Rialtas na hÉireann
Government of Ireland

Considering Gender in Active Travel and Public Transport

Transport Research Insights

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1. Introduction

This paper provides a brief outline of gender related challenges in active travel and public transport in Ireland.[1] It summarises some of the issues and concepts surrounding gender and transport particularly as they relate to **two important gendered elements of transport: mobility patterns and safety.**[2] The paper then discusses the concept of **gender mainstreaming**, which aims to incorporate gender-based analysis into all parts of policy, so that likely impacts are always considered, even for policies which may not be explicitly focused on gender. The paper concludes with a discussion of the Irish policy context with regard to gender mainstreaming, and some potentially useful policy interventions to resolve gender disparities.

2. Gendered Mobility Patterns

Women in Ireland make more journeys, at different times, and by different modes than men.[3] One cause of this trend is that women's mobility - particularly in certain age groups - is often determined by their caring responsibilities. This is shown in the National Travel Survey data below. Women are generally more likely to travel for shopping, visits, or as a companion. In contrast, men are more likely to travel to and from work.

Figure 1: Distribution of Journeys by Sex and Purpose
Source: CSO National Travel Survey
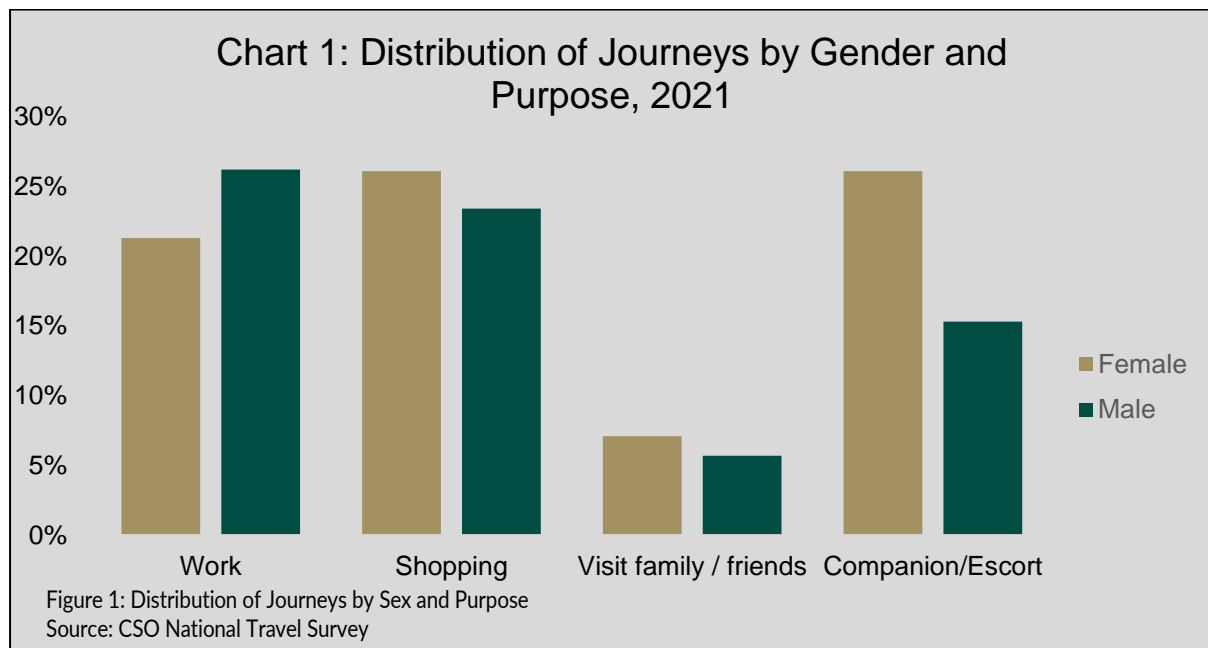
These differential patterns of men and women have been characterised as constituting the 'mobility of care', referring to journeys that women take to care for others.[4] Many shopping and visiting

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[1] This paper is based on earlier research that covered these issues as well as some more detailed analysis of travel patterns in Ireland. Copies of that paper are available on request.

