RMOC's first main task was to develop a new official plan for the region; a task that quickly become mired in debates regarding transport policy. As urban geographer Christopher Fullerton notes, it was citizen participation that ensured the official plan, finally released in 1974, was based on the principle that public transport would be the highest priority, with new roads for automobiles being a last resort (Fullerton, 2005). The radical changes in how planners viewed the role of public transit in facilitating city life and urban growth and the agency of the citizen participation within this discourse demonstrates the deep reliance that the people of Ottawa had on urban mobility.

What came from all this planning and consultation was the development of a rapid transit system based on the general understanding that public transit should become a main method of transportation within the area (Wright, 1978). As Banu notes, the rapid transit corridors were chosen in order to provide good service within the inner part of the region where slightly more than 60 percent of the total regional population resided (Banu, 1985). She notes that "the most cost-effective strategy was, therefore, considered to develop a system using excessive grade separated rapid transit routes in corridors leading to the central district of Ottawa, with exclusive use of existing streets within the central city" (Banu, 1985, p. 102). The construction of the bus rapid transit lines along four main corridors began in 1978. The first exclusive grade-separated right-of-way corridor was built in 1983 in the west-southwest direction and another was built one year later, in 1984, to the east-southeast. The principal objective of this development was to build a transit system which would be capable of competing with the private automobile for speed, comfort, and accessibility.

The bus rapid transit network was opened in stages in 1983 and 1996. Public transit historian Robert Cervero suggests that decades of planning and consultation resulted in "a highly functional bus-based transit system well suited to the region's mixed settlement patterns – a compact centre and spread-out suburbs" (1998, p. 237). Through its use of a dedicated transitway, the largest bus-only guideway in North America at 31-kilometers, Cervero highlights Ottawa's unique transit set-up, having "achieved many of the advantages of a rail-based rapid transit system, with an added bonus: fleet vehicles can leave and return to the guideway, thus reducing the need to transfer. A bus-based rapid transit system also provides flexibility advantages, such as the ability to open the system in stages" (Cevera, 1998, p. 237). Notably, Cevera suggests that "the most important service feature of the busway has been its ability to accommodate express bus and limited-stop

routes that provide passengers with a direct, no-transfer ride between their homes and places of work" (1998, p. 237). It was during this period that OC Transpo also began purchasing new, low-floor conventional buses which, alongside the newly implemented and specialized transit route, suggests that the provider was actively to reconsidering the role of public transit in the lives of more diverse categories of users, thereby increase the makeup of passengers who could access this service. Based on the primary source material created during the during the 1980s, 1990s, and into the 2000s, it is clear that users with disabilities, particularly those using mobility devices, were an increasingly important passenger category for the OC Transpo.

Disability Rights in Relation to Public Transportation Access in Canada

As disability scholar Marcia Rioux suggests in her work *Bending Towards Justice* (2001), disability rights in Canada emerged in response to a long history of exclusion, both in terms of overlooking, ignoring, and stereotyping the lived experiences of people with disabilities and by way of their omission within federal and provincial legislation. Prior to the introduction of legislation focused expressly on disability, Canada witnessed a wave of provincial and federal legislation during the 1950s designed to end racial, religious, and sexual discrimination. Activists in the United States had attempted to curtail discrimination through fair practice legislation beginning in the 1940s, and human rights advocates in Canada quickly adopted similar efforts north of the boarder. As a result, between 1952 and 1958, the protection of human rights in Canada advanced in various forms with direct attention to racial and religious discrimination. By the 1970s, people with disabilities began to form their own groups to advocate for their civil rights in Canada. This activism was rooted in the youth culture of protest and the social and civil rights movements that had emerged in the post-war period. Building upon these initial efforts, self-

advocacy organizations of people with disabilities became the frontline for disability rights as of the 1980s. As disability scholar, Deborah Stienstra, notes in her work, "these organizations began in opposition to the groups of medical and rehabilitation experts that had been speaking for people with disabilities for years" (2020, p. 10). Stienstra notes that the initial goal of these groups was to ensure that no decisions were made about people with disabilities unless they were involved and consulted in the decision-making process.

While the history of disability justice and relevant events, acts, and legislation is outside the scope of this study, Canada's contributions to the International Year of Disabled Persons (IYDP) warrants further examination as it directly connects to this study. In response to the IYDP, Parliament established a Special Committee on the Disabled and Handicapped (SCDH) to "examine the situation of peoples with disabilities" (Stienstra, 2020, p. 14) in Canada. It was an all-party committee chaired first by Member of Parliament Walter Dinsdale and then by Member of Parliament David Smith and has since been transformed into the Special Committee on Persons Living with Disabilities. This Committee held hearings on disability issues across Canada during the summer of 1980 and listened to the testimony of some 400 people. As disability scholars William Boyce et al. note in their work *A Seat at the Table: Persons with Disabilities and Policy Making*, "the committee provided disability advocates with much-needed evidence that people

with disabilities could plausibly be viewed as a disadvantaged minority group, on par with other groups that were named in section 15(1)" (Boyce et al., 2001, p. 51). The committee's final submission, entitled *Obstacles*, noted that "if Parliament decides to enshrine human rights in the patriated Constitution, the Committee feels that complete and equal protection should be extended to person suffering from physical and mental handicap" (Smith, 1981).

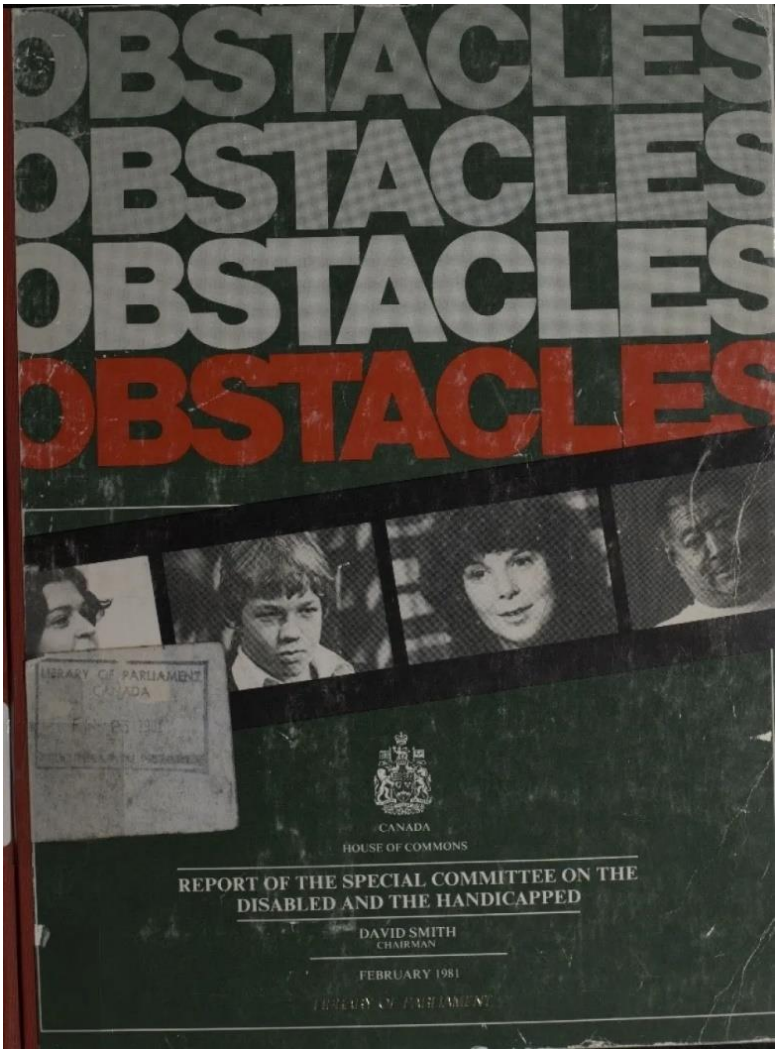


Figure 3: The cover of the Obstacles: Report of the Special Committee on the Disabled and the Handicapped. Credit: Ingenium.

Obstacles (Figure 3) provided stories of people with disabilities in order to draw attention to and raise awareness about the barriers, built and social, that they encountered. These were powerful opportunities to prioritize and privilege the lived experiences and voices of individuals that had, previously to the United Nation's IYDP, been particularly overlooked in Canada. For example, *Obstacles* provided a statement from Julius Hager of Pelly Crossings, Yukon, who, at 24, had contracted polio. His words affirmed the unique experiences of people with disabilities and how the current system failed to adequately address their needs, particularly where mobility was concerned. Hager shared that, "we can't go anywhere

like normal people can. I'd like to have a fund for transportation, so that I could just ride around, just to get out of the house. Right now, I just stay in year-round. You can't ask people to take you some place because gas costs so much. I don't want to ask other people to pay for me" (Smith, 1981, p. 16).

Using the principles of participation, responsibility, and self-help, the report brought forward a number of recommendations for federal legislation regarding people with disabilities, in terms of human rights protections, recreation, housing, employment, and, notably for this study, transportation. Recommendation #8, focused expressly on the latter and began with a troubling quote from Elizabeth Semkiw, one of the interviewees, that shared:

> Transportation, or should I say the inaccessibility or lack of transportation, has been the greatest problem for the mobility handicapped for what seems an eternity. Neither basic medical visits, nor employment, and certainly not recreational activities could even be attempted, and then only with a great deal of difficulty and expense on the part of the disabled, who, like myself, could not get into a regular vehicle unaided." (Smith, 1981, p. 28)

The Transportation Recommendation (#8) demonstrated a relatively comprehensive understanding and approach to accessible mobility and included 10 calls to action. These included calls like "Provide reasonable access for disabled persons to all modes of transportation under federal jurisdiction" included a recommendation that the:

> Federal Government direct the Minister of Transport to develop, in consultation with disabled persons and their organizations, and to publish a National Policy on Transportation for Disabled Persons, to provide reasonable access to all transportation modes under Federal Jurisdiction. This policy should meet the objectives of standardizing tariffs, procedures, rules, regulations among transportation modes and lead to a greater rationalization of services, particularly between parallel and regular services (Smith, 1981, p. 99).

Obstacles did acknowledge the challenging governance structure of Canada's transportation system, as "transportation services for disabled persons are a shared responsibility among federal, provincial and municipal governments" (Smith, 1981, p. 99). The Committee suggested that "a National Policy will make it easier for government, carriers, disabled persons, and their organizations, to agree on reasonable solutions to meet the needs of the mobility handicapped" (Smith, 1981, p. 99). Roughly 30 years after this recommendation, the Canadian Transportation Agency (CTA) created what it refers to as "a single, robust, legally binding" (Accessible Transportation for Persons with Disabilities Regulation, 2019) set of regulations called the *Accessible Transportation for Persons with Disabilities Regulations* (ATPDR). The ATPDR covers all modes of transport under federal jurisdiction, including air, interprovincial and international passenger rail, bus, and ferry, as well as security and border screening, and enforces adherence by administrative monetary penalties. It is an imperfect Regulation but it does suggest a federal commitment to the mobility rights of people with disabilities.

Another call under the Transportation Recommendation required that "all government-funded transport equipment be accessible to disabled persons" and "that the Federal Government ensure that all passenger transport equipment purchased or retrofitted with Federal funds be required, as a condition of funding, to be reasonably accessible to disabled persons" (Smith, 1981, p. 100). In this way, the Canadian written *Obstacles* called for a similar approach to the one put forward in the American *Urban Mass Transportation Act* (Smerk, 1965). This recommendation also identified the need for lifts to enable passengers using mobility devices to board and disembark from vehicles, the need for reserved seats near entrances, the adaptability of seats, the accessibility of toilets, the width of aisles, and "visual and audio systems for communicating to sensory-impaired passengers" (Smith, 1981, p. 96). Essentially, this recommendation sought to

ensure that a "disabled person can enter the vehicle and be properly seated without assistance" (Smith, 1981, p. 100). These two recommendations focused on the material culture and operation of transit vehicles as federally controlled transportation services. While *Obstacles* did not provide recommendations for provincially or municipally operated transportation services, it did raise general awareness about the mobility needs of people with disabilities in Canada and attempted to set out a framework for related action.

Another important development in the context of disability rights was the adoption of the Canadian Charter of Rights and Freedoms (CCRF) as part of Canada's Constitution. The Charter protects every Canadian's right to be treated equally under the law and guarantees broad equality rights alongside other fundamental rights and freedoms. The advocacy work of disability organizations made certain that disability rights were part of the CCRF, even when "politicians told them the words did not need to be there, the right would still be protected" (Stienstra, 2020, p. 129). The Council of Canadians with Disabilities (CCD) has established itself as the major national advocacy organization of people with disabilities and they successfully lobbied the federal government to appoint one of their leaders, Jim Derksen, as a staff member to the Special Parliamentary Committee on the Disabled and the Handicapped (PCDH). Derksen used his presence on the PCDH to advocate for the inclusion of disability rights in the Charter of Rights and Freedoms. His efforts resulted in the inclusion and protection of both physical and mental disability under Section 15 of the Charter (Unknown, 2022). The inclusion of people with disabilities as a designated group for rights protection in the Canadian Charter of Rights and Freedoms was viewed, at the time, as a triumph of disability advocacy in Canada, and as a high point in disability policy (Boyce et al., 2001; Theriault, 2007). Despite these developments, disability scholars Mary McColl et al. note in their work *People with Disabilities and the Charter*

that “a number of commentators look back over achievements during the Charter era with disappointment” (2016, p. 185). Such works claim, the authors continue, “that the Charter has not achieved the far-reaching social change that was expected initially. Designated groups have not made the progress expected in terms of positive measures to mitigate disadvantage (McColl et al., 2016, p. 185). They suggest that despite the Charter leading to systemic corrective action, cases have typically resulted in individual compensation (McColl et al, 2016; Lepofsky, 1998).

In addition to federal legislation and protections in the Canadian Constitution, other national bodies have also contributed to the disability rights landscape in Canada, particularly where public transportation is concerned. The Canadian Transportation Commission (CTC) is involved in the development of accessibility standards for transportation modes under federal jurisdiction which includes air, rail and, to some extent, intercity bus networks. In August 1983, the CTC and Statistics Canada sponsored a survey entitled *Special Needs in Public Transportation* which sought to quantify the disability community and their “various types of transportation disability” (Mclaren & Fleming, 1985, p. 2); this work considered the type of assistance people with disabilities would or could require when travelling and what barriers they could encounter. Drawing on Statistics Canada’s *Supplement to the Labour Force Survey*, which samples residents of Canada “15 years of age and over from the 10 provinces (excluding Yukon, the Northwest Territories, Indian reserves, Crown Lands and institutions, as well as the Armed Forces), this survey concluded that its focus group consisted of 2% of population” (Mclaren & Fleming, 1985, p. 3). Six survey questions were administered to a sample size of approximately 13,000 households, or 39,000 individuals. Through this work, CTA and Statistics Canada reported that “the most common disability is one of mobility (over sight, hearing, or other)” (Mclaren & Fleming, 1985, p. 3), which is to say that physical disabilities that required the use of a mobility

device, such as a wheelchair, presented the greatest barrier to the use of and access to federal transportation options. The survey also reported that "there was a higher incidence of multiple disabilities than could be intuitively expected, for example, more than 70% of those with a hearing problem also have a sight or mobility (or both) problem. About 60% of those with a seeing problem also have a hearing or mobility problem" (Mclaren & Fleming, 1985, p. 5). As such, despite its limited reach, this survey did provide an important contribution to the national discourse surrounding disability rights and access: it recognized the fluidity of disability.

The Canadian Urban Transit Association (CUTA) and the Canadian Standards Association (CSA) became active participants in developing standards to provide safer, accessible transit. Their efforts demonstrate the application of international and federal regulations through standards and standardization. In this way, CUTA and CSA, particularly the latter, can be understood as groups that had a direct impact on the material culture of transit in Canada. As David Onodera observes in his article *A Retrospective Look Back at 25+ Years*, "the CSA assembled a group of stakeholders that included representatives from: provincial government agencies responsible for regulating vehicles; transit systems and related agencies such as CUTA; manufactures of securement systems, mobility aids, vehicles; researchers; transit users and other members of the public; and other special interest groups" (Onodera, 2017, p. 8). Through this collaboration, work was undertaken to develop three standards that were published in 1984 and 1985; these included: CAN/CSA D409 – Motor Vehicles for the Transportation of Persons with Physical Disabilities; CAN/CSA Z604 – Transportable Mobility Aids; and CSA Z605 – Mobility Aid Securement and Occupant Restraint Systems for Motor Vehicles (Onodera, 2017). Vehicle design, transportation of mobility aids, and securement were deemed collectively critical as "a safe transportation system for passengers and their mobility aids is only as strong as its weakest point" (Onodera, 2017, p. 8) and so these

standards worked together to ensure a maximum level of safety. The standards did not set a legal requirement for building accessible transit buses but they did provide solid guidelines which became the transit industry standard. The 1984 vehicle safety standard briefly established Canada as a global leader in accessible transportation (Transport Canada, 1984).

Specifically, the CAN/CSA D409 – Motor Vehicles for the Transportation of Persons with Physical Disabilities was written for vehicles with a gross vehicle weight of less than 15,500 lbs. which included most parallel transit vehicles in use at the time. This standard was based on protecting mobility aid users in the case of frontal impact collisions up to 10 Gs, which was the level CSA had deemed satisfactory as it provided adequate safety margins. Onodera observes that "for full-size transit buses, it was felt that a combination of factors including the larger mass of a full-size transit bus, integral and sturdier designs and other factors made a 10 G level overkill. It was decided that a 3 G factor would be used for full-size transit buses" (Onodera, 2017, p. 10). After much discussion, the CSA advised that separate standards would be produced for larger transit and over-the-road buses, such as coaches or motor coaches that had an elevate passenger deck located over a baggage compartment. The CSA D345 - Accessible Transit Buses was developed and published in 2002, setting out the design and construction of elements of the body of the bus, including the steps, entrance, and emergency exit, as well as mobility aid space requirements, like the design of folding seats, securement of mobility aids, vehicle lifts, and service ramps. The Accessibility for Ontarians with Disabilities Act, which emerged in the 2000s, assumed responsibility for informing, directing, and regulating access to public transportation technologies and infrastructure. These developments will be discussed Chapter 6: "If people can move around without too much hassles, they're going to be part of the community": The Context and

Development of OC Transpo's Accessible Conventional Fleet and Para Transpo Service, 1945 to 2011.

Introduction of Accessible Public Transportation in Ottawa

Prompted by and in response to inclusive legislation and disability rights activism in North America during the 1960s, public transit system providers, such as OC Transpo, began to explore various adaptive design options to their fleet and infrastructure in order to make their services physically accessible, as well as safer, for a greater number of possible users. As will be described in Chapter 6: "If people can move around without too much hassles, they're going to be part of the community": The Context and Development of OC Transpo's Accessible Conventional Fleet and Para Transpo Service, 1945 to 2011, Kingston Transit alleges that the Kingston Access Bus, established in 1967, was the first accessible option for public transportation in Canada. Shortly thereafter, OC Transpo began exploring its own accessible urban transit options. It 1974 the Ottawa transit provider contracted De Leuw, Cather & Company of Canada, a transportation engineering, design, and construction firm, to complete an analysis of the need for accessible transit in the capital (DeLeuw Cather, 1974a). This report recommended the implementation of a specialized transport service using "small vans for the more seriously handicapped people and the use of a fleet of standard autos to meet the requirements of those handicapped persons not requiring the use of wheelchairs or walkers" (DeLeuw Cather, 1974a, p. 2) that would be overseen by the OC Transpo but administered by a private taxi contractor called Blue Line. It was intended to serve about 1000 persons with mobility impairments in the Ottawa-Carleton region for the purposes of travel to work or medical trips, Monday through Friday. Riders were charged $1.00 during peak hours of operation, between 9:00a.m. and 6:00p.m., and 50 cents per ride outside of those times.

This interim parallel pilot project was intended to last for two years but, in 1981, it was renamed Para Transpo and was formalized as part of OC Transpo's family of services.

OC Transpo experimented with different adaptive features, such as the addition of grab rails, to its conventional line prior to the introduction of its first Accessible Transit Plan in 1994. This plan was informed by vehicle standards that the CUTA and the CSA produced in 1984. It was also in response to the Ontario Minister of Transportation's announcement in June of 1992 that the province had adopted a policy of fully integrated accessible transit services. This policy meant that, in order to continue to receive financial support for public transit, every municipality had to submit a plan for achieving a fully accessible service. OC Transpo path towards accessible transit is an especially interesting one as the city and provider were among a small group of transit providers in Ontario that were considering accessible adaptations to their services prior to any official legislation. It took almost two decades for the transit provider to meet all of the criteria it outlined in this plan but, in 2011, the OC Transpo announced that its fleet was "fully accessible" (Mueller, 2011).

Central Themes, Questions, and Chapter Breakdown

Users, Gender, and Access: Ottawa's Public Transit System from 1891 to 2011 explores the complex relationship between technology and users through a close examination of the origins of the city's transit network, changes in passenger use alongside developing industry and equity standards, and adaptations to the material culture and accessibility of the OC Transpo's fleet. It understands technology to be a broadly defined term that includes material technical products, supporting infrastructures, and ways of knowing, using, and understanding technological and technical objects. It recognizes that technology plays a sustained and profound role in shaping

every facet of peoples' lives. Importantly, *Users, Gender, and Access* understands that both individuals and collectives can challenge and reshape technologies. This study also recognizes that the social appreciations of who a technology is for can be much harder to change or shift than redesigning or rebuilding how a technology works or functions. Ultimately, this work considers the relationship between technology and users as a fluid one that can, and does, evolve over time, in different places and spaces, and to different ends and means.

Notably, this dissertation recognizes that access to public transportation services is a human rights issue. It is fundamental to the capacity of most persons to engage in society, and it provides a cost-effective and feasible way for people to get to work and obtain access to basic goods and services. Access, in this context, is not simply a matter of physical access, which includes the ability to independently use public transit technologies and their supporting infrastructure, it also includes issues of safety, respect, and inclusion within these spaces. Access to public transit is shaped by the design of these technologies and systems, and by the attitudes and experiences of passengers and operators. From 1891 to 2011, the technologies of public transit, the cityscape, and the makeup of passengers has drastically changed. As this study will share, this history demonstrates the interplay between people, society, and objects and suggests that while the built environment can be redesigned to meet current accessibility standards and expectations, long-held social norms and ideas are considerably harder to reconsider, reshape, and rebuild.

By exploring the history of public transit in Ottawa, over a roughly hundred-year period, this study allows for a compelling account of the reciprocal interplay between users and technology and provides a detailed account of an understudied area of personal mobility history. Given the scope, time period, and thematic breakdown of this study, it raises and attempts to answer several

key questions. Central among these questions is: how does the legacy of design and use shape present understandings of and relationships with contemporary technologies? This question extends existing conversations surrounding the social-shaping of technology, which tend to focus on more narrow scopes and timelines, by taking a much longer view of the topic at hand. It also pushes for an understanding of shaping that includes both the physical construction of technology as well as the socio-cultural understanding of technical artifacts. The latter includes the opinions, attitudes, and beliefs held by individuals, communities, and organizations towards an artifact, as well as the values and agency they ascribe to it. Within this broader approach to social-shaping, a question about the legacy of design encompasses the examination of both physical changes and how these objects have been viewed, understood, and appreciated over time.

Building off of the question about legacy and design, another central question in this dissertation is: why did public transit access and use remain problematic for marginalized users, specifically mothers with young children in strollers and people using mobility devices? These passenger groups were identified through the supporting primary source materials and oral history interviews; there are certainly other categories of passengers whose urban mobility experiences warrant further and future consideration and it should be noted that this is study is not exhaustive. Therefore, this doctoral thesis seeks to produce a deepened understanding of how the physical, social, and environmental experiences of certain marginalized users' on-board public transit in Ottawa, Ontario evolved from the early 1900s to 2011. The identified time period spans major changes in transport technologies through the transit transition from omnibuses to streetcars to busses, alongside changing passenger demographics and fluctuating numbers of daily riders in Ottawa. Markedly, within this timeframe the Ottawa Transportation Commission and, as of 1973, the OC Transpo underwent a major shift from operating a fleet of high-floor vehicles that were

inaccessible to many riders to providing a “fully accessible” service (Onodera, 2017, p. 7) when its fleet transitioned to all low-floor buses in 2011. While the OC Transpo did address the physical barriers that limited the usability of their busses, this dissertation will suggest that other factors, such as social norms and attitudes surrounding gender, disability, and mobility, made it so that these public transit systems have remained problematic and/or inaccessible for many marginalized users. This is a very important element of this study as it suggests that adaptive modifications and additions, and/or accessibly designed technologies and systems are only a part of the equation when it comes to ensuring that spaces are accessible. The ability of marginalized users to feel safe, respected, and included while using these technologies is equally important. The latter is informed by social norms and attitudes, as well as the behaviours of and interactions with fellow passengers and operators.

This dissertation will further argue that as a result of the socially constructed understanding of technology, at large, and of public transportation, in particular, Ottawa’s mass transit was initially designed and built along gendered and ableist ideas and assumptions surrounding who should use this mode of travel and how these public transit systems should function for them. Given the reciprocal relationship between users and technology, this work argues that some marginalized passengers were able to challenge these norms through individual agency, collective activism, and political involvement which resulted in, among other things, a more accessible built environment and greater social inclusion on-board public transit. In doing so, this study will unpack a neglected area of personal mobility history and demonstrate the interplay and agency that historically marginalized riders displayed in using, understanding, and advocating for accessible public transit.

Given the above, this dissertation consists of two chapters that examine the theoretical and methodological ideas and approaches that inform this study, alongside four content chapters that build upon one another. Chapter 2: Theoretical Framework and Chapter 3: Methodological Framework provide an overview of the approaches and sources that inform and guide this study. Chapter 2 highlights the fields of Science and Technology Studies (STS), Feminist Technology Studies (FTS), Feminist Disability Studies (FDS), Crip Feminist Technoscience (CFT), and Feminist Standpoint Theory (FST) for concepts, theories, and insights that helped guide this dissertation. These fields offer informative and compelling frameworks for understanding the relationship between users and technology, for considering how gender and disability are informed and shaped in relation to technology and the built environment, and for considering how standpoint informs identity and experience. For its part, Chapter 3 presents the sources and methods that informed this study. Given the sensorial, spatial, and experiential focus of *Users, Gender, and Access*, another central objective of this work it to connect a combination of oral histories and material culture methodologies. These sources are invaluable to this study yet they are not part of an existing archive nor do they currently inform any scholarly or popular works that examine Ottawa's transit past. As such, the lived experiences, personal reflections, and insights of marginalized users, transit activists, and accessibility specialists, as well as the influence of transit's materiality on passengers in Ottawa has not been meaningfully included and examined within the larger body of transit scholarship.

In addition to oral histories, this work relies on material culture methodologies and findings to effectively explore this topic. Analyzing the materiality of historic and contemporary urban transit artifacts allows this research to be grounded in the physicality of transit use. By working with artifacts, this dissertation demonstrates the potential of using object-based analysis to examine the

overt and nuanced ways that the built environment creates, shapes, and hinders access. Much of the scholarship from Critical Disability Studies and Feminist Disability Studies acknowledges that disability is created by inaccessibly built spaces but very few of these works incorporate material culture methodology. As such, *Users, Gender, and Access* offers case studies for this type of sensorially grounded work in order to examine the connection and interplay between users, broadly defined, and technologies.

Chapter 4: "Men on Streetcars Allowed to Smoke": Gender and the Role and Rise of Public Transportation in Ottawa, Ontario, is the first substantive content chapter of this study and provides a historical context for the introduction and growth of urban transit in Ottawa. This chapter demonstrates the strong ties between public transportation and Ottawa's local lumber industry in the late 1800s. This industry, alongside Ottawa's first streetcar operator and connected manufacturing company, were deeply gendered, masculine domains which ultimately, as this study suggests, had a lasting impact on the social-technical function and gendering of transit in the city.

Chapter 5: "Ladies will kindly refrain from using abusive language": Female Passengers Challenging Public Transportation Norms from 1939 to 1959, examines how changing passenger demographics, notably the increase of female riders during the Second World War, challenged the initial, or conventional, function and gendering of this service. During this period, the material culture of Ottawa's transit operation was unchanged but the ways in which it was used demonstrated a marked shift in both function and social appreciation of this technology. With women using public transportation in greater numbers than ever before and for a wider range of trips, beyond simply travelling to and from work, they were using this service in unanticipated ways. The presence of women on transit also challenged the gendered assumptions that informed

pre-war thinking about for whom this technology was intended for. However, Ottawa's streetcars were not an entirely safe space for female riders. The social resistance to their use of public transportation can be understood through the harassment they encountered onboard Ottawa's streetcars, as well as the physical difficulties they had in using this technology. This chapter is critical to understanding the impact of the social construction of technology and the gendered legacy that it has had on Ottawa's public transportation offerings.

Chapter 6: "If people can move around without too much hassles, they're going to be part of the community": The Context and Development of OC Transpo's Accessible Conventional Fleet and Para Transpo Service, 1945 to 2011, offers an important contribution to the existing body of knowledge surrounding accessible transportation histories in Canada. It examines the context for the development of adapted public transit vehicles in Ontario in order to situate Ottawa and OC Transpo's efforts to create and sustain accessible services. As this chapter demonstrates, Ottawa's urban mobility services evolved under global, national, and local influences. Ottawa's initial efforts to provide accessible public transportation services were a mixture of volunteer and municipally supported programs that focused on services for specific groups. In the late 1970s, the city's transit operator assumed more responsibility for this service, which ultimately led to the establishment of Para Transpo in 1981. As this chapter reveals, the 1980s and 1990s were a critical period for the development and implementation of OC Transpo's accessible conventional services which resulted in significant adaptations to the material culture of mobility in the city. Central to this history are the roles and impacts of individuals and organizations who were committed to disability justice and mobility access. Their work demonstrated both the need and importance of accessible transit and held the city and its transit provider accountable when they failed to hold to their commitments. Ultimately, this chapter offers a detailed account of the efforts and

considerations involved in reconsidering and reshaping the social construction and material culture of an established technology.

And finally, Chapter 7: "We're using public transit the way other people use it and we're not taking up more space out of a desire to take up space, but out of a need": Establishing a By-Law on Priority Seating, 2005 to 2011, delves into the problematic history of the City of Ottawa's stroller policy onboard OC Transpo's conventional buses. This chapter underscores the gendered appreciation of transit that informed how the city established its *Priority Seating* operational standards and draws attention to the tensions among passenger groups vying for use of this accessible seating area. Despite changes to the material culture of Ottawa's transit offerings, as Chapter 6 examined, OC Transpo's approach to its service remained rooted in gendered and ableist assumptions about its passengers and their needs. As this chapter demonstrates, this has resulted in the continued undervaluing and underserving of certain passengers, particularly those using mobility devices. Public transportation is crucial for equity-deserving groups, yet the gendered legacy and history of this service continues to inform current operational standards which results in sustained inaccessible and unsafe mobility 'options' for many categories of passengers.

Situating *Users, Gender, and Access* within the Wider Literature

Users, Gender, and Access: Ottawa's Public Transit System from 1891 to 2011 will contribute to the scholarship surrounding public transportation that emerged from the broader field of transportation history throughout the 1960s. During this period, this field expanded into new areas of research, such as public transit and automobility, while certain modes, such as the railway, began to develop into their own specialized areas of study (Barker & Robbins, 1963; Davis, 1995). Under the aegis of business history, academics extended existing approaches from the field of

transportation history to the study of public transportation systems and service providers by focusing on the "political and economic context of past transit decisions" (Davis, 1995, p. 310). For example, through their account of the history of the London Passenger Transport Board, economic historians Theodore Barker and Michael Robbin (1963) introduced the first comprehensive study of urban transportation. For Canadian historians of transportation, the origins of regulation and public v. private ownership of public transit were areas of interest, and Toronto and the Toronto Transportation Commission was the primary focus of study from the 1960s into the 1990s (Doucet, 1982; Filey 1994; Frisken, 1984; Frisken, 1991). Given its focus on economic impact, corporate history, government relations, and respective role of public and private enterprise, this scholarship did not contribute to any detailed discussion of the technologies in use and their impact on diverse user groups and, as such, failed to ignite much debate regarding the broader, sociocultural understandings of public transit.

Given this top-down, business-centric approach, the field has been slow to incorporate the perspectives of historically marginalized groups, such as women and passengers with disabilities, to the study of public transportation. In 2002, economic and social historian Margaret Walsh noted in *Gendering Transport History* that up until very recently this field was "written primarily by men for a male audience" (2002, p. 1) and had been most interested in modes, the operation of transport companies, and their economic impact. Walsh thusly argued that "the feminine side of transport ventures has, for the most part, been ignored. The traditional clarion cry of female historians, 'Missing from history', has been and still is the most appropriate description of transport history" (2002, p. 2). At this time, Walsh rightly observed that "while the female contribution needs to be recovered to move forward beyond traditional transport history, it is not sufficient if it also stands alone and segregated as another part of the discipline" (2002, p. 2). The theories and methods that

emerged from cultural history and feminist scholarship during the 1980s, which will be examined in Chapter 2: Theoretical Framework, had a notable influence on the field of transportation history (Davis, 1995) resulting in scholarships that examined tourism and travel behaviour, the role of female workers and business entrepreneurs, as well as the depiction of women in motor advertisements and vacation literature; these became fruitful areas of gender and women's history scholarship during the latter half of the 20th century (Joseph & Gopakumar, 2023; Law, 1999; Sukhov et al., 2021).

As a result of such scholarly interventions, the consideration of women, as consumers and users of public transport technologies, also became an area of study and discourse. Influenced by the approaches emerging from Feminist Technology Studies, primarily the focus on users and gender, public transportation scholars began to engage with very different types of questions that challenged the top-down, "masculine appearance" (Walsh, 2002. p. 1) of transit history. These works demonstrated that this field was indeed much more complex than previous scholarship had suggested. For example, Donald Davis and Barbara Lorenzkowski's "A Platform for Gender Tensions" (1998) examined competing experiences of various user groups on-board public transit in Canada during the Second World War. They argued that while users chose the same mode of transport, their gender, age, occupation, and ability resulted in very different, and divergent, realities on crowded public transit during this period. Davis and Lorenzkowski's (1998) work demonstrated how a user-centered approach could challenge previous assumptions about the functionality of these transportation systems, thus allowing historians to more fully comprehend the postwar decline of public transit.

By the end of the 20th century, the field of transportation history was increasingly grappling with how consumers used technology; however, it focused on a relatively limited range of research questions, notably journey-to-work travel, at the expense of other key issues, such as the politics of mobility and access (Law, 1999). More recent studies, in relation to *Users, Gender, and Access*, have sought to centre women within the study of transportation. For example, Priyanka Babbar, Joseph Peace, David Cooper, Geneviève Boisjoly, and Emily Grisé published a report in 2022 that sought to understand the transit needs of women in Canada. This study examined academic and grey literature, as well as policy, in order to determine that "trip-chaining, off-peak travel, and short-distance trips are all common features of women's travel behavior that are not well served by public transit in its current state" (Babbar et al., 2022, p. 47) and put forward policy recommendations to address these limitations.

Since the 1990s, scholarship surrounding public transit is no longer exclusive to the field of transportation history; historians, social scientists, and feminist, as well as science and technology scholars are all bringing their insights and perspectives to bear on issues of accessibility and personal mobility in urban transportation. In addition to the influence of FTS scholars and cultural historians, in many ways, this growth of related research was spurred by the disability rights movement's sociopolitical definition of the social model of disability. This definition explains disability and policy scholar Harlan Hahn, "challenged the individualist conceptualization of disability by stating that disability stems not from individual limitations but from the failure of the social environment to adjust to the needs of people with different abilities" (Hahn, 1985, p. 89). In *Disability Policy in Canada*, occupational therapist Lyn Jongbloed observed that this reframing resulted in greater societal emphasis being placed on "enhancing the participation of people with

disabilities in their communities, by, for example, increasing access to buildings, transportation, and employment" (2002, p. 204).

This reframing of disability, alongside the ratification of the Americans with Disabilities Act in 1990, propelled a new body of scholarship in North America that traced policy debates regarding local transportation needs, with a particular focus on the expense of implementing new systems and/or making adaptive design changes to existing ones (Rosenbloom, 2007). These discussions have also focused on broader topics surrounding disability and social exclusion through inaccessible transport (Bates and Davis, 2004; Church et al., 2000; Preston and Rajé, 2007). Human geographer Tim Cresswell has argued that understanding how the inequality of mobility arises should be a priority in any public transit scholarship. He suggests that historians "can help by looking closely at how the means by which mobilities were produced and consumed in the past – the organization, modes of governance, infrastructures, vehicles, and other artefacts which all together constitute transportation systems – have shaped present-day expectations and practices" (2010, p. 13). Cresswell's approach is in keeping with the Social Construction of Technology (SCOT) approach which will be detailed in Chapter 2: Theoretical Framework, and suggests that scholars should "re-examine the ways in which transport systems and their mobilities were both shaped by the exercise of social power and have in turn acted back upon it" (2010, p. 13).

While early scholarly studies took a top-down approach in framing the relationship between access and public transit, similar to those approaches used to engage with transportation and public transit history, they quickly came to include, if not rely, on the first-hand experiences of people with disabilities and how they used, or did not use, mass transit systems. Where mobility access is concerned, many recent studies focus on wheelchair users and how they navigate public transit.

For example, this approach is featured in science and technology scholar, Raquel Velho's recent *Transport Accessibility for Wheelchair Users* (2019), which is a study that offers a user-led deconstruction of the functionality and performance of accessible public transit design in London, England. She begins by describing the identified barriers that wheelchair users face in transit networks and the largely negative emotions that these barriers elicit for these passengers. This approach makes it clear that despite the accessibility provisions made by transit authorities and providers, passengers continue to encounter a variety of barriers through their journeys on public transit. Velho's study also highlights how users have developed their own problem-solving techniques to cope with these built encounters and social biases. Based on these lived appreciations, Velho argues that accessibility, or rather inaccessibility, is a cumulative issue. "The barriers faced by wheelchair users are not rare and far between," she notes, "they often happen in succession or even simultaneously" (2019, p. 110). As a result of her exploration of these barriers from a user-centred approach, and through carrying out qualitative research, Velho reframed users with mobility impairments from passive passengers to users with agency.

In addition to the material described above, this dissertation drew from and contributes to a small but strong body of scholarship focused on the history of Ottawa's various public transportation offerings and their associated manufacturers. Many of these works are housed in the library at Ingenium – Canada's Museums of Science and Innovation, which is a national and public-facing repository of historic and technical information. For example, the library holds printed material, such as news reports and internal communications from the Canadian Railroad Historical Association (CRHA), Canada's oldest railway enthusiast organization, founded in 1932. CRHA's bimonthly publication, *Canadian Rail*, is an especially rich resource in this holding as this magazine contains articles that examine the history of the Ottawa Transportation Commission,

the city's adoption of urban rail, and the unique features of different streetcars. Ingenium also holds a near complete run of *The Bulletin*, a quarterly newsletter published by the Canadian Transit Heritage Foundation. While *The Bulletin* and *Canadian Rail* do cover similar topics, the former includes several excellent overviews of accessible transit offerings in Canada post-1980. In addition to these periodicals, Ingenium's library contains several publications that represent the type of secondary material available on this topic. For example, David Knowles's *The Ottawa Car Company 1892-1948* (2003) provides a visual and descriptive depiction of the types of transit technologies produced by this maker. This overview chronologically traces changes in public transit design, changes in its material and fabrication, and changes in its operation and functions. The 800-series streetcar, which is a key material source in this dissertation, is featured prominently in this publication. This work offers a description of the 800-series streetcar, providing detailed photos which offer comparison and context for what is missing on the artifact, given its condition. Another important secondary source consulted in this study is Bill McKeown's *Ottawa's Streetcars: An Illustrated History of Electric Railway Transit in Canada's Capital City* (2006). This comprehensive work looks at the actors, decisions, and developments associated with urban transit in Ottawa. It is a thorough contextual resource with striking photos that depict Ottawa's streetcars in the city's urban environments. Collectively, these sources represent the types of secondary source material consulted for *Users, Gender, and Access* with particular reference to Ottawa's urban transit history. They also highlight the limits of this work as little, if any, consideration is given to broader passenger demographics, gender, and access. These works are also exclusively focused on the 20th century and so *Users, Gender, and Access* extends this scholarship into the 21st century.

Scholarly Contributions Offered by *Gender, Access, and Users*

Users, Gender, and Access seeks to explore and historicize the role and material culture of public transit in Ottawa in order to contextualize contemporary user-technology relationships with particular attention to women, mothers with children in strollers, and riders using mobility devices. It offers original contributions to the scholarship surrounding the role and function of public transportation systems in daily mobility, feminist engagements with approaches to technology and its relationship with gender, and feminist disability studies' critical concept of 'misfit' through its study of marginalized users and the material culture of mass transit. The social and physical impacts of the design of transit technologies and their supporting infrastructure at, what is now, OC Transpo on users, specifically women, mothers with children in strollers, and passengers using some kind of assistive mobility device, has yet to be considered and studied in the supporting scholarship. The primary objective of *Users, Gender, and Access: Ottawa's Public Transit System from 1891 to 2011* is to explore this understudied and relatively poorly documented area of history in order to drawn attention to the evolving and continuously challenging mobility experiences of specific marginalized urban transportation users in Canada's capital. This research and analysis present an opportunity to contribute a unique perspective to the fields of gender, disability, and mobility scholarship by demonstrating new applications and combinations of theoretical frameworks and methodological approaches within an overlooked area of socio-technical and equity history.

