



# **GENDER INCLUSION AND RAPID TRANSIT FACILITY DESIGN**

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## Executive Summary

The **built environments** of rapid transit stations, while appearing “neutral” or beneficial for all on their surface, actually have ramifications for access along the lines of gender and sex. The barriers that prevent people of marginalized genders from fully accessing and enjoying rapid transit are not inherent or biologically innate, but a result of decades of gendered bias in city planning and transit design, also known as the “gender data gap” (Perez 8). Essential steps should be taken to alter the built environment of rapid transit stations in order to shift from a transportation system designed for adult, able-bodied, middle-class, cis, white men to one designed for all.

**Calgary, Los Angeles, Vienna, London, and Stockholm** are all taking measures to ameliorate gender bias in transit design. **International organizations** like the World Bank have also identified key areas of improvement for the built environment of rapid transit stations in order to make them more gender inclusive. Lastly, respondents to the **survey in Vancouver** have identified key built environment features that could improve access to rapid transit for people of marginalized genders. The following are examples of built environment elements that were identified as areas to attend to:

- Public art
- Technology (wayfinding, real-time information, emergency assistance buttons, charging stations for phones)
- Barrier-free access
- Storage for bags/other items
- Bike storage
- Fare gates
- Green space
- Lactation rooms
- Lighting
- Maintenance and cleanliness
- Seating
- Trans-inclusive/accessible washrooms

**TransLink and the City of Vancouver** are responsible for different items on the above list and should collaborate to implement built environment changes. These changes can be implemented through a **Gender Action Plan**, the **Gendered Landscape** method (as in Umeå, Sweden), and/or **Co-Design**. Future research should be conducted to identify necessary changes beyond the built environment that can facilitate gender inclusion in Vancouver’s rapid transit system.

## Introduction

Transit facility design has historically been and often continues to be a highly male-dominated field (Perez 42). Gender bias in design treats cis, able-bodied men as the default human being, and everyone outside of this category as a deviation from the norm. This has implications both in sex (ex. the impacts that pregnancy can have on accessing transit) and gender (ex. the different ways that men and women use transit as a result of gender roles and other patriarchal influences). Gender bias in the built environment is both influenced by and contributes to gender inequality, including access to employment, wealth accumulation/economic independence, access to basic services, social freedoms, personal safety, and agency in public decision-making (Terraza, Horacio et. al. 9).

This report aims to use an intersectional lens to identify gendered barriers to access and equity in Vancouver’s rapid transit facilities, with a particular focus on built environment. It will:

- Examine five cities’ progressive policies on gender inclusion in public transit to identify best practices
- Develop guidelines based on these practices and a review of the literature for gender inclusion in rapid transit facility design
- Provide an implementation framework that can be used for future transit station projects within the City of Vancouver

The aim of this report also aligns with other City goals:

- Greenest City 2050 aims to increase the number of people using public transit in order to reduce the number of cars and vehicles on the road that rely on fossil fuels and contribute heavily to greenhouse gas emissions (City of Vancouver 25).
- The Climate and Equity Working Group and forthcoming Equity Framework for the Climate Emergency Action Plan aim to make environmental changes to transit more accessible and equitable to everyone.

## Background

In her book *Invisible Women*, Caroline Criado Perez argues that “most of recorded human history is one big data gap” (8) which she calls “the gender data gap” (8). This gap is the result of the world being historically designed by and for men, and in Canada, usually by and for white, heterosexual, able-bodied, middle- and upper-class cis men. The consequences of the gender data gap are that men are treated as the default human being, and when people of marginalized genders are considered, they are deemed “niche” interest groups for whom special accommodations must be made, regardless of what portion of the population they represent. In truth, these “special accommodations” are usually just differences from men, whose needs are

addressed automatically and therefore not considered to be “accommodations”. Now, as Perez notes, “the gender data gap... is not generally malicious, or even deliberate...it is simply the product of a way of thinking that has been around for millennia and is therefore a kind of not thinking” (8).

In terms of public transit facility design, the presumption of cis male universality has the effect of privileging cis men’s access, comfort, ease, safety, and overall benefits at the expense of people of marginalized genders. For example, “public transit schedules are planned around the formal work economy and prioritize a pendular flow of trips made between peripheral areas and the center” (Blomstrom et. al. 5). Not only is this model limited to a very specific family and economic arrangement; it also results in men’s transit needs being prioritized over women’s. Because women are more likely to be responsible for care work and/or work multiple jobs, they are more likely to trip chain, use public transit during the work hours of the formal economy, and make trips in multiple directions, not just from peripheral areas to the center.

Importantly, this type of transit system is not only a result of heteronormative, patriarchal power and bias but is also designed to uphold it by restricting people of marginalized genders’ access to and use of transit. People of marginalized genders using public transit may experience:

- ‘Less access to economic opportunities and a gender pay gap
- Scattered destinations and travel times, frequent and short trips
- Time poverty [barely having enough time in the day to complete all required tasks], trip-chaining
- Frequent traveling with children and/or loads, physical restrictions
- Harassment in public space and higher vulnerability to crime
- Issues of orientation
- Social norms inhibiting certain travel options’ (Allen 7).

Often, those who are most in need of public transit face the greatest barriers to accessing it and are at the center of struggles for increased access. Therefore, the people who are most marginalized should be at the center of efforts to improve access and make transit more equitable. For example, in Vancouver, the prioritization of middle- and upper-class residents in the transit system has resulted in gentrification along the SkyTrain rapid transit line (Jones and Ley 9), elimination of bus routes that primarily benefit low-income workers, and other issues of economic inclusion. Also in Vancouver, a survey completed by SFU students in Vancouver identifies that “sixty-six percent of students experienced verbal harassment on the bus, of which females made up 75% while males made up 26%... [and] 54% of students experienced verbal harassment while traveling on the SkyTrain and/or West Coast Express, of which females made up 61%, while males made up 25%” (Norgaard 142). While this report will specifically focus on the built environment of transit stations, communication between different stakeholders including grassroots organizers is essential to properly address systemic barriers to access for

people of marginalized genders. As evidenced by the ongoing activism of local organizations and communities, the knowledge of how best to include people of marginalized genders and achieve equity in rapid transit comes from marginalized communities themselves. This report serves as a jumping off point for further research and conversations to be had with those most impacted by the built environment of Vancouver's rapid transit stations.

## Research Approach [Methodology]

A literature review of the history of gender inclusion in transit design, systemic barriers to access of marginalized groups, and best practices for gender inclusion was conducted in order to identify the main issues and possible solutions. A survey was conducted of transit users in Vancouver to determine the specific needs of the area. Best practices were identified based on the policies of five cities who lead the way in gender inclusion in transit. Three potential methods were identified to address gender inclusion in the design of current and future rapid transit stations in Vancouver.

## Gender and Sex Differences in Transit: Barriers and Opportunities to Use

*"Indeed, travel patterns are one of the most clearly gendered aspects of life." (Allen 10)*

This section largely focuses on the differences between men and women and males and females in transit use and access, based on gender roles and physical traits as well as potential policy responses and design elements that can improve people of marginalized genders' access to rapid transit facilities. It should be noted that many of the inequities that cis women face also apply to trans, Two-Spirit, and gender-nonconforming transit users, and are often amplified. Trans people also face unique barriers in transit use, some of which are discussed below. Gendered differences in transit use span economic needs, care work responsibilities, perceptions of belonging, feelings of safety, time allotment, and physical requirements. Gendered inequities in transit use are both caused by and feed into entrenched gender stereotypes, gender roles, and economic, political, and social inequalities between cis men and people of marginalized genders, creating a vicious circle of structural and systemic gender oppression. In addition, existing barriers to access along the lines of gender and sex are amplified by intersecting inequities of race, economic status, sexuality, ability, age, and migrant status.

In order to explore potential policy responses and design elements that can improve people of marginalized genders' access to rapid transit facilities, gender differences in transit use and issues of access must first be understood. Importantly, the problems identified in the following section

are not a result of people of marginalized genders being more “difficult” or needing “special accommodation”, but of years of gendered bias in transit facility design that privileged the needs of cis men. The following section of the report identifies differences in care work responsibilities, travel patterns, types of transit used, gender-based violence, use of transit at night, economic inequality, pregnancy and breastfeeding, bathroom use, size/stature, health concerns, and ability, as they pertain to transit use, as well as their intersections in populations like BIPOC women, sex workers, trans people, and people with disabilities. The pros and cons of some existing responses to these differences are also explored, but the most effective solutions are examined in the following section. While many of these gendered issues cannot be solved by transit design alone, design elements can help alleviate some of the burdens that these issues present and demonstrate support for people of marginalized genders’ safety, access, and empowerment.

Refer to **Appendix B** for specific examples/intersections of gender and transit use.

## Gender Differences in Transit Use

### Care Work

*“Gender stereotypes, which traditionally see men as ‘breadwinners’ and women as caregivers, mean that even where women are increasingly responsible for earning an income, unpaid care and domestic work still falls largely to them.” (Allen 11)*

Western public transit systems, in their historical formation, were heavily influenced by the racist, classist, heteropatriarchal structures of the late-19<sup>th</sup> and early-20<sup>th</sup> century settler-colonial societies in which they emerged (Terraza 26). Because the decision-makers at the time (engineers, architects, etc.) were largely white, cis, able-bodied, working men, they designed transit systems to meet their own needs.

The participation of women in the labour force in Canada has significantly increased since the 1970s, leading to more dual-earner families as well as lone-parent families (Moyser 1). The increase of women in the workforce in Canada and around the world has shifted gender roles within families, as has the legalization of same-sex marriage, resulting in a more equitable distribution of care work responsibilities.

However, women still spend more time on average than men performing care work, even when income level is taken into account (Horne et. al. 731). While wealthier families can often afford to employ someone to perform some or most of their care work responsibilities (ex. caring for children, cleaning, cooking, etc.), these care work jobs are largely dominated by women. Structural factors such as a lack of paid parental leave for fathers and a lack of changing tables in men’s restrooms compound these gendered divisions and deter fathers from taking on more care

work responsibilities. These differences in care work responsibilities result in different travel patterns between men and women (Blomstrom 6).

**Language Use Problem:** “Compulsory mobility” (Perez 43) is a term used to describe transit trips made for “employment and educational purposes” (43). The implication is that trips made for care work, including buying groceries and picking children up from daycare, are not compulsory but optional or additional.

*“In 1992, under pressure from feminists, Statistics Canada assessed the value of unpaid household work at \$285 billion, equal to 41 percent of the GDP and 60 percent of personal disposable income. By 1998 its value had reached \$297 billion.”* (Luxton 1)

### Trip-chaining

*“A trip chain is a sequence of trips linked together between two anchor destinations, such as home and work.”* (McGuckin and Nakamoto 50)

One result of this gendered division of care work is that women are more likely to engage in trip-chaining. The majority of trip-chaining stops are taken to perform care work activities like run errands and drop off passengers (McGuckin and Nakamoto 52). Consequentially, even as more women enter the workforce, trip-chaining remains largely the domain of women (49). In fact, many of the tasks that were previously performed at home (ex. childcare, cooking meals) are increasingly being replaced with activities that require travel (ex. dropping children off at daycare, eating at a restaurant), but remain the responsibility of women (49). Additional charges between destinations on a trip chain can place an undue economic burden on women, as can different fare rates between modes of transportation (Allen 12). Transit facility design can exacerbate the additional burden of trip-chaining when lack of wayfinding signage, accessibility for children, barrier-free access, places to put bags, accessible washrooms, and space for strollers and mobility devices make it more difficult to travel between destinations. Features such as hostile architecture can also add to this burden by making it difficult to bring dependents and items between locations.

### Time of Day/Location

While men are more likely to have “a twice-daily commute in and out of town” (Perez 40), women are more likely to travel “consistently throughout the day, during both peak and off-peak times” (Blomstrom et. al. 7). They are also more likely to make trips that are not connected to formal economic activities, and generally make more frequent trips to more dispersed locations throughout the day (Allen 12). Even within the formal economy, women are overrepresented among domestic workers, meaning their jobs may be located outside of the city centre (13). As a result, when transit stations are designed purely based on data collected during “peak travel



times” and on trips between large commercial hubs, women’s travel needs can be neglected. Women’s frequent trips are also often fixed in space and time, resulting in the “restrict[ion of] the possibilities of women to take on (formal) work, since it pre-structures their day and only leaves time-windows of a few hours” (13). Furthermore, women often do not feel comfortable travelling alone at night and time of day can be a large factor in people of marginalized genders’ decision about whether they take public transit (see “Use of Transit at Night” section).

### Types of Transit Used

Women are more likely to walk further distances and for longer periods of time, largely due to care work responsibilities, increased rates of poverty, and unequal access to personal vehicles (Perez 44). However, walking is often combined with other forms of transit, especially during trip-chaining. Outside transit stations, lack of space on sidewalks for strollers and mobility devices, poorly maintained roads and walking spaces, and ineffective use of mixed-use spaces can all contribute to a lack of pedestrian accessibility and create an unnecessary barrier for women.

Women are also more likely to take the bus when using public transit because they are more effective for frequent stops and because bus stops tend to be more accessible than other transit stations (Blomstrom 8). Issues such as lack of elevator access, unclear wayfinding, poor lighting, and inaccessibility for children at rapid transit stations all contribute to women’s decision to take the bus. At bus stops outside rapid transit stations, lack of sidewalk space, lack of seating and places to put bags, and feelings of danger can create an additional barrier for women in accessing transit.