[2] This paper does not fully reflect all identities, but rather focuses on the two main groupings of men and women which are captured in the available literature and data. The National Travel Survey data used in this paper are collected by sex, while most of the academic literature referenced is categorised by gender.

[3] CSO National Travel Survey 2019, This is discussed in more detail in the earlier research paper.

[4] Ines Sanchez de Madariaga, *Mobility of Care: Introducing new concepts in urban transport.* In *Fair Shared Cities (pp. 51-66), 2013*

journeys, and all companion or escort journeys – such as bringing children to school - can be categorised this way. This can lead to a phenomenon called '**trip-chaining'**, where individuals make multiple stops across journeys. It is common among parents, who will often combine 'mobility of care' journeys such as school drop-off and collection into trip-chains which could involve onward travel to work, shops, or other caring responsibilities.

With women tending to take on more caring responsibilities than men, journey patterns tend to differ across genders: broadly speaking, men may be more likely to make single-purpose trips (*e.g.*, commuting from home to work), whereas women may be more likely to make multi-purpose trips (*e.g.*, bringing children to school, going to a shop, and visiting a relative).

These types of journeys can affect the choice of travel modes. Trip-chaining may be more convenient with private car-based transport, because it gives a traveller flexibility about destinations and how to link them together. The car can also facilitate multi-purpose trips, given its capacity to carry passengers and loads readily. This car dependency can limit the ability of users to fully avail of active travel and public transport modes.

These patterns have not been extensively studied in Ireland. However, there is some international research which may give some insight into how the 'mobility of care' and trip-chaining manifests elsewhere. It is important that the Irish transport system properly facilitates these diverse journey patterns, so that all users can benefit from investment in the transport network.

Box 1: International Evidence on the 'Mobility of Care' and Trip-Chaining

Professor Ines Sánchez de Madariaga found that in Spain, the 'mobility of care' made up a comparable portion of women's journeys to the portion of men's journeys for work and education. Recent research using data from Montreal, Canada has found that 28% of adults' daily mobility is comprised of the mobility of care, with women completing a larger portion of this than men, particularly women from lower-income backgrounds.[5] The most commonly used modes for 'mobility of care' journeys in Montreal are cars and walking, with public transport and cycling much more associated with commuting to work.

Similarly with the 'mobility of care', trip-chaining is most associated with women who have children.[6] This tells us that women's departure times from home are more constrained by school and childcare times than men's, which is reflected in Irish travel survey data, where women make more of their journeys at 7-10am and 1-4pm. Studies focusing on specific cities (Boise and Portland, USA and Sydney, Australia) have additionally found that as trip chain complexity increases, the utility of public transport decreases and travellers are more likely to use private vehicles.[7]

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[5] Léa Ravensbergen, Juliette Fournier, and Ahmed El-Geneidy, *Exploratory analysis of mobility of care in Montreal, Canada*. Transportation Research Record, 2023.
[6] Nancy McGuckin and Elaine Murakami, *Examining Trip-Chaining Behaviour: Comparison of travel by men and women*. Transportation Research Record, 1999
[7] David A Hencher and April J Reyes, *Trip chaining as a barrier to the propensity to use public transport*. Transportation, 2000

Public transport and active travel can facilitate trip-chaining, if they are designed effectively. On the public transport side, these patterns can be facilitated through the structure of transport networks to allow more complex journey patterns, and by enabling lateral movement around suburbs or between towns and villages as well as commuter-type movement to and from population centres. Fare structures can also support trip-chaining, if they are designed to enable multi-leg journeys, both within public transport and integrating other modes such as active travel, shared mobility, and private modes of transport

On the active travel side, some barriers can be removed by ensuring that cycling infrastructure is not only focussed on facilitating single-purpose trips (*e.g.*, on arterial routes to employment centres), but rather joins together effectively. Facilitating the use of cargo e-bikes may also contribute to enabling active-travel trip-chaining where trips involve carrying groceries or other heavy items.