This dissertation also contributes to ongoing conversations surrounding the relationship between gender, disability, and technology by considering the mutual shaping and tensions that connect and separate these categories, while recognizing that these categories and their

interconnectedness with one another is, and remains, fluid. Whereas early feminist approaches to technology have tended to frame technical objects and systems as static and as enforcing an unchallenged patriarchal power on users, a central consideration of both the social constructivist and, more recent, feminist approaches to appreciating the user-technology relationship is to consider the agency of users. This dissertation will thus extend the work of these FTS scholars, who seek to bring critical attention to users and emphasize their active role in the appropriation and 'making' of technology, by considering both gender and disability within the user-technology relationship. How do gender and disability impact technology (form, intended function, and user) and how does technology create, amplify, and reinforce gender and disability? This dissertation presents an opportunity to deepen our understanding of how these elements work, or don't work, together with regards to public transportation systems and spaces, and what unintended relationships may be developed and fostered, therein. It also notably extends the discourse surrounding gender, disability, and technology out of the private sphere and into the public arena, thereby offering new critical insights and ways in which to theorize and explore identity, space, and access.

Users, Gender, and Access argues that while the relationship between users and technology is one of mutual shaping, where power and influence flow between these categories, adaptations to technology do not always precipitate improvements for the user's experience. Whether they are overtly stated or inadvertently assumed, long and widely held social understandings of a technology, that are challenged by marginalized equity-seeking groups through calls for increased access and improved social inclusion, are much harder to reconsider. As will be explored in this dissertation, the design and built environment of technologies are linked to how these objects, systems, and forms of knowledge are understood, viewed, and consumed within society. By

changing, or adapting, technology, a reprogramming of social conditions, values, and norms must also take place in the adoption of this 'new' system. The latter, as this dissertation will demonstrate, can often take a significantly longer time to reshape and can have unanticipated and unexpected impacts on users.

It is my sincere hope that scholars from science and technology studies, transport and mobility studies, and feminist technology studies and disability studies, as well as professionals working in museums with technology collections, will find this work relevant to broader discussion about the relationship between users and technology, the study of mobility and urban spaces, and the literature surrounding gender, disability, technology, and objects.

Chapter 2

Theoretical Framework

Issued in May 1950, the Ottawa Transportation Commission's smoking ban on streetcars was a result of a marked shift in the makeup of transit users, alongside other post-war social reforms. This decision represents a continued shift in use and ongoing challeng to gendered norms and behaviours which had begun a decade prior, during the Second World War, when the use of public transit rose by 124% (Davis & Lorenzkowski, 1998, p. 437). While the period between 1939 and 1945 witnessed an incredible shift in the make-up of passengers, which included a greater percentage of female riders than ever before, the acceptable social norms and behaviours onboard public transit were, however, not as quick to change in response to these developments. As an article from the *Ottawa Citizen* entitled "Cheers, Boos Greet Ban on Tram Smokers" read:

> A mixed chorus of praise and protest greeted the decision of the Ottawa Transportation Commission to ban smoking in local street-cars. For some years now, smoking has been permitted in summer months, in the back of trams. W. J. Cairns, secretary manager of the local Board of Trade, said he personally welcomed the ban on smoking. "Personally, I think it is a wise thing to ban smoking in street-cars" he said. "Smokers are notoriously thoughtless about other people's comfort, when they smoke in street-cars." He recalled also that Ottawa was the only place where smoking in street-cars was permitted (Fay, 1950).

Historians of technology Barbara Lorenzkowski and Donald Davis argue in their compelling work on public transit during the Second World War in Canada that, "smoking had always been a flashpoint for gender tension. In the 1940s, smoking was still considered a gendered habit, even as Canadians recognized that women increasingly indulged in it. Smoking areas of trams were a man's world" (Davis & Lorenzkowski, 1998, pg. 6). "Realistically," a 1992 *Ottawa*

Morning Citizen editorial noted, "women must have felt unwelcome anywhere the air was 'blue' with smoke. Indeed, in Ottawa they clogged the front of street cars," in order to avoid the back which was "usually occupied by men' — that is, by smokers" (Smith, 1942). Smoking, as an arguably gendered habit, had created gendered zones onboard public transit which informed how passengers used and experienced these spaces. The Ottawa Transportation Commission's ban of on-board smoking effectively challenged passenger behaviour and the long-held societal assumptions about for whom this technology and service was for. Given the historic masculinization of public transit, banning a gendered (male) privilege or practice, had a notable negative impact on these established passengers and how they were able to use this public space. This decision, then, can be interpreted as the reframing of technology in order to consider the needs and expectations of a 'new', albeit still marginalized, user group: women.

The example above, which will be contextualized and examined in Chapter 5: "Ladies will kindly refrain from using abusive language": Female Passengers Challenging Public Transportation Norms from 1939 to 1959, is referenced here to highlight how technology and users are in an ever-changing and complicated relationship with one another. Neither is fixed or static, nor is their constituted relationship with one another. Unpacking these dynamics requires unique theoretical tools that lend insight into our understanding of the ways that the built environment and technology, ingrained social attitudes and values, and positionality and lived experience can shape and be shaped by access to mobility. This work is theoretically grounded in several key areas which inform how *Users, Gender, and Access* approaches and understands the term technology; how it frames the relationship between users and technology; how this study considers the shaping of gender and disability in relation to technology and the built environment; and the ways in which this work appreciates intersectionality and positionality as context for informing and situating

identity and experience. As a collective, this dissertation pulls from Science and Technology Studies, Feminist Technology Studies, Feminist Disability Studies, Crip Feminist Technoscience, and Feminist Standpoint Theory as they provide a framework for understanding the interplay between users and the material world. The following chapter will provide an overview of each of the above-mentioned fields and demonstrate how their theoretical contributions will be applied to the research and findings that inform and guide *Users, Gender, and Access*.

Science and Technology Studies

The transdisciplinary field of Science and Technology Studies emerged in the 1970s out of the humanities growing concern about the social and political effects of scientific and technological development(s). The field of STS, notes philosopher of science and technology Sergio Sismondo (2009), assumes that science and technology are thoroughly social activities that cannot be divorced or separated from the contexts in which they occur. "They are social," Sismondo suggests, "in that scientists and engineers are always members of communities, trained into the practices of those communities and necessarily working within them. These communities set standards for inquiry and evaluate knowledge claims" (Sismondo, 2009, p. 11). "STS," Sismondo continues, "takes a variety of anti-essentialist positions with respect to science and technology. Neither science nor technology is a natural kind, […] the interpretation of knowledge and artifacts are complex and various: claims, theories, facts, and objects may have very different meanings to different audiences" (2009, p. 11).

With a relational and socially situated understanding of science and technology in mind, STS scholars investigate how scientific and technological knowledge and artifacts are constructed and how their meaning, significance, and importance can be shaped, established, and challenged.

The term ‘social construction’ started to become common in STS in the late 1970s (Sismondo, 2009) and sought to understand how artifacts come to be as they are, in terms of design and use. Constructivist Technology Studies (CTS) argued that those who design technologies are effectively designing society, otherwise referred to as the *sociotechnical* (Hughes, 1986). This approach supports the premise that “technology is never ‘just’ technology or ‘just’ social. Rather, the relationship between technology and society is densely interactive” (Faulkner, 2001, p. 82). This approach to technology, as one that is shaped by and, in turn, shapes society, frames how *Users, Gender, and Access* grapples and engages with public transportation. It examines public transportation as a technological space and system, in terms of design, associated knowledge, networks, and use, in order to consider the values and assumptions inherent to the time and place in which public transportation was originally designed and built, and for whom it was initially intended for. These initial decisions about public transportation, which will be detailed in Chapter 4: “Men on Streetcars Allowed to Smoke”: Gender and the Role and Rise of Public Transportation in Ottawa, Ontario, have informed much of its utility over the past century, and has influenced how it is used and understood in society today.

As part of STS’s sociotechnical discourse, Actor-Network Theory (ANT) emerged in the early 1980s and sought to answer the question of how order is accomplished and made stable in time and space, with focus on the physical environment and as established in physical objects (Johannesson & Baerenhold, 2009). In their article *Actor-Network Theory/Network Geographies*, technology scholars Gunnar Johannesson and Jørgen Baerenholdt describe ANT as “a methodological device based on a particular worldview which aims at tracing the practices through which society is assembled” (Johannesson & Baerenhold, 2009, p. 15). ANT, they continue, is different than other practice-based perspectives “due to its grounding in material relationalism or

material semiotics […]. ANT approaches the world as consisting of heterogenous relations and practices through which humans and nonhumans alike are treated as possible actors" (2009, p. 15). Bruno Latour's (1987) *Science in Action* provides an overview of ANT which supposes that society is an outcome of interactions between human and non-human actors, whether the latter be organisms or material culture artifacts. Similar to many early STS studies, ANT initially focused on the role of scientists, engineers, and designers in creating and shaping networks.

As such, feminists, for the most part, have tended to avoid ANT, and specifically *Science in Action*, because Latour failed to incorporate questions of gender into his theoretical framework (Cockburn, 1992; Wajcman, 1991; Lagesen, 2012). Gender scholar, Susan Star (1990), for example, is critical of Latour's emphasis on the success of scientists and engineers in *Science in Action*, as this focus ignores the invisible work of women and fails to address gender. In response to such criticism, science and technology scholar Vivian Lagesen's *Reassembling gender: Actor-network theory (ANT) and the making of technology in gender* (2012) examines the possibilities of applying Latour's theory of action to the analyses of gender and technology in order to rectify the, often, asymmetrical treatment of these categories. Lagesen suggests that many previous co-construction models focus unevenly on how technologies are gendered and show "a lack of concern with the way gender is constructed and the roles technology can play in its construction and production" (2012, p. 444). Lagesen (2012) proposes that, in this way, ANT might be useful in offering feminists the possibility of perceiving gender and technology as heterogeneous and malleable objects. She suggests that by focusing on how new elements in the assembling process introduce new uncertainties with respect to the performance of gender (Butler, 1988), feminists can study how involved actors work to overcome those uncertainties and establish new routines and standards. As an example, Lagesen (2012) uses a case study of a women's-only Information

Communication Technologies' training course in the United Kingdom in order to demonstrate the impact that technical knowledge acquired during this course had on women's sense of technical competency and gender associated with this work, as well as on their sense of self and relationship with others. Examining gender through Actor Network Theory has also been applied outside of STS and FTS. For example, Barbara Schmucki's (2002) study can be seen as incorporating this approach, even though the author does not reference it outright. Schmucki (2002) examines the use and operation of electric tramways and their passengers from 1881 to 1990, in order to study the impact of gender on both the supply and demand sides of public transport in Germany during this period. Both of these studies demonstrate the impact of technology, in terms of training, use, and operation, and space in forming gender identities and shaping gender relations, and, in so doing, make the case that ANT can be a useful framework for approaching gender and technology, and their ability to shape and inform one another (Lagesen, 2012; Schmucki, 2002).

While much of the early constructivist approaches tended to focus upstream on the choices of engineers and designers of technology and their impact on society, the Social Construction of Technology approach, which emerged in the 1980s, eventually shifted this focus to users. SCOT scholars Trevor Pinch and Wiebe Bijker (1984) "conceived of users as a social group that played a part in the construction of technology" in which "different social groups could construct radically different meanings of technology. This came to be known as technology's interpretive flexibility" (Oudshoorn & Pinch, 2005, p. 3) which is the distinguishing feature of this approach and an important concept and tool for *User. Gender, and Access*. Initial attempts to figure out the power and influence of users was fraught and early SCOT work was rightly criticized for its rather cavalier attitudes towards users; initial SCOT works overlooked the ways in which users could actively modify stable or established technologies (Oudshoorn & Pinch, 2005; Mackay &

Gillespie, 1992). In response to this omission or oversight, Robert Kline and Trevor Pinch (1996) examined how a stable technology, a Model T automobile, could be appropriated by unintended users for unintended purposes. In their study, they examined the circumstances which resulted in farmers using these vehicles not as technologies of transportation and mobility but, rather, as stationary power sources. Kline and Pinch (1996) referred to such users as "agents of technological change" (1996, p. 763). This study demonstrated the ability of users to establish their own understandings of technology and, in so doing, presented a model for examining how artifacts can be conceived and understood as different things to different relevant social groups.

"Stabilization" is another important concept from SCOT (Humphreys, 2005, p. 231). This tool is crucial in understanding how artifacts become established technologies. Stabilization occurs when relevant social groups coalesce around one design, or accept one design, because it addresses the needs, either individual or shared, of each social group. Small design changes can still occur, but they tend to reaffirm the overall design. In her work *Reframing Social Groups, Closure, and Stabilization in the Social Construction of Technology* (2005), communication scholar Lee Humphreys expands the work of Pinch and Bijker's by considering the nuances between and amongst social groups. She suggests that in order to examine the construction of technological change and the role of users, scholars must consider the disparities between the power and influence that different social groups have (Humphreys, 2005). With this in mind, Humphrey asserts that:

> one can identify four general categories of social groups which span across technologies: *producers*, *advocates*, *users*, and *bystanders*. These social groups can be delineated based on their stake holdings. In other words, each group can be determined by their relationship with technology (either direct or indirect) and whether they are an organized network or atomized individual. For example, producers

> have a direct organizational/economic stake in technologies. Advocates have a political stake in technologies. Users are interested in technology improving their lives – an everyday, personal stake. Bystanders are those whose opinions, values, and judgements about technologies indirectly shape their understanding of what is good and right for themselves and others – an everyday, social or moral stake. Another potential distinction between the social groups is that not every artifact will have influential social groups from each of these categories, while at the same time each category clearly may have sub-groups (2005, p. 234).

An important element of Humphrey's work is the recognition that the categorization of these relevant social groups can be flexible, wherein individuals can move between groups, belong to multiple groups at the same time, and have conflicting and/or shared values and understandings with other members.

Another user-focused approach that contributes to *Users, Gender, and Access*'s theoretical framework is Ruth Schwartz Cowan's "consumption junction" which seeks to establish the actual and potential consumer(s) of an artifact, imagining those consumers as embedded in a network of "social relations that limits and controls the technological choices that she or he is capable of making" (1987, p. 262) at the final stage of technological diffusion. To Cowan, the consumption junction is the place and time in which the consumer, which she acknowledges comes "in many different shapes and sizes," makes choices between competing technologies (1987, p. 263). These choices are just as relevant to the artifact, and the history of technology, as those of the engineer(s) involved in its design. Cowan (1987) rejects the notion that science and technology begins and ends with the innovation and design process and the actions of scientists and engineers. Cowan's work provides a framework for considering the impact and influence of the people that use and/or consume technology/ies.

Through the critical concepts mentioned above, such as interpretive flexibility and consumption junction, it is clear that constructivist scholars were exploring users and technology as "two sides of the same problem–as co-constructed" (Oudshoorn & Pinch, 2005, p. 3). Focusing on users enriches the history of technology by providing a more nuanced understanding of and appreciation for the successes and failures of these tools, and the roles they play in our lives. As FTS scholar Judy Wajcman summarizes, "objects and artefacts are no longer seen as separate from society, but as part of the social fabric that holds society together; they are never merely technical or social" (Wajcman, 2007, p. 293). "Rather," she continues, "the broad social shaping or constructivist approach treats technology as a sociotechnical product – a seamless web or network combining artefacts, people, organizations, cultural meanings and knowledge" (Wajcman, 2007, p. 293).

Science and Technology Studies offers a rich catalogue of important theoretical tools that inform the study of the user-technology relationship. Within the context of *Users, Gender, and Access*, these theories suggest that both society and technology and, more specifically, users and technology, are mutually constitutive, where neither is fixed or firm but continually changing in relation to the other. Where the latter is concerned, it's critical to recognize that users are not a uniform category or homogenous group and that different relevant social groups create their own interpretation and understanding of technologies and artifacts. As Kline and Pinch (1996), and later Humphreys (2005), suggest, examining how distinct social groups share in the stabilization of a technology allows for a more fulsome and complex appreciation of an artifact in a network, specifically, and the history of technology, more generally.

Feminist Technology Studies

Feminist theories of gender in relation to technology and science have developed considerably since the 1960s through the exploration of many different, sometimes competing, approaches and have been influenced by other disciplines and fields, as well as new and emerging technologies. Within Feminist Technology Studies, there has been considerable overlap and departures between feminist schools of thought, such as liberal and radical feminism, social feminist works, and postmodern approaches (Faulkner, 2001; Rosser, 2005; Shilling, 2005; Wajcman, 2004) Radical feminism and eco-feminism, for example, had a relatively positive impact on discussions surrounding gender and technology (Merchant, 1980; Mies & Shiva, 1993; Oldenziel, 2006). They demonstrated that women's interests and needs were different from men's and highlighted the ways in which women were not always well served by current technologies. By emphasizing that power was embedded more deeply within social structures, radical feminism, in particular, contributed to a more sophisticated understanding of women's exclusion(s) from science and technology. A major criticism of these approaches, however, was their tendency toward gender essentialism, where categories created a uniform understanding of the relationship between women and technology and men and technology.

Through the work of socialist feminists, science and technology were no longer framed as neutral but seen as socially shaped by men, or rather a patriarchal system, to the exclusion of women. Wajcman notes that "while this literature did reflect an understanding of the historical variability and plurality of the categories of 'women' and 'technology', it was nevertheless pessimistic about the possibilities of redesigning technologies for gender equity" (2007, p. 291). As a result, socialist feminist approaches have been criticized for not paying enough attention to

women's agency in relation to technology and being technophobic, or having a fear or dislike of technologies and technical systems/networks (Wajcman, 2007). In response to the technophobia of previous theoretical feminist approaches and as a result of the increase in ownership and use of Information Communication Technologies (ICTs) during the 1990s, a new generation of feminist scholarship emerged that was much more positive about the possibilities of technology to both empower women and positively influence gender hierarchies; commonly referred to within FTS as a technophilic appreciation of the relationship between gender and technology (Kemp & Squires, 1997; Kirkup et al., 2000). Despite conflicting approaches, many early postmodern cyberfeminists were optimistic that the "virtuality of cyberspace and the Internet spelt the end of the embodied basis for sex difference" (Wajcman, 2007, p. 291). According to feminist scholar Sadie Plant (1998), digital technologies allowed their users to choose alternate identities online which meant a blurring of boundaries between traditional categories, for example, those between men and women, and machine and human. Critical feminist scholar Donna Haraway's (1991) *cyborg* is an excellent example of this type of postmodern scholarship. Haraway's cyborg forges a new kind of feminist scholarship in its creation of "a cybernetic organism, a hybrid of machine and organism" which transgress traditional boundaries (1991, p. 149). Three decades of research and lived experience, however, have indicated that, in many ways, the Internet, and related digital spaces and technologies, have not liberated users from established gender binaries, stereotypes, and associated norms.

Current approaches tend to focus on the mutual shaping, or co-production, of gender and technology. Here, both technology and gender are seen as fluid and situated in a mutually constitutive relationship with one another, in quite a similar fashion to the user-technology entanglement previously described in this chapter. This focus also brings greater attention and

understanding to users, as it complicates and creates a deeper appreciation of the nuances of lived experience and identity; this has been a significant achievement of Feminist Technology Studies. As technology scholars Nelly Oudshoorn and Trevor Pinch address in their chapter *The Co-Construction of Users and Technology* (2005), feminist scholars have played a leading role in bringing critical attention to users. Feminist interest in users "reflects concerns about the potential problematic consequences of technologies for women and about the absence of women in historical accounts of technology" (Oudshoorn & Pinch, 2005, p. 4). Scholarship around users as active participants in *making* technology has also been used by feminists to emphasize women's active role in the appropriation of technology. Oudshoorn and Pinch (2005) identify Martha Trescott's (1979) *Dynamos and Virgins Revisited* as one of the first works to argue that feminists should explore how women shape and negotiate meaning and practices in technology, rather than framing women as passive recipients of technology. Granting agency to users, particularly to women, has become a central consideration of the feminist approach to user-technology relations. Feminists have also been vigilant in considering and identifying the diversity of possible users in relation to technology so as to not essentialize possible interactions or categories of relevant social groups. In order to capture the diversity of users and the "power relations between users and other actors in technological development," feminist sociologists have developed various categories of users, such as "end users," "lay end users," and "implicated actors" (Oudshoorn & Pinch, 2005, p. 6), in a somewhat similar fashion to the Social Construction of Technology approach described earlier in this chapter. These groups reflect the aim of FTS to increase the scholarship surrounding women's influence on technological development and use at every stage, while avoiding the silencing of invisible actors.

Semiotics, the study of how meanings are built, from signs to things, is another approach that feminists were introduced to from Science and Technology Studies. A helpful appreciation of semiotics can be explored through Woolgar's (1990) notion of the user as *reader* in response to the metaphor of the machine as *text*. Woolgar (1990) suggests that how user's *read* machines or technologies is constrained because the design and production of machines entails a process of configuring the user. For Woolgar (1990) and Oudshoorn and Pinch (2005), *configuring* is the process of "defining the identity of putative users, and setting constraints upon their likely future actions" (Oudshoorn & Pinch, 2005, p. 8; Woolgar, 1990). Critics see this concept as creating a top-down process in which power is attributed to the creators (designers and engineers) who are encoding or writing the text of technologies. As such, scholars have produced a more symmetrical use of configuring which pays special attention to the *decoding* work done by readers (users) when they interpret these texts (technologies) (Mackay et al. 2000; Oudshoorn & Pinch, 2005). This decoding emphasizes the role(s) of users in understanding and influencing technologies and, in so doing, it demonstrates the co-constructing relationship between users and technologies.

Another semiotic approach is the concept of script which "tries to capture how technological objects enable or constrain human relations as well as relationships between people and things" (Oudshoorn & Pinch, 2005, p. 9). As sociologist of technology Madeleine Akrich (1992) suggests, technical objects are similar to the script of a film because they too provide a framework of action or use for intended actors. In reading the script of a film and by reading the script of a technology, actors on film and users of technologies are attributed and delegated "specific competencies, actions, and responsibilities" (Oudshoorn & Pinch, 2005, p. 9). They (actors and users) are instructed how to perform through these scripts. In the 1990s, feminist scholars extended the script approach to include gender (Oudshoorn & Pinch, 2005, p. 10). Dutch

and Norwegian feminists introduced this concept in response to what they felt was an ineffective articulation of the performance of gender identities present in contemporary technological studies (Berg and Lie, 1993; Oudshoorn & Pinch, 2005). Gender scripting, which explores the ways in which ideas about gender identities are translated into and out of the design of objects, follows two processes: inscription and de-inscription, in which the latter can also include anti-programming. To begin, objects can be gendered by the work of designers, who anticipate the preferences, motives, tastes, and skills of potential users, and seek to reproduce the cultural norms in society at large through their design choices (Ooudshoorn & Pinch, 2005; Akrich 1987). Designated spaces for smokers and non-smokers on board streetcars, as was explored at the beginning of this chapter, can be interpreted as an example of gender scripting; designers creating and adapting spaces to allow for the gendered and socially accepted activity of smoking to take place on board public transit. It follows that because there are gendered norms and values inscribed into a technical artifact, objects can attribute and delegate roles, actions, and responsibilities to their many users. Users then read the scripts that designers have created for them in the material culture of a technical object, which informs how they use and understand these objects; this is known as de-inscription. In keeping with the spaces for smoking example, de-inscription appears when smokers (mostly men) occupy the back of the streetcar in the smoking area and other passengers (a larger number of whom were women) stay close to the front of the streetcar. When users do not follow the gender script of an artifact, but rather develop their own interpretation of these inscriptions, this is referred to as anti-programming. Rejection of a gender script can result in poor sales or adoption of a technology, or in a technology being used in unintended ways. In this adaptation or rejection of technology one can see the success or failure of a technology which can provide valuable insights for the (re)design of technologies and the reframing of gender norms and roles. Drawing once

again on the smoking on trams example, gender tensions and changing social norms resulted in the anti-programming of this space and the adoption of new ways of behaving, for some, on board public transit as a result of the smoking ban. The gender script approach makes users and gender more visible as active participants in technological development (Ooudshoorn & Pinch, 2005).

During the 1990s and early 2000s, feminists pulled from the co-construction approach, which had developed compelling literature on the impact that users can have on technological innovation and use, in order to theorize the relationship between gender and technology as one of *mutual shaping* and *coproduction* (Wajcman, 2007). These terms, suggests historian and sociologist of science, technology, and medicine, Francesca Bray "are intended to highlight the performative, processual character of both gender and technology and to avoid the analytical pitfalls of essentializing either" (2007, p. 42). As gender, science, and technology scholar Wendy Faulkner notes, the "two-way mutual shaping relationship between technology is both a source and consequence of gender relations and *vice versa*" (2001, p. 81). Or, put another way, "gender relations can be thought of as materialized in technology, and gendered identities and discourses as produced simultaneously with technologies" (Wajcman, 2007, p. 293). Nina Lerman, Arwen Mohun, and Ruth Oldenziel note that "to explore ways of making and doing things is to explore a central aspect of the construction of gender systems" (Lerman et al., 1997, p. 2). It is important to remember that the co-production of gender and technology does not end at the innovation and design process. As gender and transport historian Robin Law (1999) argues in her work on daily mobility patterns, in considering the relationship between users and technology, scholars must focus on a variety of grounded studies of specific situations and interactions. To this point, Wajcman reminds us that "feminist research has been at the forefront of moves to deconstruct the

designer/user divide, and that between production and consumption, emphasizing the connectedness of all phases of technological development" (2007, p. 293).

It is equally important to consider that gender-technology relations are shaped by gender symbols, signs, and identities. Considering the mutual-shaping of gender and technology and extending this analysis to include signs and symbols, helps to explain the "tenacity of the equation between masculinity and technology while at the same time providing a basis for destabilizing that equation" (Faulkner, 2001, p. 81). For example, the Priority Seating and Courtesy Seating signage (Figure 4) produced by the Province of Ontario in compliance with the Accessibility for Ontarians with Disabilities Act (Section 49 of Regulation 191-11) is a compelling example of the role that signs and signage can play in shaping the use of the built environment. These signs direct and inform the behaviour of passengers who use and require accessible seating, such as wheelchair positions and stability belts, at the front of public transportation technologies. They are also deeply gendered and convey a hierarchy of use within the relevant social groups. As will be examined in Chapter 7: "We're using public transit the way other people use it and we're not taking up more space out of a desire to take up space, but out of a need": Establishing a By-Law on Priority Seating, 2005 to 2011, these signs reaffirm a gendered (masculine) understanding about who this technology is intended for. While pregnant women and women with young children in tow are depicted, the

Figure 4: Priority Seating and Courtesy Seating Decals. Credit: Accessibility for Ontarians with Disabilities

dominant figure in both signs is that of a masculine body, which connects to, and reinforces, public transit's history of male use and operation.

Users, Gender, and Access is profoundly informed by the theoretical approaches and concepts that have emerged from the field of Feminist Technology Studies. In particular, FTS's examination of the ways in which gender and technology relate to and construct one another is an especially helpful theoretical understanding, made applicable through the concepts of co-construction and gender scripting; these add depth and nuance to the whole user-gender-technology relationship enterprise. From an artifact, or object based, perspective, gender scripting is a critical tool that centralizes the user experience and makes clear the ability that technologies have in the shaping of gender norms and identities and, in response, how society and users can inform, accept, and/or challenge these ideas, assumptions, and realities; here, too, visuals, by way of signs and symbols, are an important part of this material equation and study. In its discussion of fluid understandings of both gender and technology, and their changing relationship with one another, Feminist Technology Studies also offers a temporal framework for working with, and appreciating, the history of technology that is cognisant of time and place. In its recognition of the mutually constitutive relationship between gender and technology, this scholarship leaves space for new, and often unanticipated, interactions and developments.

Feminist Disability Studies

As critical access studies scholar Aimi Hamraie (2017) notes in their work on the politics of disability, the critical study of disability came out of social movements during the 1960s and is allied with other social justice fields born during this time, such as critical race, feminist, and queer studies. Hamraie suggest that the field's foundational social model of disability translated "the

insights of U.S. and UK disability activists into an academic theory" (Hamraie, 2017, p. 12). "As the social model is often described," they continue, "disability is a construct of built and social environments rather than pathology requiring a cure or functional limitation demanding rehabilitation" (2017, p. 12). This understanding was in response to the limitations of previous approaches. For example, the medical model of disability, or individual model, which viewed disability as "an individual disorder of a particular body that must be fixed or cured if its 'owner' is to live a full life" (Hirschmann, 2012, p. 398). In this model, disability is framed as "both intrinsic to the 'abnormal' body, which must be made to adapt to the pre-existing environment, and simultaneously alien to the body, as a hostile force that undermines its true telos and the individual's presumed intentions" (Hirschmann, 2012, p. 398). The ideology of the cure focuses on fixing "bodies imagined as abnormal and dysfunctional" (Garland-Thomson, 2011, p. 27). Within this model, the body is the sole sight of disability; the impact of an ableist built environment does not factor into this approach.

A departure from the medical model came from rehabilitation experts who developed an understanding of disability which focused on the environment and not on the individual. Hamraie notes that this approach argued that "inaccessible built environments excluded disabled people from accessing necessary services, work, and public participation" (2017, p. 12). "These experts," they continue, "emerged from within the rehabilitation profession, used established research methods in their field, and worked with architects and builders to produce the first U.S. accessibility standard, ANSI A117.1" (2017, p. 12). For the most part, this approach has focused on barrier-free design aimed at engineering more productive workers and citizens, and offered little consideration of the embodied realities, social implications, and attitudes towards disability (Hamraie, 2017). This model provided a parallel approach to the medical model.

Throughout the 1970s, disability activists challenged rehabilitation researchers and the medical model for their assumptions that disability was/is a failure of human performance, and thus a problem in need of a medical cure or a redesign. Here, a new disability epistemology emerged which deemphasized medical and scientific knowledge in favour of critical theory, qualitative data, and humanistic texts. The social model of disability arose in response to the ableist (mis)conceptions about "being disabled" that were, and remain, so deeply engrained in our culture and presented an emancipatory approach based on "empowering and reciprocity; changing the social relations of research production; and changing the focus of attention away from disabled individuals and onto a disablist society" (Bê, 2013, p. 364). In this way, disability was re-framed as a social construction based in and on social relations, the built environment, laws, customs, etc. Similar to feminist urbanism (Bondi & Rose, 2010) which examines the impact of the built environment on gender, the social model of disability "refers exclusively to what society's social conditions, prejudices, biases, and the built environment have produced" (Hirschmann, 2012, p. 398). Within this context, "disability," feminist theorist Nancy Hirschmann concludes, "is thus not applicable to the body *per se* but to the body in a hostile environment" (2012, p. 398).

As the disability movement grew in importance throughout the latter part of the twentieth century, activists and scholars interested in both feminism and disability began to contribute to these fields. As noted above, the social model of disability had exposed the "ableist and (mis)conceptions about 'being disabled' that are deeply engraved in our culture and ways of being, as well as the difficulty in changing them" (Bê, 2013, p. 364; Morris, 1993; Oliver, 1996). Early work by feminists within disability studies sought to challenge and deconstruct the ableist ideas inherent within feminism. For example, Nasa Begum's *Disabled Women and the Feminist Agenda* critiques the feminist movement for restricting "its thinking to the needs of nondisabled women"

(1992, p. 82). She argues that the feminist movement has had "difficulty tackling diversity among women" which has meant that "many women, particularly those of us who have disabilities, have been left out in the cold" (Begum, 1992, p. 82). In light of such exclusions, Begum concludes that "feminism urgently needs to address the issues of diversity and in the process of doing this it must learn from the experiences of disabled women" (1992, p. 82).

As a result of such criticisms, the last few decades of the twentieth century witnessed the emergence of a number of important publications that focused on the lived experience of women with disabilities (Deegan & Brooks, 1985; Morris, 1993). By presenting case studies and statistical information, these works focused on some of the issues that most affected these women and emphasized the need to stop essentializing the experiences of *all* people with disabilities and of *all* women. An example of this scholarship can be seen in FDS scholars Mary Deegan and Nancy Brooks work *Women and Disability* (1985), which called for greater attention to disabled women's standpoint, as these women are often excluded from both the women's movement and the disability movement (Deegan & Brooks; 1985; Bê, 2013). This connects to another area that feminist disability scholars have explored: the idea that women with disabilities are at a double disadvantage (or double oppression), as they are both disabled and women. Since the 1990s, feminist disability scholars have warned that such an analysis can risk subjects being looked at as mere passive victims of oppression and, in so doing, shift attention away from socio-cultural issues, which inform and support gender-based discrimination and ableism, and warrant critical analysis (Morris, 1993).

In response to FDS's observations and concerns about the exclusions, double disadvantaging, and essentializing of the experiences of women with disabilities, feminist

standpoint theory has been an important theoretical tool which informs a consideration of "the distinct material and social position of women, that produces, in a complex way, a unique epistemological vision" (Sangster, 1994, p. 11; Hartstock, 1989; Harding, 1986). It recognizes that knowledge is socially situated, and that insight into the lives and realities of equity-deserving and marginalized individuals must be shared and explored from and through their own perspectives. For *Users, Gender, and Access*, standpoint theory is especially important because of its focus on privileging and centralizing the unique first-person accounts and lived experiences of equity-deserving and marginalized individuals and groups. These experiences, as the following chapter will describe, are located and retrieved through oral histories, testimonial accounts, and newspapers.

Throughout the 1990s, feminist writers within disability studies continued to focus on the lives of women with disabilities by bringing experiential stories to light (Thomas, 1999) and "organizing anthologies of first-person narratives" (Bê, 2013, p. 364; Driedger & Gray, 1994). This was a time of sudden growth in the publication of material relating to women with disabilities and this increased scholarship meant that feminist disability scholars were "better equipped to theorize dimensions of social life in novel and sophisticated emancipatory ways" (Bê, 2013, p. 364). For example, in her work *Pride Against Prejudice* (1991), FDS scholar Jenny Morris explored how people with disabilities, primarily women, experience prejudice which, she argues, is greatly defined by the able-bodied and deeply affects the value people with disabilities ascribe to their lives. During this decade, feminists with disabilities began, in earnest, to feature their own personal experiences in their work. A profound example of such writing is Susan Wendell's *The Rejected Body* (1999). Through this study, "Wendell interweaves her own personal story with an interdisciplinary theoretical framework to construct a powerful critique of biomedical power and

the culture and social forces that construct disabled people as 'other'" (Bê, 2013, p. 368). These works demonstrated the integral role that engaging with women with disabilities and their personal narratives could play in understanding the lived experiences of people with disabilities and the social, as well as physical, construction of an ableist society.

Feminist Disability Studies scholars have also reconsidered the implication(s) of stereotypical gender roles (wife, mother, inherently nurturing, etc.) on and for women with disabilities. Despite the fact that feminists have challenged traditional gender norms, "such roles still remain strong and therefore their significance should not be underestimated" (Begum, 1992, p. 72). And while these norms have been ascribed and assigned to able-bodied women, for disabled women, there is the automatic assumption that, as disability scholar and activist Nasa Begum explores in her work, "our disabilities will prevent us from ever taking up such traditionally defined roles" (1992, p. 72). An example of this within *Users, Gender, and Access* can be seen on the Priority Seating and Cooperative Seating signs included earlier in this chapter; these visuals do not portray women as having disabilities nor do they reference women with disabilities as either being pregnant or providing childcare. This type of signage is directly informed by the biases and stereotypes found within society, at large, towards women with disabilities and has an immediate and direct impact on their sense of inclusion within public spaces, such as public transportation. This is an example of how women with disabilities are not immediately seen as being able to conform to these traditional and normative roles. In light of this exclusion, Begum believes that the position of 'disabled woman' may either "a) push disabled women into choosing very traditional feminine roles to aspire to notions of 'normality'; or b) lead disabled women to select non-traditional feminine roles as a process of default rather than a personal choice" (1992, p. 75). Consider, as another example, the heteronormative family as a goal of traditional gender roles. "If,

as disabled women," notes Begum, "we do not conform to conventional gender roles then the fight to gain access to institutions such as the family becomes extremely difficult, if not impossible" (1992, p. 75). While these institutions are considered oppressive by many feminists, Begum reminds us that "the struggle against the family may be different for those of us who are excluded from the outset" (1992, p. 75). The relationship between disabled women and gender norms complicates our appreciation for and understanding of the interplay between gender and disability.

In the early twenty-first century, critical and crip theories of disability emerged to challenge the social model for overemphasizing the environmental construction of disability oppression over embodied experiences of disability. "Crip," Hamraie observes, is "a reclamation of the term "cripple" dating to the 1970s independent living movement," and so, like feminist standpoint theory, it "resists imperatives for normalization and assimilation. Crip theories contribute that disability is a valuable cultural identity, a source of knowledge, and a basis for relationality" (2017, p. 12). In an effort to further think through the lived experience of disability as it is situated in place and time and to work through the nuances of embodiment and environment, Feminist Disability Studies' scholar Rosemary Garland-Thomson developed the critical concept of 'misfit' which, for the purposes of *Users, Gender, and Access*, is incredibly helpful when theorizing the experiences of marginalized users' on-board public transit. For Garland-Thomson, "fitting and misfitting denote an encounter in which two things come together in either harmony or disjunction" (2011, p. 592). Within this framing, Garland-Thomson (2011) typically refers to a situation and a person and, as such, her *misfit* concept is more concerned with incongruent relationships and their resulting juxtapositions than it is with any lack, excess, or variations of the body. "The interrelated dynamics of fitting and misfitting," Garland-Thomson posits, "constitute a particular aspect of world-making involved in material-discursive becoming" (2011, p. 591). As

such, her concept has three underlying principles: 1) that varying lived embodiments must be recognized in order to avoid a theoretical generic disabled body; 2) it must clarify feminist discourses around universal vulnerability and dependence; and 3) this concept must recognize the agency and value of disabled subjects (Garland-Thomson, 2011). Combined, crip theory and the concept of misfit provide a framework for examining experiences that is attuned to incongruent relationships between the body, the built environment, and social attitudes, and that appreciates and respects unique lived accounts and the knowledge and insights that they offer.

Feminist disability scholars have made considerable contributions to our understandings of women with disabilities by pushing for the inclusion of disability as a rich and diverse category of analysis. They have demonstrated the significant power of these women to disrupt norms around feminism, gender, and the category of *woman*. Feminist Disability Studies have also developed methodologies that give power and authority to the personal experiences of women with disabilities. By exploring different ways in which bodies can be understood within society and by placing a greater focus on the words and experiences of people with disabilities, especially women, Feminist Disability Studies have enriched and complicated our understanding of the relationship between gender and disability and the built environment. Standpoint, crip theory, and the misfit concept are theoretical tools that will inform how *Users, Gender, and Access* understands the construction of disability and gender and how it will engage with and privilege the experiences and insights of and from equity-deserving individuals and groups within this study.

Feminist Disability Technoscience/Crip Feminist Technoscience

While the field of FTS recognizes the constructive interplay between gender and technology, and while Feminist Disability Studies acknowledges the central role that infrastructure

and technology play in creating and reinforcing disabilities, until recently these two fields have had very few interactions. As Hamraie notes in *Cripping Feminist Technoscience*, "the missing ingredient, it seems, has been the technoscientific elaboration of crip theory" (2015, p. 307). "Crip," Hamraie asserts, "is a highly debated and contested term making resistance to what Robert McRuer calls "compulsory able-bodiedness" (2015, p. 307; McRuer, 2006). "Cripping actively resists compliance with supposedly normal embodiment, behavior, and desired futures. "Instead," Hamraie continues, "it understands disability as a productive possible and resource" (2006, p. 308).

In the 2010s, Feminist Disability Technoscience (FDTS), also referred to as Crip Feminist Technoscience (CFTS), emerged from the intersections of FTS and Critical Disability Studies (CDS) (Hamraie, 2015; Murphy, 2012). This field acknowledges insights from feminist materialism (the central role of capitalism and patriarchy in understanding women's oppression) and from FTS, "while also remaining attentive to what types of difference and embodiment are valued, omitted, or normalized when we talk about disability, objectivity, and technology" (Hamraie, 2015, p. 308). Hamraie (2015) pulls from feminist technoscience scholar Michelle Murphy's concept of *procedural feminism*, which describes the ways women have appropriated, revised, and reinvented health care techniques to better meet their needs, and argues that technoscience can be used as activism in order to "mobilize affective economies and posit alternative epistemologies" (2012, p. 310). "Using Murphy's concept as a guide," Hamraie notes, "we can imagine crip feminist technoscience scholarship about how the design, invention, and use of tools, machines, and even built environments can become a site of "crip hacktivism" (2015, p. 311). This approach places agency in the user's experience by questioning, or examining, how they navigate spaces and systems that have not been built by designers and engineers with their needs in mind. FDTS's concepts of *procedural feminism* and *crip hacktivism* provide useful

theoretical tools that can guide this study through its exploration of the actions, agency, and activism of marginalized users in their efforts to use public transit in a safe and accessible manner (Hamraie, 2015; Murphy, 2012). Hamraie asserts that the "task of the emerging field of CFTS will be not only to politicize the lived realities of people with and without access to technology, but also to use crip feminist insights to agitate against compulsory normalcy" (2015, p. 313). Here, it is crucial for FDTS scholars to examine "crafting practices of design and world-building, enacting crip feminist technoscience to create more accessible futures" (2015, p. 313). Like the work of FTS and FDS, FDTS is also a field with political and social justice roots and goals. In terms of technology, FDTS recognizes that gender and disability are not only situated in our understanding of the body, but also in terms of those bodies in action, or the activism of those bodies. In *Cripping Feminist Technoscience* (2015), Hamraie points to Alison Kafer's *Feminist, Queer, Crip* (2013) which examines the crip feminist technoscientific practices of "valuing the technoscientific activism that has characterized disability rights history. Such activism includes demands for accessible worlds, technologies that resist compulsory heterosexuality and able-bodiedness, DIY technology activism, and disabled people's use of technologies as diverse as the internet and wheelchairs to participate in political actions" (2013, p. 309). Building on FDS's use of first-person narratives, FDTS encourages the examination and critique of the relationship between lived experiences, standpoint, and technology. This recent field of study, and its theoretical underpinnings, have much to offer *Users, Gender, and Access* by way of considering the connections between gender, disability, and technology and agency and action in the history of accessible public transportation.