*“From a gender mainstreaming perspective, barrier-free design not only means supporting persons with reduced mobility but also facilitating the lives of persons with caregiving and family tasks (carrying shopping bags, pushing prams, accompanying other persons) or with temporarily impaired mobility (e.g. due to injuries). Barrier-free design makes everyday trips easier and safer for all.” (Damyanovic et. al. 27)*

### Sexual and Gender-Based Violence

Sexual harassment and assault on public transit and at transit facilities is a widespread problem that prevents many people of marginalized genders from accessing and/or feeling safe when using public transit. In a survey conducted in Canada, “exactly half of the women surveyed ‘indicated that fear prevents them from using public transportation or parking garages’” (Perez 63). Sexual harassment on public transit can take the form of these and other behaviours:

- ‘Catcalling
- Leering
- Sexualized slurs’ (64)

- Stalking
- Indecent exposure
- Displaying porn/sexualized pictures
- Groping (Gautam 105)

The effects of being exposed to sexual harassment are psychological, emotional, and social in nature and can lead to “negative thoughts, self-harm, and low self-esteem, which amplifies loneliness, hopelessness, and helplessness, and develops symptoms of depression” (105). The risk of sexual harassment on public transit can also have economic repercussions because people of marginalized genders are more likely to choose not to take public transit for fear of victimization. Studies show that “women would forego better jobs or educational opportunities if they felt that the transport connections were not safe for them” (Allen 18). Cis men tend to be less aware of the extent of the problem of sexual harassment because people of marginalized genders are more likely to be targeted when they are alone (65). Social stigma including victim-blaming, misogynist narratives that harassment is “not that bad” or that women are “asking for it” due to the way they are dressed and other arbitrary factors contribute to underreporting (Perez 67). Another contributing factor to underreporting of harassment is survivors’ feelings that they won’t be believed as well as lack of information on what to do if they are sexually harassed on public transport (68).

Lack of signage in transit facilities with information on where and how to report sexual harassment can contribute to this knowledge gap and invisibilization of the issue. Some transit stations include posters on how to respond to other dangerous situations like the “See Something, Say Something” campaign but do not include signage that defines sexual harassment or provides options for responding to it, despite the prevalence of the issue. This can contribute to passengers’ feelings that sexual harassment is not a serious issue as well as confusion about what constitutes sexual harassment and how to intervene. Signage that discusses harassment but puts the onus entirely on victims to report the problem can also contribute to victim-blaming narratives (CBC News 1). Some transit facility design elements like increased security cameras and panic alarms have been implemented. However, research shows that while men feel safer with higher numbers of security cameras and other surveillance technology in transit stations, women feel safer with the presence of people who can intervene in cases of harassment or assault (Yavuz and Welch 2496). From an intersectional perspective, an increase in surveillance technology in public spaces can put BIPOC women, migrant women, sex workers, trans women, and other marginalized people at higher risk of state violence, sometimes including sexualized violence in prison.

In addition, women have higher rates of fear about violence against their loved ones in public spaces (Ceccato 4), which, especially considered alongside the higher burden of care work that

women bear, can deter them from taking children, elderly relatives, or other family members in need of assistance on public transit. Not only do women tend to have more fear about their loved ones; parents in general tend to have more fear about their daughters travelling alone than their sons. In terms of the built environment, “access underpasses, tunnels, overbridges, and associated carparks are consistently identified by women as places of fear and trepidation” (Matthewson and Kalms 59), largely due to the lack of clear sightlines and feelings of being trapped. Also, lack of maintenance of transit facilities can increase feelings of fear (60).

**Language Use Problem:** “Crime” is a broad term that encompasses everything from theft to loitering to violent attacks. Furthermore, systemic social issues such as poverty are often criminalized in public spaces like transit stations (ex. an unhoused person seeking shelter in a train station and being arrested for ‘loitering’ or not paying the fare). When discussing safety on public transit, it is important to differentiate between types of crimes, their gendered characters, and the differences they produce in feelings of safety. Furthermore, it is important to understand who is being protected when discussing “crime”.

*“All levels of government must commit to using non-incarceration measures especially for poverty-related minor offenses. Governments must also provide sufficient and stable funding to Indigenous communities and organizations to provide alternatives to incarceration including community-based rehabilitation, diversion, community courts, and restorative justice methods geared towards Indigenous women.”*

- One of Red Women Rising’s recommendations on the Vancouver City Council’s motion “Decriminalizing Poverty and Supporting Community-Led Safety Initiatives” (Copsey 1)

### Use of Transit at Night

The fear of harassment at public transit facilities or on public transit is particularly amplified for people of marginalized genders at night. In a survey conducted in Vancouver, “feelings of safety [using the SkyTrain and/or West Coast Express] plummeted during the evening hours, with 58% of respondents feeling unsafe using the services after dark and 63% feeling unsafe while walking to and from the train or waiting at the train platform(s)” (Norgaard 145). Built environment features such as poor lighting, dark corners, lack of wayfinding signage, and barriers that create enclosed spaces can increase these feelings of fear.

### The Escalating Nature of Sexual Harassment in Public Space

One issue with sexual harassment at transit facilities and on public transit is that behaviours such as verbal harassment create an environment of fear in which those being victimized feel they have to comply with the aggressor’s demands in order to avoid physical or sexual violence. For example, in Vancouver, survey respondents reported sexual harassment leading to escalating

physical behaviours such as “trapping” individuals in their seats by refusing to move, following individuals after they disembarked from the bus, and ‘manspreading,’ taking up far more room to sit than is necessary” (Norgaard 145). Built environment features that contribute to this feeling of being “trapped” or enclosed can amplify this issue. In addition, when sexual harassment occurs without consequence, it becomes a silently accepted norm or framed as a natural consequence of people of marginalized genders entering public spaces. As a result, less effort is put into prevention and response. In other words, the systemic issue becomes individualized as the responsibility of dealing with harassment is placed on those most vulnerable to it (i.e. people of marginalized genders) to navigate on their own. At transit stations, this might look like bystanders turning a blind eye to harassment or not even viewing it as harassment in the first place.

### Other Stats on Harassment While Using Vancouver Public Transit:

- “54% of students experienced verbal harassment while traveling on the SkyTrain and/or West Coast Express, of which females made up 61%, while males made up 25%.
- Top factors preventing students from using the SkyTrain and/or West Coast Express more frequently included overcrowded services (14%), dirty train environments (8%), concern of anti-social behavior (12%), fear of victimization walking to the station (7%), waiting at the train platform(s) (7%), and fear of sexual harassment (7%).” (Norgaard 146)

### Compass Cards and Safety

Battered Women’s Support Services (BWSS) in Vancouver has pointed out that the compass card system presents a potential risk to women in abusive relationships. This is because “compass cards can be used to track the exact time and location a woman uses transit, so an abuser could... use her movements as a way to exert power and control” (Rich 1). Furthermore, for survivors living at shelters or transition houses, the abuser could track the movements of other survivors who are trying to find safety (1). While technology advancements often increase the convenience for those using rapid transit, having no payment options for those who do not want their movements tracked can put people of marginalized genders at increased risk of abuse.

In addition, some women with care work responsibilities report that cards are difficult to obtain, difficult to use for children/other dependents who may be riding with them, and difficult to reload (Washington 12).

*“Women seem to prefer cash for its flexibility, as TAP cards are attached to only one individual and cannot be used to pay for children that may be accompanying an adult rider.” (12)*

### Racist Harassment

Sexual harassment of people of marginalized genders is often also racialized, with BIPOC women, Two-Spirit, and trans people facing increased vulnerability to this form of gender-based violence

(Freire Santo et. al. 231). Racist and sexist stereotypes play into the construction of the “ideal victim”, in which people who fall outside of this construction are less likely to be believed when they report the violence they face. The racialized dimension of sexual harassment and assault on public transit is another reason why built environment responses like increased surveillance technology in transit stations are not ideal responses to the problem. Systemic racism and racist stereotypes about BIPOC people being sexually aggressive and/or violent lead to their overrepresentation in the carceral system. While built environment elements like good lighting and clear sightlines can help BIPOC people of marginalized genders feel safer on public transit, the presence of transit employees who are trained in conflict de-escalation, bystander intervention, and anti-racism are also potentially more effective responses to the problem. The scope of this report does not allow elaboration on all potential responses to sexual harassment, but this is another area where coordination between decision-makers and policy-writers is necessary to achieve full gender inclusion in public transit.

### Anti-Asian Hate Crimes Against Women

While racist harassment against Asian people on public transit has always been a problem in Canada, it has escalated since the emergence of racist stereotypes surrounding the COVID-19 pandemic. In Vancouver, anti-Asian hate crimes increased 717% from 2019 to 2020, with women making up 70% of reported incidents (Liu 1). This type of harassment is unique from non-racially-motivated harassment in that it is often committed by strangers and is therefore more likely to occur in public spaces like on public transit.

### Missing and Murdered Indigenous Women, Girls, and Two-Spirit People

In Canada, Indigenous women, girls, and Two-spirit people face disproportionately high rates of violence, due to the structural and systemic violence of the colonial state (ex. sexual abuse at residential schools, discrimination against Indigenous women in the Indian Act, violent invasion of Indigenous territories, etc.) as well as the resulting intergenerational trauma in Indigenous communities. Many Indigenous women who are multiply marginalized stand to benefit from safe, inclusive public transit that respects the rights of Indigenous peoples. However, in Vancouver, due in part to the high rates of criminalization of Indigenous women living in the Downtown Eastside (Martin and Harsha 8), some Indigenous women may be hesitant to enter public spaces like transit stations for fear of violence from police or other passengers.

### Misogynoir

Black, queer feminist Moya Bailey coined the term “misogynoir” to describe the unique “anti-Black, racist misogyny that Black women experience” (Blackburn Center 1). For example, the hypersexualization of Black women and girls through stereotyping and media representations (rooted in the “jezebel” stereotype) can lead to survivors of sexual violence not being believed or

being constructed as always “wanting it” or “asking for it” (1). The anti-Black racism of the police force can also result in Black women and girls feeling as if they have nowhere to turn to when they face sexual harassment or assault on public transit. In fact, when Black women report harassment or gendered violence to the police, they face risk of being criminalized themselves, due in part to mandatory arrest policies (Houston 217). Therefore, design features like buttons that automatically summon the police can sometimes increase feelings of fear and lack of safety for Black women accessing transit.

*“In 2018, police in Canada reported 283 criminal incidents motivated by hatred against the Black population. This represented 36% of all hate crimes targeting race or ethnicity, and 16% of all hate crimes in 2018.”* (Statistics Canada, “Black History Month” 1)

### Transphobic Harassment

Trans, two-spirit, and nonbinary transit users face frequent harassment when using public transit, often targeted at their gender identity and motivated by cissexism (Lubitow 4-5). For example, strangers refusing to accept a trans person’s gender identity or using transphobic slurs are common experiences of harassment on public transit. There are also inequities in terms of how trans people of different genders are treated (4). While built environment elements cannot erase transphobia entirely, factors like a lack of public washrooms that accommodate trans individuals in rapid transit stations can place them at higher risk of sexual harassment, especially trans women. A lack of representation of trans people in the artwork and signage at transit stations can also contribute to feelings of unbelonging for trans people, and graffiti with transphobic messages can make the environment hostile.

### Harassment of Sex Workers

Sex workers in Vancouver, particularly those who are multiply marginalized and especially street-based sex workers in the Downtown Eastside, have faced a long history of criminalization and violence. After years of activism and resistance by sex workers and their allies, legal reforms in Vancouver have lessened the frequency and degree of criminalization of sex work. However, stereotypes and discrimination against sex workers are still prevalent around the world, and violence against sex workers is still omnipresent. Sex workers, especially those who are marginalized due to their gender, race, or economic status, fall outside societal constructions of the “ideal victim” and are often assumed to agree to any and all sexual acts by virtue of their job. They are seen by many aggressors as a disposable population on which violence can be enacted with impunity. Fear of criminalization (by sex workers or those purchasing their services) can discourage use of public transit and increase feelings of fear in public space. Furthermore, stereotypes and misinformation about sex workers can lead to a lack of protection by bystanders when harassment occurs. Because they often work at night, fear of harassment on public transit

can be especially high. Built environment factors such as poor lighting and dark corners/enclosed spaces can increase these feelings of fear. Furthermore, the presence of police officers can discourage sex workers from using public transit and lead them to seek more risky transportation alternatives.

### Harassment of Disabled People of Marginalized Genders

According to Statistics Canada, people with disabilities are twice as likely to be victims of violent victimization as able-bodied people (Cotter 21). As a result, design features that limit disabled people's access to transit are not merely an inconvenience but a matter of safety from harassment. For example, if a transit station is only equipped with one elevator and a woman in a wheelchair arrives at her stop only to find that the elevator is out of order, she could be trapped on that floor with an aggressor, unable to escape. Therefore, the impact of the built environment of rapid transit stations on people with disabilities is matter of gender equity as well as accessibility.

*"As in the general population, nearly 90 per cent of disabled sexual assault victims were women. But while 29 in 1,000 women overall reported surviving a sexual assault, the number jumped to 56 per 1,000 for disabled women."* (McQuigge 1)

### Clothing

While clothing does not impact rates of sexual assault, and myths that victims are "asking for it" based on what they're wearing are false and harmful, people of marginalized genders will still make clothing choices with the intention of not attracting unwanted attention on public transit (Ding 274). Sometimes, they will choose to wear clothing that would allow them to make a swift getaway from an aggressor. Clothing can also impact accessibility to transit, such as being unable to wear high heels on subway grates, not wishing to wear skirts or dresses on bikes for fear of being exposed, or choosing not to wear flowy clothing for fear it will be caught in doorways.

### Economic Inequality

Across the world, women are more likely to live below the poverty line than men, due in part to the disproportionate burden of unpaid care work that women are still largely expected to perform (Allen 10). Other factors that contribute to women's poverty include lack of paid maternity leave, job discrimination, the gender pay gap, unequal access to education, discriminatory policies, and intersectional oppressions such as racism and homophobia.