Intersectionality

The fields of FTS, FDS, and FDTS all acknowledge that reciprocal relationships exist between gender, disability, technology, and systems or structures of oppression. Within the community of feminist scholars, intersectionality has become, in the words of political theorist Anna Carastathis, "the predominant way of conceptualizing the relation between systems of oppression which construct our multiple identities and our social locations in hierarchies of power and privilege" (2014, p. 304). Coined by legal scholar Kimberlė Crenshaw (1989), intersectionality, which is "the notion that subjectivity is constituted in mutually reinforcing vectors of race, gender, class, and sexuality," has emerged as "the primary theoretical tool designed to combat feminist hierarchy, hegemony, and exclusivity" (Nash, 2008, p. 2). As Sumi Cho, Kimberlė Crenshaw, and Leslie McCall argue, "intersectionality primarily concerns the way things work rather than who people are" (2013, p. 797). In contrast to unitary or additive approaches to theorizing subjectivity, bodies, and oppression, which "privilege a foundational category and either ignore or merely 'add' others to it, intersectionality insists that multiple, co-constituting analytic categories are operative and equally salient in constructing institutionalised practices and lived experiences" (Carastathis, 2014, p. 307).

An intersectional approach also seeks to address the legacy of exclusion which is the most pressing problem facing contemporary feminism. Feminist disability scholars, more specifically, have also recognized the need for intersectional research so that the full range of experiences and perspectives of diverse people with disabilities is not obscured or blurred (Hirschmann, 2012; Nash, 2008). This realization comes as a result of the assumption that people with disabilities share the same views, experiences, and priorities, regardless of their age, gender, race, sexual orientation,

and socio-economic status. It is key, then, for disability scholars to engage with intersectional research so as to explore multiple axes of differences and deconstruct the essentialized understanding of the disabled body. An intersectional approach automatically probes these categories in order to complicate identity categories. This approach is not without its challenges. As disability scholars Anthony Sommo and Jay Chaskes (2013) note, the "single most demanding aspect of disability as a variable" within an intersection framework "is that disability is qualitatively more complex than race, class, gender, and sexual orientation" (2013, p. 52). They argue that "the corporeal reality of disability imposes daily lived constraints and obstacles on persons with disabilities" and that "layered over this reality are the socially constructed forms of physical and social oppression affirmed by intersectionality and the social model" (Sommo & Chaskes, 2013, p. 49). As a result, Sommo and Chaskes indicate that it can be difficult to define the point at which the "physically imposed limitation ends and socially constructed oppression begins" (2013, p. 49).

Since the 1980s, feminist scholarship has increasingly demonstrated that "the experience of 'woman' always constituted subjects with vastly different interests" (Nash, 2008, p. 3). "Intersectionality", argues Jennifer Nash "has provided a name to a pre-existing theoretical and political commitment" (2008, p. 3). But while some feminists insist that intersectionality refers to all subject positions, Nash asserts that "the overwhelming majority of intersectionality scholarship has centered on the particular position of multiply marginalized subjects" (2008, p. 10) speaking to the experiences of non-white and poor women in particular and not, necessarily, considering women with disabilities. Hirschmann suggests that "understanding the intersection of disability with gender and sexuality can […] yield productive new insights and complicate feminist analysis" (2012, p. 401). She cautions, however, that "disability is more than simply another 'case' to be

added to intersectionality, or another intersection with gender and sexuality; considering the intersections of disability with gender and sexuality also raises methodological issues about how intersectional research is conducted" (Hirschmann, 2012, p. 401). An example of this intersectional complexity can be seen in Deborah Stienstra's work on race/ethnicity, gender, and disability. She points out that, "for people with disabilities who want to immigrate to Canada […] their status as disabled renders them ineligible to do so" (Stienstra, 2012, p. 377). "Able-bodied refugee women may be granted asylum" but, a Steinstra observes, "a disabled body, erroneously assumed to be unfit for wage work, is not wanted" (2012, p. 385). Given this reality, Stienstra asserts that by "constructing racialized people who have disabilities as the Other of the Other, Canadian immigration policy bars the entry of applicants with disabilities, the significance of which cannot be overstated" (2012, p. 385). "Racialized women who have disabilities," she states, "are not part of the multicultural and gendered landscape of Canadian society" (Stienstra, 2012, p. 385). This demonstrates the complexities, and realities, of including disability within an intersectional framework.

For *Users, Gender, and Access*, intersectionality informs how users are considered within this research topic. Pulling from the work of STS, it is clear that there are many, many categories of relevant social groups that interact with technology but, here, it is important to acknowledge and examine the unique categories that inform, constrain, dictate, etc. how these individuals use, or don't use, and/or adapt the world around them, in particular the spaces and technologies of public transportation system. Within the central marginalized user groups that are the focus of this study, primarily women, women with children in strollers, and passengers with disabilities using mobility devices, there are distinctions that challenge the assumption that these riders, as distinct groups, share the exact same needs and wants of this public service. Identity politics and categories

challenge this narrative and complicate, once more, the user-technology relationship. These nuances are incredibly important to understanding the history of public transit and how it is used by passengers and understood within society.

Chapter 3

Methodological Framework

Figure 5: A photograph of a wheelchair on a lift.
Credit: Pat McGarth/Ottawa Citizen

On December 26, 1986, the *Ottawa Citizen* ran an article titled "A Sense of Independence: Para Transpo is ticket to ride for the handicapped" (Kelly, 1986). This article reported on OC Transpo's newly operational accessibility service through the perspective of one user. "For Ian Black," the article read:

> the sight of a passing bus was once an ugly reminder of his disability. A victim of cerebral palsy since birth, he is restricted to using a wheelchair and crutches. For years, getting across Ottawa without the help of friends, family or a taxi was a virtual impossibility. That was 10 years ago. Today, 35-year-old Black holds a job with Statistics Canada and travels daily from his Billings Avenue home near Riverside Hospital to his office at Tunney's Pasture. He also takes personal trips evenings and on weekends. Para Transpo, the region's bus service for the physically disabled, is Black's ticket to freedom (Kelly, 1986).

This article, and the accompanying photo pictured below (Figure 5 above), are rich examples of the type of primary source material consulted in this study. As a newspaper article printed in Ottawa's major paper, this article provides an entry point for examining past socio-cultural understandings of disability. This quote is also a testament to the relationship between disability and technology as it references the essential role that technologies play in personal mobility and, ultimately, the need for redesigned and accessible urban transportation options for passengers using mobility devices. This photograph demonstrates the central role that the material culture of technology plays in shaping user experiences, especially where mobility, the built environment, and access are concerned.

As will be examined in greater detail throughout this chapter, *Users, Gender, and Access*'s methodological framework consists of a mixed method approach that includes: a material culture analysis of various conventional public transportation vehicles, such as a streetcar built in 1927 (Ingenium Artifact No. 1971.0384) and several low-floor buses; a quantitative study of passenger demographics through municipal reports; a qualitative study of passenger experiences provided through interviews with passengers, advocates, and operators; and a documentary analysis of both manuscript and primary source material, including newspaper accounts and municipal archives. The study of material culture demonstrates the immense importance and impact of material things in and on social life. Studying the material culture of transportation technologies is a particularly important feature of this study as gender and disability are created, measured, and informed through users' interactions with the material culture of public transit systems. Through material culture methodology, this study engages with the vehicles of mobility which grounds this work in the physical and presents evidence not available through other primary and secondary sources. The methodological approach taken in *Users, Gender, and Access* allows this dissertation to offer

original contributions to various fields of study, including feminist technology, disability, mobility, and access.

A variety of other primary sources were consulted in order to explore the topics and themes of this study. Oral histories are part of this category of data but will be described in greater detail in a later section as they present their own methodological challenges and opportunities. For the purposes of clarity, the primary sources consulted in the researching and writing of this dissertation will be described in categories based loosely on who produced them and their type. The vast majority of these sources can be found at the City of Ottawa Archives, while some of the more recent information can be found on the OC Transpo's website or in their corporate holdings. In addition to archival and online research, this dissertation also includes excerpts from the *Ottawa Citizen*, the *Ottawa Journal*, and the *Evening Post*, among other newspapers; all of which were in print over the course of this study. Code words such as *women*, *wheelchair*, *streetcar*, *smoking* and *accessible transit* were used as a means to source articles that connect to *Users, Gender, and Access*'s research questions. This search yielded close to 100 articles which have been incorporated into all four content chapters in order to provide first person perspectives, as well as societal responses to the impact of changing transit ridership and more accessibly built public transportation technologies in Ottawa, from 1891 to 2011. These newspapers also provide chronological details pertaining to important events related to the topics at hand which, at times, are missing from other primary and secondary source material. Where oral testimonies are not possible and where other sources present gaps in knowledge, newspaper articles and editorials offer meaningful alternatives.

Material Culture

Material culture studies emerged in anthropology and archeology in the 1870s (Binford, 1972; Glassie, 1999; Patnaik, 1995; Schlereth, 1985) and is now widely used by scholars in other disciplines such as art history (Prown, 1982), cultural geography (Tolla-Kelly, 2009), and, as will be explored in this chapter, the history of technology (Pursell, 1983). Depending upon these various disciplines, the study of material culture and the use of objects in research can take many forms, which are sometimes complimentary and sometimes conflicting. For the purposes of this study, which seeks to understand the reciprocal relationship between users and technology, it is necessary to begin with a general framing of material culture methodology in order to justify the use of artifacts as primary sources and their central place in this study. Pulling from the work of art historian Jules Prown, who has written extensively on material culture theory and method, material culture can be defined as "the study through artifacts of the beliefs – values, ideas, attitudes, and assumptions – of a particular community or society at a given time" (1982, p. 1). For historian and material culture scholar Thomas Schlereth, this methodology "seeks to develop the explanatory power of artifact knowledge […] in an attempt to know what can be known about from the past and present creation of humankind" (Schlereth, 1985, p. 22). This methodology also involves work with words, written and spoken (when possible). "Yet", as Schlereth notes, it asserts that "several evidential characteristics – data precedence, temporal tenacity, three-dimensionality, wider representativeness, and affective understanding – are often more prominent in physical evidence than documentary sources" (Schlereth, 1985, p. 23). Drawing from Prown (1982) and Schlereth's (1985) similar framing of material culture, *Users, Gender, and Access* understands this methodology as an engagement with artifacts; one which is centered on their critical examination, study, and interpretation(s) as unique forms of evidence.

The definitions offered above may lead one to ask, what, then, is an artifact? In his 1982 essay *Mind in Matter*, Prown thoughtfully and succinctly frames our understanding of what an artifact is and elucidates its strength and potential as a primary source. He argues that "an artifact – a made object […] is an historical event, something that happened in the past. But unlike other historical events, it continues to exist in the present and be reexperienced and studied as primary and authentic evidence surviving from the past" (Prown, 1995, p. 3). The 'existence' of an artifact, however, is a relative thing. For a variety of reasons, not every object from the past remains in the present. For example, labour industry technologies, like logging skiffs or industrial furnaces, are typically used as spare parts or sold-off at the end of their working life cycle and so these types of objects are rarely available for preservation. The same is true of everyday objects, like toasters or even streetcars. Collectors and museum curators have mandates or collection scopes that dictate what becomes an artifact in their care; not everything can be conserved and preserved for future generations. Even the artifacts that are found in these repositories will, as Schlereth points out, "wear out, break down" (1985, p. 4). "Yet," he continues, "despite the fact that wood rots, metal corrodes, and stone crumbles, material culture enjoys an exceptional longevity among the other remains of the human past" (Schlereth, 1985, p. 5).

Artifacts can offer scholars a conscious statement of the past, as well as an unconscious embodiment from previous peoples, societies, and cultures. As conscious statements, they are physical objects that have been "conditioned by a variety of casual factors" (Prown, 1995, p. 5). In considering a streetcar, for example, these factors have obvious material and built implication that are informed by the knowledge of engineers and designers, the specific requirements of/from operators and developers, and, ultimately, the skills and insights of the maker and manufacturer. This evidence is central to understanding how an artifact, like a streetcar, looked, felt, and

functioned and allows for a relatively straightforward entry point for situating objects within their time and place. But, as Prown and others have observed:

> artifacts also embody unconscious attitudes and values/beliefs that prevailed in the time and place of their making. These are not expressed in what is made or said, but rather in the way things are made or said – that is, in their style. The formal language of objects that constitutes style, with its own grammar of visual tropes and metaphors, provides evidence of unconscious belief, of culture (1995, p. 6).

Considering the streetcar, once more, these unconscious beliefs shape many elements of this technology's design and usefulness in relation to gender and accessibility. For example, features such as the height of the steps used to enter the streetcar, or the width of the car's isles suggest a certain socially accepted understanding, or narrative, regarding who was the intended user of this technology. These unconscious understandings or beliefs become apparent when artifacts encounter either users or other artifacts that they are incongruent with, or that they misfit with, to apply Garland-Thomson's concept (2011). By comparing the compatibility or, rather, the incompatibility of different types of technologies and different users, unconscious beliefs present themselves through poor user experiences, difficulty making use of technologies, and other unsafe or unpleasant encounters. The study of artifacts provides scholars with access to tangible pasts through their physical and sensorial presence while also revealing implicit views and opinions held by those living during the period in which they originate.

Material Culture, Technology, and Users

In their work *Technology and Material Life*, anthropologists Kacy Hollenback and Michael Schiffer observer that "humans live in a world of things" and that, in this environment, "our lives are shaped by, and in return shape, [these] technologies" (2010, p. 1; Bijker, 1995). This framing

of the interplay between people and technology requires a definition of technology. As disability scholar Katherine Ott suggests, "a simple way to distinguish technology from other kinds of material culture is to determine whether it encompasses those things whose primary intention is to facilitate change" and have "an effect" (Ott, 2018, p. 126). For Hollenback and Schiffer, and other scholars investigating the history of technology, the latter comprises: "1) physical objects or artefacts; 2) activities or processes, and 3) what people known as well as what they can do. By recognizing technology as artefact, technology as practice or process, and technology as knowledge, we gain greater insight into the diversity of technology studies" (2010, p. 2). All three components inform different nuanced insights into the roles that these artifacts play in our lives and our mutually constitutive relationship with them.

Historians of technology and material culture, like anthropologists and archeologists before them, have developed a variety of frameworks for engaging with the study of artifacts. For the purposes of this study, the *life history* concept is a helpful approach as it is an analytical tool that allows for examining the complexities of technologies over time (Hollenback & Schiffer, 2010). This concept observes changes and innovation in technological design and function and recognizes the impact that different groups have on the form, function, and appreciation of an artifact at different points in time. This model involves six stages of an artifact's life cycle: 1) invention and innovation; 2) experimentation and development; 3) adoption by producers through production; 4) consumption by consumers; and 5) senescence. It should be noted that these stages do not occur in a linear fashion but, rather, they "occur coevally or iteratively with complex overlaps and interrelationships between the different processes and communities of practice that engage with each" (Hollenback & Schiffer, 2010, p. 6). This concept is attentive to the complex histories of technology.

Three of these stages – production, consumption and use, and senescence – are most relevant to *Users, Gender, and Access* as they provide guidance in the examination of the establishment of technologies and their transformation(s) over time. For the purposes of this study, production occurs once a community of producers, including manufacturers and operators, have adopted a new technology. As Hollenback and Schiffer observe, "at this point in the technology's life history, there is an established knowledge and code of practice for how, where, when, and why a technology is to be made" (2010, p. 7). In examining an artifact, production can appear in the form of standardized design, mass produced parts, and established supporting infrastructure, among other elements. In the case of public transportation technologies, such as streetcars and buses, production is directly linked with consumption by consumers as the two typically occur simultaneously but from different perspectives; from manufacturers and users, respectively. Where the latter is concerned, Hollenback and Schiffer suggest that:

> how and why a community of users determines whether a technology is 'successful' depends on how consumers evaluate its activity-relevant performance characteristics. A technology may be mechanically or economically sound, but if a group determines that it lacks relevant political, social, or ritual performance characteristics, the technology may not be 'consumed'" (Hollenback & Schiffer, 2010, p. 7).

It is essential, when examining this stage, to remember that artifacts can have a multitude of real and potential users, with shared or differing needs of/from the technology in question. This leads to a much deeper appreciation of the many meanings of an artifact which complicates our understanding of these artifacts and their role in history and their influence on present technological iterations.

The final stage, known as senescence, refers to the decline and eventual cessation of production and use of a technology. There can be many causes of senescence, such as a lack of available resources, a loss of knowledge or "the judgement that a technology no longer serves a community's utilitarian, social, political, or ritual purposes" (Hollenback & Schiffer, 2010, p. 7). In the case of the high-floor conventional bus, its senescence was a result of a more equitable alternative: the low-floor bus. In this case, as will be explored in Chapter 6: "If people can move around without too much hassles, they're going to be part of the community: The Context and Development of OC Transpo's Accessible Conventional Fleet and Para Transpo Service, 1945 to 2011, the low-floor bus gradually replaced the high-floor bus in Ottawa for reasons that highlight and connect to changing urban realities in the city-centre, shifting socio-political beliefs, and the needs of a larger, and more diverse, demographic of passengers.

Artifacts of parallel and conventional public transit, as well as artifacts of mobility, feature heavily throughout this study. In many ways, the questions that this dissertation seeks to answer were inspired by and drawn from artifacts in Ingenium's collection. While many technologies, such as mobility devices and various types and styles of strollers, will be mentioned throughout this work, two conventional public transit technologies guide the material culture analysis of the following study. These artifacts were selected because they embody distinct realities of mobility and access. In this study, these technologies are also evidence of a shift in society's understanding of the role of public transportation between the early 1900s, when the streetcar was designed, and the late 1900s, when the New Flyer Low Floor Bus was introduced (Figure 6).

Figure 6: Two of Ottawa's public transportation vehicles. Credit: Ingenium – Canada's Museums of Science and Innovation (left) and OC Transpo/City of Ottawa (right).

Chapter 4: "Men on Streetcars Allowed to Smoke": Gender and the Role and Rise of Public Transportation in Ottawa, Ontario, and Chapter 5: "Ladies will kindly refrain from using abusive language": Female Passengers Challenging Public Transportation Norms from 1939 to 1959, are chapters that span the production, consumption and use, and senescence of Ingenium's Artifact no. 1973.0384. This artifact is an 800-series, double-truck, single-end streetcar that was manufactured by the Ottawa Car Manufacturing Company in 1927 and operated by the Ottawa Electric Railway until 1959. This streetcar is part of Ingenium's public transportation collection and shows serious signs of wear and deterioration after being stored outside for a little over a decade before it was purchased by the national museum in 1971. While its paint is chipped, some of its windows are broken, and the seats have been removed, its overall design, layout, and intended function remain intact.

The second transit technology that is featured in this study is the New Flyer Low Floor, which was the first low-floor bus on the market in North America (*About New Flyer*, n.d.). The New Flyer Low Floor was a line of low-floor transit buses that was manufactured by New Flyer

Industries between 1991 and 2014; OC Transpo purchased their first New Flyers in 2001 (*Ottawa-Carleton Regional Transit Commission*, n.d.). In 2010, the City of Ottawa purchased 206 New Flyers which allowed the OC Transpo to replace older models in its roster and for transit commission chairwoman Diane Deans to declare the fleet "100 per cent accessible" in 2011 (Mueller, 2011). Chapter 6: "If people can move around without too much hassles, they're going to be part of the community": The Context and Development of OC Transpo's Accessible Conventional Fleet and Para Transpo Service, 1945 to 2011, examines the life cycle of this transit technology, paying close attention to the legislation that informed its design, as an entry point into the material reality of the accessible public transit movement that began in the 1970s. Focusing on the consumption and use stage, Chapter 7: "We're using public transit the way other people use it and we're not taking up more space out of a desire to take up space, but out of a need": Establishing a By-Law on Priority Seating, 2005 to 2011, investigates the seating area at the front of this type of bus in order to examine how the operation of *priority seating* evolved between 2005 and 2011 in response to changing accessibility legislation and the needs and demands of priority groups.

Material Culture, Technology, and Gender

Technology is a critically important factor in shaping gender and gender relations as it can facilitate equitable gender relations or it can make such relationships difficult to achieve (Layne et al., 2010). As feminist scholars Linda Layne, Sharra Vostral, and Kate Boyer observe in their book *Feminist Technology*, "artifacts and the built world make a difference in what sorts of social relations are possible, what sorts of relations are easy or difficult, and what sorts of social relations are formed" (2010, p. 13). Historically, observes anthropologist Francesca Bray in her article *Gender and Technology* (2007), the use of technology and subsequent knowledge and/or skill

associated with a technology has been used to shape ideas and conceptions of masculinities and femininities. “In the contemporary worlds,” she continues, “or at any rate, in the Western nations which pioneered industrialization and have thus been able for so long to dominate worldwide production of material and intellectual goods, services, and desires, technology is firmly coded male” (Bray, 2007, p. 39). This is embodied in the material culture of technological artifacts, such as the 800-series streetcar, which were constructed by men, informed by unconscious, unequal gender relations regarding labour, mobility, and public spaces, and designed with a certain type of passenger and use pattern in mind. As such, this demographic was more likely to feel safe and comfortable while using this technology as its material cues reinforce the idea that they (men) were the intended users of these artifacts, which reinforces the links between technology and masculinity apparent in society at this time.

New passengers, particularly female riders, challenged this norm and, in so doing, demonstrated the relational interplay between technology and gender. As the previous chapter examined, technologies and gender are mutually constitutive and any study of a technological artifact should question and consider its relationship with gender. In *Users, Gender, and Access*, this work begins by examining how the design, manufacturing, and operation of the 800-series streetcar, as historian of technology Langdon Winner puts it, can “enhance the power, authority, and privilege of some over others” (1980, p. 125). By closely studying its materials, form, and function, the streetcar reveals certain assumptions that the Ottawa Car Manufacturing Company had about the makeup of the would-be passengers of this technology. As will be explored in Chapter 4: “Men on Streetcars Allowed to Smoke”: Gender and the Role and Rise of Public Transportation in Ottawa, Ontario, this can be studied through designed features such as the height and depth of steps passengers used to enter the car, the spacing between seats, the width of the

isles, etc. This study also scrutinizes the gendered implications of how this technology was operated by examining the set routes of public transit, hours of operation, and fare structures. As *Users, Gender, and Access* will demonstrate, this type of inquiry can lay bare the gendered assumptions that inform how a technology is understood within society.

As Ottawa's ridership demographics changed during the Second World War, tensions grew between established passengers (working class men) and who they considered newer passengers (women) onboard the streetcar. The material culture of the 800-series streetcar initially used by the Ottawa Electric Railway remained relatively unchanged during this period, with the exception of a redesign of the front of the bus in 1953 to accommodate overcrowding. As this work will argue, tension between passengers increased not because the form or function of the car was any different but because the socially accepted understanding and gendering of this technology was being tested. Female riders, by their presence and use of public transit, challenged the knowledge systems connected to these technologies; they reshaped the gendered assumptions built into these artifacts and, in the process, redefined the boundaries of their own relationship(s) with these technological spaces. As Chapter 7: "We're using public transit the way other people use it and we're not taking up more space out of a desire to take up space, but out of a need": Establishing a By-Law on Priority Seating, 2005 to 2011, despite changes in passenger demographics, the gendered legacy of public transportation persists.

Material Culture, Technology, and Disability

Users, Gender, and Access also considers how disability and access are created and shaped through the material culture of transit technologies. This study recognizes the importance of this type of work, as lived experience is grounded in the human body but mediated through the

surrounding built environment. It is in this relational interaction, between bodies and technologies, where disability can become apparent. Material culture offers an incredibly important method for retrieving this history. As curator and disability historian Katherine Ott states, material culture "does not emphasize words and texts. Objects are particular and unique" and this "material record provides tangible evidence of things" that can otherwise only be read about (2010, p. 271). The tactility (how they feel) of these objects and their sensoriality (how they impact the senses) is their evidence.

The examinations of disability material culture exist in the connected literature but it tends to focus on objects such as prosthetics (Ott et al., 2002) that are the personal possessions of people with disabilities and, therefore, are considered as the particular embodied consciousness of disability (Shanouda & Yoshida, 2019). While Ott and others rightly acknowledge that the "lives of people with disabilities can be retrieved through the material and visual culture that they leave behind" (2010, p. 273), it is also true that these experiences can be understood and interpreted through other, perhaps unexpected or less immediate, objects like streetcars and buses. These types of studies, however, are few and far between. *Users, Gender, and Access,* in addition to supporting this emerging field (Shanouda & Yoshida, 2019), seeks to offer a case study for exploring disability in these material cultures.

Chapter 6: "If people can move around without too much hassles, they're going to be part of the community: The Context and Development of OC Transpo's Accessible Conventional Fleet and Para Transpo Service, 1945 to 2011, examines the incorporation of assistive and adaptive mobility technologies to OC Transpo's fleet with focus on the creation of Para Transpo and the adoption of an accessible conventional fleet. Tracking this change over time is required in order

to properly understand how these developments unfolded and to situate the role of these changing public transit technologies in peoples' lives. Early public transportations, like omnibuses and smaller streetcars, were exclusionary spaces for people with disabilities, especially those individuals using mobility devices, such as wheelchairs. As Ott notes, "nearly every widespread change in transportation […] was initially exclusionary for some people" and "often, years elapsed before designs emerged that allowed more universal access" (2018, p. 128). Tracing the addition of assistive technologies, like ramps and flexible seating, is especially necessary in this type of study. In the case of OC Tranpo, these innovations were typically the result of consultation with disability rights groups and activists in Ottawa who were impacted by the inaccessibility of this public service.

In *Users, Gender, and Access*, material culture methodology serves as one of the primary tools for examining the history of gendered and inaccessible/accessible public transportation services in Ottawa, Ontario. As has been described, two transit technologies provide the main artifactual evidence in this work. By bringing different lenses and questions to these technologies, they reveal compelling appreciations about the history of mobility, the makeup of passengers, and the needs of riders. They provide physical entry points into past events and, both individually and comparatively, embody many ideas, values, and assumptions about urban life, gender, disability, public space, and access in Canada's capital city. These artifacts are among the greatest storytellers in this study.

Oral Histories and Lived Experience

Users, Gender, and Access is also informed by the experiences, memories, and insights drawn from oral histories. This methodology is directly connected to interdisciplinary feminist

debates regarding objectives, questions, and use of interview-material (Geiger, 1990). It also reflects Feminist Disability Studies' privileging of first-person narratives and individual experience, what gender and disability scholars Andrea Garcia-Santesmases & Asun Pié Balaguer refer to as "life story interviews" (2017, p. 432), which allow participants to reflect on issues of personal significance. In *Telling Our Stories* (1994), feminist historian Joan Sangster addresses tensions and approaches regarding subjects, power dynamics between interviewer and interviewee, and the ethics of interpreting this type of source material. Sangster argues that interviews must be "carefully contextualized, with attention to who is speaking, what their personal or social agenda is, and what kind of event they are describing" (1994, p. 7). Additionally, she advises that it is crucial that researchers consider how gender, race, and class can produce "structural and ideological relations" that "help shape the construction of historical memory" (Sangster, 1994, p. 7); *Users, Gender, and Access* also includes disability within these considerations. To this end, feminist oral history has often implicitly adopted some elements of feminist standpoint theory in order to consider the identity politics, privilege, and positionality of interviewees (Sangster, 1994; Harding, 1986). This theory, which was discussed in the previous chapter, is mindful that knowledge stems from our social positions, including how we interact with the built environment and its material culture.

As Sangster points out, oral history method poses ethical dilemmas regarding the positionality of the interviewer "as our own cultures, class position, and political worldview shape the oral histories we collect" (Sangster, 1994, p. 10). Feminist social scientists have also been critical of this method as it can create unequal power dynamics between interviewee and interviewer. As feminist sociologist Judith Stacey (1991) has argued, feminist research is inevitably entangled in unequal, intrusive and potentially exploitative relationships, simply by the

power dynamic between researcher and subject, where the latter has far less control over the final product and/or outcome(s) of the study. While sociologist and feminist Ann Oakley (1981) has proposed making oral history a more cooperative venture by equalizing the authority of participants (interviewee and interviewer), Sangster argues that while such "a detached objectivity may be possible, a false claim to sisterhood is also unrealistic" (Sangster, 1994, p. 11). As feminist researchers, we may strive to share authority but we cannot completely erase our privilege (Sangster, 1994). In order to address these various ethical concerns and power dynamics inherent in oral history methodology, *Users, Gender, and Access* understands interviews as an interactive process wherein the context of the interviewee, as well as the privilege as interviewer, can create inherent power imbalances. I recognize the position of privilege I have in being able to conduct this research. In the course of this research, I have been mindful and attentive to the power dynamics at play and have honoured my feminist ethical obligations by sharing information and remaining accountable, empathetic, and attentive.

Semi-structured interviews were conducted with six participants between September 2020 and September 2021. These interviews, which were approved through the University of Ottawa's Research Ethics Board, took place remotely, in light of provincial COVID-19 safety protocols, and made use of the Zoom platform. Each interviewee was interviewed once and these sessions lasted between 60 and 90 minutes. Interviews were conducted with two categories of participants: those that worked as Accessibility Transit Officers (ATOs) at OC Transpo and those that required accessibility services in order to use public transit. These two categories were identified because each had unique knowledge of the history of OC Transpo's efforts to create an accessible conventional public transportation service.

Soliciting interviews with the former category was quite straightforward as OC Transpo's ATOs', Kathy Riley and Tom Crawly, have publicly available contact information. Upon receipt of *User, Gender, and Access*'s Request to Participate email, they agreed to review one of this study's questionnaire: "*Users, Gender, and Access*: Questionnaire for Participants Regarding: a) Access and Mobility Devices, and/or b) Adapting OC Transpo". The questions ranged from job and daily-task oriented queries, to more process-oriented inquiries that sought to better understand how OC Transpo planned, implemented, and tested the inclusion of accessible features to its fleet and infrastructure.

A somewhat different approach was taken for soliciting interviews from passengers who required accessible features in order to make use of public transit. For this group of participants, this study made use of the snowball method in order to identify and contact suitable interviewees. This began by Kathy Riley suggesting I reach out to Barry McMahon, as she had worked with him several times throughout her career and could attest to the fact that he had first-hand experience using and advocating for accessible transit. Barry McMahon has served as member and Chair on the City of Ottawa's Accessibility Advisory Committee and on the Accessibility Standards Advisory Council of Ontario during the creation and implementation of the Ontarians with Disabilities Act 2001 and the Accessibility for Ontarians with Disabilities Act, 2005. His knowledge and experience were instrumental in directing the research that informed Chapter 6 of this dissertation. Through this snowball approach, I was able to complete interviews with individuals who have participated in bringing about more user-awareness and accessible transit to OC Transpo. In addition to Barry, this included interviews with: Max Brault, an advisor on the Accessible Canada Act and activist committed to disability inclusion in the workplace; Kim Kilpatrick, a para-swimmer and therapist with a visual impairment; and Shelley Ann Morris, an

accessibility consultant at the Canadian Council of the Blind. These individuals all use mobility devices and have been making use of Ottawa's public transportation services since the 1990s. As such, they were able to share their personal experiences of mobility and access. Given the limited published material on this topic, these interviews provided foundational direction in understanding and appreciating Ottawa's adoption of accessible parallel and conventional public transportation and were also directional in identifying other primary source material to consult and consider while researching this history.

Users, Gender, and Access incorporates elements of the life story approach in its use of oral histories in order to "tell stories that matter" (Srigley et al., 2018, p. 12). This method makes it possible to go beyond what is gathered through other primary sources and helps to highlight the "complexity, the ambiguities, and even the contradictions of the relations between the subject and the world" (2018, p. 13). The aim of this methodology has to do with understanding and analyzing, "in the present and for the future […] what social actors involved in history, have held as significant in the past, and how they have perceived and interpreted this through the ideological blueprints they have internalized" (2018, pg. 14). This approach, then, is interested in how people interpret their lived experiences in order to make sense of themselves, the people around them, and society as a whole. Using oral history methodology was a very rewarding approach and opportunity as these accounts are essential to understanding the variety of changing relationships with public transit and the ability of individuals to influence the design and functionality of these transportation systems. These interviews, however, are not quoted significantly in this work as the date range, themes, and adaptation considered in the final chapters of this study were, for the most part, outside of the interviewee's areas of lived experience. While their exact words are not quoted in this study, their interviews shaped and guided the research questions and research findings of

Users, Gender, and Access and, without their time, insights, and lived experience, this work would not have been possible.

Feminist Mixed Method Approach to Primary and Secondary Sources

Alongside the use of material culture and oral history interviews, *Users, Gender, and Access* engages with other primary sources and techniques in order to recover the histories in question. In her exploration of feminism and methodologies, Sandra Harding (1986) observes that research methods are typically dichotomised into the categories of quantitative or qualitative. Nicole Westmarland problematizes this separation as gendered, with "quantitative methods traditionally being associated with words such as positivism, scientific, objectivity, statistics, and masculinity. In contrast, qualitative methods have generally been associated with interpretivism, non-scientific, subjectivity, and femininity" (2001, p. 1). As Niels Spierings notes in his article *The Inclusion of Quantitative Techniques and Diversity in the Mainstream of Feminist Research*, throughout the 1970s and 1980s, feminist scholars were critical of the homogenizing impact of quantitative studies (Bernard, 1975; Oakley & Oakley, 1979) and that in the "current mainstream of gender studies, many take the position that it is possible (and even desirable)" (2012, p. 333) to engage in the use of quantitative methodology. Particularly helpful to this study and its use of quantitative method is the concept of intercategoriacalism, which recognizes that categories do exist but that we must also consider how power relations shape these social groups. "These power relations are studied and explicated," Spierings explains, and "include the study of how categories change and interact" (2012, p. 335) *Users, Gender, and Access* engages with quantitative method and the concept of intercategoricalism as a way of gathering and interpreting data in order to appreciate the demographic makeup, relational hierarchy, and fluidity of Ottawa's population at

certain key points in time. Importantly, this study recognizes that whatever categories do emerge through such research are fluid and situational and that qualitative methods, such as oral history and accounts gathered through newspapers, are required in order to more fully investigate and appreciate the complexity of this topic.

Given the focus of this study, both qualitative and quantitative sources are required. As such, this dissertation relies on a rich body of primary source materials in order to trace and account for administrative discussions and decisions regarding users, gender, access, and transit, and to contextualize how these events and their planned and/or unanticipated outcomes impacted technologies and passengers. As required when investigating primary and secondary material, when possible, this study considers the contexts of these sources, including how they were produced and by whom, for example, if the author was an activist, municipal authority, or employee of the transit company. *Users, Gender, and Access* also considers the reasons behind the production of primary sources. This approach serves as a starting point for understanding what kinds of information can be pulled from such material and what biases they may present.

Depending on the source, this material will be approached through descriptive analysis, wherein the accuracy of the account is of central concern, or by prescriptive analysis, where focus is placed on the perspectives of the author(s) as such material can be interpreted as characterizing their own thoughts, as well as those of the societal categories they represent. As a general rule, *Users, Gender, and Access* incorporates a descriptive analysis of material produced by the province of Ontario, the City of Ottawa, and OC Transpo, as the province, municipality, and transit operator hold positions of power, authority, and privilege and, as such, the accuracy of the content they produced, such as plans, surveys, and statistical summaries, is central to clearly understanding

the timeline of events that shape this study. A prescriptive analysis is used in the analysis of material that was generated by an individual or smaller group. This approach is taken in order to highlight the insights that first-hand accounts and lived experiences bring to this history. It is also used in order to demonstrate the relationship between users and technology by interpreting the impact that the sociotechnical has on the individual, and vice versa. Prescriptive analysis is used in order to consider personal perspectives as entry points into understanding sociotechnical events, issues, tensions, and changes.

Passenger Demographics, Municipal Statistics, and Archival Holdings

Understanding the changes in passenger demographics and their use of conventional transit is an important theme throughout this study. It is also one that the City of Ottawa has invested a considerable amount of time and resources into documenting and examining as it informs the development of the urban landscape and the implementation of mobility offerings. For example, a number of statistical summaries and reports from this period focused on the age of Ottawa's population as this had a direct relationship with mobility needs. The Council of Aging published *Ottawa-Carleton: An Aging Population - Fact Book on Aging* in 1999, which is representative of this type of material as it incorporates statistical information in order to better understand the city's population. Several statistical surveys, such as the *Transportation for the Handicapped* (1974), were also commissioned by the city and focused directly on disability and mobility. These are problematic resources as they incorporated an individual or medical model of disability and, as such, underscore how access and disability were framed during this period. The city also produced a number of *Travel Destination Surveys* which examined the number of trips between two general areas, the reasons for travel, as well as the time and length of trips. For example, the *1982 Kanata-*

Orleans Travel Survey (1987) was completed in an effort "to determine the factors that influence people's choice to live (or work) in a particular area" (City of Ottawa, 1987, p. 1).

In addition to examining the ways that people moved across the city, research was also undertaken in order to better understand people's thoughts and perceptions about their mobility options and access. These sentiments were captured in reports such as the *Attitudinal Aspects of the Household Survey* which was published by the Social Survey Research Centre Limited in 1972. This report's "most provocative finding is that people exhibit an active involvement with transportation needs. A great deal of emotional energy is expended in grappling with the day-to-day problems of urban transportation" (SSRCL, 1987, p. 4). This survey did consider questions of access and gender in both the construction of its questions and the analysis of its findings, noting that "those (either men or women) who do not have either public or private transportation readily available strongly feel a sense of "isolation" and "imprisonment". Both in real and in a psychological sense, these people feel deprived of the means to satisfy an "essential" need – mobility" (SSRCL, 1987, p. 4). Here mobility is framed as an essential public service for all; a theme examined closely in Chapter 6 and 7 of this dissertation. This survey also noted that gender played a critical role in informing one's sense of access as "women in particular (especially those in suburban areas without the availability of a car) suffer most – in a real and in a psychological way – from feelings of being isolated, imprisoned, and kept dependent. They are truly "transit captive" (SSRCL, 1987, p. 4). These types of sources, which observe the changing demographic of the city, the population's use of transit, and their emotional responses to accessible or inaccessible mobility are rich primary resources and serve this dissertation in key and important ways.

Corporate Material

The OC Transpo has produced a number of resources that were also consulted in the research that informed this study. The OC Transpo's Annual Report, for example, is an important source as it highlights the operator's financial stability, its operational strategy, and its appreciation of the needs of new users, providing a high-level appreciation of services. Where the latter is concerned, a great deal has been garnered from these reports regarding the relationship between technology and disability through the Annual Report's use of language. It is clear through these documents that from the early 1970s to the 1990s, the OC Transpo understood disability through the individual or medical model which, ultimately, influenced its offerings and services for passengers with disabilities. This can be inferred through OC Transpo's assumption throughout the 1970s and 1980s that passengers with disabilities only required transit in order to attend medical appointments; thereby negating the fulsomeness of the lived realities of people, and passengers, with disabilities and their actual needs of urban public transit. These were the only trips the provider tracked and the only services they provided. The Annual Report also includes yearly updates regarding OC Transpo's approach to more inclusive assessible transit and the eventual adoption of the parallel Para Transpo service in the 1980s. As such, this source provides both factual and interpretive accounts of the history of accessible transit in the nation's capital.

Since the 1970s, the OC Transpo has also produced a myriad of reports and documents that are accessible through the City of Ottawa Archives, as well as the transit operator's website. These documents, in relation to the topic at hand, include such resources as the report on *Dimension and Information Guide for Mobility Devices on Accessible Buses and O-Train* which was published in

January 2005. This document provides insights into the accessibility features and options available through Ottawa's public transit offerings in 2005. It states that:

> conventional transit now offers more alternatives for customers with a disability or mobility difficulty. Over 40% of all OC Transpo vehicles are of the low-floor design and the fleet is growing. These buses have a feature that allows them to kneel closer to the curb so you do not have to step up onto the bus, and they also have a ramp that can be lowered for wheelchairs, scooters, walkers or those who cannot use the low-floor step (OC Transpo, 2005).

Documents, such as this one, provide a factual account of what services and features were in place to make transit accessible for passengers using mobility aids. They also allow for a contemporary interpretation of OC Transpo's evolving understanding of the needs of its passengers and their relationship with technologies. Despite the fact that accessible features, such as ramps, could be beneficial to a wide variety of passengers, including parents (notably women) with children in strollers, this passenger group was not considered in this document. This document, then, is a source that also highlights the physical realities of transit, as well as the gendered social understandings of for whom this technology was intent for.

In addition to documents that provide more of a narrative account of accessible transit, this study also incorporates specification sheets produced by OC Transpo (OC Transpo, n.d.). These types of documents are quite technical in nature and provide detailed information about the measurements of fleet vehicles, as well as their operational requirements and capacity. Information garnered from these sources are used in conjunction with visual inspection and material culture analysis of vehicles. They are crucial to understanding the engineering context and designed usability of mobility technologies.

Corporate Initiatives

In addition to these corporate documents and reports, from 2000 to 2011 the OC Transpo ran a number of campaigns intended to promote an inclusive and respectful bus-use culture. For example, in an attempt to educate passengers on how to use cooperative seating in the front of the bus, the transit provider collaborated with art students at Longfields-Davidson Heights Secondary School to produce a poster campaign that ultimately inspired the exterior of a number of the fleet's low-floor buses (Figure 7 on the following page). OC Transpo also produced a number of videos during this period as part of their *Busology* campaign. These videos, like the art campaign, were intended to educate passengers about the conduct and etiquette expected of them in the priority seating area of the bus. One such video, for example, shows an able-bodied rider making space for a passenger using a mobility device. These types of sources are referenced in this study in order to appreciate the user experience onboard transit and to examine how the provider was making space for diversity in its ridership. This material also highlights changes in the material culture of the bus, through the inclusion of new adaptive features. As such, these sources are important to this study, particularly in the final chapters, as they are rich examples of a response to, and a shift in, the use and social understanding of for whom these technologies are aimed for.

Figure 7: One of OC Transpo's low-floor conventional buses featuring a campaign to promote cooperative seating. Credit: OC Transpo/City of Ottawa

Access in the Archives

In addition to many of the above-mentioned sources, the City of Ottawa Archives also contains a rich variety of resources that were produced between the late 1970s and the late 2000s that offer snapshots into the accessibility of the city's-built environment, as well as its plans for adapting its public transit offerings. Where the former is concerned, the Disabled Persons' Community Resources published the *Accessibility Guide of Ottawa-Carleton* in 1991. This report was prepared by the Barrier-Free Environment Committee of Disabled Persons' in order to "assist persons with disabilities by indicating the degree of accessibility of a variety of buildings and services in Ottawa-Carleton" (Barrier-Free Environment Committee of Disabled Persons', 1991, p. 1). It was not a prescriptive report but rather an attempt to "indicate the nature and degree of barriers, so that individuals may choose places suitable for their particular needs" (1991, p. 1). For

the purposes of this study, this type of source is both helpful in appreciating the physical access barriers that were present in Ottawa in the early 1990s, as well as being representative of a change in discourse regarding the lives of people with disabilities. This resource describes the accessibility of public areas like shopping malls and movie theaters and, as such, it fully recognizes that the daily needs of people with disabilities extends beyond medical appointments. This is an important source to mention as it is indicative of a shift in thinking regarding increasing access in relation to urban planning, the built environment, and disability.

The City of Ottawa Archives has also preserved a small number of reports that examine the planning and implementation of accessible urban transport pilot projects and their subsequent guidelines. In addition to the artifacts themselves, and first-person accounts of using these services, these reports represent the most important primary sources consulted in this study. In 1974, the newly formed OC Transpo requested the design of a "special transportation service" for "those people confined to wheelchairs or walkers" who could not access conventional transit (DeLeuw Cather, 1974, p. 2). This report recommended that OC Transpo operate a fleet of small vans, Monday to Friday within the urban transit area for approximately 1000 people so that they could travel to "work and medical trips only" (DeLeuw Cather, 1974, p. 2). OC Transpo opted to pursue this pilot project. What's important to note here is that it was a medical model of disability that informed the creation of this pilot, and, subsequently the operation of Para Transpo, which remains in place today. Offering a secondary service, for a set number of passengers, with limited weekday availability, and for set purposes, meant that Para Transpo did not make public transit more widely accessible for underserved riders. Rather, it reinforced problematic stereotypes about the limited need, or requirements, that people with disabilities had for public transit.

Another important document found at the City of Ottawa Archives is the *Accessibility Plan for Transit in Ottawa-Carleton* (1994). This report was produced by OC Transpo in order to develop a "response to the provincial policy of full accessibility for regular transit services in Ontario adopted in June 1992. A Steering Committee, which included representatives from OC Transpo's Accessible Transit Advisory Committee, guided the development of the Plan" (OC Transpo, 1994, p. 1). This document lays-out OC Transpo's 10-year plan to "make available over time, a 'family of services' for all transit customers" (1994, p. 1). These offerings ranged "from Para Transpo, a door-to-door specialized service, through Communibus, a regularly scheduled service with smaller, low-floor vehicles, to regular transit with Easier Access features that included kneeling and low-floor buses" (1994, p.1). In addition to describing changes to the fleet and its operation, this document also suggests that OC Transpo had expanded its approach to accessible services as the provide also considered it through the accessibility of the supporting infrastructure; this, however, is outside the scope of this study. This included features such as accessible bus stops and Transitway Stations, all-season site and sidewalk maintenance, and customer services. These types of sources allow for a thorough understanding of how the city's transit provider was attempting to improve the accessibility of its services and the context for such plans. This dissertation also interprets this material as socio-cultural statements regarding the relationship between users, access, and mobility.

Legislation

Documents, policies, and by-laws that connect to and inform the operation of the OC Transpo at the international, federal, provincial, and municipal level are also important sources for this study as they provide a chronological foundation for the final two chapters of *Users, Gender,*

and Access. Such material includes terms of reference for the Ottawa Transportation Committee and the Accessibility Advisory Committee, minutes from related meetings, as well as public transit by-laws, particularly by-law number 2007-268 which governs the operation of transit vehicles, including Para Transpo, as well as the function and use of the priority seating area on conventional buses. Meeting minutes, in particular, provide detailed accounts of how various committees were considering, or responding to, changing accessibility standards and their implications for passengers and operators. As will be explored in Chapter 7, Ottawa's Transit Committee spent several years attempting to equitably configure and moderate how the priority seating area of the bus could, should, and would function. These discussions resulted in an iterative report called *Priority Seating – Managing the Front of the Bus* (2009; 2010). Material such as this is incredibly important to this study as it demonstrates that, even with adaptive features, the use of public transit remained problematic for certain passengers. Even when transit was made accessible through adaptive changes to its material culture, it was still inaccessible for certain groups or categories of passengers.

Newspapers

Newspapers are another category of primary source that is used to extrapolate public sentiment in relation to the themes explored in this study, as well as appreciate how and when certain events took place. Newspapers are important sources in this work not simply because of the stories they told and the news they reported but also because of the social function they played in the public sphere. As John Walsh states in his work on 1900s industrial Ottawa, "at the end of the nineteenth century in Canada, newspapers reported the news and printed editorials, advice columns, special features, letters, literature and advertisements. They were the principal means

through which opinion was expressed and debated" (Walsh, 2001, p. 167). Newspapers did serve certain audiences (literate) over others (illiterate) and they were crucial in the creation of public discourse and cultural production. Cultural historian Lynn Hunt (1989) reminds us to be cautious working with such sources as they may be factually inaccurate (1989). *Users, Gender, and Access* investigates these sources primarily through a prescriptive approach where, in most cases, the sentiments of the author hold greater weight and importance to this study than the accuracy of what they are saying. This form of analysis prioritizes opinion over fact and allows greater awareness and insight into personal perspectives and public opinion.

The City of Ottawa Archive's Ottawa Electric Railway Scrapbook Collection contains excellent historic newspaper entries that span from 1890 to 1932 and showcase gender tensions onboard public transit. For example, a clipping from the *Ottawa Journal* (1914) titled "Men on street cars allowed to smoke just for one day" reads, "After having to sit all winter twirling their fingers on the back of the street cars, while some fluffy feather gently ticked their neck, men were given the first opportunity of revenge, when the ban prohibiting smoking on cars was lifted for yesterday at least" (Unknown, 1914). This type of entry highlights the tensions that were brewing between different groups of passengers on-board transit at the start of the First World War. In the absence of more formal testimonials on the subject, which do not exist in the secondary literature or in other archival material, newspapers offer a unique, first person account of what transit was like during the period in question which is especially poignant to Chapter 4 and 5 of this study.

In addition to excerpts from the OER Scrapbook, this study also consulted over one hundred articles and editorials from the *Ottawa Citizen* found using key word searches on newspaper.ca including *wheelchairs, stroller, mother, Ottawa Transportation Commission, OC*

Transpo, streetcar, bus, and *access*. These newspaper articles allow this study to chronologically follow events over a certain period of time and, arguably more importantly given the nature of this source, gauge the publics' response to these events which is central to appreciating how different types of passengers felt about their public transportation experience. For example, in a 1944 editorial, a female writer shared, "It is my misfortune to have to board one of these vehicles every morning at 8:30 and every night at 6, and if I had a dime for every time my temper was reached, and passed, boiling-point, I would be able to retire at the tender age of 21. Naturally I am talking about the age-old topic of a man giving up his seat to a woman" (Scott, 1944). This type of material supports the examination of gender relations put forward in Chapter 5 of this study which seeks to examine and understand the experience of changing passenger demographics on board public transit from the 1940s to the 1960s. Newspaper articles also highlight tensions between passengers using a variety of mobility devices and seeking to make use of the priority seating area of the bus. As one editorialist noted in a piece titled *Strollers are a Headache for Drivers, Passengers*:

> Strollers have become a major headache for bus drivers and other passengers. I am fed up with tripping over them while trying to get seated before the bus starts. […] Now that most buses are low-floor type many parents can easily bring huge carriages and double strollers. I think this is an abuse of privilege. Low floor buses were meant to allow people with scooters and wheelchairs to access regular transit and lessen the burden on Para Transpo. […] I want my driver to drive the bus, not be a "stroller jockey" or referee an argument over who gets on the bus (Swallow, 2008).

These types of articles serve as examples of the richness, and rawness, of the feelings, perspectives, and stories shared in newspapers which reflect the reality of transit use during the period of this study. These accounts provide the users' perspective on a number of themes explored in *Users, Gender, and Access*. As such, newspapers, however factually inaccurate or colourfully written

their details may be, provide invaluable depictions of the publics' perceptions of what it was like to use transit from the early 1900s to 2011.

In summary, oral history testimony, the material culture of technological artifacts, the diversity and detail of rich primary sources housed at the City of Ottawa Archives, Ingenium – Canada's Museums of Science and Innovation, and found online, and rich secondary literature, as described in the Introduction, are the sources that inform this study. Each brings with it a purpose and strength to answering the questions that *Users, Gender, and Access* raises. As the following chapters will demonstrate, certain themes and topics required more extensive use of different methods and sources. As a collective, however, these sources provide comprehensive and detailed resources that are made stronger through their collective qualitative, quantitative, descriptive, and material analysis. By placing these sources in conversation with one another, *Users, Gender, and Access* presents original understandings of technological artifacts and spaces and connects archival material, legislation, oral histories, and newspaper accounts in new, impactful ways. No single type of primary source or archival holding was sufficient in conducting research into the overlooked experiences of gender, disability, and mobility access at in Ottawa's public transportation history.

Chapter 4

"Men on Streetcars Allowed to Smoke": Gender and the Role and Rise of Public Transportation in Ottawa, Ontario

Throughout the nineteenth century, the production of square timber and lumber in Canada was dominated by material sourced from the Ottawa Valley (Gaudreau, 1999, p. 23). Coniferous tress, including spruce, hemlock, and red and white pine, were abundant in the forests that flanked the Ottawa River, between Eastern Ontario and the Outaouais in the province of Quebec. In order to access and exploit distant timberlands and export these resources to American markets, and in so doing, as industry historian David Lee observes in *Lumber Kings and Shantymen*, "reach its full [market] potential" (2006, p. 99), the Ottawa Valley lumber industry needed rail service. The mid-1900s was a period of intense railway construction across Canada as this mode of transport was directly connected to economic development. In 1848, a group of citizens met in Bytown, what is now known as downtown Ottawa, to discuss constructing a rail line to Prescott, a town 60 km south along the St. Lawrence River (Lee, 2006). Access to Prescott would connect Bytown, and later Ottawa, to just-out-of-reach markets through commercial shipping, the east-west Grand Trunk Railway (GTR), and through its proximity to Ogdensburg, USA, which was just across the river and had emerged as a transportation hub with connections to several American rail lines. The latter was seen as such an important connection that investors in the Bytown & Prescott Railway (B&PR) chose to use the same gauge size (the parallel distance between the two rails of the railway track) as the American's railway system and not the Canadian one. This meant that B&PR rail cars could be ferried across the river by steamboats and then continue their shipment of lumber on foreign tracks without an issue. The same was not true for the Grant Trunk Railway, as B&PR

cargo had to be transferred by crew to the formers' rail cars; a cumbersome and time-consuming task to say the least (Lee, 2006).

The B&PR first steamed into town in 1854 on Christmas Day. The following week, Bytown was elevated to *city* status and renamed Ottawa (Walsh, 2001). As Lee notes, "the elevation gave its citizenry more municipal authority, not to mention greater public esteem" (Lee, 2006, p. 100) which had been much sought after given their industrial working-class reputation. As a result of this reclassification, the Bytown and Prescott Railway was re-chartered as the Ottawa and Prescott Railway (O&PR). Finally, in 1857, Queen Victoria announced that she had chosen Ottawa, and not Toronto or Montreal, among other cities, to be the capital of the Province of Canada (Reindeau, 2007). In fact, the access and economic infrastructure that the O&PR provided, by way of directly connecting Ottawa to foreign markets, was one of the arguments that was used to justify this decision (Knight, 1977). As a result of its new designation, Ottawa's population boomed from 7,760 to 21,545 between 1851 and 1871 (Wash, 2001). As historian John Walsh notes in his study of Ottawa during this period, "the town now added civil servants to its mix of lumber barons, merchants, carters and labourers" (Walsh, 2001, p. 3). There was an observable reciprocal relationship between how the City of Ottawa expanded its leading industries, the gendered makeup of its workforce, and the development of its transit offerings. Indeed, all of these elements worked in concert with one another and reinforced the close patriarchal relationships between gender, technology, and mobility.

Despite these seemingly progressive changes in Ottawa, the Ottawa and Prescott Railway was by no means a perfect system. Its major shortcoming, which hindered its use, was its location. Ottawa's railway terminus was located at the Rideau Falls, which was certainly convenient for

sawmills further east along the Ottawa River, but it presented a challenge for the city's lumber industry located at the Chaudière Falls. If these businesses wanted to access the O&PR, they had to transport their lumber across town (Lee, 2006). This situation ultimately led to Ottawa's first urban transit offering in 1866, which consisted of horse-drawn trams that could carry both passengers and lumber across the city. As the following chapter will explore, Ottawa's first public transit offering was intended, in large part, to support the local industries which were deeply gendered enterprises. It is this context which has ultimately shaped and informed the legacy of Ottawa's public transit system.

The Rise, Function, and Reach of Public Transportation in Ottawa

In the mind-1880s, Ottawa was aspiring to reinvent itself. Although the capital of the Dominion, the city was still considered, and, moreover, perceived itself, as a provincial and unimportant town (Adamek, 2003). John Taylor, an urban historian with a specialization in Ottawa's past, has argued that the capital needed to redefine its entire industrial and economic landscapes in order to boost its metropolitan growth (1986). Although the position of the two was developed with the arrival of the Dominion government, the metropolitan importance of Ottawa languished with the slow growth of the industry and transportation services in and around the city. By 1890, with the street-illumination system firmly in place under contract to Thomas Ahearn and Warren Soper's Ottawa Electric Light Company (OELC), Ottawa began to consider the electrification of its public transportation offerings (Adamek, 2003). For the city's council, this was the logical next step in their efforts to reinforce and support the electric industry while also showcasing the capital's technological progress.

Ottawa ventured into the electric railway business much earlier than other Canadian cities. In 1889, Ottawa Mayor, Jacob Erratt, and council member, John Henderson, participated in the Municipal Convention in Toronto, Ontario, in which provincial councillors discussed the creation of municipal electric railways (Lee, 2006). Upon their return to Ottawa, Erratt and Henderson introduced the idea of urban mobility transit electrificationto the Ottawa City Council who had been trying to reconcile the needs of a growing city and the limitations of the existing horsecar transit system (Lee, 2006). The Council decided to petition the Ontario Legislature for amendments to the Municipal Act and the Street Railway Act to allow the city to construct, own, and operate electric railways (Lee, 2006). These petitions were referred to Erskine Henry Bronson, the Minister responsible for railway matters in Ontario's provincial government. While Bronson was well aware of the city's need to update its transit system, he took issue with Council's request for the right to expropriate, by way of taking municipal control over, the Ottawa City Passenger Railway (Lee, 2006). Bronson, as well as other local businessmen, found the city's encroachments on the ownership and operation of the transit system to be entirely inappropriate. As such, on January 20, 1890, the Ottawa City Council established a Special Committee on Street Railways to investigate electric traction. Although Mayor Erratt promoted the municipal ownership of the transit system, the Ottawa City Council was divided on the issue.

While this was unfurling, Ottawans were quickly becoming impatient with their municipal and provincial representatives, as they clearly wanted to see an improved service but were not interested in paying for municipal ownership. At this time, Ottawa had a population of roughly 41,000 people, had been the capital of the Dominion of Canada for 23 years, and the capital of the old province of Canada for nine years before that (Davis, 2001). The Ottawa City Passenger Railway Company had been servicing the city since July 1870; it was incorporated in 1866 but it

took a number of years to raise the necessary construction funds and then build the transit line. This project was financed in large part by the estate of Thomas McKay, one of the founders of the city, and bought out by Thomas Reynolds, a local industry mogul. Reynolds used the technologies and infrastructure to transport lumber from the Chaudière Falls to the connecting terminal of the St. Lawrence and Ottawa Railway, which was renamed as such after the O&PR filed for bankruptcy in 1866. As the map in Figure 8 demonstrates, the OCPR (in red) was connected to the Ottawa Valley's lumber industry from west to east and supported it by facilitating access to the St. Lawrence and Ottawa Railway (in green). The route was singular, meaning it did not divert to multiple areas. The OCPR consisted of 10 cars (Figure 9 on the next page) powered by a rotation of 25 to 40 horses and they sat 20 passengers. They were unheated with large windows.

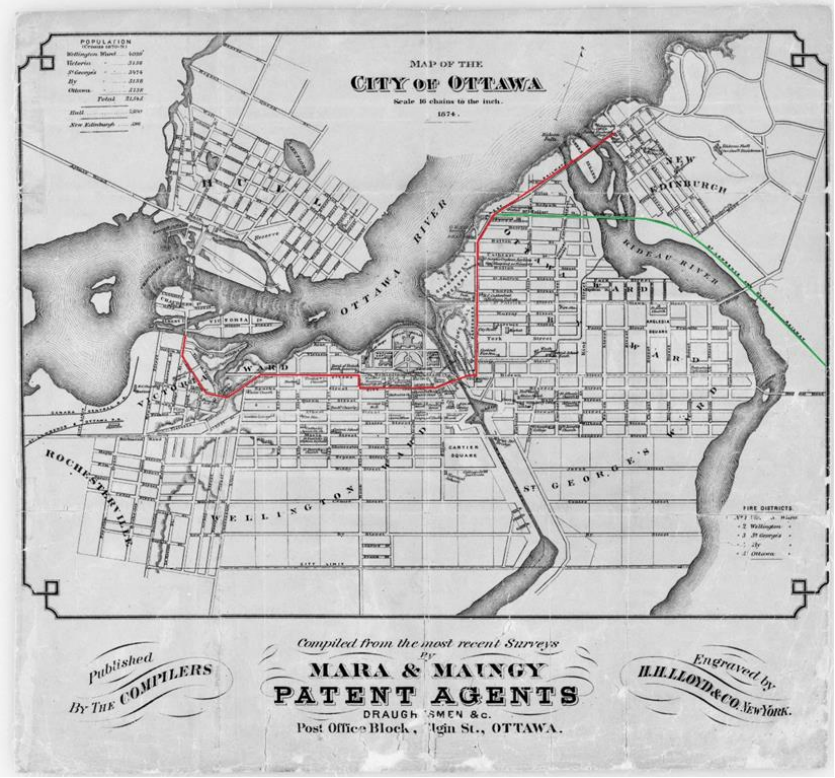


Figure 8: A map of Ottawa from 1874 highlighting the OCPR (red) and the St. Lawrence and Ottawa Railway (green). Credit: Carleton University, with edits by author.

Clearly, in order to maintain its status, significance, and growing importance, Ottawa had to act on updating its public transit. Finally, on May 29, 1890, Ottawa ceased its attempt to build a city-owned transit system and decided to award the construction and operation of the electric railway to a private corporation (Lee, 2006; Davis, 2001). When the city called for a bid on the electric railway a few days later, most of Canada's existing companies did not apply for the franchise. The Ottawa City Council had demanded that bids include year-round operation, but existing railway companies providing service in places like Windsor (since 1886), and St. Catharines (since 1887), found this to be an unrealistic request. These companies asserted that it was impossible to run streetcars in a northern winter and far too expensive to replace them with sleighs when the rails would unavoidably become obstructed by drifting snow (McKeown, 2004).

Figure 9: An example of a horse-drawn streetcar used by the OCPR. Credit: Ingenium.

While there had been a competing bid from William Holmes Howland Syndicate of Toronto, which had shown real potential and nearly won the city's bid, Ahearn and Soper, local electricity moguls, were ultimately awarded the contract to operate Ottawa's electric public transit service (Adamek, 2003). Ottawans were incredibly supportive of electric transportation. The possibility of an affordable and efficient means of public transportation appealed to the public as they were citizens of a growing urban landscape, with a dense population dispersed across New Edinburgh to LeBreton Flats but working in central areas around downtown federal offices and

the Chaudière lumber yard. Electric public transit appeared to be an affordable means of improving the quality of everyday life and appealing to industry in a busy city.

In his study of electrification and electric traction in Ottawa, Fred Angus observes that the 1890s "was the time when the electric street railway "took over" as the main means of public transportation in the cities of North America. In that decade," he continues, "most of the horse-car lines were electrified, cable car systems (some only a few years old) were converted, and new systems were built, in addition to numerous extensions to existing electric system" (Angus, 1983, p. 1). The Ottawa Electric Railway was a leader in Canada's electric railway movement (Angus, 1983). Ahearn and Soper incorporated the Ottawa Electric Street Railway Company on February 13, 1891, under a municipal charter with a capital of $500,000 divided into 5000 shares. After the franchise was granted, the directors, including Soper, Thomas Workman, D.C. Dewar, William Scott, Redmond Quain, and Peter Whelen, appealed to the established businessmen in Ottawa with a request that they purchase stock so as to provide the new company with the financial support required in order to expand tracks and purchase new equipment (Angus, 1983). With no large donors coming forward, the directors used their own capital and the backing of small investors to gather finances to lay the tracks and to construct a new power station on Victoria Island at the Chaudière Falls (Angus, 1983).

Since some of the main streets, such as Spark Street, were still serviced by the horsecars of Ottawa City Passenger Railway, Ottawa Electric Street Railway placed its new rails on Wellington Street, the main throughway of the Dominion Government, over the protests of the Department of Public Works. Even though the Ottawa Electric Street Railway and the Ottawa City Passenger Railway serviced different streets, it soon became obvious that cooperation between

these two transport providers would not be feasible. Ahearn and Soper were determined to monopolize Ottawa's traction and in 1891 Soper convinced Thomas Keefer, the director of the OCPR, to sell him his stake in the railway. This put Soper and Ahearn, and their associates in a majority controlling position of the Ottawa City Passenger Railway; a position which essentially granted them control over Ottawa's public transportation system.

Ottawa Electric Street Railway's lines followed the growth of the city and the streetcar served the role of connecting Ottawans to their sites of paid employment outside of the home. As Ottawa transit historian Bill McKeown describes in his study, as Ottawa's Lowertown, what is today the Byward Market, was home to many of the city's working-class residents, their streetcar service started operations at 5:30am (McKeown, 2006). In this way, the city's transit strengthened the links between gender and technology by providing access to work sites and spaces during a patriarchal period where it was far more common for men to work outside of the home and for women to assume household responsibilities. This goal was visible through both the track and station layout, which flowed between residential neighbourhoods and work locations, as well as hours of operation. During the summer months of the early 20th century, Ottawa's streetcars operated between 6a.m. to 8p.m., every 10 minutes, and 8p.m. to 11p.m., every 30 minutes; in the winter this changed to 7a.m. to 7p.m., every 20 minutes, and every 30 minutes between 7p.m. and 10:30p.m. (McKeown, 2006). In addition to providing transit between home and paid work, Ottawa's transit provider offered working-class men a special discount on tickets to be used during working hour windows of 5:30am to 7am and then 6pm to 7pm. These working-class men were also eligible for discounted tickets, where $1 would award them 25 tickets, to be used during the controlled hours of 5:30a.m. to 7a.m. and then again 6p.m. to 7p.m. Regular fares during this period were 5 cents per trip, with free transfers (McKeown, 2006).

The operational decision to provide discounted rates to working-class men from across the city of Ottawa reinforced the gendered relationship between the material culture of transportation and the mobility needs of male labourers. This decision was rooted in the industrial history of Ottawa's public transportation offerings and it served to reaffirm the gendering and masculinization of this technology. As was mentioned earlier in this chapter, Ottawa's industrial workforce was predominantly male and so this transit system, which was designed to serve this industry and its workers, was designed with gendered assumptions built into it which created a gender-script for users. This type of user-focused design is indicative of the wider socio-culturally established connection between users, gender, and technology. In particular, the early history of Ottawa's public transportation system is an example of, what feminist technology scholar Judy Wajcman has observed as the close connection between masculinity and technology, wherein men are both the holders of technical knowledge and skill, and the intended users of technological systems (Wajcman, 2007).

As historian Donald Davis notes in his work *A Capital Crime? The Long Death of Ottawa's Electric Railway* (2001), Ottawans made good use of their tramway until they didn't. "Between 1892 and 1913," Davis observes, "local street railway travel increased seven times as fast as the population, and by 1914 the riding habit had reached 240 rides per year per capita. It continued to rise until it peaked at 336 in 1921, that is, at almost one trip per day for each resident of Ottawa" (2001, p. 351). Ottawa ranked third in annual riding per capita amongst the largest seven Canadian cities in 1919 (Davis, 2001); riding behaviour was notably high for such a small city. It's important to note that during the first few decades of the 20th century, Ottawa's public transit spaces were congested but not as crowded as other Canadian cities, such as Toronto, where passengers were more than four times as likely to be standing while taking the tram. As Ottawa's population

expanded, doubling between 1900 and 1908 when it reached 120,000, there was a corresponding impact on the use of local transit. Despite busy spaces and accounts of discontent, Davis argues that Ottawans had "reasons to be pleased with their electric railway during its first quarter-century. It was exceptionally well-managed" (2001, p. 351) and one of the most affordable transit systems in Canada, collecting the fifth-lowest average fare.

The 1920s were, up to that point, the busiest years of service for Ottawa's electric transit operator. In 1924, OER and the city signed a new franchise for operation that resulted in a broad modernization program focused on vehicle upgrades, described in greater detail in this chapter. That same year, the Ottawa east extension brought tracks to Clegg Street looping along Main Street; another three lines connected the city centre to the Civic Hospital, Bronson Street, and Hull, respectively. In 1925, OER marked its maximum trackage (size of serviceable area) with a little over 93 km of service as a result of the installation of the Lindenlea loop, which served a neighbourhood in New Edinburgh, south-east of Parliament (Dudley, 2009, p. 19). The Champagne Barn also opened in 1925 as the central location for the OER's rebuilding program; it was the new storage and maintenance space for all new cars, including the 800-class.

The Great Depression, and the following decade, were a challenging time for Ottawa, the Ottawa Electric Railway, and its passengers. Despite its relative affordability, ridership on the OER decreased during this period as Ottawans were far less likely to need transit for work given high unemployment rates. It was also during this decade that the OER's monopoly on transit was challenged (Davis, 2001; McKeown, 2006). Davis (2001) identifies jitneys (unlicensed shared-ride taxis) as one transport mode that emerged after the OER's 1919 strike, offering transportation routes from Ottawa's east and west-ends to the city centre. While jitneys drew passengers away

from streetcars, which negatively impacted OER's ability to demonstrate the viability of its service and attract investors, competing technologies resulted in "the discovery by motorists that they were better off without trams" (Davis, 2001, p. 352) as there were other options available to them. While Ottawans only had one automobile for every 29 inhabitants in 1920, automobile ownership boomed after that year (Davis, 2001). A decade later, there was one vehicle for every eight Ottawa residents. As Davis notes, automobiles "delivered several deadly blows to the electric railway in Ottawa (…) they deprived it of potential business" as "each automobile cost public transit 1,100-1,200 fares a year" (Davis, 2001, p. 353). Automobiles also attracted a higher portion of off-peak users. This meant that "Ottawans continued to commute to work by rail long after they had switched to the automobile for sorties to the stores, the theatre, or the doctor's office. As a result, there was a growing disparity between the number of trams needed for the basic service in the mid-morning or mid-afternoon and the number needed to handle the morning and evening rush hours" (Davis, 2001, p. 353). By the mid-1930s, Ottawans had shifted away from the streetcar in favour of the automobile for urban trips. Ridership would continue to decrease in Ottawa until the start of the Second World War.

Making of Streetcars and the Gender of Ottawa's Mobility Work

Ottawa's first electric streetcars were produced in St. Catharines, Ontario, by Patterson & Corbin. The first order arrived in Ottawa on May 22, 1890, and were shown to the local press at the Albert Street Barn, the OER's garage, the following day (McKeown, 2004, p. 41). As Bill McKeown summarizes in his detailed history of streetcars in Ottawa, each of these vehicles was:

> double-ended, weighed six tons and was mounted a Brill single truck with thirty-inch wheels. Each car was powered by two twenty-horsepower single-reduction motors, the first street railway

> application of the Westinghouse single-reduction motor. These elegant little vehicles were choice examples of the car builder's art. The principal body colour was described as either "dark salmon" or "rich orange," with the lettering "Parliament Building" on both sides above the belt rail, in silver on the former colour, and in gold on the latter. Below the belt rail, on both sides, "Ottawa Electric Railway" was lettered in dark red. The second colour was yellow, described variously as "light primrose" or "lemon yellow," and was used on the end of the cars (dash) and underframes (McKeown, 2004, p. 41).

That same year, William Washington Wylie Carriage and Wagon Works (WCWW) began manufacturing cars to meet Ottawa's needs. Wylie had apprenticed in Paisley, Scotland, before relocating to Ottawa in the 1880s to work in partnership with Richard Shore, who owned a carriage shop called Shore & Company. After Shore retired, Wylie continued the operation in his own name. Wylie's work proved to be of equal quality to Patterson & Corbin and, having the streetcars produced locally, saved the transit provider a considerable amount of money in shipping costs. On the December 12, 1891, the Ottawa Electric Street Railway awarded Wylie a contract for one closed and six open cars (McKeown, 2004).

In 1891, Wylie was also approached by several Ottawa Electric Railway Company stakeholders who urged him to expand his operation and dedicate more resources towards the production of streetcars. Ahearn & Soper purchased shares of the Wylie Carriage and Wagon Works in 1893 and incorporated it as the Ottawa Car Company (OCC) which went on to become Canada's major streetcar builder for more than half a century (McKeown, 2004). Wylie served as Vice-President and general manager of OCC, and Ahearn and Soper, among other invested parties with vested interests, served on the company's board. A few years later, in June of 1893, some of the Ottawa Electric Railway's shareholders bought out William W. Wylie shares; despite no longer owning this company, Wylie continued to hold the same title and authority and became one of the "most expert, successful and widely known car and carriage builders in Canada" (Unknown,

2022). By the end of that year, the company had produced close to 100 streetcars. These vehicles were used in Ottawa, Montreal, Saint John, Toronto, Winnipeg, Niagara Falls, and Peterborough. From that point forward, all new streetcars were made by the Ottawa Car Company. The only exceptions were one 28-foot car purchased from Brill in 1892 and two 30-foot units purchased in 1908 from the Preston Car and Coach Company of Preston, Ontario. OCC's vehicles were all manufactured in the same shops, located on a Centertown block of property defined by Albert Street on the north side, Slate Street on the south side, Lyon on the west and Kent on the east. This location was conveniently situated right across the street from the OER's Albert Street garage.

During the streetcar era from the early 1890s through to the beginning of the Great Depression, the Ottawa Car Company was the pre-eminent independent Canadian builder of streetcars. In 1913, the company name was changed to Ottawa Car Manufacturing Company Limited. This name would have been familiar to Ottawans as it quickly appeared on "the centre of the two transverse lacquered bulkheads of all 600, 800 and 900 class cars built between 1913 and 1935 (Knowles, 2003). This is an interesting observation as it speaks to the visuals of the built environment that were a staple in Ottawa's urban and transit spaces.

Although the streetcar era in North American lasted until after the Second World War, new streetcar construction declined rapidly during the 1930s, and ended altogether in the late 1940s. In the 1930s, the Ottawa Car Company began producing other products such as buses and aircrafts in order to maintain its business. This departure provided a basis for its aircraft, aircraft parts production, and aircraft engine overhaul activities which occurred during the Second World War and spurred its name change to the Ottawa Car and Aircraft Company (Dudley, 2009). It was under this name that the last four streetcars were manufactured for the OER in 1947, which ran to the

end of the line in 1959. On January 8, 1948, the *Ottawa Journal* reported that the Ottawa Car Company had been purchased by the Mailman Corporation, a holding company controlled by a financial group interested in several other light manufacturing industries in the Ottawa Valley. The article noted that "a large section of the main plant with doors on Albert Street had been taken over by the Connor company for the assembly of laundry equipment" (Unknown, 1948).

In light of these production demands, between the early 1890s and 1904, the Ottawa Car Company grew exponentially. From the original 35-man staff of Shore & Company, the company went on to employ 185 men, and expanded from their original three-story building, on the corner of Slate and Kent (Figure 10), to occupy two thirds of this block. With this growth, the Ottawa Car Company was allegedly recognized by Ottawans as one of the most "progressive and flourishing industrial establishments in the capital" (Unknown, 2022). The builders photograph on the following page (Figure 11) is truly indicative of the gendering of the workforce as it features the 51 men who built the 1894 Toronto and Scarboro Railway streetcar called *Lalla Rookh*. These workers were responsible for the construction and craftsmanship of these vehicles which included prefabrication tasks (cutting and preparing the wood, windows, textiles, and other components), assembling the vehicle (including the car itself, trucks, running gear and brakes), and pre-operation testing. With this in mind, this image is also representative of

Figure 10: A photograph of Wylie Carriage Company. Credit: Free Press Article, June 18, 1892.

the gendered natured of work and the making of technological artifacts. The men in this photograph were producing streetcars for users that were very similar to themselves (male, working class, able-bodied) which reinforced the gendering and masculinization of public transit in Ottawa at this time; men were producers and the intended users of these technologies. A closed car, *Lalla Rookh* had sets of sliding doors which provided entry to the vestibule and separated the vestibule from the passenger area. In this photo, Wylie is seated, to the left, in front of one of these doors and is wearing a cap; to his right is William Ahearn, the Ottawa Car Company's accountant, and to his left is the company's Secretary and Treasurer, J. D. Fraser. The names of twenty-two of these workers are preserved at the City of Ottawa Archives but, unfortunately, they are not individually identified.

Figure 11: A builders photograph of the Toronto and Scarboro Railway Lalla Rookh which demonstrates the all-male makeup of OCC. Credit: City of Ottawa Archives. ca 1534.

As has been noted, the Ottawa Car Company built a variety of car types that were purchased by companies from across Canada. The first company catalogue, which appeared in 1895, illustrated a comprehensive variety of open and closed cars of single and double-truck types. The single-truck open car, featured in Figure 12 (below), was typical of the type of urban transit used across Canada at the end of the 19th century. From 1894 to 1908, the manufacturer's main vehicle type was a wooden, single truck, double-ended or single-ended two-man car. Single truck vehicles had two axles assembled into a truck and they did not swivel with respect to the car body. They were typically smaller than 30 feet in length and could accommodate 25 to 30 passengers, in two-by-two front-facing row seating. These vehicles were available in both open and closed configuration, essentially partially (half) or fully enclosed closed side walls. It was certainly a fair-weather vehicle that was impractical in inclement weather given its openness to the elements.

Figure 12: A photograph of Britania Park and Beach. Credit: City of Ottawa Archives.

From the 1890s to the 1920s, urban transit providers began converting the streetcars in their service in a few notable ways. First and foremost, as a safety precaution they converted open streetcars to closed-concept vehicles. They also, as was mentioned earlier, changed the mode of power from horse-drawn to electrification. And lastly, as a cost-saving measure for the provider, they rebuilt their fleets so that they no longer required two-man operation. In 1908, Ottawa Car

Manufacturing built 14 500-class vehicles which were 31 feet in length, single truck, Pay-As-You-Enter (PAYE) vehicles. In 1926, these streetcars were reconfigured to be Pay-As-You-Leave, which meant they no longer required a conductor to collect passenger fees. These vehicles, and those that were built after 1924, were notably larger than their predecessors. In 1911, OER placed an order for 18 double-truck (two sets of four-wheel bases), single-end cars, numbered 520-539 but referred to as the 520-class, from the Ottawa Car Company. These vehicles set the standard for new streetcar length (45 feet and three inches) until the late 1940s; at which time, the 1000-series was introduced and it was 45 feet and six inches in length. The 520-class was the first of the Ottawa streetcars to use the Brill 27-FE-1 trucks and it also incorporated the first fare box in a PAYE car (McKeown, 2006). Notably, the 520-class was also the last wood construction car ordered for the Ottawa Electric Railway.

In 1913, the transit provider placed its first order of its steel-bodied 600-class cars from the local manufacturer. This material change was a notable development in the design of streetcars which, aside from increases to its length and adaptive methods of payment, was a technology that had not really changed in 30 years. The use of light-weight steel cars meant that the vehicles were much lighter than previous wood models and almost as strong. As public transit historian Fred Angus notes in his article in *Canadian Rail*, "smaller motors and wheels allowed lower floors and fewer steps to climb, while lighter weight meant less power consumed and less wear on the track" (Angus, 1979, p. 202). The 600-class, of which there were a total of 30 in OER's fleet by 1917, measured 45 feet three inches in length and ran on Brill 27-FE-1 trucks. Their frames, sides, end panels, uprights between the windows, and transverse were all made of steel; the roof was the only piece made of wood. As Dudley notes in his *Branchline* article, "the 600s would prove to be the OER's longest serving revenue car, most of them running into the early 1950s" (2009, p. 19).

In addition to the gendered, all-male makeup of the Ottawa Car Company's shop floor, and the executive and board of both the OCC and the OER, the operation of urban public transit in Ottawa was also a gendered-masculine job until the 1970s (McKeown, 2004). While industry wages were low in this sector, Ottawa Electric Railway was among the highest paying in the late 1800s, with $1.25 for a 12-hour shift (McKeown, 2004). When the Ottawa Electric Railway Company opened in 1891, two-man operation was the standard, with men occupying the position of conductor and motorman, dressing in blue informs with silver accents; they held responsibility for driving and collecting fares. One-man operation, which was the standard as of 1933, consisted of one male-operator at the front of the vehicle and passengers depositing their fees into fare boxes at either end of the vehicle. Workers, despite relatively frequent disputes, such as the 1917 complaint to the Conciliation Board regarding staff-layoffs and work conditions, tended to remain employed by the transit operator as concessions were normally made in their favour. The 1919 strike, when 600 unionized workers voted to strike over a 6 cent/hour wage increase, for example, resulted in the Insurance and Benefit Plans for workers which included sick leave and mortality clauses, as well as a small personal pension. In 1946, OER's union observed that there were 65 employees who had been working with the company for more than 40 years (McKeown, 2006).

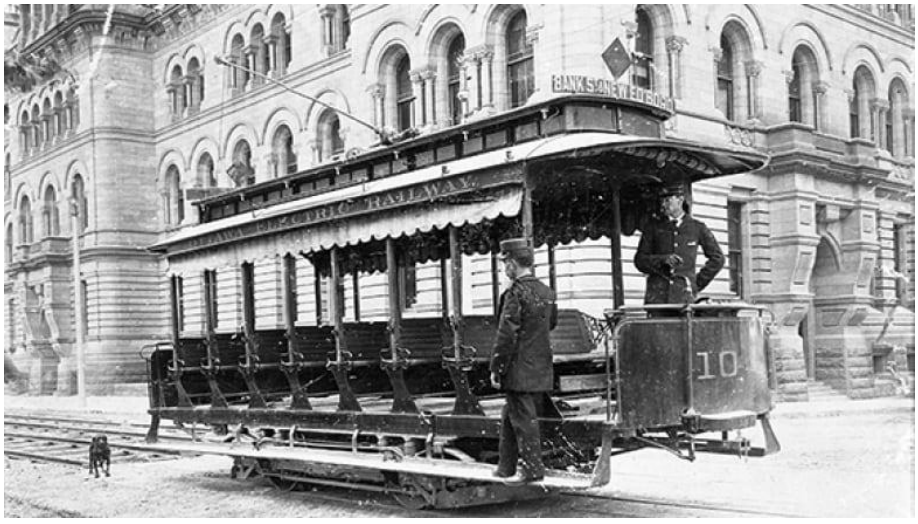


Figure 13: An image of an open-car showcasing the two-man operating system. Credit: City of Ottawa Archives, ca. 1532.

These men remained in the OER's employ, alongside male owners, builders, and users. The masculine makeup of the administration, construction, and operation of Ottawa's public transit system during the latter part of the 1800s until well into the 20th century, is noteworthy because it informed and perpetuated a gendered understanding of how these technologies, and the supporting infrastructure, functioned and who they were intended for. In this context, men governed, made, and used public transportation which created a stronghold in the user-gender-technology relationship. Notably, in this gendered environment, masculinity was mediated and constructed amongst the workers, makers, and passengers through their interactions with one another and in relation to the transit technologies they either built, operated, or used (Figure 13).

As sociology and legal studies scholar Ava Baron (1989; 1991) reminds us, examining gender history is an important, and often overlooked, aspect of labour history, especially where masculine and working-class experiences are concerned. Stephen Meyer argues in his article *Work, Play, and Power: Masculine Culture on the Automotive Shop Floor, 1930-1960*, that the dual crisis of industrialism, which translated into the expansion and growth of urban spaces, and masculinity "prompted working-class and other men to remasculinize work and identities" (1999, p. 119). Meyer continues that, "to a certain extent, the newly forming masculine culture of semiskilled mass production workers blended and merged elements of the rough and the respectable manhood" (1999, p.119). This individual understanding of personal identity was shared and shaped by communities of work and materially embodied in the OCC's streetcars. In this way, the use of, or employment on, a streetcar reaffirmed gendered appreciations of work and public urban spaces, as these technologies were built by and for men's working bodies. The work of making streetcars is similar to what historian Paul Thompson has observed in his study of Coventry Car Workers, "which began as a luxury craft trade of skilled engineers and coachbuilders, and was transformed

into the classic industry of repetitive semi-skilled assembly line production" (1998, p. 49). While the work of making and operating these transit vehicles certainly evolved over this 70-year period, their tangible and intangible connection to masculinity and gendered spaces and operations continues to persist today. As vehicles made and operated by men that were initially intended to serve and benefit Ottawa's lumber industry by way of providing reliable mobility to workers and connecting industrial sites to larger markets, these technologies were not only shaped by men, they were also objects and spaces that reaffirmed the masculine enterprise of industrialization, urbanization, and mobility.