#### Statistics on Women and Poverty in Canada:

**30%** of single mothers are raising their children in poverty

**34%** of First Nations women and girls live in poverty

**21%** of [BPOC] women and girls live in poverty

**23%** of women with disabilities live in poverty

**16%** of senior women live in poverty.

(Canadian Women 1)

In British Columbia, 61.9% of males and 54.1% of females 15 and over are employed. However, of those who are employed, 85.8% of men are employed full-time (14.2% part-time), while 71.4% of women are employed full-time (28.6% part-time). Furthermore, women in British Columbia make an average of 18.6% less than men, a gap which widens when race and migrant status are taken into account (Statistics Canada, “Unemployment Rate” 1).

Access to public transit is particularly essential for low-income women and women living below the poverty line because it can sometimes provide a more affordable means of performing care work duties and commuting to jobs (depending on the cost of fare and other economic factors). Men also tend to be the first members of the household to access private vehicles (Allen 19) and are more likely to bike than women (14), making public transit even more necessary for women. Furthermore, low-income women have higher fears of crime when commuting because they are more likely to work odd hours and use transit at night (Perez 63). Therefore, low-income women tend to require affordable and safe transit on which they can easily make several trips in a day or night, often with bags of groceries, children, strollers, and/or elderly relatives.

### Part-time vs Full-time Employment

Women are overrepresented in part-time and informal economic activities (Allen 8) which do not necessarily “follow schedules that mirror peak transit times” (8). This is due in part to the overrepresentation of women in single parenthood, which often requires flexible/informal work hours to accommodate children’s needs (11). However, transit schedules and infrastructure tend to be designed based on “fixed labour times” (Perez 43) and “peak travel hours” (43), ignoring women’s travel patterns altogether. Part-time workers may also require more frequent use of transit and bring belongings like changes of clothes on transit between jobs, which can be limited by design features that don’t provide places to put bags and other items or don’t include step-free access.

### Artwork



Artwork in rapid transit facilities should be representative of the community and at its best can improve wayfinding, safety, and diverse representation (Gray et. al. 277). Furthermore, necessary elements of the built environment like lighting can be incorporated into works of art in order to create a more welcoming and visually appealing transit station. Artwork in transit stations can also spotlight Indigenous artists, acknowledge the Indigenous people on whose land the facility is built, and be a step towards decolonization. When artwork is not representative of the diversity of the community, it can create a sense of exclusion and discrimination, giving the impression that certain people are not welcome or do not belong on public transit. Exclusion in art is another way that people of marginalized genders can be invisibilized in public space.

Graffiti, an artistic practice emerging largely from BIPOC and/or low-income communities, is often criminalized (Choi 1). While graffiti can be harmful, particularly when it includes hate speech, it can also be a form of protest and provide a public platform for members of marginalized communities to express themselves (1). Failing to incorporate or consider the artwork of those who are excluded from the category of legitimate or “professional” artists (due to education level, economic status, etc.) can exacerbate inequalities that exist between types of art in public space.

## Sex Differences in Transit Use

### Pregnancy and Breastfeeding

Many public transit vehicles have designated priority seating for passengers with disabilities, elderly passengers, pregnant passengers, or anyone else who may require seating. However, at rapid transit stations, limited areas to sit outside or inside can lead to pregnant people having nowhere to sit, and lack of signage designating priority seating can also present an obstacle. Furthermore, pregnancy often results in more frequent urination (Nall 1), so a lack of available washrooms can limit pregnant people’s access to transit. Lack of elevators and escalators can make it more difficult for pregnant people, who often experience joint pain, to move between floors at multi-level transit stations. Lastly, lack of areas to breastfeed or lack of feelings of safety breastfeeding at rapid transit stations can also limit the access of new parents to transit.

### Restrooms

As previously stated, the omission of gender-neutral washrooms excludes trans people, especially non-binary and Two-spirit people, from accessing rapid transit stations. Furthermore, hostility toward trans people in women’s and men’s washrooms can be amplified by a lack of inclusive signage outside restrooms or trans-inclusive signage in general (Lubitow et. al. 5-6). One response to the issue of trans exclusion from washrooms has been to keep a separate men’s washroom and women’s washroom but to add signage below stating that the washroom is open

to people of all genders. While this is a step in the right direction, it still reinforces the gender binary and is exclusive for non-binary transit users. Furthermore, it often acts as a performative show of allyship that has little real effect on trans people's access to washrooms. Inequities between men's and women's washrooms, including lack of provision of menstrual products and change tables in men's washrooms, can lead to the exclusion of trans passengers and reinforce gender stereotypes and unequal divisions of care work.

Women also make up the majority of disabled and elderly populations (Perez 58), so a lack of accessible washrooms at rapid transit stations can disproportionately exclude women from accessing public transit. In addition, while the equal allocation of space for men's and women's washrooms may seem like a fair distribution of space, "if a male toilet has both cubicles and urinals, the number of people who can relieve themselves at once is far higher per square foot of floor space in the male bathroom than in the female bathroom" (58). This time difference is amplified by the fact that women are more likely to be accompanied by children, are overrepresented in the elderly and disabled populations, and may have to change a tampon or sanitary pad (58-59). When tampons and pads are not freely available in washrooms/require change to access them, an additional economic barrier to access can be in place for people who menstruate.

### Size/Stature and Physical Ability

The height of steps, benches, water fountains, and other design features in public space are often tailored to able-bodied, adult cis men, "with taller steps or high grab bars and with little space for goods or strollers required for off-peak travel on public transport" (Blomstrom 8). This design bias impacts not only the size differences between male and female bodies but can also prevent children from comfortably using transit, which in turn impacts women's ability to use transit for care work responsibilities. Furthermore, design elements which make people of marginalized genders feel vulnerable, such as "high hand holds which can be exposing (and uncomfortable)" (Matthewson and Kalms 60) or seating layouts that allow for entrapment, may discourage transit use for fear of harassment.

### Health

The COVID-19 pandemic has exacerbated gender inequities in health issues associated with transit, with the requirements of wearing face masks, sanitizing, and social distancing creating an additional burden on those performing unpaid care work (UN Women 1). Furthermore, school and daycare closures have added to many parents' care work responsibilities at home, which can result in exhaustion and burnout. Fears about catching the disease or having loved ones catch it can also discourage women from entering public spaces like transit stations, particularly if they feel that adequate safety precautions are not being taken (1). Violence against women has also

increased since the start of the pandemic, with options for escaping a household with an abuser becoming more limited as service provision becomes more limited (1). Women are also more likely to experience time poverty and in general have less time to visit the doctor's office, which can negatively impact their health (Allen 13), especially when transit design prioritizes trips for paid work over all other trips. Economic impacts of the pandemic also disproportionately affect women, because "globally, 70 per cent of health workers and first responders are women, and yet...at 28 per cent, the gender pay gap in the health sector is higher than the overall gender pay gap (16 per cent)" (1). Therefore, now more than ever, health precautions need to be taken on rapid transit in order to make it more accessible to women and other people of marginalized genders.

*"Studies have concluded that high levels of air pollution from traffic fumes create a greater risk for infertility in women; children are likely to be more severely impacted by higher levels of air pollution in cities, and those who develop asthma will require higher levels of care from their parents, often taking the mother away from her productive activities."* (Blomstrom 14)

## Case Study Cities

Cities around the world have begun taking steps to address the gender- and sex-based inequities in access to rapid transit through a variety of forms, including research projects, diversity, equity, and inclusion reports, and policy measures. While no city in the world has achieved perfection in gender inclusion, many cities lead the way in the bold and progressive steps they've taken to achieve this goal. Documentation on the effectiveness of steps taken to improve gender inclusion in these cities can assist in evaluating which built environment measures could be helpful to implement in Vancouver and which could be harmful.

However, each city's policies and steps taken are based on their specific context, so no two city's measures should look exactly the same. For example, some cities around the world have implemented women-only transit cars in order to make women feel safer when using public transit. This should be seen as a temporary measure to implement in areas with exceptionally high rates of gender-based violence on transit because it is not inclusive of all people of marginalized genders and does not address the root causes of harassment. The women-only car also raises questions about policing transgender bodies in public space and does not allow women to bring male relatives with them on transit. Therefore, steps taken by other cities can serve as inspiration, but the specific needs of Vancouver's transit users must also be taken into account in order for the measures to be effective.

While many of the case study cities have reports that approach gender inclusion from a holistic perspective, the focus of this section will be on built environment recommendations. The design

recommendations of each city will be explored and connected to a specific area of concern from the previous section of the report to address. The strongest measures and measures that appear most frequently across different cities will be incorporated in the Recommendations section of this report.

## Gender and Sex Areas to Address



### Care Work

Care work can lead to differences in transit use that span trip-chaining, types of transit used, and time of day travelling (McGuckin and Nakamoto 52). Women, who are more likely to be responsible for the majority of household care work (Horne et. al. 731), are more likely to make multiple trips in a day, engage in trip-chaining, and use transit outside of peak times and standard work hours (Blomstrom et. al. 7).



### Safety from Harassment and GBV

Sexual and gender-based violence on rapid transit disproportionately impact people of marginalized genders. Harassment on rapid transit can often escalate when the built environment leads to entrapment (Norgaard 145), compass card security is not being protected (Rich 1), and no clear resources are available for passengers being victimized. Sexual harassment can also compound with other forms of discrimination like racism, transphobia, bias against sex workers, and ableism, thus amplifying the risk for multiply-marginalized people (Freire Santo et. al. 231). People of marginalized genders will often try to mitigate the risk of harassment through clothing choices (Ding 274) and by not using transit alone at night (Norgaard 145).



### Economic Access

Gendered economic inequalities, such as people of marginalized genders being overrepresented in part-time work and underrepresented in full-time work, can also impact transit use (Allen 10). Those living in low-income communities may be further away from economic hubs and convenient rapid transit, which can lead to a lack of access to essential services and/or longer, more complex trip-chains (Blomstrom et. al. 2). Economically disenfranchised people of marginalized genders will often have to make difficult decisions about transit use, particularly if they have inflexible jobs, care work responsibilities, or have to pay for daycare or long-term care for relatives.



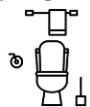
### Artwork

Artwork in rapid transit stations, if not examined through a gender lens, can be exclusive or even discriminatory to people of marginalized genders. For example, misogynist and/or transphobic graffiti can lead to a hostile environment for people of marginalized genders, and City-funded murals and artwork that do not include BIPOC people or people of marginalized genders can lead to feelings of exclusion and unbelonging in public space.



### Pregnancy/Breastfeeding

Pregnancy and breastfeeding are not always accounted for in rapid transit facility design (Perez 197-198). Built environment features such as lactation rooms, designated seating for pregnant people, and sufficient elevator and escalator access can improve the transit experience for pregnant or breastfeeding people.



### Restrooms

Restrooms can impact a number of issues relating to gender inclusion. The lack of availability of washrooms in general disproportionately impacts women and people with female bodies because they are at higher risk of contracting UTIs or experiencing toxic shock syndrome if they do not have access to a restroom (Perez 62). Furthermore, lack of available restrooms that correspond with trans people's gender identities can also discourage trans people from using public transit and/or make them feel unsafe (Lubitow et. al. 2). People with disabilities, children, and the elderly are also sometimes overlooked in restroom design.



### Size/Stature, Physical Ability

Size/stature and physical ability impact gender accessibility because the majority of people with disabilities are women and rapid transit stations are traditionally designed based on adult, cis, able bodies (Perez 196). Design features such as request stop buttons, pull cords, and water fountains can sometimes be out of reach for people of marginalized genders, children, and/or people with disabilities.



### Health and Environment




Health and environment also impact gender equity in rapid transit. Women have been disproportionately impacted economically and socially by the COVID-19 pandemic (UN Women

1), and because they are disproportionately responsible for care work involving vulnerable relatives, they may be less likely to use rapid transit at this time.

## Calgary, Canada

The *Calgary Transportation Plan* provides policy recommendations and requirements regarding to transportation in the city. In 2020, a Gender-Based Analysis (GBA+) Learning Initiative was conducted, including a survey of women’s safety on transit in Calgary (City of Calgary, “Gender Equity, Diversity, and Inclusion Strategy” 4). Data on race, gender, sexuality, and ability were collected and the results informed the 2020 Calgary Transportation Plan. This plan is a great example of using gender-disaggregated data to inform transit policy.

### Calgary Transportation Plan’s Observations on the Built Environment

- Artwork
  - “Attractive **public art**” (City of Calgary, “Calgary Transportation Plan” 76) should be visible at all rapid transit stations.
  - 
- Barrier-Free Access
  - “Direct, simple **connections to nearby destinations**” (<https://tinyurl.com/4yzdubwb> 22) should be provided.
  - Rapid transit stations should have “**smooth travelling surfaces** free of obstacles” (23).
  - “Connected and **continuous routes** that give people the ability to maintain speed” (23) should be provided.
  - “**Fewer barriers** like off-set gates” (24) should be present.
  - 
- Lighting
  - “**Pedestrian-oriented lighting**” (76) should be implemented inside and outside of rapid transit stations.
  - 
- Maintenance/Cleanliness
  - “All transit infrastructure should be designed, operated and maintained to provide a **safe, clean and comfortable environment** and ensure ease of transfer between transit services and with other modes of transportation” (30).
  - Routes should be “well-maintained [and] clear” (23).



- Outside Space of Rapid Transit Stations
  - “Pathway and **bikeway connections** to transit stops and stations [should be] provided” (23).
  - “Transit Mobility Hubs should accommodate efficient transit access, comfortable passenger waiting areas and safe, direct, unobstructed routes for pedestrians and cyclists” (30).
  - “Community design should minimize pedestrian **street walking distance** to transit service... to **400 metres or less** in all areas of the city” (30).



- Park and Ride
  - “**Wheeled device parking** and amenities” (23) should be present at rapid transit stations.
  - “Safe and secure **bicycle parking** [should be available] at transit stations” (23).
  - “Walking and wheeling must be integrated with transit services and improve **intermodal opportunities** at the community, city and regional scales” (24).
  - “Secure **storage facilities** for bicycles” (76) should be available.