Material Culture of a 1927 Ottawa Car Company 800-class Streetcar

As urban transit systems expanded their routes and incorporated new vehicles and modes of power into their fleets, there remained a relative consistency in the form and function of how these public services look, how they worked, and for who they were intended to serve. In many cases, this was a result of the gradual transition away from 'old' vehicles, to the adoption of 'new' vehicles that relied on existing infrastructure. A clear example of this can be seen through providers, like the Ottawa City Passenger Railway Company (OCPR) and the Toronto Street Railway (TSR), adopting electric streetcars. While they eventually purchased new, purpose-built electric streetcars, these companies initially implemented electrification by converting horse-drawn streetcars to electric streetcars. The vehicles themselves remained largely unchanged save for the removal of harness hardware at the front of the car and the addition of cables and guiding wire for overhead electric connection. The tracks they operated on, and therefore the routes they serviced, remained the same as this part of the infrastructure did not require any changes as part of electrification. New technologies were informed by the designs and functioning of existing

technologies which were, as has been examined in this chapter, deeply gendered. As such, while the circumstances of their use, and makeup of their passenger demographics, was starting to change, the gendered assumptions that informed the genesis of their form, function, and use were not questioned or challenged as these mobility technologies built upon on another.

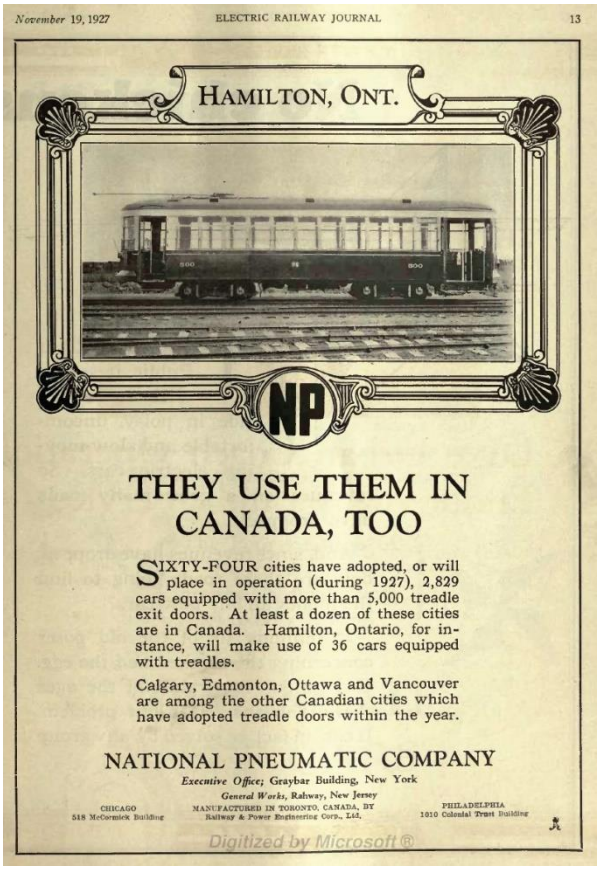
Ingenium's artfact number 1971.0384 is an 800-class vehicle that was manufactured in 1927 by the Ottawa Car Company (Figure 13). These cars first came into service in 1925 with the 800 and 801-series cars. These particular vehicles were steel, single-truck 30-foot Birney *Safety* cars that could carry 28-30 passengers and had one operator. Birneys were small and light and were designed as an economical means of providing urban transit at lower infrastructure and labour

Figure 13: Ingenium's 800-series streetcar in storage. Credit: Ingenium.

costs than conventional streetcars. They had air-operated doors, as well as entrance/exit steps and brakes, and emergency braking. While the safety features of this vehicle were certainly industry leading, it left much to be desired from a passenger comfort perspective. It was a slow-moving vehicle that did not ride particularly well, made worse by wooden seats. After this rough start, the 'new' 800-series were introduced. They were designed for one- or two-person operation, steel, and double-trucked. They incorporated all the air-operated safety features of the Birney but in a longer body (45 feet and three inches). They were noticeably lower than the 500 and 600-class cars as a

result of their Brill 77E trucks built by Canadian Car and Foundry, which had 26-inch diameter wheels in place of the 33-inch wheels of the 27-FE-1 trucks used in previous models. The 800-class were all front-entrance, two-person operations where passengers paid at the conductor's station as they passed by and then stepped up into the seating area of the vehicle. They were designed by Frank Beattie who was the superintendent of the Car Department at the Ottawa Car Manufacturing Company Limited. Improved seating was another notable feature of this vehicle class. Seats were covered with solid leather and included a back rack that passengers could grab or hold for stability as they moved toward the back of the tram. The 800-class car sat 49 persons, 22 in the forward-facing seats and 25 in the side seats, along one side of the vehicle.

The 800-class was "replete with every modern device known in street car construction making for comfort and safety" (McKeown, p. 101). These vehicles incorporated a number of features intended to improve passengers' ability to enter and exit the car which, ultimately, improved how accessible these technologies were, and had a notable impact on the responsibilities of the operator. The smaller wheels of this truck meant that this vehicle required one less step for passengers entering or exiting the car. When a passenger boarded the 800-class, the two accordion doors would need to be opened by the OER streetcar operator. This


November 19, 1927 ELECTRIC RAILWAY JOURNAL 13

HAMILTON, ONT.

NP

THEY USE THEM IN CANADA, TOO

SIXTY-FOUR cities have adopted, or will place in operation (during 1927), 2,829 cars equipped with more than 5,000 treadle exit doors. At least a dozen of these cities are in Canada. Hamilton, Ontario, for instance, will make use of 36 cars equipped with treadles.

Calgary, Edmonton, Ottawa and Vancouver are among the other Canadian cities which have adopted treadle doors within the year.

NATIONAL PNEUMATIC COMPANY

Executive Office; Graybar Building, New York

General Works, Rahway, New Jersey

CHICAGO 518 McCormick Building

MANUFACTURED IN TORONTO, CANADA, BY Railway & Power Engineering Corp., Ltd.

PHILADELPHIA 1010 Colonial Trust Building

Figure 14: An advertisement for the treadle system. Credit: Ingenium.

would, in turn, release two steps, not three, in the direction of the ground and passenger. This, in effect, sped up service as it took passengers slightly less time to board or disembark; this change, however, also resulted in easier use for passengers, particularly those wearing long skirts or dresses, who were at greater risks of catching their clothing in the steps. Fewer, shorter, and lower steps meant that passengers, particularly riders who were shorter in stature, did not have to struggle to board the tram. In addition to having one fewer step than previous models, the steps of the 'new' 800-series were made of leather strips designed in a grating effect, rather than one solid piece of wood or steel. This design was intended to prevent snow from caking on the step, which could cause a passenger to slip, which was a real problem during Ottawa's winter months.

The operation of the rear-exit door was also redesigned for the 800-class. Previous models required that passengers, or conductors, push or pull the door(s) in order to disembark but this model made use of a treadle system that automatically activated, or opened, the doors when a passenger stepped onto the first step. This type of design, as is highlighted in the advertisement presented in Figure 14 (on the previous page), went into operation in 1927 and so Ingenium's streetcar was likely one of the first vehicles in the OER's fleet to incorporate this feature. The treadle system allowed for hands-free exiting of the vehicle which was a welcomed feature for passengers carrying items, like groceries, as they disembarked. The treadle system was also a safety feature as, when it was in use, the streetcar was unable to move. Such a safety feature was, in fact, warranted as the *Ottawa Press* contains the account of a Mrs. James who, in 1917, injured herself while taking an Ottawa Electric Railway car when the motorman opened the door of the car while it was in motion. As the article reads, "Mrs. James says she thought from the motorman's action that the car had stopped, and she stepped out. She was thrown to the ground by the sudden application of the brakes, she claims, and her head was cut, her clothes were spoiled, and she

received a nervous shock (Unknown, 1917). As part of the treadle system, the 800-class also introduced a rear-view mirror in the operator's area which was installed in order to allow "him to have the rear exit under observation at all times" (McKeown, 2004, p. 67). Monitoring passenger use of the treadle is a notable addition to the tasks of the operator as it meant that his role now included both controlling the streetcar's operation as well as the supervision of passenger behaviour. This expansion of the operator's responsibilities, which began in the 800-class, shaped this position into one of multitasking that was standardized in 1933 (Dudley, 2009, p. 19) and persists to this day.

While the exterior of Ingenium's 800-class streetcar is in fairly good shape, the interior has been completely disassembled and so this study relies on material evidence and archival photos in order to consider the details of design, layout, and function of this interior public space. The City of Ottawa Archive holds a number of photographs as part of its OC Transpo collection that provided fairly good insights into how these spaces looked. This material is particularly strong in its documentation of the interior of the 800-class car prior to its two-to-one-man operation remodelling that took place during the 1930s.

Figure 15: Stacked seats feature the raised grab rail on the backrest. Credit: Ingenium.

The pieces that remain of Ingenium's streetcar, however, highlight an adaptive feature that was added to the streetcars in the 1920s: grab handles (Figure 15). Grab handles, or bars, are safety features designed to enable a person to maintain balance and

lessen their potential fatigue while standing. They can also serve to support some of the rider's weight while they maneuver through the tram. Based on the material evidence that remains of Ingenium's 800-class streetcar, this vehicle was manufactured with a standard stationary cross-seat seating. Ottawa Car Manufacturing Company Limited's 1932 catalogue (Knowles, 2003) indicates that these types of seats were only available with grab handles, and as such, one can infer that either Ingenium's streetcar was originally built with these seats, and adaptive technologies, or that they were added only a few years into this tram's service. The seats typically were manufactured with twill woven rattan but they have since been reupholstered with a leather synthetic; the date of this change is unknown. The grab rails suggest a few key realities about the function and use of the 800-class streetcar. First and foremost, their presence suggests that passengers required support while taking transit and that if a rider was walking towards the back of the tram, they might need to use a grab rail if the streetcar lurched forward or braked suddenly. Their presence can also infer that there was not always room for passengers to sit while using the streetcar and that, since some riders had to stand, they required the use and stability offered from grab rails.

Depending on the time of day a passenger chose to use this transit technology, these public spaces could appear quite different, and the gendered makeup of riders could be strikingly noticeable. For example, if a rider caught a lift during rush hour, the trams would be packed-spaces, dominated mostly by male riders, many of whom were prone to enjoy a cigarette while commuting to work. After peak-hour rides were much different trips as trams were far less congested during the day or later in the evening, and the gendered makeup of ridership was less likely to be predominantly male. Over the course of the next few decades, from the 1930s to the end of the 1950s, Ingenium's streetcar would have witnessed very noticeable changes in passenger

demographics, as women came to use and rely on public transportation in greater numbers and at different times. The material shortages of the war, coupled with increases in female employment outside of the home, made it that women's mobility patterns and need for urban transit was unprecedented. As the following section, Chapter 5: "Ladies will kindly refrain from using abusive language": Female Passengers Challenging Public Transportation Norms from 1939 to 1959, will explore, the 1940s was a period of increased demand for urban transit which subsequently resulted in crowding and tension onboard Ottawa's streetcars as different categories of users competed to use this space. In so doing, streetcars, like Ingenium's, became sights where the relationship between gender and technology was deeply contested and challenged.

The 800-series was in operation until the end of Ottawa's streetcar service in 1959, with Ingenium's streetcar's last route running along Preston Street. As has been explored in this chapter, the design, knowledge, and skill that informed the production of this artifact were rooted in a history of gendered labour, operation, and use. The fact that Ottawa's transit system was so closely linked to masculine industrial labour, that both the service provider and manufacturer were male owned and operated business, and that this public service was a strictly male profession until the 1970s, among other factors, resulted in a relatively uncontested understanding of public transit as a masculine service, technology, and space. This is a legacy that, despite both small and significant changes to its material culture and function, has persisted in the general social understanding of for whom this technology is for. As the following chapter will uncover, the 1940s witnessed notable tensions and the reshaping of spaces onboard public transit when women began to challenge this relationship in greater numbers than ever before.

Chapter 5

"Ladies will kindly refrain from using abusive language": Female Passengers Challenging Public Transportation Norms from 1939 to 1959

The interwar period witnessed a notable uptake in the number of women using Ottawa's public transit system in light of increased employment opportunities outside of the home. However, this change in ridership demographics and the ensuing gendered tensions that emerged between male and female passengers were not easily addressed or resolved by the OER. The presence of women on public transit, in higher numbers than ever before, forced greater awareness of passenger safety in public spaces which, ultimately, led the OER to implement new standards and codes of conduct that governed acceptable passenger behaviour. The local newspapers were often used by passengers as public forums for riders to vex their concerns about the state of transit as well as their feelings about other riders. As such, these sources offer insight into what it was like to ride on the OER during this period alongside the evolving relationship between different users and the material culture of Ottawa's public transportation system. For example, one such article published in *The Evening Journal* in 1914, entitled "A Woman's Wail: Why She "Glared" and Grew "Hot Under the Collar" (Unknown, 1914) is shared below as a dynamic account of the types of interactions that took place onboard transit, and how a rider's identity, particularly their gender, informed these encounters. This article is also an example of the richness of this type of primary source material which is used extensively throughout this chapter. *The Evening Journal* noted that this article was "written specifically for their publications by a Woman" (Unknown, 1914). It read:

> I am neither a suffragette nor a socialist, but just an ordinary housewife who once in a while goes on a shopping expedition into centre town, and more than once in a while, of late, has become "hot under the collar" and it was one of those new fashioned, high-standing collars at that. These occasions of vexation were when I waited to board a street car and stood watching car after car rumble by (Unknown, 1914).

"The other evening," she continued:

> I was one of the many unfortunate females who waited for a street car – waited for forty-five minutes in the sleet and rain, and finally vowed my weak bit of vengeance on whatever man or management was responsible for such a delay and congested conditioning. Foolish woman that I was; should I not have realized that it was the rain and sleet that tied up traffic and that no man but the weather man was responsible. At least such was the explanation from the railway company's superintendent, which I read in the newspaper. Then, too, hubby pacified me by telling me that during three out of his four trips a day on the electric cars he usually stands, so, surely, I should not complain if I have rather a long wait or am jostled about somewhat when I am fortunate enough to get on a car. He further intimated that I ought to be a sensible, practical woman and finish my shopping before "rush hour" (Unknown, 1914).

Acknowledging her husband's suggestion, the author shared her experience navigating transit at a less than ideal time in order to complete a few errands. "As I am one of the members of the Early Shopping League, and am endeavouring to fulfil my promise to help the business man and his employees," she wrote:

> I daringly ventured up town again yesterday from my home in the Glebe district. Ventured, I say, for despite that superintendent's explanation, I still had visions of car after car whirring by, each with its human load bulging far out over the rear step. As cautioned, I finished making my purchases at little earlier. It was 5.10 o'clock

> and I awaited a car at the corner of Bank street and Laurier avenue. True, I was a few blocks further out, but had not my patience been sorely tried at various corners on Sparks street on previous occasions? Several other persons waited also. Two Somerset street cars picked up a passenger or two and passed on, as did also a Gladstone avenue car; and then, at 5.15 o'clock, I sighted my red-lighted. Five women, and myself, ankle-deep in slush, approached the track, but car No. 618 sped by. I cannot explain why I took the number, but men do these things. In about four or five minutes more car 530 approached and did not stop. Just as I was preparing for another long sledge of impatience, the next Bank street car approached, slowed up, and on we got. We were greeted with "move forward, please" and "step aside" and we obeyed in so far as we could. Even though patience had been put to the test, we were riding homeward. We had not given up in despair and splashed through the slush. We were a contented crowd. The older women, and mothers with babes, each had a seat and the men on to the straps, and, as there are a limited number of straps, the rest of us held on as best we could to the seats. I reached home safely, despite all my fears to the contrary, but more convinced than ever that some reform in street car traffic was necessary. As I said before, I am neither a suffragette nor a socialist, so I cannot plan this reform myself. This much I know, that these little journeys into town have come a worry (Unknown, 1914).

This account suggests that Ottawa's urban transit system was unreliable and that it was often times a challenge for certain passengers to board and find space on a streetcar because of both the material culture of transit and the social norms and assumptions connected to this mobility technology. As women increasingly used public transportation during this period, their presence resulted in rising tensions between riders and their ideas about who should use transit, how they should use it, and the ways they should behave.

The following chapter explores a myriad of changes that took place in Ottawa which impacted the OER and its growing ridership from 1939, when the Second World War began, to 1959, when the last streetcar finished its last trip in the city. During this period, changes in ridership demographic and the nature and purpose of trips were directly influenced by local factors, such as

the makeup of Ottawa's population working outside of the home, OER's fleet availability and transit routes, private car ownership, and by global economic influences, such as the Great Depression and the Second World War. While streetcars were socio-culturally understood as essentially a male domain and a masculine technology, as was described in the previous chapter, women did use these technologies, and with increasing frequency as the century progressed. Such changes in passenger make-up, specifically the presence of more female transit users, created new gender tensions and challenged gender norms surrounding this public space. This period of change translated into instability in the use, operation, and experience of taking public transit in Ottawa. Despite these uncertainties, one thing did remain constant and that was that many, including politicians, operators, and established passenger groups, continued to support the gendered and historically rooted understanding that Ottawa's public transportation system served, above all, those working in paid employment outside of the home.

The Impact of the Second World War on Work and Mobility in Ottawa

While Britain's declaration of war in 1939 did not automatically commit Canada to this military conflict, there was never serious doubt about the country's allegiances or intentions. After a short parliamentary debate, on the September 10, 1939, Canada declared war on Germany (Cook, 2015). Because of its tremendous historical significance, much has been written about Canada's military contributions overseas (Cook, 2015; Granatstein & Morton, 1989) and the war's impact on the home front (Keshen, 2004). Where the latter is concerned, industry, work, labour, and the experiences of women have received fair and due attention (Eveden, 2015; Barker & McCullough, 2015; Glassford & Shaw, 2020) but the question of personal mobility, which arguably ties and informs these categories, remains a relatively understudied area. Daily mobility and the use of

public transportation surged by 124% across Canada during the Second World War (Lorenzkowski & Davis, 1998). This increase, however, was not uniformly felt or experienced across Canada; the war had a greater impact on transit in certain cities over others. As Barbara Lorenzkowski and Donald Davis survey in their work on public transit operation in Canada during the Second World War, "the number of revenue passengers rose by 46 to 84 per cent in Vancouver, Toronto, Montreal, and Winnipeg, by 170 per cent in Ottawa, 200 to 300 per cent in Kingston, Sarnia, St. Catharines, and Halifax, and 300 per cent Windsor, and 450 per cent in Oshawa" (Lorenzkowski & Davis, 1998, p. 437). In Ottawa, the OER was wholly unprepared to meet these demands as it had reduced the size of its fleet in light of a decrease in ridership throughout the 1930s and the vehicles it did have were aging and showing serious signs of use and wear. The demands of war and their impact soon overwhelmed transit in Ottawa. The ensuing uptake in passenger use soon overwhelmed public transit in this city.

As part of Canada's wartime mobilization efforts, on April 9, 1940, the Mackenzie King government centralized defence procurement and production by creating the Department of Munitions and Supply. Headed by the Minister of Munitions and Supply, this government body had the authority to "mobilize, control, and regulate all matters of defence production and supply in Canada; act as the purchasing agent for the Canadian armed services, and coordinate all contracts placed by allied governments and militaries with Canadian companies and industries (de Navarre Kennedy, 1950). In support of such initiatives, industries connected to public and private transport refocused and retooled their plants and shops. The automobile industry was paramount in this larger effort as it produced millions of military vehicles each year of the war, alongside airplanes, tanks, and miscellaneous parts. At the local industry level, Ottawa Car Manufacturing, which was renamed the Ottawa Car and Aircraft Limited in 1937, expanded its workforce from 50

to 1800 employees between 1940 and 1943 and devoted itself entirely to the production of airplane parts (McKeown, 2013, p. 147).

In addition to these new demands on transport industries, in 1941 the federal government banned the sale of private automobiles and later imposed restrictions on tire and gasoline use; a decision that had an immediate impact on citizens' abilities to purchase, use, and maintain a private automobile (Veterans Affairs Canada, 2017). In response, companies, like GM Canada, signed wartime production agreement with the Canadian government which committed their manufacturing efforts solely on the production of military equipment, such as trucks, staff cars, tank hulls, etc. in lieu of private vehicles (McKeown, 2013). Between 1942 and 1945, many automobile manufactures in Canada did not produce any civilian vehicles. This shortage had a notable impact on personal mobility, which, as one article in the *Ottawa Citizen* shared, raised:

> the whole question of streetcar transportation during the coming winter. Gasoline restrictions are likely to increase rather than diminish in Ottawa, which means that hundreds of persons who have been in the habit of using their motor-cars in winter will lay them up and rely on the street-cars and buses. The OER is doubtless as aware of present and prospective conditions as anybody and acting accordingly. Already more people are depending on the OER than before, leaving out of the picture the gasoline situation. The city's population has sharply increased and there has been a bit of an exodus to the suburbs by city-dwellers seeking small homes of their own (Unknown, 1941).

As a result of such wartime protocols and restrictions, individuals who, prior to the war, had not used public transit, were now dependent on it for everyday mobility.

On the heels of the Great Depression and staggering levels of unemployment throughout the 1930s, the military needs of the Second World War created an immediate demand for workers in Canada (Keshen, 1997). Of a population of roughly 11.3 million, the total number of workers engaged in essential war industry was "1,049,876, with approximately 2,100,00 more engaged full-time in what was called 'essential civilian employment' which include agriculture, communications, and food processing" (Veterans Affairs Canada, 2017, p. 2). In Ottawa, this labour increase resulted in the city's population swelling with an influx of civilian and military personnel (McKeown, 2013, p. 147). As Canadian military historian Jeffry Keshen notes in his work *Revisiting Canada's Civilian Women* (1997), the demand for labour resulted in Canadian women, notably married women and mothers, almost doubling their presence in the paid labour market between 1939 and 1945. By the end of the war, 1.1 million women, or 33.5 percent of eligible women, worked in paid positions outside of the home (Keshen, 1997). Some 300,000 women had entered war-related jobs, many of which were in heavy industry such as logging, and other roles that had historically been occupied by men, such as driving public transportation vehicles (Keshen, 1997). This is significant because it indicates that, during this period, women were entering into technological and gendered spaces that had previously been monopolized by men. Notably to this study, this also had a direct impact on the OER as the increased patronage of the war years served to pull the provider out of the "depression doldrums" (McKeown, 2013, p. 155).

In spite of these challenges, the Ottawa Electric Railway did the best it could with what it had during the war. The provider had shrunken its fleet and operations in response to both the Great Depression and a reduction in ridership numbers as a result of the success of the automobile. With the onset of the Second World War, military demands on materials resulted in the production

of far fewer private cars which meant that Ottawas had an unprecedented need for public transit. Ottawans, whether by choice or by a lack of options, increased their use of public transportation throughout the war but the OER struggled to meet the demands of the greater number of riders on its reduced and aging fleet. By 1942, the number of passengers that the OER carried that year exceeded the previous record high set in 1921. Ridership peaked in 1946 with 61,824,536 transit passengers (McKeown, 2013).

David Gill, the Manager of the Ottawa Electric Railway during this period, was well aware of the demands being placed on Ottawa's urban transit system, as well as the shortcomings of this service. In an address to the 100 Club at the Chateau Laurier in the early summer of 1942, he stated that the passenger traffic on the company's fleet in the first five months of that year was 78% greater than in the same period of 1939 (McKeown, 2013). Despite his almost certain concerns with the matter, his address skirted the issue of customer satisfaction (McKeown, 2013). Earlier that year, however, *The Evening Citizen* had run an article entitled 'Tram Service Under Strain' that stressed the dire state of the city's public transportation service. It read, "last week-end the Allied Trades and Labor(sp) Association of Ottawa passed a resolution criticizing the city's transportation system and calling for improvements. The resolution said that "the street car and bus service in Ottawa is inadequate" and that the civic street railway committee "should take steps to insure better transit facilities." These observations reflect the view of a growing number of people" (Unknown, 1942). "There is more complaining about street car and bus conditions than at any time since one-man cars were introduced," the article continued:

> Many more residents are using the facilities of the OER than formerly, and crowding is chronic. Crowding leads to disrupted schedules, delays, discomfort, and irritation. But present conditions could hardly be avoided. No one in September, 1939, could have

> foreseen, first, an addition of between five and ten thousand to the population, second drastic restriction in the use of automobile traffic, and third, the inability of the company to replenish rolling stock owing to priority demands of war industries. The company is using every one of its trams and every one of its omnibuses, but the problem is far from being solved (Unknown, 1942).

In order to address transit needs and because it was extremely difficult to procure new equipment, Canadian companies brought back into service retired vehicles. Unfortunately for the OER, the last of their surplus vehicles had been destroyed in a fire at the Rockcliffe Barn in 1937. This situation was made worse for the OER when in 1941, a few years into the war, the Wartime Prices and Trade Board forbade Canadian firms from manufacturing buses. In the face of such shortages, Ottawa's streetcar historian, Bill McKeown, recalls that "the OER did, however, receive permission to order five buses. These were received in the fall of 1942, and were the last buses the company would receive until after the war. They were painted khaki while in OER service, with the understanding that they could be requisitioned anytime for troop transport" (McKeown, 2006, p. 147). In March of that same year, the Dominion Transit Controller, a wartime regulatory authority, permitted the Toronto Transportation Commission to purchase new streetcars on the condition that it release a number of its older wooden double-truck cars for Fort William, Ottawa, and Quebec City (McKeown, 2006, p. 153) The Ottawa Electric Railway purchased 10 of these old wooden-truck cars, built in 1913, in an attempt to meet the demands of wartime ridership. The aged cars were assigned the numbers 950-956 and 958-960 and were converted to Pay-As-You-Enter service, equipped with the rear-treadle exit doors and could accommodate 46 passengers (McKeown, 2006). These vehicles provided a stop-gap to transit shortages in Ottawa and allowed this provider to increase its service, expressed in vehicle mileage, by 60% (Lorenzkowski & Davis, 1998, p. 437). While these additions were needed, there remained sustained pressure on the city's aging fleet, including Ingenium streetcar.

In addition to adding to its vehicle roster, in an effort to improve public transit and passenger comfort, the OER implemented a few changes in the way it operated its fleet. One such alteration was in support and partnership with the federal government and witnessed the adoption of staggered work hours to "help solve the problem of the chaos created when thousands of workers, who arrived and left their jobs at approximately the same time, demanded public transportation" (McKeown, 2013, p. 147). This was an issue across a number of Canadian cities, like Montreal, Toronto, Vancouver, Regina, Sudbury, etc., and so major employers joined the dominion government's plan to stagger the start and end of the workday for 424,000 workers (McKeown, 2013, p. 147). An article in the *Ottawa Citizen* entitled "Work and Over Crowding*"* explained to readers how this new operation was an effort to redistribute passenger use on a "over-burdened transportation system" (Unknown, 1942). It read, "thirty thousand Ottawa workers are involved in the new order for the Civil Service working day. A little over one-third of these will go to their business half an hour earlier than in normal times, or at 8:30 a.m. The remaining two-thirds will be due at their offices at 15-minute intervals from then on, until the last group arrives at 9:15 a.m." (Unknown, 1942). The article acknowledged that, even with the staggering of start times, "there will probably be continued overcrowding on street-cars and buses at peak hours, but with the Civil Service load spread over four periods instead of one, it follows that there should be an appreciable improvement in transportation conditions. If non-civil servants co-operate, a decided improvement should result" (Unknown, 1942). Another article, printed a few weeks later in the *Ottawa Citizen* on December 10, 1942 reinforced this sentiment, stating, "women and men who are not engaged in essential occupations ought to comply with the suggestion of civil servants and keep off street-cars during hours when war workers are getting home (Unknown, 1943). These statements regarding the operation of transit and for whom it was intended for provide insights

into how the public understood the role of urban transit during this period. Such accounts suggest that, despite increased ridership and changing passenger demographics, the link between paid-work outside of the home and the role of public transit remained firmly entrenched.

Operational Changes for the OER during the Second World War

On June 15, 1944, the *Ottawa Citizen* printed an editorial that showcased the experience of a male, government employee attempting to take the tram home from work. This account points to many of the issues mentioned earlier in this chapter such as the struggles of the OER trip delays and crowding on-board transit. It also hints at how passengers occupied the spaces of the streetcar which, as will be examined in this section, were deeply gendered decisions which were both informed by lasting implications on the design, use, and understanding of public transit in Ottawa. "Let us take a typical trammer," the article started, "leaving late from work; it's a chilly, windswept, dismal evening, and rain is beginning to fall; wistfully on the corner, the belated worker stands and looks both ways: nothing…the barren road is innocent of streetcars, and only the dull gleam of the wet track can make him believe they ever existed" (Thistle, 1944). "Time passes," the account continues:

> Rain falls. A passing automobile casually splashes an impersonal spray of mud; the trammer dodges most of it, and after this brief interruption, resumes his waiting. It seems to him that he has been standing forever in the rain; dynasties rise and fall, empires flourish and decay, and still no street-cars. (…). But what is this? A far-off rattle, a clickety-clack? It is, but it is coming from the wrong direction. Seven street-cars pass, nose to tail like circus elephants; seven wrong-way Corrigans. (…) Finally, over the hill, a right-way car appears at last; it clangs majestically past without a sidewise glance: it is a Private Car. (…) Then another comes, but it is obviously jammed to the hatches. The motorman signals with his bell that he is sorry, but he can't stop; you couldn't get another person in with a shoe-horn. As the packed car goes by, the trammer sees that

> although the front of the car resembles a freshly opened can of sardines, there is plenty of room at the back; this fills him with bitter rage. (…) While he is still enlarging his vocabulary and shaking his baffled fist at the retreating tram, another street-car glides smoothly to a stop right in front of him, and the welcome doors open. Surprised and partially mollified, the bedraggled trammer enters, and finds a seat. He turns to the complete stranger next to him, and repeats some of the choicest things he had thought up while he was waiting in the rain; the stranger agrees (Thistle, 1944).

As Lorenzkowski and Davis (1998) observe in their work on public transit during the Second World War, describing urban transportation in unflattering terms was very common across the country during this period. "Canadians," they suggest, "described urban transit in the 1940s in dehumanizing terms. They called streetcars 'cattle cars' and the passengers who perennially blocked the entrance, a 'herd of stupid oxen' (Lorenzkowski & Davis, 1998, p. 437) or "incurable aisle-hogs" (Thistle, 1944). These statements suggest that Canadians were vocal is their dislike of the public transportation experience during this period.

The larger quote above also makes mention of another important actor on the streetcar: the motorman. As the previous chapter discussed, OER initially operated two-man-vehicles, with a conductor driving the tram, and an operator, collecting fees. In order to streamline operations, OER converted its fleet to a one-man operation requiring just one motorman. As one article in the *Ottawa Citizen* noted, the job of being a motorman was a demanding one with many tasks. "He sometimes," the article continued, "adds to his work by calling out the occasional stop. He is frequently expected to be a mine of information as to the whereabouts of streets all over town. But the more frequently he could call out the names of stops the more grateful would the thousands of newcomers be" (Thistle, 1944). He was also responsible for the safety and acceptable behaviours of transit passengers, which included their ability to board and dismount from tram, and,

increasingly during this period, users adhere with stated regulations, which included acceptable behaviour and interactions amongst passengers.

Despite the presence of men and women onboard public transit, in particular, and transportation systems, more broadly, before 1941, Canadian transit executives typically ignored gender as a factor in transportation planning. The Canadian Urban Transit Association, a national association for urban mobility representing and connecting public and private transit industries in Canada, first broached the topic of women passengers at its 37th annual meeting in June 1941, where the issue of women's safety emerged as a topic requiring leadership's attention (CUTA Proceedings 1940-1). The meeting heard from radio actor Jan Chamberlain in a speech entitled "We, the Women of Canada" (CUTA Proceedings 1940-1). During her time in-front of the CUTA, Chamberlain emphasized the need to survey women for their point of view on transit issues because this group made up "at least half of transit passenger revenue" (CUTA Proceedings 1940-1). In addition to acknowledging changing passenger demographics, this meeting also included a discussion of transit injuries, and acknowledged that 90 percent of the passengers who had suffered injury getting on or off a streetcar in the past year were female (CUTA Proceedings 1940-1). The CUTA's safety committee blamed the high female accident rate on improperly placed handholds, both inside and on the exterior of the streetcar, which were difficult to grasp for anyone holding a handbag or parcel, or with small children in tow (CUTA Proceedings 1940-1). Such accidents are indicators that the material culture of this space was not designed for women's bodies nor their needs during this period. They suggest a misfitting or incongruent engagement between female passengers and the city's public transportation offerings which reflects the masculinization of this system. Put another way, the proceedings make it very clear that Ottawa's public transit offerings were not safe for women's bodies as these technologies were inherently designed for men.

Shifting Passenger Demographics during the Second World War

Even with changes in how the OER operated its fleet of transit vehicles in order to address increased ridership and material shortages, which often resulted in delays and crowded cars, many riders shared a common understanding that it was the passengers that made Ottawa's urban mobility situation unpleasant, tense, and at points, quite unsafe. "The street-car system," one *Ottawa Citizen* editorial noted, "is a human institution and therefore fallible; there are occasional irritating delays, undoubtedly. I hold no grief for the O.E.R. but let us in common fairness admit that for the most part service is good and that many of our street-car troubles come from passengers" (Thistle, 1944). Within the general category of passenger, across Canada, two groups of riders emerged in the social discourse as the root causes of the problematic state of public transit during the 1940s: "the 'shoppers,' gender-typed as female; and the 'smokers,' gender-typed as male" (Lorenzkowski & Davis, 1998, p. 437). Male smokers and female shoppers were the two groups that came to symbolize the larger conflict regarding which sex had priority claim to public transportation, in general, and to transit seats or standing room, in particular. In Ottawa, these tensions were exacerbated by the gendering of public transit and the city's and its citizens' appreciation of for whom this technology, and technological system, was intended for, as was outlined in the previous chapter.

These categories of riders became acceptable targets of directed abuse, complaint, and general mockery as each group vented and vexed about the other, and pointed the blame regarding the cause of overcrowding on transit. Attitudes between and amongst shoppers and smokers were incredibly complex, as each group was subject to external social and economical pressures and factors that shaped their use of public spaces during the war, and influenced their appreciation of

the role of public transit in their daily lives during this period; their use of public transportation served to reaffirm their identities in relation to, and in service of, Canada's war effort, among other factors. As it had been at the turn of the century, despite changes in passenger demographics and use patterns, public transit remained inextricably linked with paid-labour outside of the home which was still considered a masculine domain (Wajcman, 2004). Female passengers, in their riding of Ottawa's streetcars to get to work, run errands, or for other mobility reasons, challenged this notion but were, ultimately, confronted with both built and socially constructed barriers to their use.

Shopping and Smoking: The Changing Uses of Ottawa's Public Transit System

As part of Canada's war-effort, historian Graham Broad has stated that, in 1939 and early 1940, there were "no women's services in the armed forces or urgent calls for women to fill jobs in the war industry, which had only just begun to produce munitions on significant scale" (2020, p. 126). And so, prior to entering the paid-labour-force, many Canadian women looked for other ways to support the home front effort and its ties to the Allied forces overseas. *Chatelaine* magazine columnist Alice Sharples observed that Canadian women have "burned with desire to do something towards waging and winning the war" (Broad, 2020, p. 126). Sharples, in a statement that summed up the pressures and responsibilities placed on and felt by many women, declared that, in lieu of supporting the war effort through paid-labour, women should "shop to win the war" (Broad, 2020, p. 126). "It is our duty," she continued, "to not wear our old tweeds but to buy new ones… not to make last year's frocks 'do' but to launch out in famous English prints; not do without tea but to serve more tea than ever" (pg. 126). In 1939 and 1940, many of the leading women's organizations in Canada, such as the National Council of Women, supported and

promoted the shop-to-win-approach (Broad, 2020). As a result of such encouragements, spending in Canada increased during the war; even with the emergence of shortages in late 1941 and the introduction of rationing in 1942, alongside increases in personal taxation, retail sales grew nearly 50 percent (Board, 2020; Keshen, 2004). As one store owner put it in 1942, "my inventories are shrinking. Shelves are showing bare spots. Many lines of merchandise are in short supply, and business is booming" (Board, 2020, p. 126).

Throughout the war, and the connected pressures to shop or show restraint, female shoppers used public transit in order to travel to shops and, ultimately, to carry home their purchases. For many of these women, shopping by way of public transit was a "new and unwelcome necessity" as the "wartime rationing of gasoline and tires" had eliminated both "home delivery and the family automobile as options" (Lorenzkowski & Davis, 1998, p. 439). By 1943, Canadian women found themselves on long public transit trips, moving across the city and between shops in search of scarce goods. As Keshen notes in his work, these shoppers "lugged back items in paper bags thinner than usual due to wartime restrictions and planned carefully to stretch a reduced food budget throughout the week" (2004, p. 245). At the same time as their shopping trips required them to travel further and for longer periods of time, shoppers were also being asked by operators and local business associations to limit their use of transit to certain, less busy, times of day. In Edmonton in 1943, for example, the street railway department publicly blamed much of the crowding on its transit vehicles on "tardy women shoppers" who, despite appeals, insisted "on heading homeward with arms full of parcel just at the peak late afternoon rush hours (Lorenzkowski & Davis, 1998, p. 439). In response to this gendered use of transit, in November 1943, the Better Business Bureau of Ottawa and Hull ran a campaign to encourage Christmas

shoppers to make use of transit in the morning, after rush hour. The *Ottawa Citizen* published an article entitled "Shop in the Morning" which read:

> From now on, afternoon shopping will grow more intense. The stores will be crowded and it will take longer to get served. In the morning there are fewer people, the shop assistants are fresher and the section of goods is wider. There are also better transportation facilities. The street-cars are becoming crowded as winter and Christmas draw nearer. Attempting to board a car with an armful of parcels under such circumstances is trying, to say the least. In the morning, between 9 and 12, there are fewer people travelling (Unknown, 1943).

With increasing pressure from the provider and from local business to use transit at set times and avoid rush hours or trips that might lead to crowding, shoppers increasingly found it difficult to find a time when it was socially acceptable for them to travel. Shoppers, especially those with paid employment outside of the home and children, were not always able to complete their journeys between the non-rush hour hours of 10 a.m. to 3 p.m. As Lorenzkowski and Davis observe, "wartime shortages also made shopping more inefficient and time-consuming" and so "working women became used to buying their groceries after work and then taking them homeward on the tram after 5:30 p.m., by which time passenger volumes had fallen sufficiently for them to have a shot at a seat. Staggered hours made it extremely difficult for working women to find either the time or the private space for shopping" (1998, p. 439). Female shoppers' use of OER transit during the war was a necessity, but their ability to access this system, at times and/or at locations that suited them, was very often questioned and challenged by the provider, the city, and, increasingly, by other passengers.

Throughout the 1940s, smoking was still considered a gendered-male and masculine habit, even as Canadians recognized that women increasingly smoked (Cook, 2007). Streetcars built

before the 1910s were typically one section units but starting in the 1910s, manufacturers began to produce cars that had multiple compartments: one larger section, that extended from the front entrance to the last ¼ of the car, and the final ¼ car section. While builders continued to make one cabin cars, like the Ingenium streetcar described in the previous chapter, cars with this smaller section emerged during the latter part of the 19th century. This feature was intended to provide a dedicated space where passengers could smoke cigarettes, cigars, and pipes while on transit. Given the connections between masculinity and smoking, these smoking spaces were quite gendered and there were accepted and engrained social norms about who could use this space and how they should behave with and amongst other passengers while onboard. These spaces enabled and reaffirmed the performance of masculinity on public transit and symbolize the material culture of gendered transportation from this period. During the 20th century, designated smoking spaces, as will be explored later in this chapter, did become deeply contested spaces, as did the gendered act of smoking on public transit. Arguably, the eventual restrictions and controls that were placed on this area and enforced by the OER and the city, can be interpreted as challenging men's dominance of/on public transit. This, as this chapter will suggest, was the result of changing passenger demographics, notably the presence of women, during the Second World War, alongside a changing society. The smoking ban was not well received by established passengers; they resisted this rule as it represented controls on how they could behave in public and challenged their relationship with technology.

In Ottawa, "for five months, from May to end of September, the stern of an Ottawa street car is a sort of travelling club for smokers" proclaimed an article published in the *Ottawa Journal* in October 1945 (Unknown, 1945). "On the first of May the signs go up," the article continued,

"smoking permitted in the rear seats, if the windows are open. With October the signs are changed, and there is no smoking anywhere in the car. Sometimes a thoughtless person breaks the rule, but other smokers glare at him, perhaps with some envy, and usually he succumbs to public opinion" (Unknown, 1945). As this quote suggests, over the course of the Second World War, the OER began posting signs on its cars and running adds in the local paper (Figure 16) that attempted to control and curb smoking on its transit vehicles. Despite these efforts, or perhaps in spite of them, passengers who smoked often broke these rules.

Figure 16: A 'No Smoking in Cars' notification published in Ottawa's local newspaper during the Second World War. Credit: Ottawa Citizen, 1943.