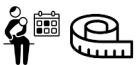
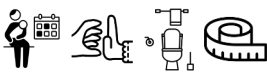


- Pavement/Sidewalk Space
  - “Spaces, street blocks, etc. [should be] the right size for people to use (not too big or too small)” (22).
  - “Well-designed, **amply-sized pedestrian walkways** and customer waiting areas” (76) should be present.



- Real-Time Information
  - “Advancements in transit vehicle technology and Intelligent Transportation Systems (ITS) should be used where appropriate, along with best operating practices to improve **passenger information, amenities, transit capacity and operating efficiency**” (30).
  - “**Real time schedule information**” (76) should be available.



- Shelters

- “**Shaded areas** to mitigate hot weather conditions [should be present, as well as] **heated areas** to provide a comfortable environment during cold weather conditions” (76).
  - 
- Signage
  - “**Way finding signage** to direct people to their destinations” (76) should be present.
    - 
- Step-Free Access
  - “Directional **wheel chair ramps** with functional connections to active mode networks should be provided at the corners of all roadway intersections” (59).
    - 
- Washrooms
  - Rapid transit stations should always have **public washrooms** (76).
    - 

## Los Angeles, United States

LA Metro’s *Understanding How Women Travel* is a research report aimed at addressing the gendered data gap in travel patterns, using on-board surveys, ethnography in buses and trains, focus groups, and other methods to understand the diverse mobility needs of women in LA county. The report addresses problems like the pink tax, the disproportionate travel burden that women bear, and economic inequality between men and women, with the goal of creating a Gender Action Plan (2022) to achieve gender equity.

### *Understanding How Women Travel’s Observations on the Built Environment*

- Bags/Other Items
  - “Women [travel] with bags, carts, and strollers... Many women store... **bags on the seats next to them or in the aisle**, and rel[y] more heavily on elevators and escalators to travel between the street level and the platform” (Washington et. al. 12-13).
  - “Women experiencing homelessness... often travel with their belongings in bags, luggage, and carts. Women traveling in wheelchairs also sp[ea]k of the lack of space for their chairs and bags. There is **no safe place to put these belongings**” (120).



- There should be “**designated areas for packages and groceries**” (162).



- General Accessibility

- “Metro can investigate changes to station, stop, and vehicle designs to address the needs and concerns of women for elements like **pull cords, push buttons, seating configurations, and elevator locations**” (18).
- “Amenities such as **lighting...shelters, real-time travel information, and benches** can reduce the perceived wait time by reducing the stress of waiting at a [transit] stop that feels isolated, unattended, and unsafe” (140).



- Height

- “Push buttons and pull-cords [are] located too high” (15) for many women.
- “The **push button [should be] easy to reach** and they [should be] able to stand and move down the aisle to the back door with ease” (16).
- Rapid transit “design that considers biological differences [is essential]. For example, **handrails could have a split design** or **stop button placement** along aisles... could be at **different heights**” (163).



- Lighting

- “Both current and prior riders agree... that **more lighting at stops** and along approaches to stations and the presence of security staff nearby would help them feel safer” (11).



- Maintenance/Cleanliness

- “Real time information and tools designed to help ease the stress of waiting for infrequent service often fail” (14).
- Women feel **unsafe at “dirty stops and stations”** (15).
- “Elevators and escalators [are] particularly prone to **breakdown and poor cleanliness**” (120).



- Overcrowding

- “Overcrowding makes it particularly difficult for those with disabilities to get a seat or have space for their mobility devices” (105).

- “Vehicle interior design changes [are recommended to] help relieve overcrowding that may make women feel vulnerable or uncomfortable, provide **room for strollers and other items** women carry, increase the number of **railings and poles that are within reach**, and allow for more **reserved seating** and **seating options for families**” (158).



- Real-Time Information

- “Unreliable or absence of real-time information” is a major issue for women using rapid transit (14).



- Seating

- The built environment should help ensure that “when [people of marginalized genders] sit down, they don’t feel trapped by the person sitting next to them” (16).
- The “**design and layout of seats**” (162) should be altered in order to **prevent the feeling of being trapped**.
- “**Priority seat campaigns** that help communicate seating needs between riders and clearly define the corresponding priority space on the transit vehicle” (27) are recommended.
- “Periodic **audio public service announcements** about yielding seats to elders and those with disabilities and reminding people to share space” (162) are recommended.



- Shelters

- “Lack of shade at stops” (15) can be ameliorated through **shelters, tree canopies**, and other built environment features.
- “Stop and station amenities, like **shade, benches and trash cans**, along with **regular cleaning**, can improve the comfort of waiting and riding” (158).


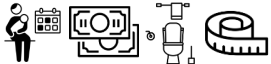



- Sightlines/Visibility

- The report emphasizes “improving stations/stops design to **avoid blind spots** and **improve visibility**” (161).




- Step-Free Access






- “Easily accessible and properly working **elevators and escalators** [can help] ease the difficulty of transit travel for women with **carts, bags, strollers, and mobility assistance devices**” (158).
- “**Level access from platforms to trains**” (24) is recommended.
- 
- Strollers, Carts, Mobility Devices
  - “Lack of **space for carts, strollers and bags**” (15) is an issue.
  - “Ample space for...grocery bags, their strollers, or their walkers” (16) should be provided.
  - 
- Surveillance Technology
  - “Women generally prefer... the presence of **staff** over technological solutions such as CCTV or alarm buttons” (11).
  - 

## Vienna, Austria

Urban Development Vienna’s *Gender Mainstreaming in Urban Planning and Urban Development* is a manual that both outlines Vienna’s gender mainstreaming policies and acts as a guide for other cities to develop and implement gender mainstreaming. Starting with the view that gender mainstreaming creates a “precise fit” (Damyanovic 11) for planning in that it addresses the specific needs of the population, the report advocates measures that improve the practical, everyday experiences of the residents of Vienna.

### *Gender Mainstreaming’s Observations on The Built Environment*

- Barrier-Free Access
  - “From a gender mainstreaming perspective, barrier-free design not only means supporting persons with reduced mobility but also facilitating the lives of persons with caregiving and family tasks (carrying **shopping bags, pushing prams, accompanying other persons**) or with temporarily **impaired mobility** (e.g. due to injuries)” (27).
  - “Traffic stops and station buildings [should be] **barrier-free**, welcoming and pleasant to use” (48).
  - 

- Lighting
  - “Natural lighting; transparency and good visibility of entrance zones, staircases, corridors and lifts as well as in the underground car park; motion detectors for artificial lighting” (93) are all recommended.
  - 
- Outside Space of Rapid Transit Stations
  - “Public transport stops [should] be reach[able] on foot and **without physical barriers** within a distance of 500 m” (48).
  - The outside of transit stations should serve as a “communication zone and meeting-point for different groups [and there should be a] **transparent link** between [the] entrance zone and outdoor streetscape” (93).
  - 
- Park and Ride
  - “The construction of **park-and-ride facilities** at public transport terminuses and hubs of public and high-level road traffic must be considered” (48).
  - Each rapid transit station [should] have a “clearly organised parking system with **specially marked slots for women** close to entrance zone [and] **bicycle parking slots** provided” (93).
  - 
- Pavement and Sidewalk Conditions
  - “The usable sidewalk width [should be] **at least 2 m**” (47).
  - “For areas with larger numbers of pedestrians (for example public transport stops or shopping streets), **wider sidewalks** [should be] provided” (47).
  - Furthermore, “in areas with very large numbers of pedestrians, the creation of **pedestrian zones, encounter zones...** or similar measures to enhance the quality of walking and lingering in these areas must be taken into consideration” (47).
  - 
- Seating
  - “There [should be] sufficient **barrier-free seats and benches** in public space” (49).
    - “Benches or seats with **back rests** are necessary to ensure that persons with reduced mobility can relax in a sitting position. **Armrests** are important to help such persons to stand up” (49).
  - 
- Signage

- “Simple, clearcut **orientation aids** for the entire building [should be] offered in the **entrance zone** [and] must be understandable for all users (including those who do not speak [English] or cannot read – hence relying on **colours and symbols**; **height** of information boards must take account of different eye levels)” (93).



- Step-Free Access

- “Meeting-point function of [elevators] and staircases [should be taken into account] by means of adequate dimensioning; [there should be a] **second handrail**; **lift buttons** for storey selection must be **easy to operate also for children and wheelchair users**” (93).



- Washrooms

- “Freely accessible public toilets that are **well-lit, clean and barrier-free** enable persons in need of this infrastructure facility to take part in public space” (49).
- There should be “**efficient signage; equivalent size and location** of sanitary facilities for women and men; suitable **toilets for disabled persons and baby changing rooms**; **heights** of mirrors, shelves and clothes pegs must be adapted to needs of women, men and persons with reduced mobility” (93).







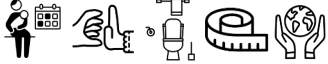







## London, England

Transport for London’s *Action on Equality: TfL’s Commitments to 2020* report outlines measures taken within the city to improve people of marginalized gender’s access to transit. The report also examines race, sexuality, age, ability, and economic status as they impact access to London’s transit system. While many of the report’s recommendations are particularly focused on the demographics within London, such as their aging population and the effect of previous actions on equality, many of the built environment-specific actions recommended in the report would also benefit the City of Vancouver’s rapid transit facility design.

### **Action on Equality’s Observations on the Built Environment:**

- Benches and Arm Rests

- “Shelter modernisation [should continue, including the] install[ation of] ... redesigned **perch seats with arm-rests**, which benefit, for example, people with arthritis” (Brown et. al. 30).
- “A retro-fit arm-rest [should be trialed] for older shelter models” (30).
- 
- Environmental Tech
  - “The planning system [should be used] to require all new development to be ‘**air quality neutral**’” (44).
  - 
- Fare Gates
  - There should be “step-free [transit] stations, more **wideaisle gates, manual boarding ramps** and **platform humps** in more stations” (66).
  - 
- Graffiti
  - “A rapid-response service that gets rid of... **offensive or extensive graffiti**” (33) should be implemented.
  - 
- Information Delivery
  - Leaflet Circulation
    - “An information leaflet for customers on **assistance dogs**” (22) should be circulated.
    - “Innovative ways to communicate accessibility information” (25) should be imagined.
  - 
- Lighting
  - “Lighting [should be improved] through a continuing programme of upgrades to **LED**” (32).
  - 
- Maintenance/Cleanliness
  - “The **clearing of signage and clutter** from footways” (33) should be encouraged.
  - 

- Overcrowding
  - “Projects to increase capacity and reduce congestion, including station improvements and upgrades, increasing frequencies and enhancing design” (28) should be conducted.
  - 
- Pavement and Sidewalk Conditions
  - “Pavement [should be made] safer and more accessible for pedestrians, and in particular visually impaired and disabled people, by getting rid of intentional and unlawful obstructions” (42).
  - Problems “in the following areas [should be improved]: **pavement condition, gradients, lack of seating, [and] accessible routes**” (43).
  - 
- Safety and Security
  - “Trial signage for private hire vehicles to reduce touting” (22) should be developed.
  - “Reassurance [should be provided] to... passengers through policing, **CCTV, lighting, signage** and well trained staff” (32).
  - 
- Signage
  - “Priority seating signage [should be consistent] across all transport types and include people with **hidden conditions**” (21).
  - The ways in which “**complex step-free interchanges** are shown or signposted [should be reviewed] to make it easier for passengers to plan journeys and use these routes” (25).
  - 
- Step-Free Access
  - “All new stations [should be] step-free” (28).
  - “More **manual boarding ramps** and **platform humps** at Underground stations” (28) should be installed.
  - 

## Stockholm, Sweden

“Ensuring Safe Mobility in Stockholm, Sweden” is an article written by Vania Ceccatto about the safety of “the elderly, women, and the disabled” (1) on public transit and the measures that are being taken to increase safety for these and other marginalized groups. While this article was not released by the city, it does provide information on steps being taken in Stockholm to improve gender inclusion in rapid transit.

### “Ensuring Safe Mobility in Stockholm, Sweden”’s Observations on the Built Environment

#### Lighting

- “**Lighting and benches** [should be installed] along **footpaths, pavements, and in squares**” (5).



#### Pavement and Sidewalk Conditions

- “Deep, cross-pavement drainage channels across footpaths [should be] replaced with new, **shallow, rounded channels** to facilitate wheelchair movement” (5).
- “**Vertical height differences at entrance doors** [should be] improved in conjunction with the renovation of city squares and pavements” (5).



#### Signage

- “Posters [should be set up] in stations...requesting passengers to engage actively in a more safe and pleasant trip” (5).



#### Step-Free Access

- “Pedestrian crossings [should] feature **curb cut ramps** for persons with disabilities and **contrast markings** for visually impaired persons” (5).
- “Tracks [should be] adjusted to **minimise the vertical and horizontal gaps** between the cars and platform” (5).
- “**Manual ramps** [should be] installed on commuter trains to cover the gap between the car and platform; train attendants [should be] responsible for extending the ramp” (5).
- “Bus stops... [outside rapid transit stations should have] **higher curbstones and contrast markings**” (5).



#### Technology

- “**Digital signs** with public transportation information... [should be] supplemented with **audible information** that is helpful for visually impaired travellers” (5).



- “Intelligent transportation systems, the integration of **ICT** in transportation can be particularly effective to ensure safe mobility to disabled individuals as they allow, for instance, tracking and monitoring, which facilitate the collection of movement and activity data as well as the provision of personalized information” (7).



Washrooms

- “**Accessible public toilets** [should be] built in public areas” (5).



Wayfinding Technology

- “Representatives of disabled organizations [should be] involved with... **digital pedestrian network projects** that [focus] on developing **pedestrian navigational aids** for visually impaired and elderly persons” (5).



## Survey Recommendations

The following recommendations were specifically highlighted by people who have lived in Vancouver and filled out the specialized survey on gender inclusion and rapid transit facility design that was created for this project. For the results of the survey, refer to **Appendix D**.