While Ottawans, in general, thought that the OER was adequately addressing the issue of smoking on streetcars, the *Ottawa Citizen* and the *Ottawa Journal* contain many articles from this period, where riders sought more from the provider on this issue. For example, in an editorial written in October 1942, A. Smith wondered, "if anything more could be done to enforce the rule of non-smoking in crowded cars, as it is enforced in some other Ontario cities. Would the company employ 'chucker-outers'," he wondered, "as do the English pubs? Or would the ladies and gentlemen who prepare the National Health Note for radio and press undertake to educate public opinion?" (Smith, 1942). In response to this editorial, David Gill, the manager of the OER, was quoted saying "that all operators are under order to inform passengers that smoking is not permitted

from October 1 to May 1. In many cases, passengers, when asked courteously by operators to extinguish their cigarettes, piles, or cigars when they board street cars, pay no attention to the request and walk to their seats puffing away in a satisfied manner" (Smith, 1942). As will be examined in Chapter 7 regarding the use of priority seating, operators rarely had the impact and influence that the transit provider hoped they would and there is record of them enforcing non-existent protocols. Ultimately, they were not completely effective in curbing smoking on Ottawa's streetcars.

As a result of closed and sealed windows and the fact that streetcars were a relatively confined space with poor airflow in winter, smoking on transit was a major concern for passengers, operators, and the provider. This was because, as one newspaper article noted, "it takes very little time for a street car in which men are smoking to become filled with blue haze which, to the eyes and throats of many non-smokers, is irritating and exasperating." (Smith, 1942). Because of the gendered nature of smoking and the male occupancy of the streetcar's stern, Davis and Lorenzkowski (1998) suggest that women must have felt unwelcome anywhere the air was 'blue' with smoke. And so, as a result of the gendering of this transit space and the comfort and safety concerns of its passengers, one local newspaper article noted that women "clogged the front of the street cars, rather than move farther down the aisle because, perhaps, by so doing they eventually land[ed] in the bay at the back which is usually occupied by men" (Smith, 1942) that is, by smokers. Women typically kept to the front of the streetcar so as to avoid being in close proximity to smoke and smokers. Their transit behaviour and use of this front space created a distinct gendered-female area of the car, that presented a juxtaposition to the stern.

Prior to the 1950s, the 800-class car consisted of uniform parallel, forward-facing, matching seats that ran from the front of the car to the rear. In 1934, the 800-series, along with many other types of OER streetcars were converted from a two-man to a one-man operation, as was described in the previous chapter, which required the removal of a few rows of seats behind the driver. The overcrowding on transit during the Second World War occurred primarily in this front space and so, in an effort to encourage more people to move to the rear of the vehicle, the OER experimented with a redesign of one of its streetcars, No. 839. This car had its seats rearranged, shown in Figure 17 below, to "cut down on the length of the "bottleneck" between the two rows of cross seats" (City of Ottawa Archives, CA 1535). Three rows of forward facing seats were removed from along each side, and inward facing benches where added in their place. The OER anticipated that fewer seats at the front of the car would encourage passengers to move towards the seats further back, and that riders who liked to "hold onto the hand rails on the backs of seats" (City of Ottawa Archives, CA 1535) would also move towards the

Figure 17: Inward facing benches were introduced by the OER during the Second World War in an effort to encourage passengers to move to the back of the streetcar. Credit: City of Ottawa Archives, CA 1535.

middle-and-rear of the tram. Very little documentation has been preserved on this interior redesign, however, the current design of the priority seating area of city buses suggests that the use of long-bench seating was, in fact, a success or, put another way, it was not unsuccessful and required reworking. Women's occupation of this space during the Second World War, it can also be argued, and the gendered relationship with technology that it inferred, lent itself to the eventual designation of this front-area of the vehicle as a space that was reserved, or intended for, certain categories of riders, including pregnant women, care givers with children, and wheelchair or mobility aid users.

Challenging Gender Norms: The Rise and Impact of Smoking Bans on Public Transportation

Across Canada, the ability to smoke in public came under attack as transit became increasingly crowded during the Second World War. By May 1945, 21 of the 33 transit operators polled by a bus journal had banned smoking (Lorenzkowski & Davis, 1998). Operators reported cracking down on this behaviour but men resisted; 26 of these systems noted difficulty in enforcing these rules, especially in cities like Hamilton and Port Arthur (now Thunder Bay) which had strong manufacturing industries (Lorenzkowski & Davis, 1998). Ottawa was one of the last cities in Canada to ban smoking on its streetcars. This decision came in 1950, two years after the City of Ottawa had taken over transit operations from the Ottawa Electric Railway, which it renamed the Ottawa Transportation Commission. This takeover will be described in greater detail later in this chapter but it bares mentioning here, as it indicates that there was a municipal effort to address the issue of smoking in public spaces. With the city assuming responsibility for public transit, Ottawans anticipated that there would be some type of definitive smoking ban, with one editorial projecting, "Sirs: - Now that the city will operate the street railway, perhaps something will be done about the smoking nuisance on the cars?" (Unknown, 1948). "It's high time," the article

continued, “that steps were taken to curb the bad-mannered minority who make an ordeal of a ride on the city’s cars. The writer of this letter is not a non-smoking crank, but feels that the non-smoking signs on the cars which are posted from October 1st to May 1st have the effect only of stopping the considerate people who, in most instances, do not smoke on cars anyhow” (Unknown, 1948).

The decision to ban smoking on streetcars was both an effort to bring the city’s transit operations inline with other municipal, provincial, and federal standards (at this point Ottawa was the only place where smoking on streetcars was permitted) and something deemed necessary in order to address unruly passengers. W. J. Cairns, the secretary manager of the local Board of Trade was quoted saying that “smokers are notoriously thoughtless about other people’s comfort, when they smoke in street-cars” (Fay, 1950). The OTC banned year-round smoking on streetcars in By-Law No. 3, Section 2, which indicated that “no person shall smoke, carry a lighted pipe, cigar or cigarette, expectorate or commit any nuisance in or upon any bus, car or premises of the Commission” (Fay, 1950). Special notices were made visible in local transit technologies and in Ottawa’s various newspapers (Figure 18). Similar types of bans on smoking were increasingly common during this period, for example Ottawa’s City Council approved a ban during the summer of 1950 that prohibited smoking in the city department stores. These bans were met with public resistance and so, in November 1950, the city’s smoke abatement staff launched its annual offensive against perpetrators of Ottawa’s smoking by-laws. Unlike previous campaigns, an article in the *Ottawa Citizen* announced that while “it was, formerly, the practice to issue a warning and ask for a remedying of the adverse conditions (…) now, it is the intention to prosecute the offenders against the by-law” (Unknown, 1950). Mr. Warner, Ottawa’s smoke abatement officer, was quoted saying, “we have done our utmost to make people realize that there is a by-law that forbids the

emission of smoke of certain densities into the atmosphere. (…) We have now reached the point where we must prosecute in order to make people smoke-conscious" (Unknown, 1950).

SPECIAL NOTICE

NO SMOKING

Street car and bus riders are again reminded that SMOKING IS NOT PERMITTED in Ottawa Transportation Commission street cars or buses at any time during the year.

Commission By-Law No. 3, Section 2, reads as follows:

"No person shall smoke, carry a lighted pipe, cigar or cigarette, expectorate or commit any nuisance in or upon any bus, car or premises of the Commission."

Please observe the rule

"NO SMOKING AT ANY TIME OF THE YEAR IN STREET CARS OR BUSES"

Your co-operation will be appreciated

OTC Ottawa Transportation Commission

Figure 18: An example of a smoking-ban notification printed in The Evening Journal. Credit: The Evening Journal, 29 April 1950.

The control of smoking on-board urban transit represents a major challenge to the gendering of this public space. As the previous chapter examined, public transit in Ottawa was built by and for male bodies, its use was intended for working-class men, and it was operated and governed by men. Women's, particularly female shoppers, use of public transit and occupation of specific areas of these transportation technologies stood in stark contrast to the intentions of

Ottawa's initial transit designers. The control of male bodies and the presence of female bodies on OER streetcars demonstrates a relational and operational shift in social mores and norms with regards to personal mobility, gender, and acceptable uses and behaviours within public places, such as urban transit; these were representative of larger changes in society happening during this time, as well. As local newspapers conveyed, transit riders were very critical about one another, with harsh words and sharp observations flowing between male and female passengers. As the following representative example shares, the critiques and commentary from female riders were often pointed toward the behaviours of male riders, and their seeming inability to show respect for female riders, of various ages, by way of either giving up their seats or not sexualizing female bodies. Helen Scott wrote the editorial "Men on Street-cars" in the *Ottawa Citizen* on August 16, 1944, wherein she shared her experience onboard a crowded transit car in Ottawa. "Whoever said, "the age of chivalry is not dead!"? Because whoever did say it has never ridden on an Ottawa street-car, it is plain to see," her entry began. "It is my misfortune," she continued:

> to have to board one of these vehicles every morning at 8:30 and every night at 6, and if I had a dime for every time my temper was reached, and passed, boiling-point, I would be able to retire at the tender age of 21. Naturally, I am talking about the age-old topic of a man giving up his seat to a woman.
>
> I can stand to have men sit right in front of me and not bother to offer a seat, but what I can't stand is when they eye every girl standing within the general vicinity, up and down and back again. Besides making me so angry that I would love to slap them, this is most embarrassing.
>
> But they don't even stop there. I've seen elderly women, laden down with parcels, get on the street-car and then have to stand and be jostled by the crow, until some younger girl will, finally, rise and proffer her seat. And the men sit and take this all in with great interest.

> Numerous times I have been just going to get on the street-car when a man came rushing up, elbowed me aside, and rushed madly down the aisle to grab the first available seat. That it was the only available seat did not phase him in the least. Recently, this happened to me, and then, when suddenly three seats were vacated, I was beaten to the punch each time – naturally, by a man.
>
> For the sake of the Ottawa women's blood-pressure, and for the older women's comfort, I hope you will publish this letter so that some of those boors may read it and have the grace to blush (Scott, 1944).

Scott's depiction of her experiences with public transit highlights the physical discomfort that women endured in this space. Her description reinforces what transit scholar Daniel Munoz (2020) has described as the physical demands of this mobility system. "As we exert our bodies when catching the train, holding handles to keep our balance, or enduring long bus rides while standing, we also expose our bodies to extenuation, anxiety, and discomfort" (Munoz, 2020, p.1) and, as Scott describes, physical discomfort from other passengers. Her piece also highlights a gendered 'us' vs. 'them' mentality which was physically reinforced through daily experiences on transit and the material culture of streetcars.

Scott's article resulted in three editorial responses from male transit riders, appearing in the *Ottawa Citizen* on August 18, 19, and 22 1944 which will be presented in succession. The first submission, entitled "Women on Street-cars" was written by David James Christie, and read:

> The letter written by Helen Scott and published in your editorial on August 18 calls for a reply, so I am going to bat on behalf of the men. If I had a nickel for every time my temper has gone beyond the boiling point, I would be able to buy a half dozen cars and thus avoid driving on street-cars. There are many girls who get on our packed-streetcars in the rush-hours and look up and down the aisles, some directly into a man's face, with the expression that says, "give me that seat or else." Some of these young gaffers don't seem to realize

> that they are far more able to stand for twenty minutes or so, than a man who is three times their age or some men who are laborers and really are deserving of a seat. Does Helen Scott think that she should have a seat and let these men stand? If so then she is not being very chivalroux. Any time a man sees an elderly woman laden down with parcels, he usually gets up and gives her his seat. I have seen this done time and again. The women shoppers have been told repeatedly to do their shopping in the early hours of the morning and afternoon by the Ottawa Electric Railway but most of them do not seem to pay any attention to the request and therefore the result is they get on crowded street-cars, blame the O.E.R, curse the men up and down, when in reality they are to blame. I hope that this letter will be published so that some of the weaker sex may read it, feel their face after doing so, and see if it is not blushing. (Christie, 1944).

Mr. J. Colucci's editorial, "More on Women's "Rights", was published the following day. Colucci presented a stereotypical framework for categorizing and understanding female riders. His article read:

> At the risk of having my head bitten off my Miss Scott's vitriolic pen, (watch that metaphor!), may I offer some further observations on humanity in our street-cars? I, too, am a daily customer of the O.E.R. I ride from the beginning of the Bronson line to the Research. During the voyages back and forth I notice a lot of diverse human behaviours. First, there is the "battle-axe" type of woman who mows her way down to a seat, trampling down all obstacles. The men merely smile indulgently, the women-ah! The wonderful, kindly, tender, gentle females – make loud, sarcastic remarks concerning "the nerve of some ignorant people." I notice, too, the 5:30 shopper, who knowing that quitting time for the workers is due, still persists in squeezing into a street-car crowded with men and women who have been toiling all day and yet are expected to forfeit their seats to this package-laden creature who could easily have shopped earlier in the day. I am also angered and embarrassed when I notice giggling "young things" making derogatory references to the appearance of every work-harassed male entering into the gram. Finally, the ladies have been striving, for years, to attain what is loosely termed "equality" with men.
>
> Therefore, I, personally do not feel that I should relinquish my seat to a perfectly healthy-looking girl who's been sitting in an office all

> day, if I don't do the same to my brothers. Naturally, if the lady before me appears to be very tired (these are usually middle-aged), I am willing to give up my seat. And, by the way, I have seen men of sixty-five give up their seat to women of forty, while the "slim young housewives" stared stonily at the soap-ads. The most amusing paragraph of Miss Scott's letter is the one in which she admits missing three seats at one time. Here is a girl, no doubt, a case-hardened, bargain basement commando, losing three seats to three very ordinary men with no previous adult rough and tumble experience. I might mention, before signing off, that, during the Christmas liquor line-ups, the only persons I saw trying to cheat their way up to the clerk were women (Colucci, 1944).

And finally, Percy Flage's editorial, "Girls in Street-cars", ran three days later. Of the three printed responses, Flage's article is perhaps the most inconsistent, as it references equality and demonstrates the least amount of empathy for the experiences of women on transit. In many ways, Flage's words are loaded with sexist bias towards both Scott and other female passengers. His editorial read:

> May I express my enjoyment of today's article by Torchy Anderson entitled "My Umpteenth Street Car." I am sure Mr. Austin Cross will get a chuckle from reading it.
>
> In these days when of necessity a newspaper's rationed space must be devoted to matters of grave importance it is a treat to see a bit of wit and humor here and there. In this regard your "Once over Lightly" column is a daily pleasure for many I am sure.
>
> A letter in Friday's paper by Helen Scott was good for a smile. Perhaps she feels better now that the weather is cooler. In my opinion girls nowadays do not want a man to jump up and give her his seat in a street-car any more than the members of the CWAC want special consideration from male members of the army. As a service man I found that the big desire of the girls in the forces is to get in and fight shoulder to shoulder with men. I think that the majority of girls on street-cars have the same spirit. Of course, elderly or infirm people deserve consideration but these women shoppers who spend

> afternoons downtown and then get on a rush hour car loaded with parcels only deserve dirty looks.
>
> Her other complaint that "the men look her up and down" is also out of order. Most girls with their provocative sweaters, short skirts and "toasted" legs, dress for that effect anyway and would feel pretty tough if the men didn't look them over at all (Flage, 1944).

This dialogue reaffirms the value of newspapers as a platform for public discussion and, in this case, debate. Each response provides a slightly different appreciation of the relationship between, and amongst, passengers, in a way that seems to build on the issue of crowding on transit and the experiences of male and female passengers. Christie, the author of the first editorial, used his response to reaffirm the links between masculinity and public transit, writing, "many girls that get on *our* packed streetcars" (emphasis added) and suggesting that women should stand instead of men as male laborers are "deserving of a seat" (Christie, 1944). Like Christie, Colucci pointed the blame for overcrowding on women and, in his editorial, he stereotyped female passengers into three distinct groups: the battle-axe, the gentle woman, and the shopper. By their presence on transit, female riders, he argued, caused discomfort to male riders by "making derogatory references to the appearance of every work-harassed male" (Colucci, 1944). In this way, these articles suggest that through women's presence on transit, their physical occupation of seats, and their alleged judgement of male-working class riders made established riders uncomfortable which, this dissertation argues, was a result of female passengers challenging the norms and gendered legacy of use of public transportation. The final editorial was certainly the rudest of the three. While Flage did acknowledge the service of female Canadians in roles offered through the Canadian Women's Army Corps, he failed to recognize, appreciate, or even acknowledge that women's use of transit could also be in support of Canada's wartime efforts, by way of access to paid employment outside of the home or shopping.

Flage's article also reinforced the very issue that Scott had noted as being so problematic and dangerous to female riders: sexual harassment. Flage suggested that females, in general, sought sexualized attention from men and so such acts, like staring at or commenting on women's bodies, was deemed an expectable act, that he suggests was even welcomed, Scott's comments about sexual harassment reflects the concerns felt by many women, both historic and contemporary, about the risks of sexual harassment connected with transit. As transit and equity scholars Orli Linovski, Heather Dorries, and Sheryl-Ann Simpson assert in their work *Public Transit and Equity-Deserving Groups: Understanding Lived Experience*, "sexual harassment occurs during the walk to transit stations, while waiting for transit, and on-board transit vehicles. Women report feeling particularly vulnerable to sexual harassment when using transit after dark. Sexual harassment affects mode choice; women often feel more comfortable using ride-sharing and private vehicles to avoid feeling unsafe on public transit" (2021, p. 36). A detailed discussion of sexual harassment is outside the scope of this study but it is touched on here in order to highlight the attitudes that shaped public transit use during this period and how reactive passengers could be. It's worth noting, as well, that one female authored piece detailing her negative lived experiences on transit resulted in three response from male authors, filled with aggressive and harmful rationalizations and justifications. This, alone, suggests the degree of authority and ownership that these male riders felt towards this technological space and service.

Taken as a collective representation of the experiences of men and women on transit in Ottawa during the Second World War, the material presented in this chapter suggests that the two groups were at odds with one another and that despite efforts to avoid each other, gendered hostility on the OER was an excepted and expected occurrence; it was one that was heightened as a result of overcrowding on streetcars due to the manufacturing and economic realities imposed by the

Second World War. The tensions that brewed and erupted between these male and female riders, which were deeply informed by the history and design of transit, as well as shifting gender norms between 1939 and 1945, have, as a result, had a lasting negative impact on women's use of public transit in the nation's capital. These sources also suggest that changes to the material culture of streetcars, as seen through the inclusion of smoking spaces and changes in front area seating, had very little impact in abating tensions between groups of passengers or creating a more accessible and inclusive space.

As will be examined in the final two chapters of this study, between the late 1960s and the early 2010s, in response to international, national, provincial, and local disability justice efforts, the design and material culture of Ottawa's public transportation was notably adapted to offer accessible mobility services to passengers using mobility devices, including strollers. While this has certainly impacted the accessibility of these services for a much greater demographic of passengers, women, especially those with children in strollers, have continued to remain underserved by this system. As will be explored, the barriers inherent to their use of transit are rooted in the legacy of gender and design that inform the operation and understanding of Ottawa's public transportation system.

Chapter 6

"If people can move around without too much hassles, they're going to be part of the community": The Changing Design of OC Transpo's Accessible Conventional Fleet and Para Transpo Service, 1945 to 2011

As this chapter draws on historical documents from the second half of the twentieth century, some of the quoted material contains ableist terminology. Please read with care.

Since the end of the Second World War, there have been a number of important developments in disability rights, particularly where access to public transportation is concerned. As this chapter will show, the context for accessible urban mobility services in Ottawa, both conventional and parallel, is informed by international developments and is rooted in national, provincial, and municipal contexts that either influenced service at a high level, directed it an operational level, or funded and approved day-to-day activities at a local level; all of these developments impacted the trajectory of accessible service in Ottawa's public transportation system. In order to present these histories and demonstrate the ways in which they emerged, the manner of their impact, and their connections, this chapter is structured chronologically and begins by exploring the provincial framework for guiding decisions and influencing change, and then focuses on the municipal context of OC Transpo. However, there is incredible overlap within these areas and so there are certainly instances where this chapter must depart from a strict timeline. What is clear through an examination of this topic and timeframe is that the path from exclusive and inaccessible to more inclusive and more accessible transit was not linear. Over the course of these 50+ years, various attempts and strategies were experimented with in an effort to produce accessible transit for users with mobility devices, specifically those in

wheelchairs, and many organizations and individuals at various levels of involvement and authority played a critical part in these developments.

Accessible Public Transportation Direction and Efforts in Ontario

Accessible public transportation offerings across the province of Ontario have a rich history of community intervention, vehicle adaptation, and programs for specialized user groups that predate the introduction of any international, federal, provincial, and/or municipal overarching direction. It is interesting to note that some of the earliest options for accessible transit in this province were developed for school children, as well as for veterans, as these two groups were deemed a priority within the wider community (*Accessibility and the TTC*, n.d.). In the cases explored below, conventional buses were adapted to accommodate these users and their mobility

Figure 19: Adapted bus picking up children outside of Wellesley Street School, 15 April 1926. Credit: City of Toronto Archives, Fonds 16, Series 71, Item 4236

Figure 20: Passenger, likely a veteran, using wheelchair being assisted up a ramp and into a converted bus. Credit: City of Toronto Archives, Fonds 16, Series 71, Item 15987

needs, rather than designing and building new, accessible purpose-built vehicles; as this chapter will show, adapting vehicles was a common approach for much of the 20th century. For example, as early as 1926, the Toronto's Motor Coach Department initiated a service whereby students who used wheelchairs were picked up from their homes across the city and transported to Wellesley Street School (Figure 19 on the previous page). A few years later, in 1948, the Toronto Transit Commission (TTC) dedicated one of its buses for the transportation of wheelchair-using passengers. In order to address the needs of these riders, the TTC widened the rear-side door of a vehicle and added a ramp so that wheelchairs could physically access this space (Figure 20 above). In the interior of the bus, the provider removed the seats and installed eight wheelchair securement devices which consisted of blocks that allowed users to lock their mobility devices into place (Figure 21). The first use of this bus was on January 22, 1948 to transport veterans of the Second World War for a

Figure 21: No. 574 Wheelchair bus converted from Model 23R Twin Coach, showing wheelchair securements,6 January 1948. Credit: City of Toronto Archives, Fonds 16, Series 71, Item 15984

day trip to the Ontario Art Gallery (*Accessibility and the TTC*, n.d.).

In Ontario, the first municipally provided accessible transportation service offered to the general public, and not a specific group like the examples mentioned above, also began before the introduction of any federal, provincial, or municipal legislation. Kingston Transit is reported as the first transit authority to offer a separate service for passengers with disabilities through their Kingston Bus for the Handicapped (KBH) service, which was established in 1967 (Ontario Human Rights Commission, 2001). Similar to the Ottawa case study that will be explored in this chapter, it was through community organization that this service was realized. Members of the community, led by the volunteer group called Rotary Club of Kingston, raised $10,000 which they used to purchase a school bus and install a commercial lift in the rear (Figure 22 – on the following page) (Kingston Access Bus, n.d.). This service was initially operated by volunteers, who were responsible for bookings, and off-duty City of Kingston Firefighters, who drove the bus (Kingston Access Bus, n.d.). For over a decade, KBH remained a self-funded mobility option for passengers requiring the use of a lift to board and disembark transit. In 1979. the City of Kingston began funding the service through an annual $10,000 grant (Kingston Access Bus, n.d.).

Figure 22: A photograph of the converted bus owned by Kingston Bus for the Handicapped. Credit:

Other transit authorities across the province began introducing parallel accessible services during the 1970s, as well. In 1973, the Social Services and Housing Committee of Metro Toronto requested that the TTC, in conjunction with the province, provide accessible transit. In response, Toronto and the TTC launched a two-year demonstration service in 1975, known as Wheel-Trans, which provided accessible service to 46 participants during the trial period (Onodera, 2017). The Wheel-Trans fleet consisted of adapted vans that were based on a conventional chassis (the base frame of a motor vehicle), bus body, and a mechanical lift that allowed wheelchair users to board and ride (Figure 23). As a general rule, the design of these vehicles fell into one of two categories: either buses kept the van cab (front section) and engine area intact with a body added on, or buses were built as complete units which

Figure 23: A photograph of a man using a wheelchair being assisted onto a first-generation Wheel-Trans bus, 1977. Credit: City of Toronto Archives, Fonds 16, Series 836, Subseries 4, File 8, Item 2

meant a redesign of the body and cab (Onodera, 2017). The design of these adapted vehicles suggests that, at the time, there was a lack of available safety standards in place for vehicles that transported passengers using wheelchairs or other mobility technologies, as there was no consistent, standardized approach to conceptualizing and building these technologies. This included the design and functionality of the vehicles as well as the systems used to secure wheelchairs and/or other mobility devices in place while the vehicles were in motion. As transit historian David Onodera notes in his retrospective piece on accessible transportation, "there are stories of operators using extremely crude or no systems at all to hold wheelchairs in place while travelling" (Onodera, 2017, p. 8). These examples suggest that early accessible public transportation services in Ontario were quite innovative and experimental, given the lack of regulations in place to govern their design and use.

Wheel-Trans was a "resounding success, and consumer demand grew" (Accessibility & the TTC, n.d.) to the point where the city and TTC implemented a Phase II in 1977. Wheel-Trans continued to offer door-to-door transportation between home and sites of paid employment outside of the home, alongside the introduction of a new demand-response service. This service was intended to "provided clients with transportation for non-work-related trips such as shopping or medical appointments" (Toronto.ca). Over the next decade, Wheel-Trans continued to grow in popularity and in 1989 the TTC assumed full control of all operations.

Amid growing social justice movements and an increasing number of cities and transit providers attempting to offer an accessible parallel service, in 1974 the Ministry of Transportation and Communications commissioned Peat Marwick and Partners to study ways to improve access to, and the accessibility of, public transportation services in the province of

Ontario. The study was co-ordinated with the Secretariat for Social Development, the Ministry of Health, and the Ministry of Community and Social Services; it is not clear from the summary report to what degree consultation occurred between the province and the disability community. Ultimately, Marwick and Partners concluded that: 1) a significant number of passengers with physical disabilities could not use conventional transit; 2) many passengers with physical disabilities can use conventional transit with some difficulty; 3) alternatives to conventional transit have a high cost to the user; 4) taxis are not always reliable during peak periods; 5) passengers with physical disabilities must rely on friends and family for support; and 6) accessible transit is central to the full integration of people with disabilities into society (Ministry of Transportation and Communications, 1974). These findings indicate an in-depth and rounded appreciation of both the needs and realities of users and the state of the current transit system. The summary also concluded that "the varied interests and needs of the disabled could be better served through the provision of a parallel service rather than through the requirement that all classes of public transportation be made accessible. This would provide the greatest amount of mobility to the disabled and could be implemented within the shortest period" (Ministry of Transportation and Communications, 1974, p. 1). While, in principle, this approach made sense regarding service availability, as Ontario's first study on the topic, it set forth an approach that encouraged providers to offer an accessible parallel service and continue offering an inaccessible conventional service to passengers with disabilities.

Informed by this understanding, in October 1978, through the Ministry of Transportation and Communications, the Ontario Government initiated a two-year pilot project focused on public transportation services for passengers with disabilities. The goal of this project was to determine the level of demand for trips, the costs of various options, and the "appropriate nature and extent

of provincial involvement and financial participation in the provision of public transportation services" (Ontario Human Rights Commission, 2001, p. 1). The project was undertaken in the five Ontario municipalities of Toronto, Sault Ste. Marie, Peterborough, Chatham, and Ottawa, and provided various options for curb-to-curb transit. Funding for the pilot projects was "at a rate of 50% of the net cost incurred by operating services weekdays, 12 hours per day, where priority was given to work, medical and post-secondary trips. Trips for other purposes were accommodated provided there was spare capacity in the vehicles" (Ontario Human Rights Commission, 2001, p. 2). This distinction, between priority trips and personal trips, is worth noting as it suggests that the accepted thinking at the time was that passengers with disabilities should only use transit for work or medical appointments and not for leisure or recreational activities. This understanding justified the parallel transportation option that relied on scheduled and pre-planned services.

Prompted by the calls to action of the International Year of the Disabled Persons, in 1981 the Ontario Ministry of Transportation began providing a 75% subsidy to transit service providers to improve their conventional transit offerings for "ambulatory disabled persons" (Ontario Human Rights Commission, 2001, p. 13). A few years later, Premier David Peterson used the Ontario Liberal Party Throne Speech of April 28, 1987 to highlight his government's efforts to "create and enhance opportunities for physically disabled individuals to live, as independently as possible with or near their families and in their own communities" (Peterson, 1987). He stated that the Ontario Liberal Government would "increase the availability of specialized transit service and widen the eligibility criteria; expand the assistive devices program over a period of five years" (…) adding that "a greater range of devices will be covered and assistance will be provided to more people, including adults. Funds will be provided to support research and

development related to new assistive devices" (Peterson, 1987). According to the Ontario Human Rights Commission discussion paper on accessible transit services, in 1989 the province of Ontario committed to "provide funding for those who were physically unable to climb or descend stairs on conventional transit systems or unable to walk a distance of 175 metres" (Ontario Human Rights Commission, 2001, p. 13). This commitment suggests that the approach to accessible transportation was slowly shifting as, by the end of the decade, it was increasingly a provincial responsibility, and inclusive transit included both parallel and conventional services.

As a result of the momentum that was building around disability rights and mobility justice during this period, in June 1992 the Minister of Transportation announced that the Government of Ontario had adopted a policy of fully integrated accessible transit services (OC Transpo, 1994). In response to this announcement and in order to continue receiving financial assistance for transit, each municipality in the province with a public transit service was required to submit, by the end of 1993, an implementation plan that described how their services would achieve "full accessibility" (OC Transpo, 1994, p.1). The Minister stipulated that the plan was to be based on the requirement that all buses bought after 1993 would be low-floor buses and/or equipped with Easier Access Program features and that all transit facilities had to be built to fully accessible standards" (OC Transpo, 1994, p. 3). The Easier Access Program was designed for "ambulatory people who have difficulty using the bus" (OC Transpo, 1994, p. 6) and included on-bus features such as a vehicle's ability to kneel and the addition of grab rails, bus stop amenities, such as benches with backs and arms, and accessibility training for operators. This provincial policy is significant as it redirected and reinforced a commitment to accessible conventional transit and placed controls on future vehicle procurements.

In order to assess industry efforts and progress on this work, in 1999 the Ontario Human Rights Commission wrote to 25 Ontario municipalities and public transportation providers to survey the status of their accessibility offerings and the implementation of their access-mobility plans. The OHRC contacted Ajax Transit, Barrie Transit, Brampton Transit, Burlington Transit, GO Transit, Guelph Transit, The Hamilton Street Railway Company, Kingston Transit, Kitchener Transit, London Transit Commission, Town of Markham, Mississauga Transit, Niagara Transit, Oakville Transit, Oshawa Transit, Ottawa-Carleton Regional Transit Commission, Peterborough Transit, Pickering Transit, St. Catharines Transit, Sudbury Transit, Thunder Bay Transit, Timmins Transit, Toronto Transit Commission, Transit Windsor, and Whitby Transit (Ontario Human Rights Commission, 2001, p. 21). Each transit agency was asked about the specific services they offered to "accommodate persons with disabilities, about the status of integrated transportation systems and any new initiative being planned to accommodate patrons with disabilities" (Ontario Human Rights Commission, 2001, p. 21). Of this total, Ajax Transit, Barrie Transit, Brampton Transit, Oakville Transit, Oshawa Transit, and Pickering Transit did not provide responses.

The findings from these surveys are quite telling as they highlight both the general approaches that municipalities and transit agencies were taking in order to address the accessibility of their services, the needs of their passengers with disabilities, and the very real gaps in their offerings. They also provide insights into the demands from passengers for these services. Many survey respondents indicated that senior citizens and persons with disabilities formed a significant and growing portion of the population. In the City of Hamilton, for example, the municipality's industrial history and heritage had created:

> a relatively high population of persons with physical disabilities in a region with significant geographic barriers. The Hamilton Street Railway Company reported that 8,000 persons, or 1.7% of the regional population, were registered for specialized services. This may be contrasted with the TTC's Wheel-Trans registrant base, which was about 22,000 people (of whom 70% are seniors) 0.6% of the population served by the TTC (Ontario Human Rights Commission, 2001, p. 15).

What this information suggests is that each municipality had a unique set of circumstances that impacted the type of services it offered. Providers had to consider the populations they served, in terms of density and demographics, the city's urban landscape and environment, and existing public transit infrastructure. This is a reality that remains in effect today.

At the time of the 1999 survey, Ontario did not have legislative oversight that addressed the accessibility of the broader public service sector. Politicians had stated their commitments to accessible transit, among other disability rights, and communities were vocal and critical in advocating for these rights, but the 'how to' or implementation piece of the equation was still missing. Despite this lack of framing, many of the respondents "recognized the importance of accessible systems to older persons and to children as well as to persons with disabilities" (Ontario Human Rights Commission, 2001, p. 14). How these providers understood an accessible system, however, was not uniform; only one third of the transit providers surveyed were committed to both fully accessible and integrated transit which consisted of both a parallel option and an available conventional service for passengers with disabilities. Specifically, Windsor, Thunder Bay, Peterborough, Burlington, Ottawa, and London did identify full accessibility as an objective. The OHRC report notes that other "authorities described their services for persons with disabilities in generic terms" (Ontario Human Rights Commission, 2001, p. 14). For example, Kitchener Transit described its objectives as "reliable pick-up and

return service" while St. Catharines' accessible transit objective was to ensure that patrons are able to "travel from their homes to bus stops in a barrier-free environment" (Ontario Human Rights Commission, 2001, p. 14). Others were quite vague, like the Town of Markham which expressed a "dilemma" around how to achieve full accessibility, and Sudbury and Timmins, both of which provided information about improvement in accessibility but did not disclose plans to achieve "full accessibility" (Ontario Human Rights Commission, 2001, p. 14).

While some transit operators expressed confidence that their systems would be accessible in the foreseeable future, others did not demonstrate the same commitment. Most providers described their service objectives in quite generic terms, like offering "barrier-free environments" or providing "reliable pick-up and return service" (Ontario Human Rights Commission, 2001, p. 12). Typically, transit service providers developed accessibility initiatives in consultation with community organizations and users. They reported using a variety or combination of access-focused strategies, such as improved vehicle accessibility by way of low-floor wheelchair accessible buses, lift-equipped buses, kneeling features or other Easier Access features. Strategies also included efforts like: community bus services and/or service routes; accessibility guidelines and standards for future building initiatives; improved barrier removal at bus stops, such as snow removal; accessible bus terminals, stations, and platforms; and combining or integrating local or regional services horizontally to achieve coordinated programs, reduce costs, and improve responsiveness (Ontario Human Rights Commission, 2001, p. 16). One third of respondents (inclusive of Windsor, Thunder Bay, Peterborough, Burlington, Ottawa, and London) indicated that their future operations would be fully accessible and integrated, which suggests that for these particular operators, there was recognition of the importance of providing both parallel services and accessible conventional services; operations which they

recognized were directly linked to social inclusion and individual human rights. The London Transit Commission, for example, stated that "municipalities are to be encouraged and supported to continue to move toward providing an accessible conventional transit service, in addition to providing a quality specialized (paratransit) service" (London Transit Commission, personal communication, August 28, 1999). London and Ottawa were exceptional in their identification of integrated transportation systems as a planning priority.

Federal and provincial directives were not always financially supported and, when they were, this funding was most often precarious in that it was either limited or short term. A major theme, or concern, that was highlighted by respondents' time and again in survey results was the cost associated with adapting existing fleet and infrastructure in order to offer accessible service. The survey summary indicated that even providers that were committed to both parallel and conventional accessibility stated that they could only do so with certain financial caveats in place (Ontario Human Rights Commission, 2001, p. 18). Others indicated that delays or low targets were a result of a lack of funding or the fact that dedicated provincial funding to implement accessibility plans was no longer available. For several providers, this change in funding was the reason why their accessibility initiatives had been altered, delayed, or abandoned altogether. Submissions from Toronto, Peterborough, Kingston, London, and Windsor point to reductions in capital and operating assistance from the Province of Ontario as the main factor that hindered their ability to adapt their services. St. Catharines Transit Commission, for example, referred to financial pressures as the reason why certain services, such as Mobility Niagara, had to be discontinued after one year. Burlington, as another example, reported that one initiative in its Accessibility Plan was deferred due to a lack of funding. Between 1992 and 1999, the government operating subsidy for conventional transit declined and, by the end of that decade,

operational funding for transit transitioned to a municipal responsibility. As such, there was little accountability mentioned in survey responses for failing to meet targets, presumably because of the lack of controls over year to year budgets. There was, as such, little real or perceived culpability or incentive for municipalities to dedicate funds to accessible transit, especially at a time when many required considerable financial supports to adapt their offerings. It was not until the mid-2000s and the Accessibility for Ontarians with Disabilities Act that the necessary requirements and frameworks for such accessible change were legislated.

Accessible Transit and OC Transpo

Within the province of Ontario, despite increases in the availability of public transportation services, individuals with disabilities, particularly those using mobility technologies like wheelchairs, remained overlooked and underserved as the "transportation needs of the disabled received little attention in Ottawa" until the 1970 (DeLeuw, Cather: Engineers & Planners - Ottawa, 1973, p. 31). In the absence of municipally provided accessible transit options, these individuals relied heavily on volunteer organizations, or family and friends, for their mobility needs. The end of the 1960s and early 1970s witnessed the introduction of social service programs, both medical and recreational, in the city. This, in turn, created a critical transportation situation as individuals were not able to make use of these social services as they could not physically access them given the barriers to mobility inherent in the city's public transportation system. In response, organized efforts to provide transportation for people with disabilities began in 1969 when the Ottawa Separate School Board (OSSB) hired M&O Bus Lines to transport children with disabilities to local training centres. At about the same time,

Tasks Odd and Diverse, otherwise known as TOAD, emerged on the scene as a limited shuttle service for the wider disability community.

As the first newspaper article about TOAD (Figure 24 – on the following page) described, this service was a volunteer effort that began providing rides for people with disabilities in February 1972. Operating out of a house on Hinton Street, near the Civic Hospital, TOAD consisted of a group of young people working under a $27,000 federal government grant, known as the Local Initiatives Program (LIP). Roughly 20 to 30 people were hired, including 15 individuals who used their own vehicles to provide this much-needed service. TOAD offered a weekday-only service that ran from 7:30a.m. to 4:30p.m., with a maximum of 12 staff-owned private vehicles operating at any given time. This service provided an average of 130 to 150 trips per-weekday which were all pre-booked by phone, at least 24 hours in advance. In April 1972, the *Ottawa Citizen* noted that "the demand is such that Liddy Studte (convener of Ottawa's Central Volunteer Bureau driving service) (…) spends hours on the telephone each day" organizing TOAD's service (Macdonald, 1972). The article noted that Studte, "confined to her home by ill health", organized at least 22 drivers, most of whom were "housewives", and some are "retired men" (Macdonald, 1972), who provided services to clients who had been "referred by doctors, nurses, dentists and social agencies" (Macdonald, 1972). Studte, alongside TOAD coordinators Anita Snell and Arthur Cummins, facilitated the only transit service expressly for individuals with disabilities in Ottawa at this time.

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Driving services

A lift along the way

By Vivian Macdonald

Anyone who has ever had to drag himself to a doctor's office with a bad cold or a case of the flu knows how difficult it can be. But it must be done — the doctor won't come to you so you have to go to him, unless by some miracle your physician makes house calls.

For the handicapped, the situation can reach the impossible. Unable to drive or use public transportation, they often find taxis the only alternative. And that can be expensive.

The answer for many has been found in the services provided by volunteer drivers.

Demand is great

The demand is such that Liddy Studin and Arthur Cummins spend hours on the telephone each day. Miss Studin is convener of Ottawa's Central Volunteer Bureau driving service; Mr. Cummins is coordinator of TOAD (Tasks Odd And Diverse), a driving program operated under a $57,000 grant from the federal government's local initiatives program (LIP).

Miss Studin has a list of 50 drivers; 22 of them give their time on a regular basis but more are needed. Most are housewives, some are retired men. TOAD operates with a paid staff of 16 young people and 10 cars.

Miss Studin, confined to her home by ill health, has been organizing the Volunteer Bureau's program for four years; a volunteer herself, she receives no salary but is given an honorarium. Her clients are referred by doctors, nurses, doctors and social agencies.

In 1971, she made arrangements for 21 regular weekly drives and 41 "spot" drives. "I'm not a business woman, it's not a job," Miss Studin explained. "It's my only outlet really and I enjoy talking with the volunteers. My doctor thinks it's a good idea, too, so long as I don't tire myself."

Trial period

The TOAD project, which began in February this year, operates from a Metcalfe Street house a stone's throw from the Civic Hospital. Within a week of its inception, it was running full tilt.

"Things happened so fast we didn't even have the schedule organized. We tried three systems in five weeks," Mr. Cummins laughed. "And went through about a hundred pounds of paper," added Anita Snell, assistant co-ordinator.

Now the schedule is running more smoothly except for unexpected crises such as auto breakdowns. That doesn't always bother the client, though. One day this week an unconcerned small boy quietly amused himself about the house while waiting for another car to take him to school.

Ottawa winters pose considerable difficulties for both Miss Studin and Mr. Cummins. Many of the women on the Volunteer Bureau list are wary of taking their cars out on the slippery, snow-piled streets. Driving conditions slow down the young people at TOAD as well. After one of the particularly bad storms this winter the 10-car fleet was reduced to two.

Busy week

Usually, though, TOAD handles 400 drives per week, about 80 per cent of those are done on a regular basis, sometimes daily. No referrals are necessary. "Occasionally someone who doesn't really need the service will try to take advantage but that doesn't happen often," Mr. Cummins said.

In addition to driving handicapped persons to medical and dental appointments, TOAD staff members make regular trips to recreational centres for the handicapped, to the Good Companions Club and to day care centres for the mentally retarded.