### Built Environment Recommendations

When asked about improvements to the built environment that would make them more comfortable using rapid transit in Vancouver, the 226 survey respondents identified:

PUBLIC AMENITIES	SAFETY	WAYFINDING	ACCESSIBILITY
Air conditioning	More/better lighting	Wayfinding signage	Dog access
Safe, clean, accessible washrooms	Safe spaces outside the station	Public art used for wayfinding	
Bathroom attendants	Greater station capacity Emergency buttons	General visibility (clear sightlines, less dark corners)	Room on platform

Gender-neutral washrooms	Divider between train tracks and people waiting	Real-time information	Visible/transparent, wide, and accessible elevators that go directly to the platform
Nursing room	Security cameras		Escalators (maintenance as well)
Green space			More/comfortable, cleaner seating
Wifi			More sidewalk space
Stores/Restaurants			Bigger/more shelters (weather protection)
Other services (ex. daycare)			Step-free access (ex. ramps)
Bicycle access/storage			Hand rails
Nursing room			Priority boarding lineup/area
Water fountains			

## Summary: The Ideal Gender-Inclusive Built Environment

The following section summarizes all relevant recommendations made by the case study cities, the literature review, and the survey in Vancouver.

### Station Plaza and Immediate Surroundings

**Note:** Some of these measures (ex. land acknowledgement, art, etc.) also apply to the inside of the station or the inside of the car, but to avoid repetition, are only mentioned once.

#### Art

- Inclusive and representative of the community, especially the community whose land the station is on (Gray et. al. 277)
  - Could include a land acknowledgement
- Created by and for people of marginalized genders
- Ensure discriminatory graffiti/hate speech is removed promptly
- Public art that is inclusive of people of marginalized genders from an intersectional perspective and acknowledges and honours the land helps make the transit station a safer and more welcoming environment and works toward decolonization.

#### Barrier-Free Access

- Stops should be reachable on foot without physical barriers
- Clear, unblocked emergency exits
- No hostile architecture

- Tactile paving
- Removal of clutter
- Barrier-free access ensures that people using mobility devices or strollers are able to navigate the transit station unimpeded by obstacles. This is also important for safety considerations, including the avoidance of aggressors (Damyanovic 49).

### Bags/Other Items

- Designated areas to put packages and groceries
- These areas should also be included in the transit car
- From a care work perspective, this helps make the built environment more accessible for tasks such as grocery shopping, transporting children, and for trip-chaining in general (Washington et. al. 12-13).

### Bike Parking

- Should be safe and accessible for all, at all times of day
- This helps improve feelings of safety when biking for women, who are less likely to use cycling as a transportation method than men (Allen 14). Available bike parking can also be helpful for those who do not live close to transit station.

### Land Acknowledgement

- Should be developed with the help of the Indigenous communities on whose land the station is built
- The inclusion of a land acknowledgement is a small but crucial step in working towards decolonization.

### Lighting

- Well-lit, especially at night
- Natural lighting
- Motion detectors
- LED
- Lighting along footpaths, pavements, and on platforms inside the station
- Good lighting improves accessibility for the visually impaired and makes people of marginalized genders feel safer using rapid transit after dark (City of Calgary, “Calgary Transportation Plan” 76).

### Maintenance and Cleanliness

- Maintaining and repairing real time information tools when necessary
- Cleaning stops and stations regularly
- Garbage and recycling bins are changed regularly
- Bathroom attendants are available
- People of marginalized genders report feeling safer in transit stations when the area is clean and well-maintained (Washington et. al. 15). This is also important from a health and safety perspective, especially with regards to COVID-19, and makes the transit station more accessible overall.

### Pavement, Platform and Sidewalk Conditions

- Width
  - Wide enough for strollers and mobility devices
  - Wider in areas with more pedestrians (i.e. outside rapid transit stations)
  - If there are many people, pedestrian zones or encounter zones should be implemented
- No intentional or unlawful obstructions
- Maintained in good condition
- Gradients/ventilation grilles can easily be crossed in heels, with mobility devices or strollers
- Continuous footways
- Colourful crossings
- Shallow, rounded drainage channels
- Similar to barrier-free access, good pavement and sidewalk conditions improve accessibility and feelings of safety for people of marginalized genders, especially those with disabilities. Having wide sidewalks and platforms at rapid transit stations is important for strollers and for feelings of safety (ex. not feeling crowded in with many people) (Damyanovic 47). Furthermore, good sidewalk conditions improve accessibility for those wearing high heels.

### Real-time information

- Audiovisual
- This is important for planning trips, particularly in terms of trip-chaining and care work. It can also improve feelings of safety for people of marginalized genders to know exactly when the next train is arriving (Washington et. Al. 14).

### Seating

- Benches

- Barrier-free
- Back rests
- Arm rests
- Additional seating facilities (inside and outside the station)
- Perch seats with arm-rests
- Family-friendly seating (different heights, areas for groups of people to sit together, room for strollers, etc.)
- This is important for care work (travelling with children/other relatives), as well as for pregnant and/or breastfeeding women. In terms of size/stature, appropriate seating is accessible to people of different sizes and abilities (Damyanovic 49).

### Sightlines/Visibility

- No dark corners
- Avoid blind spots
- Transparent shelters
- Transparent link between entrance zone and outdoor streetscape
- Floor markings
- Hanging signage
- Good visibility improves feelings of safety for people of marginalized genders. It can also improve accessibility and wayfinding (Washington et. Al. 161).

### Signage

- Wayfinding
  - Orientation aids at entrance zone
  - Colours and symbols for those who don't speak English
  - Different heights to accommodate different eye levels
  - Washroom locations
  - Explaining complex step-free interchanges; general step-free route signage
  - Accessibility signage
  - Digital signage with transportation information, supplemented with audible information
  - ICT
- Informational
  - On safety topics like harassment-what is it, how to prevent it, where to seek help
    - Ex. Safewalk UBC
- Signage can improve feelings of safety and help mitigate harassment. It is also important for wayfinding, and should be inclusive for people who speak different languages or are

visually impaired (i.e. auditory components to essential signage). Clear signage can help ease the burden of care work (ex. directions to washrooms) (Ceccatto 5).

### Step-Free Access

- Stairs and ramps, tested by parents and their children with strollers
- Manual boarding ramps and platform humps
- Step-free access is important for safety, especially for those with strollers, people with disabilities, or those trying to escape an aggressor. In terms of care work, children and the elderly benefit from step-free access (Brown et. al. 14).

### Technology

- ATMs inside station entrance before fare gates (important for economic access and feelings of safety)
- Charging stations for phones inside station entrance before fare gates and on platforms on bottom level (important for safety)
- Emergency buttons on station platform, clearly marked
- Cellphone service and wifi
- These types of technology can improve safety (ex. charging a phone to call a friend to accompany you home from the station). They can also shorten trips and make care work more convenient (ex. not having to take an extra trip to go to the bank). Availability of cash is important from a safety perspective, as previously mentioned, as well as economic access (Ceccatto 5,7).

### Water Fountains

- Different heights so all can access
- Water bottle fillers at different heights as well
- In terms of size/stature and physical ability, this is essential. Water bottle fillers also promote environmentally-friendly actions and can help with care work trips, especially involving children.

## Inside of Rapid Transit Stations

### Accessibility

- Tactile paving
- Soft-touch handrails
- Removal of clutter
- Hearing aid induction loops
- “Please offer me a seat” buttons for hidden conditions
- These measures are important for increasing safety and accessibility, and should be accessible to those who do not speak English (Washington et.al. 18, 140).

### Fare Gates

- Ample room for strollers and mobility devices to fit through
- Wideaisle gates (Brown et. al. 66)
- Option to pay cash
- These measures are important for care work responsibilities and safety from harassment (ex. avoiding being tracked via Compass Card).

### Information Delivery

- Leaflet on accessibility information and other relevant topics (ex. harassment) and announcements over intercom
- Maps delivered in paper format (22,25)
- Having both paper and electronic information is important for the elderly (who are more used to this method of wayfinding). It can also help with trip-planning and trip-chaining, in terms of brining a paper copy of the map to multiple locations.

### Maintenance and Cleanliness

- Ensuring that elevators and escalators remain in good, functioning condition
- The provision of step-free access should not be treated as optional; it is essential for many people to access transit stations (Washington et. al. 120).

### Meeting Areas

- For picking people up and dropping them off
- Should be able to meet without paying the fare
- Should be sufficiently wide without blocking the way
- These areas can be formal or informal, but either way are helpful for safety from harassment, in that people using the SafeWalk program or meeting a friend can have a designated meeting point to be picked up from the station and walked to their destination. Meeting areas can also greatly improve care work trips in terms of safety, cost-effectiveness, and time-effectiveness. From an economic access perspective, people should not have to pay the fare in order to meet someone at the station.

### Nursery Room

- For breastfeeding
- This is essential from a care work perspective and from a safety perspective, as many people do not feel comfortable breastfeeding in the open at rapid transit stations. It could

also be helpful from a health and safety perspective in terms of providing a clean environment.

### Step-Free Access

- At least two elevators
  - Large enough to accommodate strollers, mobility devices, bags and other items, multiple people
  - Buttons should be reachable for children and people in wheelchairs
- Escalators
- Ramps
- Handrails on staircases and ramps
- These are some key examples of necessary measures to make transit stations accessible to those with strollers, mobility devices, and/or disabilities (Brown et. al. 28).

### Washrooms

- Accessible to people with mobility devices and strollers (Ceccatto 5)
- Trans-inclusive (i.e. a third, gender-neutral washroom)
- Heights of mirrors, sinks, clothing pegs suitable for people of all sizes and abilities
- Menstrual products and changing tables provided in both washrooms
- Appropriately sized
- This is important in terms of inclusion for trans, non-binary, and Two-spirit transit users. Furthermore, greater accessibility in washrooms for all genders can help balance out the division of care work (ex. change tables in men's washrooms).

### In the Car

#### Accessibility

- Hearing aid induction loops
- Soft-touch handrails
- Pull cords, push buttons reachable for all passengers (at different heights)
- Split-design handrails
- These features improve accessibility for people of different sizes and abilities, including children (Washington et.al. 18, 140).

#### Real-Time Information

- Audio-visual
- Hearing loops
- Announcements about yielding seats to those who need it, sharing space in general



- Announcements about what to do if you feel unsafe/are being harassed
- These measures improve safety and accessibility for people of marginalized genders and help mitigate harassment. Announcements about yielding seats can also be important for pregnant people (Ceccatto 5, 7).

### Seating

- Designated priority seating, perhaps with a colour-differentiated design
- Layout avoids feeling of being trapped
- Comfortable for people of different sizes and abilities (Damyanovic 49)
- Seating in transit cars can help people of marginalized genders avoid feeling trapped by an aggressor if the design is open.

### Safety and Security

- Button to contact transit employee for help
- An emergency button could be pressed to automatically contact police, but from an intersectional perspective, other options (ex. contacting transit employees trained in conflict de-escalation) could be preferable.

### Step-Free Access

- Level access from platforms to trains
- Boarding ramps
- Tracks adjusted to minimize vertical and horizontal gaps between the cars and the platform
- This is important for ensuring access for people of different sizes and abilities (Brown et. Al. 28).

### Strollers, Carts, Mobility Devices

- Room for strollers without having to fold them up
- This is essential for care work (Washington et. al. 15).

### Further Research

This report focuses extensively on the built environment features that can enable or obstruct gender equity in rapid transit design. Further research should be conducted on other topics that pertain to gender and transit, such as the impact of fare price on low-income people of marginalized genders, the impact of policing (or lack thereof) on the transit experiences of multiply marginalized people, and the impact of wait times on women conducting care work activities, to name a few. Research should also be conducted on LGBTQ+ access to transit. Gender- and sex-disaggregated data on transit use should be collected on a larger scale (beyond the scope of this study) for passengers, TransLink employees, and City employees to better understand how gender impacts both the decisions being made about rapid transit and the

experience of using it. Feminist qualitative research methods such as focus groups can be helpful in gaining an understanding of the choices that people of marginalized genders have surrounding rapid transit in Vancouver and the motivations behind their decisions. Any meaningful change to gender inclusion, equity, and access will happen through collaboration between multiple stakeholders and decision-makers, and approach transit from a holistic perspective.



## Appendix A -Key Terms

### Built Environment

- “The built environment constitutes the human-made, physical spaces in which human activity takes place” (Terraza et. al. 18).

### Care Work

- Care work refers to the often-unpaid labour of caring for others, usually children, the elderly, disabled people, or other family members, that is disproportionately performed by women. It can include anything from the daily tasks of maintaining a household, such as buying groceries, doing the laundry, cleaning the house, etc., to the emotional labour of supporting others’ growth, development, and emotional wellbeing (Moyser 1). Care work is also often described as “invisible” labour because it goes unacknowledged and unrecognized by many, understood not as a type of labour but as the tasks that women are “naturally” expected to perform.

### Gender vs Sex

- Sex describes the biological attributes (ex. chromosomes, hormones, genitalia, etc.) which identify someone as female, male, or intersex.
- Gender describes socially constructed roles, behaviours, expressions, and identities which identify someone as a girl, boy, woman, man, nonbinary, or Two-Spirit person. Different cultures around the world also have genders not included in this list, so “gender diverse” will be used as a catch-all term in this report to signify people of all genders.
- With regards to gender inclusion in rapid transit facility design, it is important to distinguish between sex and gender in terms of barriers to access. For example, a barrier along the lines of sex might be that there is no available seating for pregnant people, but a barrier along the lines of gender might be that women are at a higher risk of facing sexual harassment in public transit stations than men.

## Gender-Based Violence

- Gender-based violence is “an umbrella term for any harmful act that is perpetrated against a person’s will and stems from socially ascribed (i.e. gender-based) differences between males, females, and people who do not conform with gender norms” (Terraza et. al. 18).

## Gender Equity

- An equity approach understands that people of different genders have different needs and face different barriers in having these needs met (10). For example, gender equity in rapid transit facility design might involve incorporating design elements specifically to benefit women in order to ameliorate the inequality of access to transit that exists between men and women.

## Gender Inclusive

- “An approach that takes an inclusive view of gender, considering people of all genders and sexualities as well as intersections with factors such as race, ethnicity, income, class, age, and ability, to ensure the voices of people of all genders are heard and integral to project design, delivery, and evaluation, with the goal of promoting gender equity” (17).

## Gender Mainstreaming

- “Gender Mainstreaming is a process that systematically integrates gender perspectives into legislation, public policies, programs, and projects” (17).

## Intersectionality

- Kimberlé Crenshaw coined the term “intersectionality” to describe “a lens through which you can see where power comes and collides, where it interlocks and intersects” (Crenshaw 1).

- Specifically, intersectionality “promotes an understanding of human beings as shaped by the interaction of different social locations (e.g., ‘race’/ethnicity, Indigeneity, gender, class, sexuality, geography, age, disability/ability, migration status, religion). These interactions occur within a context of connected systems and structures of power (e.g., laws, policies, state governments and other political and economic unions, religious institutions, media). Through such processes, interdependent forms of privilege and oppression shaped by colonialism, imperialism, racism, homophobia, ableism and patriarchy are created” (Hankivsky 2).

### **People of Marginalized Genders**

- People of marginalized genders are those who experience marginalization due to their gender, including cisgender women, transgender people of all genders, Two-Spirit people, and gender diverse people. Each gender experiences marginalization in different ways, but this phrase is useful for signifying those who do not hold gender privilege. (WAVAW 1)

### **Transgender and Cisgender**

- A cisgender (or cis) person is someone whose gender identity matches the one they were assigned at birth.
- A transgender (or trans) person is someone whose gender identity does not match the one they were assigned at birth.

### **Universal Design**

- Universal design is “design usable by everyone to the greatest extent possible without adaptation or specialization” (Wright 1). It is important because it “produces spaces that are welcoming to people of all ages and abilities, including those with mobility, hearing, visual, and cognitive disabilities” (1) and can also improve access along the lines of gender and sex.

## Appendix B -Further Research

**The Gender Data Gap-** In the 1950s, crash test dummies were designed to improve the safety of vehicles and were modeled based on the 50th percentile adult male body, “1.77 m tall and weigh[ing] 76 kg” (Perez 197). A female dummy was not developed in the United States until 2011 (196), and consequentially, “when a woman is involved in a car crash, she is 47% more likely to be seriously injured than a man... 71% more likely to be moderately injured...[and] 17% more likely to die” (196).The reason that women die more frequently in car crashes is that they are considered “out of position drivers” (196), with 50th percentile cis men’s seat positioning considered the default.

**Organizers in Vancouver-** The Bus Riders’ Union, formed by Latin American and Philippine solidarity activists, anti-poverty organizers, and anti-imperialist feminists, successfully advocated for the “re-instatement of 16 late-night bus routes that serve restaurant workers, security guards, office cleaners, janitors and other late-night workers, most of whom are people of colour” (Kaur 1) among other actions.

Organizations like Battered Women’s Support Services (BWSS) continue to advocate for increased safety of people of marginalized genders in accessing transit, particularly related to sexual harassment and assault. Red Women Rising is another example of a group advocating for increased safety of women in public spaces, particularly Indigenous women who face disproportionate rates of violence and harassment (Copsey 1).

**Unpaid Care Work-** In Canada, women spend an average of 3.9 hours per day on unpaid care work, while men spend an average of 2.4 hours (Moyser 1). Furthermore, women still perform the majority of the mental and emotional care work in their families, most of which cannot be captured in statistical analyses of time spent on various tasks (1).

**Mobility and Age-** Gendered differences in mobility have been observed as early as kindergarten (Damyanovic 19), and as children get older, boys tend to be allowed to travel alone at younger ages than girls (19). Gendered differences in expectations on children, such as girls being expected to babysit their younger siblings more often than boys, also impact these patterns (19).

**Racism and Policing-** In a study of Vancouver police stops, for example, Indigenous men were stopped 15% of the time despite representing only 2% of the general population, and Black men were stopped 5% of the time, despite representing less than 1% of the population (Prystupa 1).

**Transphobia and Misogyny-** The intersection between transphobia and misogyny can contribute to trans women not being viewed as “ideal victims” and bystanders choosing not to intervene when harassment of trans women occurs. Another common transphobic narrative is that trans women who “pass” as cis (i.e. are assumed to be cisgender) are attempting to “trick” cis straight men into having a romantic or sexual relationship. Therefore, when some cis men discover that their date is trans, including in a public space where others are shaming them, they commit acts of violence to assert their masculinity (based on heteronormative, transphobic, misogynist standards of masculinity). At the same time, a common transphobic narrative among cis women is that trans women are just men trying to enter into women’s spaces (like washrooms). These two transphobic narratives about trans women (that they are “tricking” straight men or that they are themselves predatory men in disguise) can limit the amount of safe spaces for trans women trying to escape an aggressor.

**Care Work and Single Parenthood-** The majority of single parents are mothers and they often require flexible work hours that can accommodate their children’s “sick days, school breaks, and holidays” (11). This limited access to flexible work and increased number of hours spent performing unpaid care work contribute to the economic gap between women and men.

**Washrooms, Sex, and Health-** Studies have shown that the closure of washrooms has been connected to increased “referrals for urinary-tract infections [which are more common among females], problems with distended bladders, and a range of other urogynaecological problems” (Perez 62). Lastly, lack of access to tampons and pads can increase the chances of streptococcal toxic shock syndrome, which can be fatal (62).



## Appendix C -Implementing Change

### Gender Action Plan (GAP)

#### What is it?

A **Gender Action Plan (GAP)** is “an integrated planning tool to include gender equality within a project, program and policy. It is based on detailed analyses, which identify key gender inequalities and constraints that the project, program and policy should aim to improve” (Allen 37). The overall goal of a GAP is to implement changes to existing transit systems, provide recommendations for future transit projects, and identify overarching guidelines for gender inclusion in rapid transit. The GAP should draw on existing literature on gender and transit use, but should also be specific to the area and take into account the needs of people who live in that particular city (Washington 3-5). GAPs should focus on gender inclusion both in outcomes and in the decision-making processes, recognizing the important roles of people of marginalized genders both as transit employees and transit users. Often, a GAP will draw on a research report that identifies principles of gender-inclusive design and has consulted with multiple stakeholders, including individual transit users and community groups, to determine the best courses of action moving forward (7). The GAP should also identify the responsibilities of multiple stakeholders, not just limiting measures to the jurisdiction of one particular department. Lastly, the GAP should not stand alone; it should provide recommendations for how other policies (ex. environmental plans) can be gender-inclusive from the start and incorporate gender analyses automatically.

#### Example

Los Angeles’s *Understanding How Women Travel* is a research report that will serve the basis for their GAP (to be released in 2022). While the research report identifies key differences and areas of improvement pertaining to gender and public transit, the GAP will identify the specific measures that will be implemented to achieve gender equity. Therefore, qualitative methods like participatory workshops, participant observations, surveys, and focus groups are utilized in the research report to identify the transit needs of people of marginalized genders in LA. Key issues to be addressed in LA’s GAP include fare prices, safety, built environment, and transit routes (3).

## Benefits

- Comprehensive and clear; focus is on action items
- Encourages collaboration toward a common goal
- Thoroughly researched, incorporating a variety of qualitative and quantitative methods
- Both contextually specific and inclusive of international standards

## Potential Drawbacks

- Could be time-consuming
- Involves cooperation between different stakeholders, which can be challenging

## The Gendered Landscape

### What is it?

**The Gendered Landscape** is a philosophy and method for examining gender in city and transit planning. Based in an understanding that “gendered power structures concern... all urban planning in the city” (<https://tinyurl.com/4n5xhxvp> 1), the Gendered Landscape is a tour of the city presented online through interactive images and maps, and in-person through bus and walking tours. This method provides a holistic approach that includes but also moves beyond transit to highlight the ways in which city and transit designs interact with one another to produce a gendered landscape. The Gendered Landscape tours present a way to learn about the city starting from a gender perspective, and are a hands-on way of getting people involved in building a safer, more equitable, and more inclusive transit system.

### Example

The gender equality officer of Umeå at the time, Helene Brewer, developed this method based on the 2009 report “Umeå- The Gendered Landscape” (SUNRISE 1). The online version includes a video that shows images of various design features that have been implemented in Umeå to improve gender inclusion and accessibility. A voiceover describes the ways that these design features impact gender inclusion and a text explanation of each feature is included underneath.

Another section of the online tour includes images labeled “Stop A”, “Stop B”, etc., and each image has a video attached, outlining a different aspect of the gendered landscape (ex. artwork, pedestrian street, carpark, etc.). The online tour is particularly accessible, especially during the COVID-19 pandemic and for people not residing in the city. In Vancouver, this could be helpful to implement as a supplement to the GAP, after actions have already been taken to improve gender equity in the City’s transit system. Alternatively, a Gender Landscape tour could be an effective tool for demonstrating work that still needs to be done, outlining the issues with various spots around the City.

### Benefits

- Identifies specific locations within the City and provides a gender analysis
- Concrete solutions, clear next steps
- Encourages creativity
- Interactive and accessible

### Potential Drawbacks

- Tends to be one of the final steps in implementing gender inclusion, although could be incorporated earlier if altered slightly

### Co-Design

#### What is it?

**Co-design** takes as its premise the claim that “before any policy is formulated, the perspectives of women and gender-diverse people need to be engaged” (Matthewson and Kalms 53). As the name suggests, co-design involves the participation of people of marginalized genders in the transit design process from beginning to end. This approach moves away from considering gender as a box to check or a step in the planning process and toward an understanding of the ways in which gender influences every step of the planning process. Importantly, co-design has to be intersectional and

creative methods must be developed to ensure that people of marginalized genders are decision-makers and not just providing their input or suggestions.

### Example

The *Free to Be* project, which ran in Melbourne, Delhi, Kampala, Lima, Madrid, and Sydney, used crowdsourcing, crowd-mapping, and other methods of co-design to examine how street harassment impacted women's mobility. The project was able to identify problems with standard design responses to harassment on rapid transit. For example, while it is common practice to simply include brighter lighting to improve feelings of safety at transit stations, the project found that brighter did not always equal better because "women can feel highly exposed under floodlit conditions" (64). The direct participation of people of marginalized genders in the design process allowed them to discover that the quality, colour, temperature, and contrast ratios of lighting all impact feelings of safety. As a result, the project was able to paint a more nuanced and detailed picture of gender inclusion in transit design and respond accordingly.

### Benefits

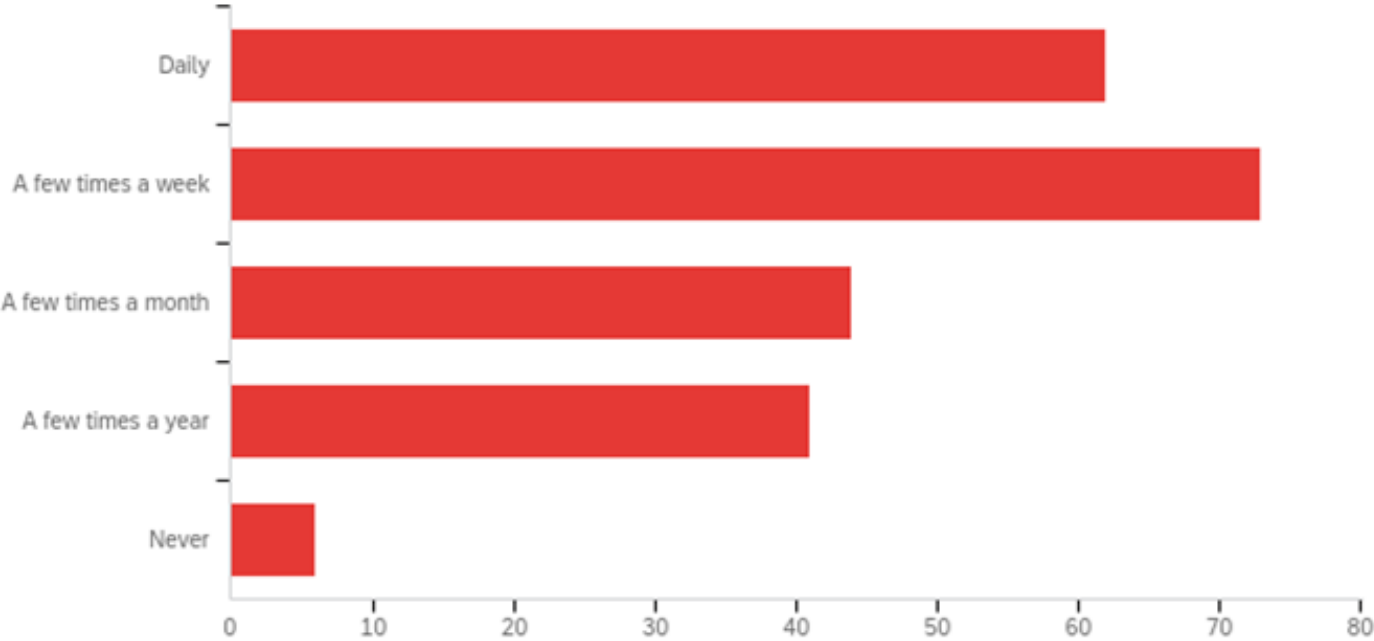
- People of marginalized genders are drawing on their lived experiences to directly influence the transit system of the city they live in
- Gendered analyses are not superficial, performative, or surface-level
- Strong potential for intersectional change, so long as multiple members of different marginalized groups are included
- Can be implemented through each step of the design process