The drivers use their own cars and are paid five cents a mile. "They're losing money," Mr. Cummins commented. "It's just not enough when they're doing 150 miles per day." Based on pay is $100 a week.

It is hoped that when LIP ends in May, the project will be established on a permanent basis. TOAD has the backing of city hospitals, the YM-YWCA, the Victorian Order of Nurses, the Central Volunteer Bureau, the Regional Planning Council and the Visiting Homemakers Association among others in its attempts to procure government funds for its continued operation. Service clubs will be approached to provide cars.

We'll see you later

Volunteer driver Mrs. C. S. Gillatt and four-year-old Kathy Harvey

Chauffeur service doorstep to doorstep

TOAD driver Ken Oliver and Mrs. Violet Johnson

Hours on the telephone

Liddy Studin

Tasks Odd And Diverse

Anita Snell and Arthur Cummins

Figure 24: A full-page article featuring the people that worked to make TOAD possible. Credit: The Ottawa Citizen, 7 April 1972.

TOAD operated from 1972 to 1974 and helped to demonstrate the need for public transportation for people with disabilities in Ottawa. Although it provided an invaluable service at the time, the short-term labour-intensive nature of the LIP grant could never serve as a comprehensive, specialized, and permanent service. As the DeLeuw Cather report entitled "Examination of the T.O.A.D. Operation and the Development of an On-Going Work Program"

noted, “many calls must be rejected each day because of the limited capacity of the system. Dispatchers at T.O.A.D. estimate that the number of persons turned down can reach 35 to 40%, or about 90 trips per day, with the average being about 20%, or about 45 trips per day” (DeLeuw, Cather: Engineers & Planners - Ottawa, 1973, p.10).

In addition to the limited vehicles and subsequent available service, LIP’s funding structure presented another major obstacle to comprehensive and continued service. Initially set to end in May 1973, TOAD’s funding had been stretched until December of that year when its “last allowable extension ran out (…) leaving 25 drivers out of work” (Unknown, 1973) and no alternative for the 700 weekly trips the service was providing at this point. As a result, TOAD drivers were “continuing to provide driving service on a voluntary basis (…) looking to welfare and unemployment insurance to support them until a new LIP is approved or the region takes over the service” (Johnson, 1973). In response to this threat to accessible mobility services the community protested in front of 222 Queen Street, the location of the city’s municipal offices. Carrying signs (Figure

Figure 25: Barbara Sheppey, age 2, joins her father, Charline Sheppey, in a demonstration. Credit: The Ottawa Citizen, 13 December 1973

25 – on the previous page) and handing out information posters, “TOAD clients in wheelchairs and on crutches protested the stopping of the service” with one user stressing that they would be “lost without them” (Johnson, 1973). An *Ottawa Citizen* article from December 1973 described the protest by sharing the lived experience of the Fripp family, as they were immediately impacted by the loss of TOAD. “Mr Fripp is 25,” the article read:

> he has a wife Wendy and an eight-month-old son Brodic and a job with an insurance company which allows him flexible hours. He also has multiple sclerosis. He can’t use the OC Transpo bus service which was extended last year to the Beacon Hill subdivision where he lives. Until a couple of weeks ago, Mr. Fripp was driven to his three-times-a-week therapy treatments at the Royal Ottawa Hospital by some of the 21 young drivers of a group called TOAD (Tasks Odd and Diverse). Now the group’s federal funding has run out and nobody is anxious to pick up the bill to continue the Local Initiatives Program (LIP) project. “There’s lots of lucky people that are able to walk up and down and get on buses,” said Wendy Fripp. “And for the few who aren’t, there’s nothing.” The Fripps said the loss of TOAD service hurts many other clients more than themselves” (Doran, 1973).

Continued uncertainty about the renewal of LIP grants for transportation purposes put pressure on the city by advocates and activists to develop other, more permanent proposals and solutions.

The 1970s witnessed a growing awareness of the need for a public transportation service for people with physical disabilities who could not use the regular urban bus system. As described, volunteer drivers, as well as taxis, and a charter bus company with lift-equipped vans, were supplying transport to residents who were unable to access and use the city’s conventional service due to its design. As Rae Finley, an Ottawa accessible transit advocate and Volunteer Advocacy Committee member noted in his presentation to the International Conference on Mobility and Transport for the Elderly and Disabled Persons in 1986, transit facilitated involvement, access, and activity in a host of private and public areas and “employment, post-

secondary education, recreation, and social programs were limited because of the lack of adequate low-cost accessible transportation" (Finley, 1973). In response to this discriminatory reality, five members of the Ottawa Handicapped Association met in September 1972 to assess how to properly address the transportation needs of residents with disabilities. This group recognized that in order to have an impact, they required community support and so they sought help from the Social Planning Council of Ottawa Carleton, as well as insights from the Provincial and Regional social service departments, medical centres, local organizations, and allied citizens. Ultimately, 12 members founded the Committee for Urban Transportation for the Disabled (CUTD) as an entirely volunteer group that did not receive any municipal funding or support. CUTD sought to establish a door-to-door accessible public transportation system and service for Ottawans, with the aim, as stated in a report by Bob Lane, "to ensure the provision (whether privately or publicly sponsored or some combination thereof) of a specialized, regionally accessible and financially acceptable system of transportation for those citizens who cannot use the normal public transportation because of disability" (Lane, 1997, p. 1). Throughout the 1970s, the CUTD became a knowledgeable resource through which municipal and provincial governments, the public, and local social services would share and relate concerning matters regarding accessible public transportation.

Very early on, CUTD concluded that the provision of accessible transportation should be the responsibility, or at minimum overseen, by the government of the region. For Ottawa, they indicated that this would require collaboration between the municipal government and the Ottawa-Carleton Transportation Commission. In response, the Regional Municipality of Ottawa-Carleton indicated that it did not wish to "allocate funds and effort without some reasonable proof of demand and success" (Lane, p.2) which required the gathering of appropriate statistical

data. RMOC hired De Leuw Cather Canada Ltd., a consulting firm consisting of engineers and designers who were already engaged in local public transportation planning, to consider the needs of citizens with disabilities. In their report "Transportation for the handicapped, Ottawa-Carleton: Statistical Notes", published in May 1973, De Leuw Cather compiled the survey information that had been conducted by a group of six students from the Carleton University School of Social Work under the supervision of Dr. James Gripton. This group surveyed 32 organizations who operated, funded, or arranged transportation for people with disabilities in order to ascertain the volume of trips by each agency, the type of vehicles in use, the necessary equipment, the cost of service, and the source of funding.

This survey work showed that, as a collective, these organizations had a total of 5,553 regular customers, which included 4209 customers who indicated they were "permanently restricted in their ability to move about" (DeLeuw, Cather: Engineers & Planners - Ottawa, 1973, p. 8). In order to service the needs of these passengers, the organizations provided 4181 trips, one-way, per week. The report revealed that only 5 percent of the "permanently physically handicapped of the region are able to move around independently. Of those unable to manage unaided," the report continued, "32 percent rely chiefly on taxis. Less than .5 percent can make use of public transportation" (DeLeuw, Cather: Engineers & Planners - Ottawa, 1973, p. 10). As the report noted, based on the findings from the Carleton University survey, researchers recommended "the establishment of a comprehensive registry to facilitate the planning and operation of a special public transportation service for the handicapped" (DeLeuw, Cather: Engineers & Planners - Ottawa, 1973, p. 2). This larger recommendation included the following specification:

> 1) a public transportation service for permanently handicapped persons should be established. A comprehensive registry should be developed, which could also include the aged, the temporarily disabled, and the mentally retarded; 2) the service would be a year-round operation under the responsibility of the Regional Municipality of Ottawa-Carleton; 3) the cost to the usher should be in line with costs for use of existing transit services; 4) with three levels of government presently providing 87 percent of the funding for the 11 operating agencies surveyed, it is anticipated that they should continue as the major contributors. The three governments allocate together some $250,000 annually for the transportation of the disabled in this area. Roughly $120,000 of that amount is for operating T.O.A.D. and comes from the Federal Government; 5) a regularly scheduled service would have to be operated with paid drivers and assistants, preferably with special training. The contribution of volunteers should also be retained; and 6) The Committee for Transportation of the Disabled should monitor the planning, installation and operation of the new service. (DeLeuw, Cather: Engineers & Planners - Ottawa, 1973, p.11/12)

Despite the services provided by TOAD and M&O Bus Lines, and the incredible efforts and commitment of local volunteers, many people with disabilities remained without access to public transit and, therefore, did not have mobility independence. In March 1973, the Ottawa-Carleton Regional Transit Commission, now OC Transpo, became involved in planning transportation for people with disabilities and in April of that year, the Ottawa and District Social Planning Council took over the management and operation of TOAD. This was the start of the formal integration of accessible public transportation into the city of Ottawa's responsibility and services.

As a result of the state of accessible transit offerings in Ottawa, DeLeuw Cather was once again contracted by the city to complete a survey of the needs and wants of Ottawa's ridership with disabilities who required the use of adaptive transit. Given the municipality's newly established responsibility regarding the provision of accessible parallel transit, the results of this survey were intended to direct the OC Transpo's course of operational action. The survey was launched during the summer of 1973 and findings were issued in a report in April 1974. The

report began by framing how "transportation, or the lack of it has a direct and significant impact upon our daily lives. We depend upon our automobiles and the public transit system," the report continued:

> To carry us between our homes and our work, our schools, our shopping areas, and for our social and recreational trips. One group of people that faces varying degrees of frustration in their attempt to lead normal lives is the physically disabled. Architectural, transportation, economic and social barriers affect the everyday lives of these people. The importance of the transportation barriers has been stressed in recent social programs. Different committees and social action groups have been focusing their attention on, and concentrating their efforts towards obtaining mobility improvements for these people. The type of physical disability has an impact on the degree of frustration experience in trying to use conventional transport facilities. It also has a pronounced effect on the ease with which these transit demands can be accommodated on public transit." (DeLeuw, Cather: Engineers & Planners - Ottawa, 1974, p. 2)

As the final piece of their surveying, DeLeuw Cather completed a report titled "Design of Pilot Project for the Transportation of the Handicapped" in August 1974, with the Ottawa-Carleton Regional Transit Commission. This pilot project, if implemented, was intended to provide special transportation service to approximately 1000 people for work and medical trips, only, Monday to Friday within Ottawa's urban transit area. Passengers were to be charged one dollar per trip during peak hours and 50 cents during off-peak hours. A major recommendation in this pilot project was that the OC Transpo should assume the contract management, service monitoring and the responsibility of dispatching all services for private operators using "specially equipped vans or small buses" (DeLeuw, Cather: Engineers & Planners - Ottawa, 1974, p. 4) as well as those using non-adapted vehicles.

In response to the precarity of TOAD and its new responsibilities of operating and overseeing accessible transit in Ottawa, the OC Transpo announced in the *Ottawa Citizen* a new development in service. “So that those people who require the type of transportation that cannot easily be provided by T.O.A.D.,” the article read, “Regional Council has approved the establishment of an interim special bus service. This service will be provided by M&O Bus Lines using vehicles equipped with wheelchair lifts, and will be offered for work and medical trips only, at a cost of 50 cent per trip to the user” (Unknown, 1974). Recognizing the limitation of their new service, the OC Transpo indicated that “the capacity of this interim service is very limited because there are only two appropriately equipped vehicles now available in the Region. Consequently, rides will be offered on a first-come first-served basis and you are therefore urged to complete the registration form as soon as possible” (Unknown, 1974). Shortly thereafter, in August 1974, regional council stepped in with additional funding, and a contract was signed by M&O, TOAD, the regional government, and OC Transpo in order to provide a new accessible service that combined the unique efforts of these distinct groups. The service had eight automobiles and two lift-equipped vans and ran 10 hours a day, Monday through Friday. M&O took over the services of TOAD in May 1975, and OC Transpo assumed responsibility for supervising operations in July of that year. During 1975, the first full year of operation, the service provided 48,000 trips at a cost of about $200,000 (OC Transpo, 1975).

In 1976, the province agreed to fund pilot projects providing transportation for people with disabilities in the five Ontario cities of Toronto, Ottawa, Sault Ste. Marie, Peterborough and Chatham; mentioned earlier in this section. These cities were selected on the basis of a representative cross section of Ontario Municipalities of varying population sizes and geographic locations and the funding was directly intended to provide service to “those individuals who

regardless of age, are unable to board regular transit facilities" (Ottawa Human Rights Commission, 2001, p.3). By this point in time, each of these five cities had some form of community provided public transportation service for passengers with physical disabilities but their capacity to carry out this work, not to mention expand their services, was quite limited due to precarious funding, and the demands required of the infrastructure (vehicles, drivers, booking), was also quite limited. The provincial subsidy covered only 50% of the net cost of trips on weekdays, 12 hours per day, where priority was given to work, medical, and post-secondary travel. Trips for other purposes were accommodated provided there was spare room in the vehicles. Fortunately, when the Ottawa pilot project ended in 1979, the province set up permanent funding to support what ultimately became Para Transpo.

The Para Transpo service was initially operated by Blue Line Taxi under a contract with the OC Transpo, wherein the municipal provider was responsible for service management and administration, including client registration, trip bookings, service planning and operator scheduling. OC Transpo assumed full control and responsibility of the service in 1981. By the end of that decade, Para Transpo's fleet consisted of 64 vehicles and approximately 100 drivers. Para Transpo provided door-to-door service for registered customers "who cannot use regular transit" (Accessibility Plan for Transit in Ottawa-Carleton, pg. 7). The transit provider defined this customer group as individuals who could not walk a distance of 175 metres or climb onto and off of an OC Transpo bus (OC Transpo, 1994). By 1994, Para Transpo operated a fleet of 142 vehicles, including 9 Orion II buses and 70 lift-equipped vans which, combined, carried 700,000 passengers annually at an operating cost of $15 million. The operating costs were divided between a number of sources, with fares covering 7%, the Regional Municipality

providing 47%, and the Province of Ontario supplying the remaining 46% of the budget (OC Transpo, 1994, p. 8).

In response to the provincial policy of full accessibility for regular transit services in Ontario that was adopted in June 1992, the OC Transpo put forward an Accessibility Plan for Transit that was guided by its Accessible Transit Advisory Committee. This plan focused on, over the course of ten years, making available a 'family of services' for all transit customers, which included "Para Transpo, a door-to-door specialize service, through Communibus (Figure 26 – on the following page), a regularly scheduled service with smaller, low-floor vehicles, to regular transit with Easier Access features that included kneeling and low-floor buses", all of which were established programs at the time of the Plan's publication (OC Transpo, 1994, p.1). The Plan also considered facilities at bus stops and in Transitway Stations, as well as winter maintenance and sidewalk provisions, which are infrastructure elements that are beyond this study's purview. At this point in time, OC Transpo operated a fleet of 827 conventional buses which provided 48 million kilometers of service a year and carried about 76 million passengers. The fleet consisted of 662 standard 40-foot buses,

Figure 26: An example of one of the low-floor Communibuses operated by OC Transpo. Credit: OC Transpo

161 60-foot articulated buses, which were all high-floor, and four 25-foot Communibuses (OC Transpo, 1994).

OC Transpo's Communibus service was introduced on Route 306 in May 1992 as part of the providers regularly scheduled service. It ran on a fixed route and timetable from 8:30 a.m. to 5:00 p.m., Monday through Friday, and 9:30 a.m. to 6:00 p.m. on Saturday; there was no service during the evening or on Sundays. OC Transpo's Communibus services was part of a special two-year demonstration project that was agreed to by the transit provider and the Ontario Ministry of Transportation. The aim of this effort was to determine the operational requirements of this type of service and if it could replace Para Transpo in specific areas. The Accessibility Plan noted that "the service currently provides about 100 passenger trips per day, three of which are used for shopping by 37% of passengers, working by 13%, education by 3%, medical purposes by 8% and for other purposes by 39%. Passengers tend to be older than regular transit users, with 67% over 55 years of age and 28% over 75 years" (OC Transpo, 1994, p. 7). The *Ottawa Citizen* published an article entitled "Bus service brings greater freedom to disabled" in its May 12, 1992 issue (Figure 27) wherein a number of users expressed their appreciation for the new service with one passenger sharing that he "likes everything" about the new bus and another commenting that "this is wonderful. I didn't use the other buses" (Abraham, 1992). Carol Burros, the director of Disabled Persons' Community Resources, was quoted saying "if people can move around without too many hassles they're going to be a part of the community" (Abraham, 1992).

Bus service brings greater freedom to disabled

By Carolyn Abraham
Citizen staff writer

Maybe, just maybe, 90-year-old Albert Boorne will do a little more swimming now.

The 10-year resident of Island Lodge used to get staff members at the seniors' home to drive him and a few other residents to Le Patro Community Centre so they could take a dip once in a while. But since other residents stopped going, Boorne, who uses a cane, couldn't make it there regularly.

Until now.

OC Transpo went out to Island Lodge Monday morning and made many people, including Boorne, very happy. Transpo officials announced their new pilot project — a "communibus" — which will bridge the gap between services like Para Transpo and regular public transportation.

"Well, I may just have to start swimming again," said Boorne from his window seat on the maiden run of the communibus as it stopped at the front doors of Le Patro. "Maybe now I'll convince Mac to come on over for a swim."

"Mac" is 93-year-old Cyril Macdonald, who says he "likes everything" about the new bus, but tells Boorne, "I don't think I'll be going swimming at my age."

The communibus is a large van equipped with special features like a lowering ramp for easy boarding and secured spaces for two wheelchairs. But unlike Para Transpo service, which customers must book a day in advance, the communibus runs on a short, fixed route, every half an hour from Monday to Saturday.

Helping hand: Bus can hold two wheelchairs

Route 306, as the new service is called, will run only in Lowertown for two years while OC Transpo measures its success.

And if it is successful, it will be expanded. But with current stops that include Le Patro, Elisabeth Bruyère Centre and the Rideau Centre, lodge residents feel it will be popular.

"This is just wonderful, I didn't use the other buses," said Margaret Barrett, 81, who uses a wheelchair. "I like to go shopping and buy all sorts of things, and I may get out more now."

Seniors and those with mobility problems are not the only ones eligible to use the service, which charges a base fare of $1.30 for round trip at all times. In fact, anyone can ride the communibus.

However, people with disabilities have priority, and for them the service is exceptionally user-friendly. For example, attendants of anyone needing help ride free. And communibus drivers have all had "sensitivity training," said OC Transpo spokeswoman Oxana Sawka. She explained drivers had tried out blindfolds and wheelchairs to get in touch with the special needs of their passengers.

"If people can move around without too many hassles they're going to be a part of the community," said Carol Burrows, director of Disabled Persons' Community Resources.

The provincial ministry of transportation paid half the tab for the new service. The three communibuses cost $660,000 and operating costs for two years are expected to be about $350,000, Sawka said.

"We're inclined to perhaps stay in our rooms quite a bit," said Boorne, gently poking Mac in the back a couple of times. "But maybe now we'll get out and find out what's going on."

And maybe, just maybe, Mac will take up swimming.

For more information about route 306, dial 560 + the four-digit number of your bus stop.

Figure 27: Article from the Ottawa Citizen entitled "Bus service brings greater freedom to disabled". Credit: The Ottawa Citizen, 12 May 1992

In addition, OC Transpo's Communibus services consisted of designated routes on which "a fully accessible 25-foot Orion II vehicle" (OC Transpo, 1994, p. 7) operated. The Orion II, which went into regular production in 1984, was a significant step forward in accessible public transit technology. These buses were available in 21 and 25-foot models, and had a low floor, just 12 inches off the ground, built between the wheel wells. The vehicle's shorter design allowed it to come onto driveways, and its axles were designed to "kneel", lowering the front door an additional four inches, and the back a full eight, bringing the vehicle much closer to street level. At that level, short ramps could be deployed to allow passengers using wheelchairs to board. Once on board, there was space for five wheelchairs and 14 seated passengers.

In an article published through the Transit Cooperative Research Program, Chris Jenkins noted that Ottawa's Communibus program was an "example of partnership at the community level" (Jenkins, 1997, p. 3). Despite this recognition, the Communibus was flagged for cuts due to a $400,000 shortfall in OC Transpo's 1994 fiscal budget and so the provider evaluated and identified several poor-performing Communibus routes for elimination. The provider did allow

the community that made use of this service to influence the cuts outcome by placing a "Use It or Lose It" type notices in local newspapers to notify the community that the route was in jeopardy. A time limit was given for routes to be brought up to acceptable performance standards and, in several instances, the community organized support though the coordinated efforts of local merchants, service organizations, and community leaders, which boosted ridership. While it certainly met a need, the context of these cuts indicated that having both parallel and conventional service as part of a family of services was not actually attenable. Little record exists that details the end of Communibus operations, but it appears that the Communibus program ceased at some point in the early 2000s.

As part of this Accessibility Plan, the OC Transpo indicated that, as of 1994 “more than 30 routes will be operating as Easier Access routes” served by “buses equipped with kneeling features, extra grab rails, more easily reached bell cords and additional lighting” and that “all new bus stop facilities and transitway station facilities were to be fully accessible” (OC Transpo, 1994, p. 6). This suggests that this transit provider was working towards on-vehicle and supporting infrastructure access. In response to the demands on Para Transpo, the OC Transpo acknowledged the need to address and improve its conventional fleet and indicated that it would only purchase low-floor vehicles which could accommodate mobility devices as of 1995 (OC Transpo, 1994, p. 6).

OC Transpo and Accessible Conventional Services

In 1997, OC Transpo began replacing its aging, high-floor fleet through the acquisition of 19 40-ft Nova Low Floor Series buses (Figure 28 – on the following page). These vehicles were built by Nova Bus, a Canadian transit manufacturer located in Saint-Eustache, Quebec. This

company was established in July of 1993 when Nova Quintech and the *Fonds de solidarité des travailleurs du Québec* acquired Greyhound Dial Corporation's transit division. Nova initially produced the Nova Classic and Nova model which were ultimately discontinued so that the company could focus their efforts on the Nova LFS, a low-floor city bus, which was announced in 1994. The design and development of this bus had been instigated by the Quebec government, in their search of a provincially made low-floor bus similar to those available in Europe and Scandinavia at this time. For context, prior to the 1990s, adapted, or kneeling, high-floor buses were more common than low-floor buses in North America. As such, Nova Bus signed a technology transfer agreement to adapt the Dutch low-floor Den Oudsten Alliance bus. This resulted in a demonstration model of a Den Oudsten B90 Alliance City bus and supporting engineering staff travelling to Canada to collaborate on the evaluation and design of a similar vehicle for the North American market

Figure 28: An example of Nova Bus's Low Floor Series (LFS). Credit: Den Oudsten Alliance.

Despite this initial procurement, the municipal transit provider waivered on its commitment to conventional accessible transit in 1998. One year after OC Transpo purchased its

Nova Bus order, an article was published in the *Ottawa Citizen* entitled "That's One Step Forward for Para Transpo but Two Steps Back for Disabled, Seniors" (St. Denis, 1998). It described an exchange between councilors and the OC Transpo's general manager, Ian Stacey, about the OC Transpo's decision to purchase over 100 high-floor buses despite its Accessibility Plan and related commitments. The article shared that at the region's transit committee meeting:

> one councillor asked (…) Ian Stacey why the decision was made to buy 105 high-floor buses instead of accessible low-floor buses. Mr. Stacey replied that they could not obtain these types of buses until next year and they needed new buses immediately. If so, why couldn't they have continued leasing buses for one more year, as they have been doing for the past years? This is not an unreasonable request considering these buses will be in service for another 15 to 20 years. Another councillor asked if lifts could be installed on the high-floor buses as an alternative. One official responded that this was not being considered because the lifts would be too unreliable, although he admitted he had no written documents to support this claim. He also stated that it would be a very major task" (St. Denis, 1998).

Acknowledging that buses with lift, such as the Orion models, were available in the United States, the article observed that "the transit committee ultimately failed to recognize the profound effects the number of trip refusals of this magnitude will have on the quality of life of individuals who are totally dependent on Para Transit" (St. Denis, 1998) in the absence of reliable conventional alternatives.

Bob Brown, a transit accessibility activist in the Ottawa area, published an article in the same issue of the *Ottawa Citizen* entitled "OC Transpo Violates Own Accessibility Plan" (Brown, 1998). He wrote:

> OC Transpo should reconsider the procurement of 105 city buses because they are inaccessible to a substantial segment of the population. The procurement is in direct violation of the OC Transit

> Committee's own guidelines in Accessibility Plan, 1994. Without major modification, the older high-floor technology buses, which are being purchased, are not accessible to people with mobility disabilities including wheelchair users. In my judgement, using inaccessible buses constitutes discriminatory practices which will continue for the expected life of the vehicles 12-20 years. (Brown, 1998)

As Brown and St. Denis observed in their printed remarks, the purchase of these high-floor buses was a major setback in efforts towards accessible and inclusive public transportation services. It represented a broken commitment to equity-deserving users and reinforced an ableist assumption about for whom public transportation services were for.

In addition to the inaccessible service that these new, high-floor buses would ultimately result in for many passengers, particularly those using mobility devices, Brown also recognized that these buses presented barriers for other groups of passengers. He observed that "recently in the Citizen, there have been several incidents reported of mothers with small children in strollers being evicted from buses. Their problem was that they had difficulty boarding and no place to sit without causing obstruction. The rationale was that the stroller

Figure 29: A photo of activist Stephen St. Denis in front of a high-floor bus. Credit: The Ottawa Citizen, December 3, 2000.

impeded the traffic flow in the buses and, thus, were an inconvenience to the general public" (Brown, 1998). The shared mobility needs of wheelchairs and strollers, and the shared space they occupied on conventional transit, which will be examined in the Chapter 7, is mentioned here in order to demonstrate that the high-floor buses impacted diverse groups of transit users.

The negative public response that the OC Transpo's actions received in both the press and from their patrons did not, however, dissuade the transit provider from procuring these high-floor buses. They did not, as one might assume, alter their plan to purchase high-floor buses with a plan to, instead, procure low-floor buses. Rather, the transit provider proceeded with their order and purchased 84 Luminator MegaMax 2000s manufactured by OBI. In response to this problematic decision, Ottawa witnessed an uptick in the number of official organizations for disability groups advocating for their transit needs. Stephen St. Denis (Figure 29 – on the previous page), for example, became the first chairperson of the region's Accessible Transit Advisory Committee and began working with the OC Transpo to introduce low-floor conventional buses to its fleet and update the region's transit accessibility plan (Unknown, 2000). St. Denis published an editorial in the *Ottawa Citizen* in December 2000, wherein the activist called for an integrated conventional transit service. He stated that

> OC Transpo's comprehensive review speaks at great length about the need for an integrated approach. (…) OC Transpo has yet to put the rubber to the pavement. For example, the published picture of myself beside the transitway paints a rather rosy picture of accessible transit. If one were to take a close look at the bus featured behind me, one would notice that it is not accessible. In fact, either are any of the buses that use the transitway on regular and peak-period routes. In addition, only two of the 15 currently accessible routes are part of the base network. This implementation clearly defies the aforementioned recommendation. Perhaps, before undertaking any more reviews, Transpo should act on the ones it already has. (Unknown, 2000)

The 1998 order was the last order of high-floor buses from the public transit provider and, over the course of the 2000s, it gradually retired its high-floor buses and replaced them with low-floor, accessible alternatives. By 2011, OC Transpo boasted that its fleet was "fully accessible" (Unknown, 2011) because it was now comprised of all low-floor conventional buses, mostly made up of New Flyers. The New Flyer Low Floor series, which was manufactured by New Flyer Industries between 1991 and 2014, was the original low-floor bus on the North American market; OC Transpo purchased their first New Flyers in 2001. Interestingly, New Flyer also had strong ties to Den Oudsten Bussen B.V., as Jan den Oudsten, one of the family members, acquired Flyer Industries from the Manitoba government and renamed it New Flyer Industries Ltd. in 1986. Despite having identical emblems and focusing on the production of low-floor transit vehicles, New Flyer and Den Oudsten Bussen were separate companies with no institutional or strong commercial affiliation.

The New Flyer Low Floor were available in 30-foot rigid, 35-foot rigid, 40-foot rigid, and 60-foot articulated lengths. In addition to the different available lengths, the buses were also sold with a variety of engine options. The New Flyer Low Floor was restyled in 2005, resulting in two distinct variants: the Low Floor Restyled (LFR), which largely replaced the conventional Low Floor for transit service, and the Low Floor Advanced (LFA), which was intended for bus rapid transit service. New Flyer introduced the Invero in 1999 with the intent that it would replace the Low Floor line, but few were sold; in 2008, New Flyer introduced the Xcelsior, and the Low Floor line was discontinued in 2014.

Since the early 2000s, OC Transpo has, almost exclusively, purchased New Flyer Industries D60LFs, which were the first 60ft low-floor articulating buses on the market. These

vehicles were first introduced in 2001 as the D60LF. In 2010, the company completely redesigned this model so that it had three doors and a variety of seating options and renamed it the D60LF. In 2003, OC Transpo also purchased two NFL D40i which were referred to as the "Invero" by New Flyer. The company intended for this vehicle to eventually phase out New Flyer's traditional rigid low-floor buses, as this newer model incorporated a number of design and engineering innovations which, among other features, permitted the vehicle to gain five additional seats. In 2008, OC Transpo purchased 174 Orion II from Orion International, a Mississauga, Ontario, Canada-based bus manufacturer. The Orion II was introduced in 2007 and production ended in 2012 after Daimler shut down their bus operations in Canada and the United States. In 2010 and 2011, OC Transpo purchased another306 New Flyer D60LFRs. In July of 2011, OC Transpo announced that all of its remaining high-floor buses were retired as a result of the newly purchased New Flyer articulating buses (Unknown, 2011). At that point, all of OC Transpo's buses were low-floor.

Despite being different models of vehicles that varied in configuration and length, the new low-floor buses all provided a low-floor entry for all of OC Transpo's passengers. These conventional buses included a kneeling feature which enabled the bus to lower to the curb for easier boarding (OC Transpo, n.d.) and slip-resistant ramps with raised edges that prevented assistive devices, such as wheelchairs, walkers, or scooters, from rolling off (OC Transpo, n.d.) (Figure 30 – on the following page). Each low-floor bus also included an area at the front of the bus (Figure 31 – on page 200), next to the main entrance, that was intended for passengers with mobility devices, as the seats were foldable or collapsible, allowing for additional space. As the previous chapter noted, this was a section of the public transit vehicle that had been remodeled to incorporate inward facing benches, in order to prevent overcrowding, and was also a gendered

space, as it was historically occupied by female riders. Given the passenger demand for this area and the reality that passengers using mobility devices, like wheelchairs, could not use the rest of the bus because of steps and inaccessible doorways, the front of the bus remained a congested area for transit users as these spaces were limited and could only provide room for a small number of users. As a result of the limited vehicle space available for passengers using mobility devices, passengers crowded to make use of this area which, in turn, challenged their ability to successfully, safely, and effectively use public transit. Given this reality, *Users, Gender, and Access* observes that, despite changes in the overall design of vehicles such as the inclusion of low-floors, kneeling features, and ramps, public transportation was not immediately accessible to all passenger groups.

Figure 30: A drawing of a standard low-floor rigid bus operated by OC Transpo, marking the accessible entrance at the front and the step-up entrance on the side. Credit: OC Transpo

Figure 31: A photograph of the front of the bus intended for passengers using mobility devices, such as strollers and wheelchairs. Credit: OC Transpo

Since the end of the Second World War, the discourse around, and visibility of, disability and mobility rights has evolved from a subsection of human rights legislation to its own protected and detailed grounds. As this chapter has described, Ottawa's urban mobility services were influenced by global, national, and local factors that shaped the city's approach to accessible public transportation services. The path from exclusionary services to more inclusive transit was certainly not linear, as a variety of strategies were employed to make transit accessible involving numerous organizations and individuals across various authority levels.

Accessible transit began with service and options for specialized groups such as children and veterans. This was followed by a period of precarious funding and volunteer- run efforts that sought to provide service for the larger Ottawa disability community. In response to the high demands on these services, the late 1970s and 1980s witnessed the city’s transit operator taking over increasing amounts of responsibility for a parallel accessible service, which ultimately

became Para Transpo. Over the following decade, many providers across Ontario endeavored to adapt their conventional fleets by incorporating Easier Access features and purchasing low-floor buses. For OC Transpo, vehicle procurements in the 2000s allowed the provider to provide a "fully accessible" conventional fleet as of 2011 (OC Transpo, 2011). As the material culture of conventional public transportation has changed in Ottawa, the OC Transpo has come to serve a more diverse passenger demographic demonstrating the tangible relationship between users, access, and technology. However, as the Chapter 7: "We're using public transit the way other people use it and we're not taking up more space out of a desire to take up space, but out of a need": Establishing a By-Law on Priority Seating, 2005 to 2011, will show, the OC Transpo's approach to governing the front of the bus has resulted in operational protocols that affirmed a hierarchical appreciation of users that was deeply rooted in a gendered legacy and ableist history of urban mobility.

Chapter 7

"We're using public transit the way other people use it and we're not taking up more space out of a desire to take up space, but out of a need": Establishing a By-Law on Priority Seating, 2005 to 2011

Despite the fact that OC Transpo had made the transition to all low-floor buses by 2011, it struggled to develop an effective approach to accessible operation, particularly where the crowding and sharing of the front of the bus was concerned for passengers using mobility devices. As transportation scholars Lidia Kostyniuk & Clive D'Souza have observed in their article entitled *Effect of passenger encumbrance and mobility aid use on dwell time variability in low-floor transit vehicles* (2020), understanding the implications of how material culture and operations effect diverse users is largely unknown as there is scarce scholarship on the topic, regardless of its critical impact on social inclusion and mobility justice. Public transit has the potential to increase accessibility, support and connect communities, and improve employment, health, and social outcomes. Accessible features are only part of the mobility access equation; the ways in which these services are offered and operated is equally critical to inclusion. As the following chapter will highlight, the relationship between gender, access, and technology can be considered through the improper and bias operation of the priority seating area of OC Transpo's buses, which was informed by a gendered history of public transportation's purpose and function. This social understanding of this technology informed operational standards and operator actions that resulted in marginalized riders literally being left on the curb.

As Chapter 6 described, OC Transpo's efforts to address the inaccessibility and exclusionary design of its services have, predominantly, focused on adaptations to the built

environment and technologies of their operations. This initially resulted in the creation of a parallel accessible service, called Para Transpo, and the eventual purchase and operation of a full fleet of low-floor conventional buses. Despite these efforts to change the material culture of the fleet, conventional service has remained problematic for several passenger groups that use mobility devices, particularly wheelchair and stroller users, who seek to occupy the accessible seating area at the front of the bus, referred to as priority seating or cooperative seating. In order to adhere to the AODA and the city's accessibility plans, as well as navigate the relationship between accessible service, accessible seating, and various passenger groups, OC Transpo has implemented a number of operational policies and programs that seek to address rider demands and complaints, improve access to their services, and govern passenger use. From reduced fares for riders with disabilities to campaigns that attempt to raise awareness about accessibility features and proper passenger conduct, OC Transpo's approach to accessible operations has focused on a mixture of providing particular services for groups who have expressed a specific of shared need, alongside educating all passengers on proper behaviour.

For Ottawa, the development of municipal Priority Seating By-Laws came at a time of increased focus on accessibility at the federal, provincial, and municipal level. However, even with increased attention, very few standards existed and there were only a handful of established policies or by-laws enforced by other Canadian public transit providers in place at the time that OC Transpo could draw inspiration from. For example, Hamilton's General Manager of Transportation, Operations, and Environment, Peter Crockett, put forward a policy proposal in 2001 that was intended to manage passenger needs and ensure that no "undue hardship" affected stroller users, but also recommended that "all strollers shall be capable of being folded for the purposes of storage" (Crockett, 2001, p. 1). This clause came at the request of able-bodied

passengers who, according to Crockett's report, were complaining about their transit experience due to the "growing numbers of infant strollers/wagons/bundle buggies/shopping carts, etc., blocking the aisles of buses. Complainants are also reporting concerns over the safety hazard posed by the blocked aisles in the event of the requirement for an emergency evacuation" (Crockett, 2001, p. 1). This type of approach to stroller control and the focused negative attention that passengers using strollers, particularly women, received onboard urban transit is a direct result of the gendered and ableist histories that informed the initial design, function, and operation of this public service. It suggests an inherent hierarchical appreciation of the use of public transportation.

From 2007 to 2010, the City of Ottawa put forward several iterative stroller and priority seating policies that sparked considerable public pushback and resulted in increased tensions amongst passengers seeking to make use of the front of the bus. The following chapter will trace the development of OC Transpo's priority seating area on its conventional fleet in order to examine the relationship between the built environment, the mobility needs of its passengers, and the involvement or activism of different groups, such as the city's Transit Committee, the Major's Task Force, and implicated user groups. This chapter aims to stimulate discussion about the history and legacy of public transportation that shapes and informs society's general understanding of this service and technology, while also raising awareness about the shared and competing mobility needs of equity seeking passenger groups and their relationship with the material culture of urban mobility. This is, however, by no means an exhaustive study or comprehensive analysis of the issues relating to public transport for passengers using mobility technologies. As this chapter will demonstrate, a history of ableism and gendered design and use of the city's public transportation services and offerings resulted in the transit reality that

passengers using mobility devices, particularly strollers, still experience safety concerns and inefficiencies in boarding, disembarking, interior circulation, and general use which, more often than not, results in negative experiences, poor services, crowding, and confrontation with other passengers and operators. Given these realities, some of which will be shared and considered in the following chapter, despite their claims to be fully accessible, one has to wonder, for whom is OC Transpo's fleet 'fully accessible' for?

By-Laws for Accessible Use and Priority Seating in Ottawa

In the five years following the Accessibility for Ontarians with Disabilities Act of 2005, Ottawa witnessed the creation of several key task forces and committees that advised on and oversaw the creation of accessibility plans and transit-related by-laws in conjunction with municipal authorities. The OC Transpo is a federally regulated, municipally owned public service and, "although not technically bound by the AODA (…) Transit Services has continued to demonstrate its commitment to providing fully accessible transit service for all customers" (*OC Transpo Formalizes Its Accessible Customer Service Policy*, 2011). Where OC Transpo is concerned, the AODA set forward a process of developing and regulating provincial accessibility standards in sector-specific groups, such as Transportation. When the AODA was enacted, this scope included "the identification, removal and prevention of barriers", which it defined as "anything that prevents a person with a disability from participating fully in all aspects of society because of his or her disability, including a physical barrier, architectural barrier, an informational or communications barrier, an attitudinal barrier, a technological barrier, a policy or a practice" (*The Act (AODA)*, 2014). In 2007, the AODA issued the Ontario Regulation 429/07 *Accessibility Standards for Customer Service* (Reg. 429/07: Accessibility Standards for

Customer Service, 2007), which established accessibility standards for customer service within the Province of Ontario. These standards applied to every designated public and private sector organization that provided goods and services to members of the public in Ontario, which theoretically included the OC Transpo. The Regulation dictated that "every provider of goods or services shall establish policies, practices and procedures governing the provision of its goods or services to persons with disabilities" (Reg. 429/07: Accessibility Standards for Customer Service, 2007, p. 1). It also required that providers "use reasonable efforts to ensure that its policies, practices and procedures are consistent with the following principles:

> 1. The goods or services must be provided in a manner that respects the dignity and independence of persons with disabilities.
>
> 2. The provision of goods or services to persons with disabilities and others must be integrated unless an alternate measure is necessary, whether temporarily or on a permanent basis, to enable a person with a disability to obtain, use or benefit from the goods or services.
>
> 3. Persons with disabilities must be given an opportunity equal to that given to others to obtain, use and benefit from the goods or services. (Accessibility Standards for Customer Service, 2007, p. 2).

The Regulation also noted that the policies must deal with the use of assistive devices by persons with disabilities, however there was no mention of other mobility devices, like strollers. The AODA's framework laid out an approach that prioritized respect and integration and recognized the need to address the place, use, and acceptance of assistive devices across public services.

In response to the AODA's Ontario Regulation, the City of Ottawa issued Transit By-law 2007-268 which was enacted on June 13, 2007. This by-law covered a host of access-focused definitions and standards, as well as operational frameworks, many of which focus on use and services outside the scope of *Users, Gender, and Access*. It also built upon previous access-

focused legislation, which suggests that the city's intended to produce an iterative approach to accessibility. This, in particular, can be seen through the by-law's definitions. For example, the "Assistant Card" was defined as:

> a) a serially numbered card, issued by the Director to a person with a disability who requires the assistance of a service animal, which card contains a photograph of the person with a disability and a photograph of the service animal; b) an identification issued pursuant to section 2 of the Blind Persons' Rights Act, R.S.O. 1990, C. B. 7, as amended, or c) such other form of identification as authorized by the Director (*Transit By-Law No. 2007-268*).

The Blind Persons' Rights Act, mentioned above, was enacted on December 31, 1990 as an Ontario Law that set out the rights of a "person who because of blindness is dependent on a guide dog or white cane" which superseded "any other Act or any regulation, by-law or rule made thereunder" (Blind Persons' Rights Act, 1990). The two major rights that this legislation established permitted guide dogs in any place to which the public was admitted, including public service spaces like urban transportation vehicles, and the use of identification cards. These rights persist today.

Informed by Ontario Regulation 429/07, By-Law No. 2007-268 formally introduced priority seating and outlined who had access to this space. It began by defining the priority seating card as a "serially numbered card issued to a person with a disability by the Director (OC Transpo) containing a photograph of the person with disability" (*Transit By-Law No. 2007-268*). While it did not provide much detail regarding the priority seating area itself, the law did frame, for the first time, priority seating users in subsection (1) as "a person with a disability, an expectant mother, a person with a visible need for priority seating, a person with a child in a carriage or stroller, a person with a Priority Seating Card or a person with an Assistant Card" and

noted that these individuals were "entitled to priority seating on a front bench seat but (…) not guaranteed a seat" (*Transit By-Law No. 2007-268*). The by-law also indicated that "no person, who is not described in subsection (1), shall fail to surrender a front bench seat to a person entitled to priority seating" (*Transit By-Law No. 2007-268*). This was the only language that the by-law provided regarding the use of priority seating. This vagueness, as the following chapter will uncover, ultimately created major issues for the city's public transportation service that underscored the gendered and ableist legacy of this technology.