### Potential Drawbacks

- Could be disagreement about transit design features between participants
- Could have trouble encouraging people to engage (although something like The Gendered Landscape tour could encourage participation)
- Input of participants may not reflect the population as a whole/may contradict the literature review

### Appendix D -Survey Results

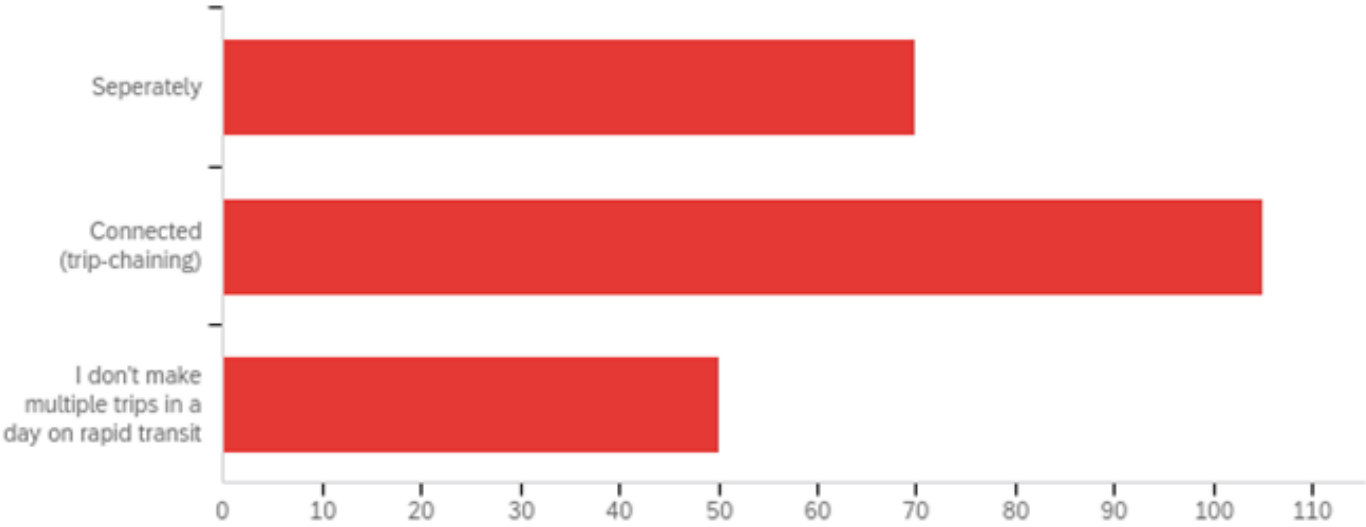
Q1 - Thinking about your more frequent rapid transit use in Vancouver (pre-pandemic or today), how often do you use rapid transit?



#	Answer	%	Count
1	Daily	27.43%	62

2	A few times a week	32.30%	73
3	A few times a month	19.47%	44
4	A few times a year	18.14%	41
5	Never	2.65%	6
	Total	100%	226

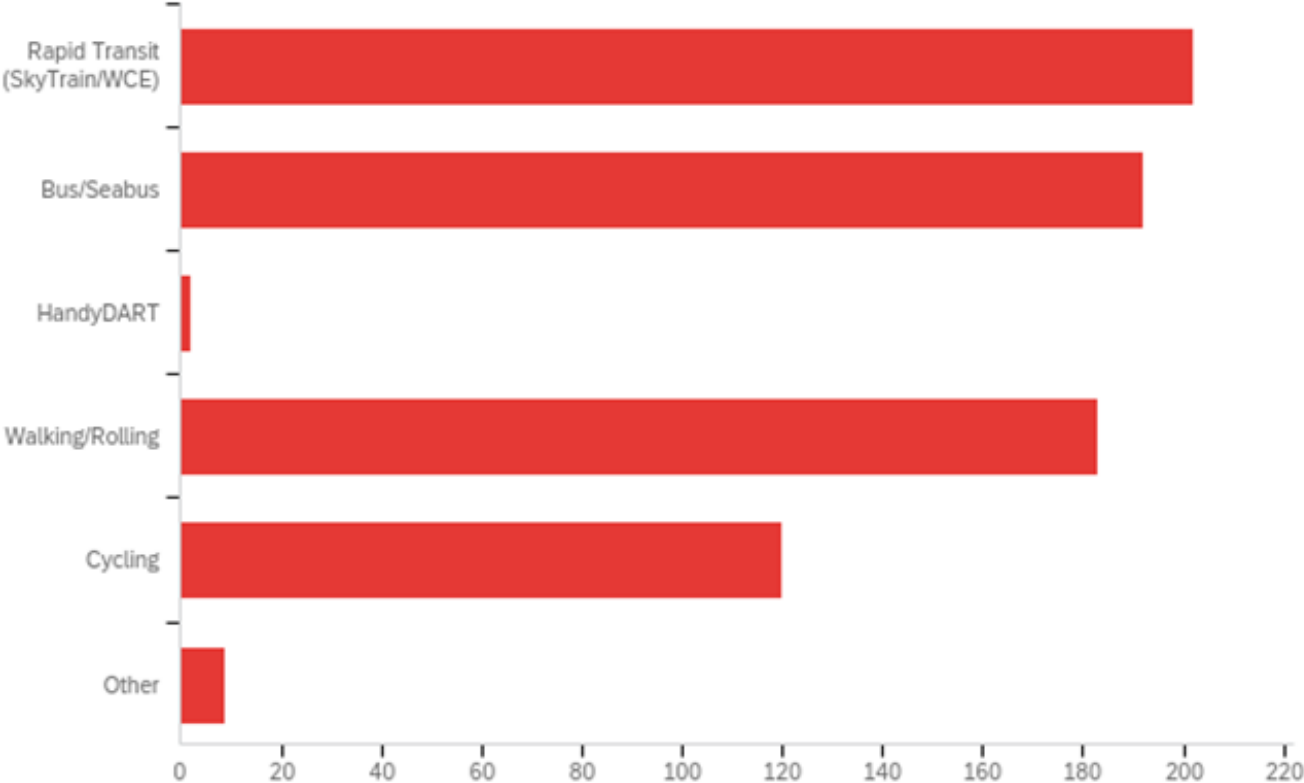
**Q2 - When you make multiple trips in a day on rapid transit, do you make them separately or connect the trips together (i.e. trip-chaining)?**



#	Answer	%	Count
1	Seperately	31.11%	70
2	Connected (trip-chaining)	46.67%	105
3	I don't make multiple trips in a day on rapid transit	22.22%	50
	Total	100%	225

**Q3 - What forms of sustainable transportation do you use? (Check all that apply)**

---



#	Answer	%	Count
1	Rapid Transit (SkyTrain/WCE)	28.53%	202
2	Bus/Seabus	27.12%	192
3	HandyDART	0.28%	2



4	Walking/Rolling	25.85%	183
5	Cycling	16.95%	120
6	Other	1.27%	9
	Total	100%	708

**Q4 - What unpaid care work activities are you responsible for? (Check all that apply)**

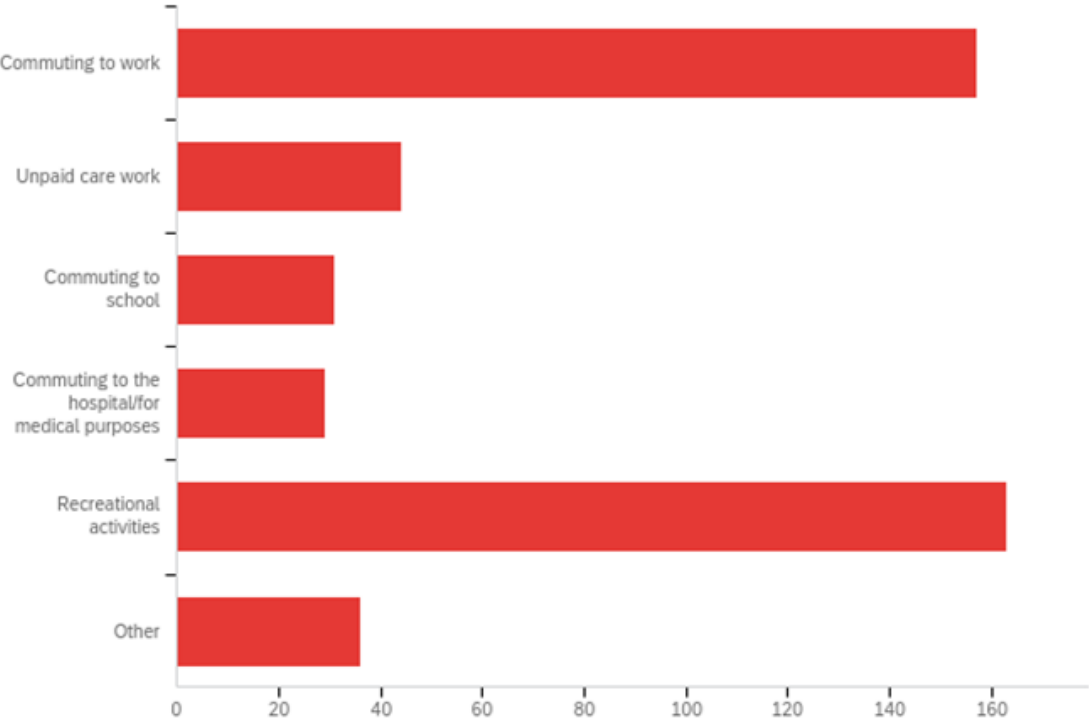


- Caring for children    ■ Caring for elderly relatives and/or relatives with disabilities
- Picking/dropping people off from school, work, daycare, etc.
- Buying groceries and other household items    ■ Cooking    ■ Cleaning    ■ Gardening/yard work
- Financial management of the household (ex. paying bills, budgeting, etc.)    ■ Other (please specify)

#	Answer	%	Count
1	Caring for children	6.41%	66

2	Caring for elderly relatives and/or relatives with disabilities	3.21%	33
3	Picking/dropping people off from school, work, daycare, etc.	5.93%	61
4	Buying groceries and other household items	20.21%	208
5	Cooking	17.98%	185
6	Cleaning	18.27%	188
7	Gardening/yard work	9.52%	98
8	Financial management of the household (ex. paying bills, budgeting, etc.)	16.91%	174
9	Other	1.55%	16
	Total	100%	1029

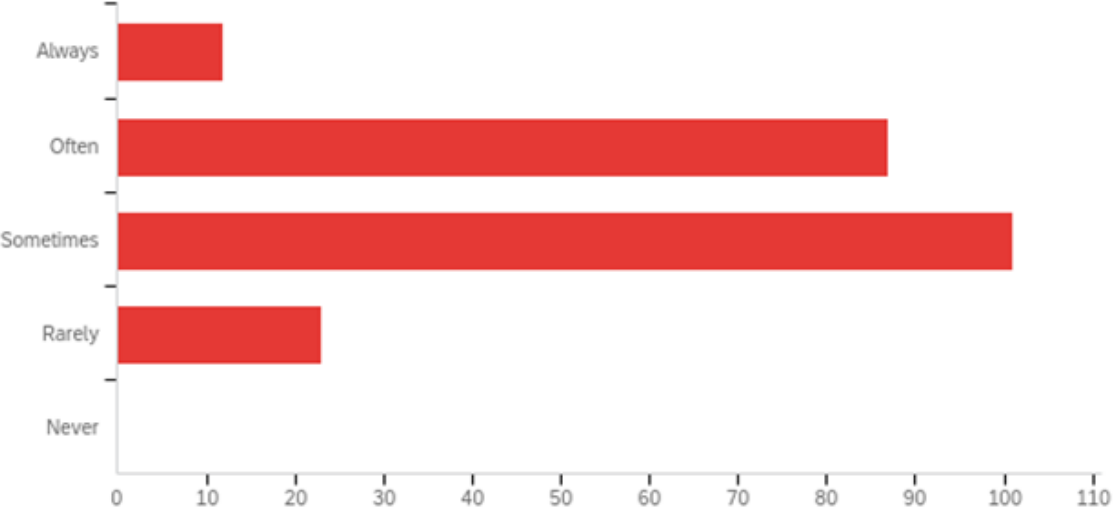
**Q5 - What do you use rapid transit for? (Check all that apply)**



#	Answer	%	Count
1	Commuting to work	34.13%	157
2	Unpaid care work	9.57%	44
3	Commuting to school	6.74%	31

4	Commuting to the hospital/for medical purposes	6.30%	29
5	Recreational activities	35.43%	163
6	Other	7.83%	36
	Total	100%	460

**Q6 - Rapid transit stations in Vancouver are overcrowded**



#	Answer	%	Count
1	Always	5.38%	12
2	Often	39.01%	87
3	Sometimes	45.29%	101
4	Rarely	10.31%	23
5	Never	0.00%	0
	Total	100%	223

**Q7 - For each statement, select your level of agreement/disagreement. For the questions that you wish to skip, click "doesn't apply to me".**



#	Question	Strongly agree		Some what agree		Neither agree nor disagree		Some what disagree		Strongly disagree		Doesn't apply to me		Total
1	I can access all of my daily needs through rapid transit in Vancouver.	15.49 % 35		42.92 % 97		4.42% 10		18.14 % 41		13.27 % 30		5.75% 13		226
2	There is enough/appropriate seating at rapid transit stations in Vancouver.	3.56% 8		18.22 % 41		15.11 % 34		36.00 % 81		20.89 % 47		6.22% 14		225
3	There is enough space for me to use mobility devices and/or	0.88% 2		11.95 % 27		7.08% 16		11.50 % 26		10.18 % 23		58.41 % 132		226



	strollers at rapid transit stations in Vancouver.													
4	There is enough/appropriate shelter outside rapid transit stations in Vancouver.	3.56%	8	20.89 %	47	17.33 %	39	29.78 %	67	22.22 %	50	6.22%	14	225
5	There is enough/appropriate space for me to bring bags/other items to rapid transit stations and on rapid transit in Vancouver.	4.87%	11	32.74 %	74	20.35 %	46	30.09 %	68	7.96%	18	3.98%	9	226
6	It is easy and safe for me to breastfeed at rapid transit	0.00%	0	1.33%	3	3.98%	9	3.54%	8	12.83 %	29	78.32 %	177	226

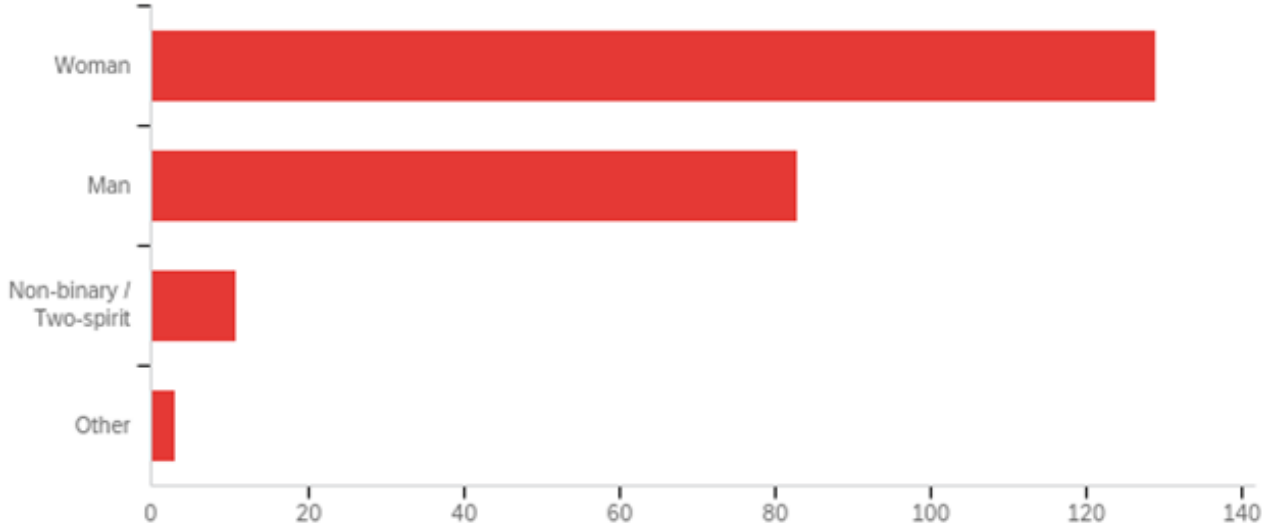
	stations in Vancouver.													
7	There is an appropriate number of elevators and escalators at multi-level rapid transit stations in Vancouver.	3.54%	8	22.12 %	50	18.58 %	42	25.22 %	57	14.60 %	33	15.93 %	36	226
8	It is easy for me to navigate rapid transit stations in Vancouver.	28.76 %	65	52.21 %	118	6.19%	14	7.08%	16	3.54%	8	2.21%	5	226
9	There is sufficient directional signage and clear sightlines at transit stations in Vancouver.	19.47 %	44	44.69 %	101	11.95 %	27	15.04 %	34	5.75%	13	3.10%	7	226

10	I feel comfortable using rapid transit alone in Vancouver during the day.	56.64 %	128	33.19 %	75	3.10%	7	3.10%	7	1.77%	4	2.21%	5	226
11	I feel comfortable using rapid transit alone in Vancouver at night.	17.26 %	39	42.04 %	95	9.73%	22	16.81 %	38	11.50 %	26	2.65%	6	226
12	At night, rapid transit stops and stations in Vancouver are well-lit.	11.56 %	26	38.67 %	87	21.33 %	48	17.33 %	39	3.56%	8	7.56%	17	225
13	I am able to use technology (phones, ATMs, internet, etc.) at rapid transit	29.65 %	67	40.71 %	92	11.95 %	27	9.73%	22	1.77%	4	6.19%	14	226

	stations in Vancouver.													
14	I can enjoy mixed-use areas (walkable areas with green space, services, and stores) outside transit stations in Vancouver.	22.67 %	51	35.56 %	80	15.11 %	34	12.89 %	29	7.56%	17	6.22%	14	225
15	There is sufficient real-time information at transit stations in Vancouver (ex. signs showing when the train is coming).	25.22 %	57	44.25 %	100	9.73%	22	15.04 %	34	2.65%	6	3.10%	7	226
16	I have to consider my	9.73%	22	22.12 %	50	14.60 %	33	16.37 %	37	12.39 %	28	24.78 %	56	226

clothing choices when deciding whether to use public transit in Vancouver (ex. wearing heels on grates).

**Q8 - What is your gender identity?**



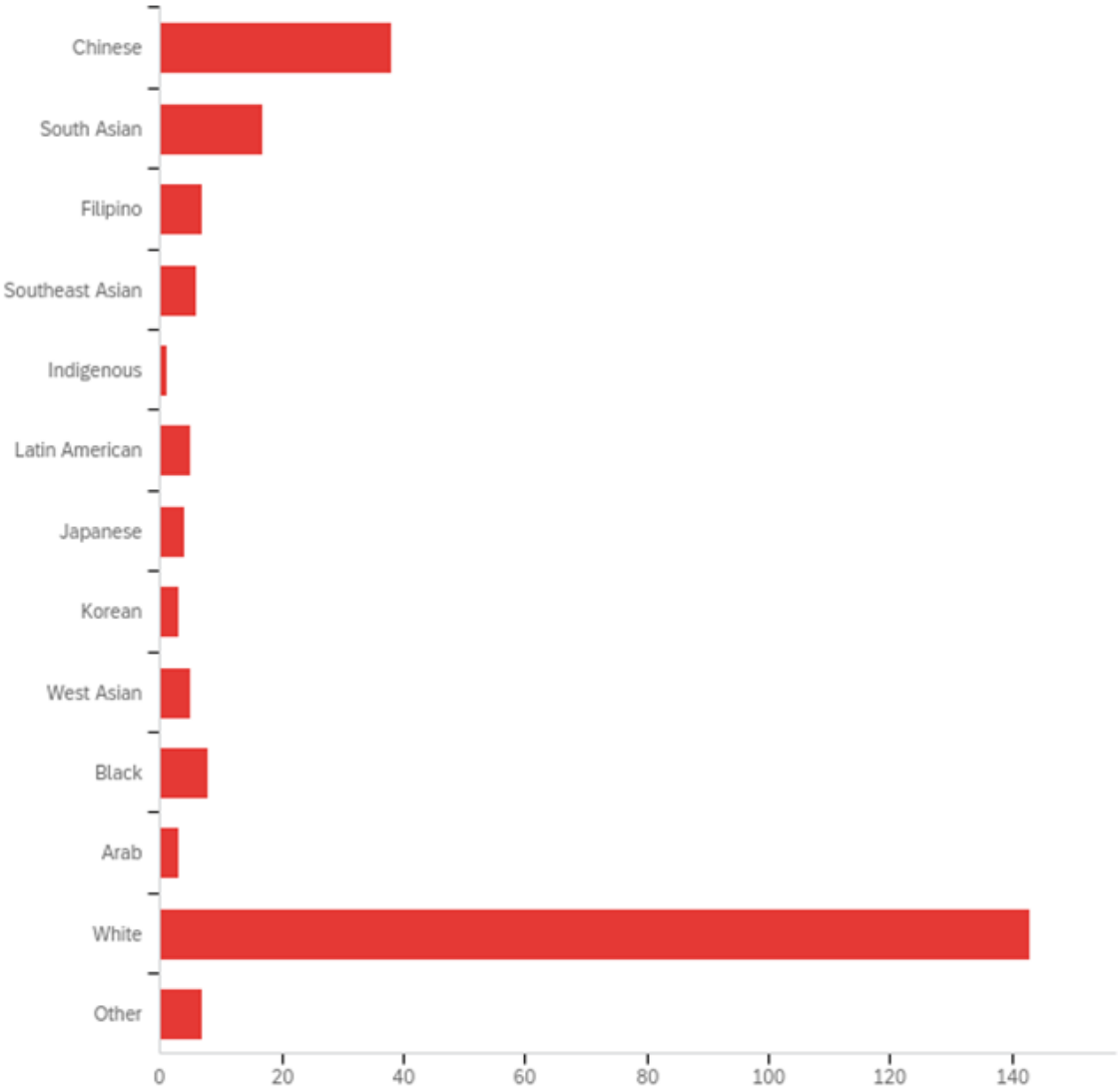
#	Answer	%	Count
1	Woman	57.08%	129
2	Man	36.73%	83
3	Non-binary / Two-spirit	4.87%	11
4	Other	1.33%	3
	Total	100%	226

**Q9 - Do you identify as transgender?**

#	Answer	%	Count
1	Yes	3.98%	9
2	No	96.02%	217
	Total	100%	226

**Q11 - What is your race? (Check all that apply)**

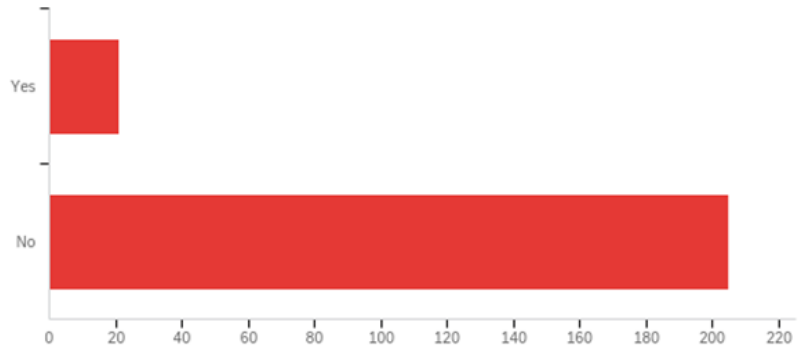




#	Answer	%	Count
1	Chinese	15.38%	38
2	South Asian	6.88%	17
3	Filipino	2.83%	7
4	Southeast Asian	2.43%	6
5	Indigenous	0.40%	1
6	Latin American	2.02%	5
7	Japanese	1.62%	4
8	Korean	1.21%	3
9	West Asian	2.02%	5
10	Black	3.24%	8
11	Arab	1.21%	3
12	White	57.89%	143
13	Other	2.83%	7
	Total	100%	247

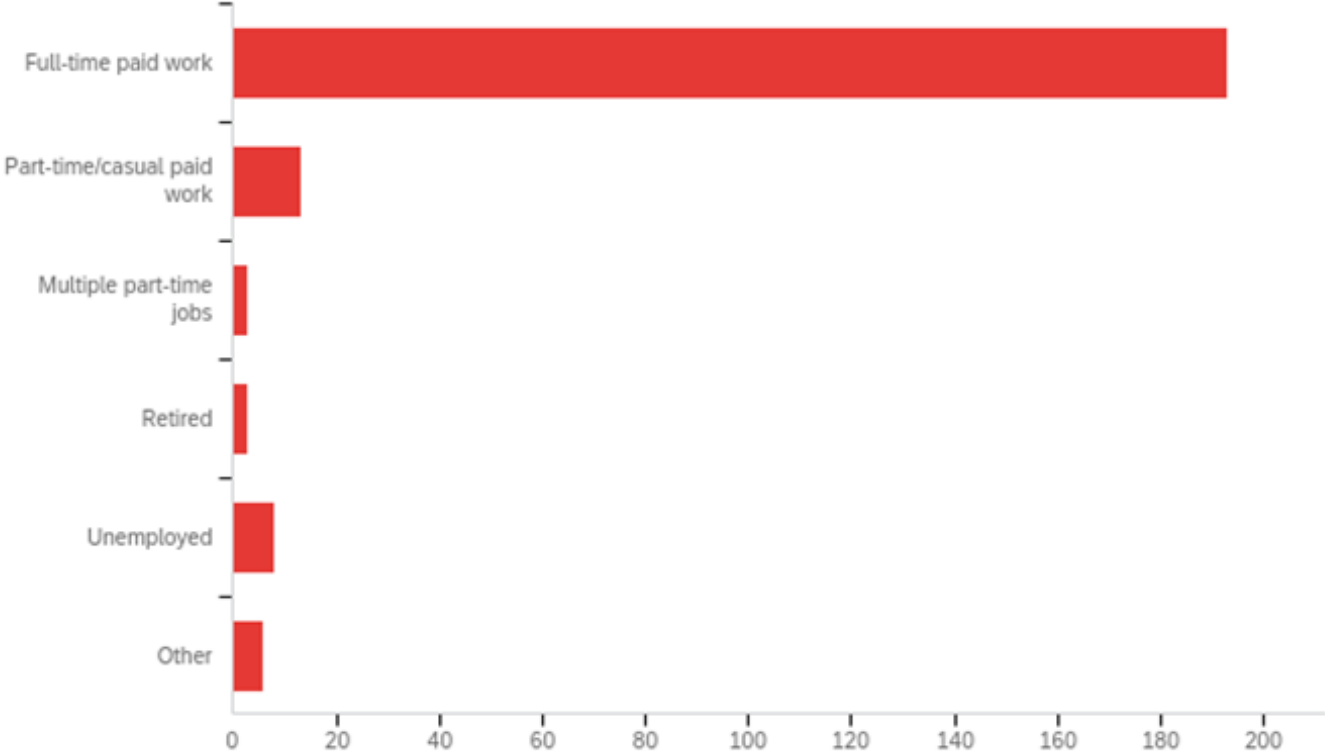


**Q13 - Do you identify as a person with a disability?**



#	Answer	%	Count
1	Yes	9.29%	21
2	No	90.71%	205
	Total	100%	226

**Q14 - What is your employment status?**



#	Answer	%	Count
1	Full-time paid work	85.40%	193
2	Part-time/casual paid work	5.75%	13
3	Multiple part-time jobs	1.33%	3

4	Retired	1.33%	3
5	Unemployed	3.54%	8
6	Other	2.65%	6
	Total	100%	226

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