While the 2007 by-law respected the expectations set out in the AODA and it did indicate who, in general, had priority over the front benches of the city's conventional bus fleet, it did not provide any detail into how the provider should oversee this area and govern its use. This was a shortfall of By-law 2007-268 as there is a record of passengers with disabilities, pregnant women, and users with children in strollers, particularly women, experiencing pushback from other passengers, as well as operators, even before the new regulation was in place. For example, William Serson shared his experience in a letter to the editor of the *Ottawa Citizen*, writing, "the experience of getting on and off a conventional bus is another story: even though I have an OC Transpo card identifying me as disabled, I've been thrown down to the floor or into poles head first because I couldn't sit down in time. OC Transpo is improving all of this, but in the meantime, we disabled are paying for it through bruises, pain and humiliation" (Serson, 2005). Chris Roberts (Figure 32 – on the following page) shared his experience, which echoed sentiments from Serson's account, and recognized the commonality between passengers who used different types of mobility devices. Roberts' account demonstrates the disconnect between service intention and use which suggested that this space was and is interpreted and used

differently by different users, what Oudshoorn and Pinch refer to as technologies "interpretive flexibility" (Oudshoorn & Pinch, 2005, p. 3). Roberts (Figure 32) noted that:

> I use a walker but am mobile enough to be able to use the regular OC Transpo buses for transport. I am puzzled by the number of passengers, especially on the long-articulated buses, who congregate at the front of the buses, from the driver's seat to the middle door. They ignore the seats available at the back of the bus, which are often empty. It's hard enough to manipulate a walker without having to go around a crown of people who seem unable to understand that they are in the way. People with baby carriages or strollers face the same problem. Although some bus drivers ask people to move back, it always seems to fall on deaf ears. If passengers are able to stand, they should be able to move a few feet back and leave some room instead of crowding the front area all the time. If I were a bus driver, I would stop the bus and tell the passengers that the bus will not be moving until they leave a clear access to the front. I have had to steer my walker around so many people as I try to get on and off buses (since I have to use the lowering front door) that it's not funny and it could be dangerous. So please, have some consideration and move back. After all, the front is supposed to be reserved for seniors and people with walkers and wheelchairs (Roberts, 2005)

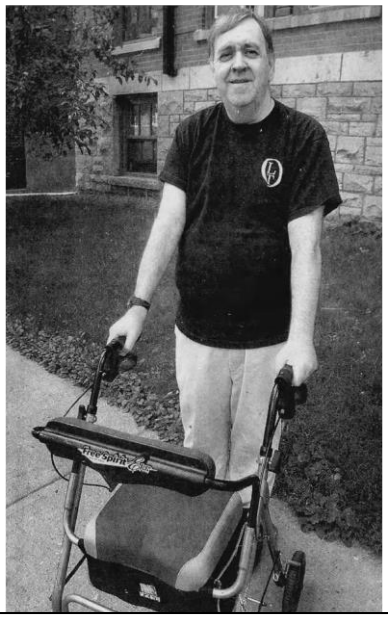

Figure 32: A photograph of Chris Roberts that was paired with his Ottawa Citizen article in which he described unsafe public transportation conditions.
Credit: Ottawa Citizen, 30 August 2005.

Scholars of mobility and transportation studies, as exemplified by the work of Gary Evans and Richard Wener in *Crowding and Personal Space Invasion in the Train: Please Don't Make Me Sit in the Middle* (2007), as well as commuters, have noted that this type of crowding is an established occurrence on various types of public transit and that the design of these vehicles implicitly and immediately informs how people use this space. As Evans and Wener note in their work, "rather than occupying available seats, many passengers opted instead to stand in places that maximized physical distance from other passengers (…) and various nonverbal indices of avoidance (e.g., minimal eye contact, bodies turned towards the sides of the car and away from people, arms crossed) were markedly elevated" (Evans and Wener, 2007, p. 90).

Passengers using strollers and users that were visibly pregnant experienced similar mistreatments onboard public transit. Roger Collier wrote a letter to the editor of the *Ottawa Citizen* entitled "Bus-riders should give moms-to-be a seat" wherein he encouraged men riding the bus to "get off your lazy butts" (Collier, 2005). "My wife," he wrote, "who is six months pregnant, commutes daily between Kanata's Eagleson park-and-ride and Tunney's Pasture. To say she is showing is an understatement (…). You'd think men would be tripping over themselves to offer her their seat. Think again. Time and again, she's forced to stand for the entire 25-minute trip. And if someone does offer their seat, it's unusually another woman" (Collier, 2005). Another story that highlights gender and the experiences of female riders with children was published on September 3, 1997, in the same newspaper and was entitled "OC Transpo Driver Forces Tired Tots into Two-Hour Walk" (Cote, 1997). "It was July 21, a Monday," this article began, and "Glebe caregiver Megan Malloy had planned an excursion to the Museum of Civilization for her charges and a fellow caregiver. The youngest child was a year old, the oldest was six. Two were in strollers" (Cote, 1997). The article continued that:

> The party left the museum shortly after 3:30p.m., the official start of rush hour as dictated by OC Transpo. The bus, a number 8, pulled into the stop, the children and adults boarded. The driver told them to get off. The reason? Strollers, the driver said, weren't allowed on buses during rush hour. Further, Ms. Mallow said, the driver saw that two of the children were asleep and that, he said, was not allowed either. The children had to be awake to get on the bus. The driver didn't allow room for any debate, even though he was dead wrong in his assertions. But Ms. Mallow and her troop felt they had no choice but to back off and begin walking back to the Glebe." (…) "While the children didn't complain one parent did. Kerri-Vaughan Lynch was incensed at what went on. The mother of one of the children on the walk, a two-year-old boy, she couldn't believe the insensitive way in which the driver handled the affair. "What bus driver in his right mind would make a two-year-old walk from Hull to the Glebe?" she asked. "Where did this no-stroller policy come from? What are the people at OC Tranpso thinking?" she wanted to know (Cote, 1997).

As this account highlights, the place of strollers onboard transit was a given that was assumed by passengers but seemingly unclear to certain operators who, in some cases, believed that the presence of strollers during certain hours was forbidden; this, however, what not in any by-law. It appears that other passengers, who did not regularly make use of these mobility childcare technologies, also shared the opinion that strollers should not be allowed on transit during peek hours. Margaret Griffin, for example, stated her thoughts in a letter to the editor, "Irksome Inconvenience", in February 2007. "Strollers, wheelchairs, walkers and such," she wrote, "should be prohibited in buses at peak hours. I am sure there must be a boss somewhere in our local government who can put such a limitation in force" (Griffin, 2007). This type of statement, which seeks to govern the behaviours of equity-deserving riders, echoes, in its own way, the sentiments expressed by male riders in Chapter 5 of this study, who felt that that these users were challenging the traditional use, function, and role of public transportation. Taken together, these examples highlight the gendered and ableist implications of the history of development and use of public transportation which were detailed in Chapter 3: "Men on

Streetcars Allowed to Smoke": The Role and Rise of Public Transit in Ottawa, Ontario, and have been studied in the associated scholarship (Davis & Lorenzkowski, 1998; Pederson, 2020; Uteng & Cresswell, 2016). As Ottawa's public transportation service was designed by men in order to meet the needs of the local industrial workforce, which was masculine in makeup, it stands that the city's urban transit network was built to reinforce a gendered and ableist understanding of mobility that was directly connected to paid employment outside of the home and the movement of *working* male bodies.

"As it turns out," the "Tired Tots" article continued, "the driver wasn't thinking (…). The forced walk should not have happened" (Cote, 1997). The piece ended with a quote from Oxana Sawka, the OC Transpo's Director of Community Relation, who reinforced that strollers and other large mobility devices are allowed on buses at any time, "provided they can be accommodated without creating a safety hazard" (Cote, 1997). "If the bus is very crowded," she continued, "the driver may request that the stroller be folded to reduce the potential of injury" (Cote, 1997). To ensure that this type of operational error did not happen again, OC Transpo issued a bulletin to operators reminding them of the guidelines surrounding strollers, as described above, and how to interpret them (Cote, 1997). It would appear that the bulletin worked, as the *Ottawa Citizen* did not publish another complaint from stroller users until about a decade later, in 2008. However, in October 2008, the experience the newspaper shared resulted in considerable backlash for the provider, increased distrust and animosity amongst passengers, a revision of the existing by-law for priority seating, and a reframing of designated priority users.

On October 6, 2008, the *Ottawa Citizen* published an article entitled "'The mean bus driver took me away from mommy': OC Tranpso driver suspended for driving away with two-

year old after slamming door on mother, baby following dispute" (Gonczol, 2008) (Figure 33 – on the following page) which provided a detailed account of a horrific bus trip for everyone involved. "A bus pulled up about 5:45," the article began, "and when the door opened, two-year-old Aimee dutifully scrambled up the stairs, sat down and waited for her mother to follow with her seven-month-old sister, Lea-Marie, who was in her stroller" (Gonczol, 2008). Sarah Pacey, a resident of Blackburn Hamlet, wasn't the only passenger with a stroller attempting to board the bus that day, which resulted in "a heated argument with the driver and led to a terrifying experience for the single mother and her little girl" (Gonczol, 2008). The article continued that:

> When the driver opened the door and saw the two women, he told them only one of them was going to get on the bus, Ms. Pacey said. She told him they should both be allowed to board since there is no policy specifically limiting the number of strollers and the bus was "pretty much empty." Without hesitating, the driver again told the mothers only one of them was getting on. "He was saying fight for the spot, essentially," said Ms. Pacey. But the 24-year-old, who has taken the bus regularly since she moved to Ottawa 14 years ago, knew that wasn't right. She again told the driver they should both be allowed to board and said she wanted to speak with his supervisor. The driver refused, prompting other passengers to argue that both women should be allowed to board. "I said, 'No, you can't refuse us,' and he was like, 'No – I can – and only one stroller'," Ms. Pacey said (Gonczol, 2008).

The bus driver then closed the door on Ms. Pacey and proceeded to drive away without knowing either of them knowing that her daughter, Aimee, was on board. "I look at the bus and I see her head and she's going away from me and I'm thinking 'Oh my God'," (Gonczol, 2008) she shared. "I lost it. I was running with the stroller and I was thinking, Oh my God please don't let the stroller flip and I'm thinking is he seriously taking her from me?" (Gonczol, 2008). About 100 metres from where the bus had left Ms. Pacey on the curb, the driver stopped and as the door

opened, Ms. Pacey overheard “passengers screaming at the driver for what he had done” (Gonczol, 2008).

Figure 33: Sarah Pacey and her children in front of a high-floor bus. Credit: Ottawa Citizen, 6 October 2008.

Unfortunately, in an effort to lodge a complaint immediately following the event, Ms. Pacey was unsuccessful in reaching anyone at OC Transpo so she called the police. “Not long after,” the article continued, “the OC Transpo supervisor appeared and the bus driver was ordered to return to the scene. City of Ottawa spokesman Michael Fitzpatrick said yesterday the driver was immediately suspended pending the conclusion of an internal investigation, which is expected to finish today” (Rupert, 2008). Fitzpatrick also confirmed that there was no official OC Transpo, or City of Ottawa, policy that limited buses to one stroller but he noted that “drivers do, on occasion, restrict the number if they feel they are blocking the aisles or if the bus is too crowed or whatever” (Rupert, 2008). This article describing Aimee and Ms. Pacey’s experience

powerfully highlights the types of problematic scenarios that arose as a result of both vague by-law policies coupled with harmful legacies of gender, use, and design that informed the social understanding and operational oversight of Ottawa's conventional public transportation system.

In response to this event, the OC Transpo's operator's union, as well as the public, had become quite involved in the outcome of the driver. In highlighting how material culture can affirm and reaffirm who a given technology is intended for, Mr. Cornellier of Transit Union local 279 was quoted saying, "How is the driver supposed to know who this kid belongs to? Honestly, c'mon. Let's be fair here. It's important to remember that the 94 that day was a high-floor bus, with a narrow aisle and no folding seats in the front to accommodate strollers and wheelchairs. (…) The issue of strollers is making the operator's life ever more complicated" (Egan, 2008). This statement from Cornellier suggests that some operators and administrators perceived of strollers as presenting an incongruent relationship with conventional bus technologies, which informed, to apply Garland-Thomson (2011) concept, a misfitting experience for stroller users who needed to use the city's bus service. Several letters to the editor expressed a similar disdain for strollers on buses, sharing sentiments like "I find that strollers have become a major headache for bus drivers and other passengers. I am fed up with tripping over them while trying to get seated before the bus starts," and "Recently, I was on a regular size bus that had four strollers of various sizes crammed in at the front. No bus is wide enough to accommodate that many," and "I can remember when strollers (foldable type preferred) were allowed on OC Transpo at the driver's discretion. Now that most buses are low-floor type, many parents can easily bring huge carriages and double strollers. I think that's an abuse of privilege" (Unknown, 2008). These public responses are presented here as they indicate an perceived and shared social appreciation of this technology and service that was deeply gendered.

Ultimately, Cornellier pointed to the OC Transpo and its lack of clear policy regarding strollers as the primary cause of the incident concerning Ms. Pacey and her children. “It has no policy, period” he said, “it reacts to complaints by saying, “Hey, don’t look at us, the driver decides what to do with this baby fleet, not us” (Egan, 2008). One letter to the editor reiterated this understanding, sharing that the OC Transpo “has thrown the ball to drivers and wished them good luck. It need not be this way” (Unknown, 2008). At this point in time, OC Transpo clearly recognized that something had to be done and unconfirmed rumours swirled that this would involve banning strollers from conventional buses (Unknown, 31 July 2008).

In response to the attention Ms. Pacey’s experience received, the City of Ottawa tasked the Transit Committee with reviewing and possibly amending the existing by-law. On December 9, 2009, City Council received the Transit Committee’s report from Nancy Schepers, the Deputy City Manager of Infrastructure Services and Community Sustainability. The report was called “Priority Seating – Managing the Front of the Bus” and began by sharing that:

> OC Transpo has received numerous complaints from customers and operators about the challenges customers face in the front of the bus. There is a safety concern for all passengers, including: manoeuvring around a variety of devices (particularly strollers); difficulty for persons with disabilities to easily gain access to special seating; people being unable to proceed to the back of the bus due to bottlenecks in the Priority Seating area; and, loss of space for standing passengers. There is also the issue of customers not vacating the Priority Seating area, with operators being required to intervene more often than before (Transit Committee, 2009).

In order to provide direction to the city, the Transit Committee reviewed how other transit agencies were addressing similar issues, and focused heavily on their approaches to stroller policies. The committee found that related policies could be grouped into three general approaches to stroller inclusion, which were: 1) the creation of special stroller spaces that could

be used on a ‘first come, first serve’ basis; 2) strollers could be used on buses but operators could ask users to fold and stow them; and 3) all strollers were expected to fold and stow immediately upon boarding (Transit Committee, 2009).

As a result of this environmental scan, the Transit Committee proposed a new stroller policy intended to provide a method for “operators and riders to better manage the front area of the bus in a safe and consistent method” (Transit Committee, 2009, p. 2). The new stroller policy was geared at limiting the size and number of open strollers on board a conventional bus at any given time. It included a description of eligible open strollers, noting that the mobility technology had to be capable of being folded, being safely stowed so that it would not interfere with other passengers or with the “safe movement of passengers within the transit vehicle” and could be wheeled or carried through the vehicle without bumping into seats (Transit Committee, 2009, p. 2). Any stroller that was occupied by a child could remain in use upon boarding, but any empty strollers had to be stowed. The new policy also included regulations that attempted to strictly control what spaces open strollers could occupy. For example, it indicated that open strollers carrying children must be placed in wheelchair positions as they were no longer permitted in the aisle. This suggests that the space was designed primarily for wheelchair users and not for other mobility technology users. It also noted that “only one wheelchair position may be used for open strollers at any one time” even if the other was empty and that “smaller strollers may be double-parked in a wheelchair position” (Transit Committee, 2009). Ultimately, single strollers and double-strollers were permitted on conventional buses only if there was a wheelchair space available. The new policy restricted the use of “triple-strollers and other multiples or configurations (…) due to safety issues, particularly in the case of emergency situations” (Transit Committee, 2009). Ultimately, the new policy placed strict controls on how

strollers could be used on the bus in order to prioritize space and transit use for passengers in wheelchairs.

Alongside this revised stroller policy, this proposed by-law also attempted to create a sense of community and co-operation between riders so that those that could would give up their seats when a passenger who visibly identified as a priority passenger boarded the bus. In this way, this revised policy attempted to give operators more clearly defined tools to manage passenger conduct which had a direct impact on operations. "The challenge of encouraging people to give up their seat," the report noted, "is one that is prevalent in most properties" (Transit Committee, 2009, p. 3). "At one time," it continued:

> Priority Seating was referred to as Courtesy Seating, and the expectation was that people would take it upon themselves to "do the right thing" and give up their seat for those who needed them most. Over time, however, it appeared that fewer individuals were prepared to give up their seats without additional prompting. They simply did not notice others on the bus or refused to do so out of sheer disregard for other bus riders. Courtesy Seating progressed to Priority Seating and by-laws were instituted as a hard-line approach to prompting riders to give up their seats. At OC Transpo, this by-law is seldom enforced except in particularly difficult cases where a number of other regulations have already been broken by the individual. While the by-law is one vehicle that could be further exploited to prompt attention to the issue, it is seldom wise to pit one group of customers against another. Enforcing the by-law as a means of influencing people's behaviour (in this case) would have the undesirable effect of creating discomfort and further alienation between people with disabilities and those without disabilities (Transit Committee, 2009, p. 3)

With this in mind, the proposed new by-law suggested taking a co-operative seating approach which, through the use of decals (Figure 34), seat identifications, and several types of campaigns, would prompt able-bodied passengers and passengers not using mobility devices to "move to the back of the bus, while those customers choosing to sit in the defined Co-operative Seating area would be shown the behaviour expected of them" (Transit Committee, 2009, p. 3). Within the general Co-operative Seating category, Priority Seating was reframed as a special priority group of passengers, but the language remained consistent with definition and framing that appeared in the 2007-268 by-law.

Figure 34: Cooperative Seating decal found in OC Transpo's conventional fleet. Credit: OC Transpo.

Before submitting its anticipated reworked by-law, the Committee shared its proposed Co-operative Seating and Stroller Policy with the City of Ottawa's marketing, operations and maintenance departments, the Department Management Team, and the Bus Technical Advisory Committee, which included bus operators and mechanics. The Committee also presented this work to the city's Senior Advisory Committee, the Accessibility Advisory Committee, and the Pedestrian and Transit Advisory Committee who provided feedback; unfortunately, these details have not been preserved. Notably, the Committee brought this proposed by-law to two focus groups (of unknown demographic makeup) made up of frequent transit riders who were, overall,

quite positive about the direction (Transit Committee, 2009, p. 4). “Some of the participants,” the report suggested, “thought a softer approach might result in more people thinking that giving up their seats would be optional, rather than a requirement, while others declared that they would be more likely to comply if they felt good about the decision they had made, rather than being forced to do it by law” (Transit Committee, 2009). As such, the new 2009 proposed by-law indicated that OC Transpo should maintain its current approach to strollers. While the recommended approach did not include a stroller ban, like some Ottawans had called for, Vicky Kyriaco-Wilson, manager of marketing and customer service at OC Transpo, observed that, with the proposed approach, there were few protections in place for strollers so “things are going to maintain status quo” (Cockburn, 2009) (Figure 35).

Two months later, in February 2010, the Ottawa Citizen published an article entitled “Stroller on buses debate returns to committee” (Cockburn, 2010). “For the second time in three months,” the article continued, “the transit committee will discuss whether open strollers should be allowed in bus aisles, after a pair of council advisory committees – representing seniors and people with disabilities – suggested restrictions” (Cockburn, 2010). In the City Council’s report on the matter to the Transit Committee and Council, the Seniors Advisory Committee (SAC) and the Accessibility

Figure 35: Emelyne Ndayizeye with one-year-old daughter on an OC Transpo bus leaving the Rideau Center. Credit: OC Transpo, 19 November 2009.

Advisory Committee (AAC) shared their separate recommendations. The Seniors Advisory Committee recommended that Priority Seating be "prioritized as follows: a) Persons using wheelchairs or scooters; b) Persons with disabilities, seniors and people with walkers; and c) Children in strollers" (Transit Committee, 2010). They also put forward a maximum size on strollers (122 cm long by 60 cm wide) and suggested banning oversized strollers and jogging strollers. The SAC also recommended that the OC Transpo be requested to examine the "feasibility of expanding the priority seating area at the front of the bus by making more accessible spaces available" (Transit Committee, 2010, p. 1). This recommendation is worth noting as it was the first, and seemingly only, time that the call to create more priority seating space, by way of adapting the fleet, was raised in the consultation and review process. For their part, the Accessibility Advisory Committee kept its recommendations focused on stronger stroller controls. The AAC sought to include recommendations that would see fold-and-stow be the default policy for strollers, with only an exemption for double strollers holding two children. They also put forward the following, which clearly articulates the hierarchy between wheelchair users and passengers with children in strollers, noting that:

> that should the operator allow the boarding of an open stroller, then: a) an open stroller carrying a child must be placed in a wheelchair position if available; b) should a wheelchair position not be available, open strollers will be allowed in the aisle unless they interfere with other passengers or with the safe movement of passengers within the transit vehicle; and c) should an open stroller be in a wheelchair position and a person using a wheelchair boards and needs that position, the customer with the stroller will be required to move (Transit Committee, 2010).

Catherine Gardner, the Chairperson of the Accessibility Advisory Committee, was quoted saying that the committee "also wants a stroller size restriction (…) as there are other 'mobility devices' that parents can use, such as pouches and strollers that they can carry and fold (Cockburn, 2010).

It should come as no surprise that many Ottawa parents and guardians, who were not given a chance to formally contribute to this report, took issue with these recommendations as they impacted their use with seemingly no compromise from other passengers. In an article written by Ottawa Journalist Joanne Chianello entitled “Transit-riding parents set to fight for stroller space” (Chianello, 2010), many parents described their experiences with the difficulties navigating stroller use on conventional transit given the current policy. For example, Brianne Marvin (Figure 36) who travelled on one of OC Transpo’s transit-route buses every day, indicated that the new policy would mean that she would “never be able to get on my bus” because “I’m always going to be obstructing someone’s ability to move” (Chianello, 2010). Parents and guardians reflected on the need for operational policy but questioned why the policy assumed that “one group is not worth making space for” (Chianello, 2010). Chianello interviewed Amanda Potts, who regularly

Figure 36: Brianne Marvin and son’s public transit use was at risk due if a stroller-ban went into effect. Credit: Ottawa Citizen, 17 February 2010.

used the bus with her 20-month-old-son. “Potts says that members of her online group of downtown Ottawa parents recognize that some people, like those in wheelchairs, should get priority seating” (Chianello, 2010) the article read. It continued, “there will be situations where there will have to be ranking of needs. But it seems to me that council’s and OC Transpo’s job should be to minimize that, not to acknowledge that it exists and to codify it. (…) Strollers are not a choice, they’re part of the way we move our children safely,” said Potts. “We’re using public transit the way other people use it and we’re not taking up more space out of a desire to take up space, but out of a need” (Chianello, 2010).

The City’s Transit Committee ultimately recommended to Council a very similar version of the policy they had agreed to in 2009. It included the following practice that remains in place today: 1) strollers must be placed in a designated wheelchair spot if one is available; 2) if a wheelchair spot is not available, strollers are allowed in the aisle; 3) if a passenger using a wheelchair boards, a stroller in a designated spot must move into the aisle; and 4) if the stroller in the aisle is blocking or interfering with the movement of other passengers, the operator may ask that the stroller be folded (Chianello, 2010). Bay Councillor Alex Cullen characterized the policy as “not a great result (....). We are really left with not a lot of direction – no direction on the size of strollers, how many strollers and what possible problem they may cause” (Chianello, 2010). The new policy did not explain what happened to an open stroller on a route that becomes increasingly crowded nor did it respond to concerns raised by the Seniors Advisory Committee or the Accessibility Advisory Committee, or from families, for that matter. Ultimately, as an article in the Ottawa Citizen observed, “passengers have no real guidelines that tell them what they can expect when getting on a crowded bus, whether they use a wheelchair, a walker, or have a baby in a stroller” (Chianello, 2010).

One month later, in March 2010, the policy was amended yet again to add a clause that required OC Transpo to offer training to their staff regarding how to deal with conflicting passenger needs. This type of training was already part of operational onboarding but the addition of this recommendation in the policy highlights the fact that, despite decals, campaigns, and general communications, passengers were still unclear about what they could expect upon boarding a conventional bus, regardless of the mobility device they used. General passengers' established behaviours, similar to those explored in Chapter 5 in relation to the smoking ban, require(d) express attention as they were informed by a gendered and ableist history of public transportation that did not readily make space for equity-deserving or marginalized users. As such, despite the intentions of priority seating (both the physical space and the associated by-laws), it has remained a contested space for marginalized users since its initial redesign in the 1950s.

Ultimately, the development of the City of Ottawa's policy on stroller use and its communication of its approach to cooperative and priority seating sowed division among its conventional transit users, particularly those that used mobility devices. The *Ottawa Citizen* published an anonymous letter to the editor called "Sowing Division" that tellingly described the shortcomings of the new policy. It read:

> City councillors and staff have done a disservice to parents of young children, as well as seniors and people with disabilities, by forcing them to duke it out over who should priority on Ottawa buses. (…) The fact is, many people who depend on public transportation have needs that make riding buses a challenge. It is up to city and transit officials to find a common-sense way to accommodate passengers and preserve ridership. Instead, the city has managed to make passengers of all stripes feel dissatisfied and unwanted – not a great message from a transit service still trying to win bake riders after a disastrous strike last year.

> Last week, a group of mothers with strollers along with other bus riders, including a man in a wheelchair, showed up before the city's transit committee to explain why buses are a challenge for them. It's true that various groups can have conflicting needs. Seniors and people with disabilities have genuine concerns about navigating bus aisles clogged with big baby strollers; meanwhile, for parents of young children, strollers are essential equipment, like diapers.
>
> But it's unnecessary for the city to force members of these groups to take on the roles of mutual adversaries, especially when actual confrontations are rare on buses. In the vast majority of cases, common sense and co-operation – on the part of drivers and passengers – will solve any serious issues involving strollers and mobility (Unknown, 2010).

The fiasco associated with the creation and evolution of the City of Ottawa's stroller policy on OC Transpo buses highlights the tensions that existed between various passenger groups in their efforts to use the accessible seating at the front of the bus. Unfortunately, the history of local mobility-access described in this chapter is not surprising, as it has been noted for many decades in the field of feminist geography and social justice that the needs of women and other marginalized groups are often overlooked in the planning and delivery of public transport services (Hanlon, 1996; Fritze, 2007). The material culture and operational standards used onboard Ottawa's conventional transit during the mid to late 2000s can be seen as both reflecting gendered and ableist assumptions about mobility use and reaffirming how certain passengers are valued (or not) within their community (Woolcock and Steele, 2008). Ultimately, *Users, Gender, and Access* observes that, where marginalized users, particularly women using strollers, are concerned, underlying assumptions continue to challenge their use and sense of belonging onboard public transportation, despite built and operational changes. The language shared in this chapter, primarily through newspaper accounts and municipal reporting, indicates that some passengers perceive the presence of mobility technologies, especially strollers, on public transportation as dangerous to the safety of the larger category of users, who do not

require use of the priority seating area. Given the history of exclusion and harassment that marginalized users have experienced, as was described in Chapters 5 and 6, this final chapter suggests that there exists a strong disconnect between the ways in which mobility technologies are perceived, experienced, and required in relation to conventional public transportation service in Ottawa; one that is deeply informed by the original design, function, and intention of the city's public transit service, as shared in Chapter 4: "Men on Streetcars Allowed to Smoke": Gender and the Role and Rise of Public Transportation in Ottawa, Ontario.

Transport is one of the key ways through which equity-deserving groups, among them women, those caring for children, and people with disabilities, can claim their social rights (Levy, 2013). Although a just public transport system must consider the needs of its most vulnerable users, public transport spaces are problematically produced as gendered spaces wherein certain mobilities, such as wheelchairs and strollers, are used within a space where they are generally understood by society as being out of place (Chomiak, 2014) or as a misfit (Gardland-Thomson, 2011). As a result, and as this chapter has established, public transit is failing to meet the needs of passengers who use mobility devices and use priority seating because providers do not truly understand their transport needs. As disability activists Mary Johnson and Barrett Shawn stated in their landmark study *To Ride the Public's Buses: The Fight that Built a Movement* (2001), for certain types of passengers "the battle over the right to ride the public's buses is not over – it may, in truth, never be over" (p. 178).

Conclusion

In the years since the establishment of Ottawa's priority seating by-laws and transition to a complete fleet of low-floor conventional buses, sustained discussions have persisted surrounding access and inclusion. Operational developments, such as the integration of stop announcements, were, for the most part, approached through collaboration with equity-deserving and marginalized riders and communities so that the services intended for their use actually met their needs. Issues of safety and access, however, persist. In 2013, just few years after their fleet was deemed "fully accessible" (Unknown, 2011), the OC Transpo completed a customer survey focused on passenger safety and comfort, particularly at night. This survey found that only 49 per cent of women felt safe waiting at a bus stop late at night and 57 per cent of women felt safe riding the bus a night (Mills, 2014). In an effort to address these concerns, OC Transpo implemented a Safe Stop program that allowed passengers to request that the operator stop closer to their destination along the route after 7pm. This effort suggests that OC Transpo recognized the impact that operational changes had on transit equity, despite some operators criticizing female passengers for requesting this service (Unknown, 2014).

Approaching Users, Gender, and Access in the Context of Public Transportation

In order to critically re-examine Ottawa's public transportation history through the lenses of users, gender, and access, this dissertation was guided by a series of questions that were, ultimately, informed by the material culture and lived experiences of urban mobility use in Ottawa during the 20th century. While this dissertation was particularly inspired by Ingenium's 1927 streetcar (Artifact No. 1971.0384), it endeavoured to answer the following questions in order to consider the changing relationship between users and technology with express attention

to marginalized users and the adaptation of public transportation's material culture and operational services in Ottawa between the early 1900s until 2011: 1) How did the design of public transit systems and technologies create categories of users? What role did gender and disability play in the shaping of these categories?; 2) How has the design of public transit changed over time and, more specifically, how did the OC Transpo attempt to create barrier-free public transit, by way of adapting their services, and what role did members from the disability community play therein?; 3) How does the legacy of design shape our present understandings of, and relationships, with contemporary technologies, specifically those of marginalized users and Ottawa's public transportation system (conventional and specialized?; and 4) Why does public transit still remain problematic for marginalized users, specifically those using wheelchairs and those with strollers?

Guided by these questions, and the research and findings they incited, this dissertation contributes new theoretical, empirical, and methodological knowledge to the fields of transportation, gender, and disability history. It offers these fields an exploration of a changing public transit system through the perspectives of users in order to consider the ways that marginalized users have challenged standards and stereotypes associated with urban mobility. This work, in particular, traces the distinct and shared experiences individuals using mobility devices, women, and mothers using strollers to transport their children, in their ability to use public transportation technologies; framing these experiences with the context and history of related legislation, policy, cultural shifts, and related access discourse. As such, this work considers the shared, overlapping, and at time disconnected needs of users and their complicated and complex relationships with technology. *Users, Gender, and Access* provides a case study for using material culture and oral history methodologies to further our understanding of the

reciprocal and constitutive relationships between users and technology, particularly where gender, mobility, and access are of concern and interest.

Substantive Chapter Findings

In order to properly explore the key questions of this study and to ensure that developments and events are rooted in the necessary historical contexts, this dissertation was divided into four substantive chapters. Each of these chapters focused on a specific time period, user and public transportation technology development (making, crowding, adapting, challenging), and, therefore, offered a distinct, yet chronological, contribution to the history of public transit in Ottawa. Chapter 4: *"Men on Streetcars Allowed to Smoke": Gender and the Role and Rise of Public Transportation in Ottawa, Ontario*, explores the historical background of urban transit in Ottawa, Ontario, beginning in the late 1800s. Based on archival research and findings, this chapter suggests that Ottawa's first public transportation system was designed to support the local lumber industry. In so doing, this chapter highlights the close relationship between public transportation and this industry, and emphasizes the strong gendered nature of both sectors. It suggests that the initial decisions that informed the design and layout of the transit system were deeply gendered and labour driven which, in turn, has had a lasting impact on the social-technical function and gendering of public transit in Ottawa. The following section, Chapter 5: *"Ladies will kindly refrain from using abusive language": Female Passengers Challenging Public Transportation Norms from 1939 to 1959*, examines how changing passenger demographics, notably the increase of female riders during the Second World War, challenged the initial, or conventional, function and gendering of Ottawa's public transportation service. Although the material aspects of transit remained unchanged, the ways in which this

mobility service was utilized witnessed a marked transformation. Women, now using public transportation more extensively and diversely than ever before, disrupted pre-war assumptions about its intended users and the functionality of this technology, more broadly. However, this chapter underscores that streetcars were not entirely safe for female riders, during this period, as they faced harassment and physical difficulties in their efforts to board, use, and disembark from these technologies. This chapter is thus crucial to understanding the impact of gender in shaping the use of public transportation technologies.

With the development of Ottawa's public transportation system clearly stated, and the first example of how marginalized users challenged and attempted to change the gendering and usability of mobility technologies in this city, this dissertation moves on to explore what prompted the first major adaptations to the design of urban transportation technologies. As *Users, Gender, and Access* demonstrates in Chapter 6: *"If people can move around without too much hassles, they're going to be part of the community": The Context and Development of OC Transpo's Accessible Conventional Fleet and Para Transpo Service, 1945 to 2011*, it was only in response to increased awareness regarding disability needs, legislation, and rights that the material culture of public transit was adapted. As such, this chapter offers an important contribution to the existing body of knowledge surrounding accessible transportation histories in Canada. It examines the context for the development of adapted public transit vehicles in Ontario in order to situate Ottawa and OC Transpo's efforts to create and sustain accessible services. OC Transpo's efforts were influenced and informed by a host of events, factors, and individuals and so this chapter explores the evolution of urban mobility services in Ottawa at the global, national, and local level. Initially supported by volunteer efforts and municipal programs, accessible transportation services gained momentum in the late 1970s, leading to the establishment of Para

Transpo in 1981. The 1980s and 1990s were pivotal in the development of OC Transpo's accessible transit plan, and this chapter highlights the crucial roles of individuals and organizations in advocating for disability justice and mobility access.

And finally, Chapter 7*: "We're using public transit the way other people use it and we're not taking up more space out of a desire to take up space, but out of a need": Establishing a By-Law on Priority Seating, 2005 to 2011*, examines the development of the City of Ottawa's Priority Seating By-Law, with express attention to the OC Transpo's stroller policy. This chapter ultimately demonstrates the legacy of gendered design that was explored in Chapter 4. Despite changes to the material culture of Ottawa's transit offerings, as Chapter 6 examined, OC Transpo's approach to its service remained rooted in gendered and ableist assumptions about its passengers and their needs. This, as this chapter indicates, has resulted in the continued undervaluing and underserving of certain passengers, particularly those using mobility devices. Public transportation is crucial for equity-deserving groups, yet the gendered legacy and operational history of this service continues to inform current operational standards that result in inaccessible urban mobility experiences for marginalized users.

Contributions from *Users, Gender, and Access*

The relationship between gender and technology informs how users experience technology and the ways in which technologies are considered. Through the design, construction, and implementation of transport technologies and systems for able-bodied male workers, transit companies propagated and reinforced a deeply gendered and ableist understanding of the role and function of public transportation in everyday life. As *Users, Gender, and Technology* has explored, this shaping can be seen through elements such as the initial setup of public transit

infrastructure, including the design of the technology, the implementation of the fee structure, and the preferences given in service. Given the gendering of public v. private spaces and the masculinization of industrial labour, Ottawa's first public transit lines were intended to be used by men, specifically by male labourours. This appreciation was reinforced throughout the manufacturing process and through the operational oversight of services which influenced how Ottawa's public transit was used during the period in question. Gendering of technology can also be explored through the material culture of technologies of mobility such as streetcars and buses. This is an important issue presented in this work as scholarship that addresses material culture and gender typically focus on domestic technologies and clothing. By examining technologies of mobility, this thesis offers nuanced insights into the ways in which materiality shapes gender, space, and access.

This inquiry is critical to understanding the legacy of initial design and operational decisions and their impact on different user groups, urbanization, and questions of equity and accessibility. In their effort to offer reliable service to one specific user group, public transit system providers inadvertently designed out, or excluded, categories of users, which, for the purpose of this study, included women, mothers with small children and strollers in tow, as well as individuals using mobility devices such as wheelchairs among other mobility technologies. The layout of transit routes coupled with the inaccessibility of omnibuses, horsecars, streetcars, and, more recently, buses due to their design meant that certain potential passengers quite simply could not physically board, or manoeuvre once on board, these urban transportation technologies as the physical barriers of riding, the gendered nature of ridership, and mobility politics prevented them from fully accessing transit throughout the 20th century. For these users, public transit was unavailable, inaccessible, hostile and uninviting, as well as a place or space that often

led to animosity or problematic encounters with other users. This study offers an intricate example of the long-term ramifications of design and its influence in shaping user-gender-technology dynamics.

Another significant issue raised in this thesis is the role of the built environment in creating inaccessible spaces and informing disability. The social model of disability and the work of feminist disability scholars suggest that it is when one's impairment is subjected to an inaccessible environment that disability arises. Prior to the 1980s, public transit systems across North America presented barriers to any user with a physical impairment as all conventional services operated high-floor buses. Prompted by, and in response to inclusive legislation and disability rights activism in North America during the 1960s, public transit system providers, like OC Transpo, began to explore various adaptive design elements to their vehicles, such as the addition of grab rails, low-floors, ramps, and assigned priority seating, in order to make their services physically accessible, as well as safer, to a greater number of possible users. In the 1970s, citizens in Ottawa began offering automobile transportation services to those who used a mobility device, like a wheelchair, and could not make use of the conventional fleet. These operations were precariously funded but demonstrated the need and impact of accessible and accommodating services for a greater range of passenger needs. Eventually, OC Transpo assumed responsibility for this service and it became a separate, parallel system for passengers with mobility impairments. During the 2000s, despite an initial failure on the part of the OC Transpo to adhere to their commitments, the transit provider purchased more low-floor or kneeling buses when its older fleet vehicles were retired. In doing so, OC Transpo attempted to address the built environments which had been problematic, if not preventative, in providing accessible transit to passengers using mobility devices, especially those in wheelchairs.

Within this history of transitioning from inaccessible, to adapted, to more accessible public transit offerings, another important issue that this thesis raises is the iterative nature of the redesign process. Prior to the late 1980s, there was no blueprint or standard for designing accessible public transit. As Chapter 6 examined, critical legislation and safety codes were, ultimately, instrumental in formalizing accessibility standards but they did not lead this work. Disability movements, advisory committees with firsthand experience, and the activism of equity seeking groups and/or individuals were catalysts in pushing for and informing this process. The weight and impact of their contribution, based on their knowledge and insight, cannot be over stressed.

Despite these developments, many these marginalized users continue to be underserved by Ottawa's public transportation system through the operational hierarchical treatment of passengers, hostile experiences and confrontation with other users, and confusion and animosity among *priority* passengers in their effort to make use of the front of the bus. During the late 1990s and early 2000s, for example, OC Transpo witnessed increased tensions between wheelchair users and mothers with strollers as they competed for the limited priority space available to them on-board busses. This matter was made worse by the fact that, until 2009, the priority seating area on an OC Transpo bus functioned on a first come, first serve basis. When conflict arose between users in wheelchairs and users with strollers over who could use this limited space, it was up to the bus driver to decide who had the greater, or perceived greater, priority. In many cases documented in the *Ottawa Citizen*, bus drivers tended to side with wheelchair users and, as such, they instructed mothers with small children in strollers that they had to disembark and wait for the next bus. This type of response from authority exemplifies the persistence of a hierarchical understanding of users that is based around the gendering of both

technology and space. While passengers in wheelchairs and those with strollers continue to face social and physical barriers in their ability to use mass transit, the development of the Priority Seating By-Law, as was examined in Chapter 7, suggests that ideas, stereotypes and biases associated with gender, in particular, continues to inform how people use, perceive, and understand this technology. As such, *Users, Gender, and Access* acknowledges that changes to the built environment are only one part of addressing the accessibility of mobility services; operation and social understanding are of equal significance and relevance in terms of mobility access.

In conclusion, this dissertation has investigated the gendered and ableist dimensions of public transportation in Ottawa and has revealed the historical biases inherent in transit design. These, as this work notes, have resulted in the exclusion of women, mothers with strollers, and individuals using mobility devices from the safe and reliable use of this public service. By centering the material culture of mobility in this work, *Users, Gender, and Access* has sought to describe the iterative nature of technological adaption and its strong relationship with gender, access, and users. This work provides a case-study account of Ottawa and OC Transpo's efforts to establish and operate an accessible conventional fleet which is a history that was notably driven by volunteers, activists, and users, alongside directed legislation. Despite these efforts, a hierarchical treatment of public transportation users persists in Ottawa which is indicative of, informed by, and directly related to early decisions surrounding the form, function, operation, use of Ottawa's first public transportation service, some 150 years ago.

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