3. Safety

Safety – both personal safety and risk of collisions/accidents – is another element of transport where differences between genders can be observed. As described below, more men than women have accidents and collisions, but **women appear more responsive to risk, both to personal safety, and the risk of injury in collisions and accidents**. Personal safety and security are also particularly relevant in public transport where many women report feeling unsafe. Risk from collisions and accidents is particularly relevant in active travel, especially cycling, where women report a strong preference for safer cycling infrastructure.

Personal Safety

Personal safety and security are commonly reported concerns about public transport. **55% of women surveyed in *Travelling in a Woman's Shoes*[8] reported that they would not take public transport after dark**. Safety has been extensively studied, for example in the United Kingdom (see Box 2):

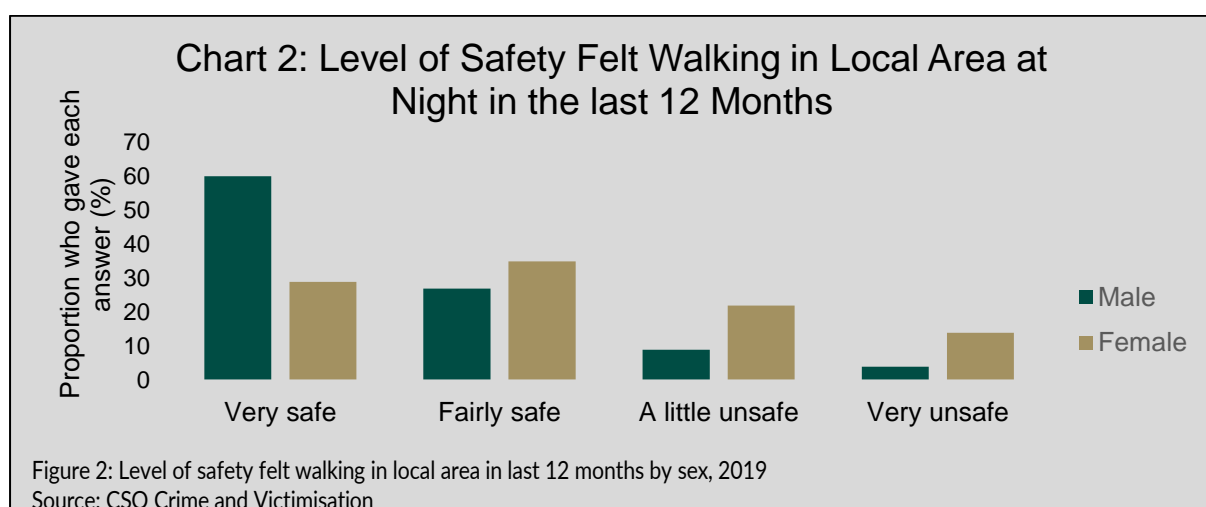[8] Transport Infrastructure Ireland *Travelling in a Woman's Shoes* 2020

Box 2: UK Evidence on Public Transport Safety

A UK Department for Transport and British Transport Police review of evidence on policy interventions to reduce sexual harassment and violence on public transport found that women consistently ranked increases in visible staffing as a preferred measure to reduce sexual harassment. The following interventions were identified as commonly used and potentially effective, in order of their perceived effectiveness:

1. Increased Surveillance, by both staff and CCTV.
2. Crime prevention through environmental design, designing infrastructure to improve lighting, visibility, and general environment.
3. Alternative means of reporting, including apps, hotlines, and text reporting.
4. Awareness campaigns, such as grassroots campaign groups or advertising by transport operators.
5. New technology, particularly apps which allow incident reporting and maps of offending hotspots.

Women also consistently rated environmental design measures as important; examples include improved lighting, alarms, and increased visibility. Lower cost interventions that were rated highly by women included easier methods of reporting harassment, awareness campaigns, and technology such as smartphone apps to track harassment hotspots.[9] In line with this, *Travelling in a Woman's Shoes* also recommends improving visibility and lighting, as well as increasing staffing levels.
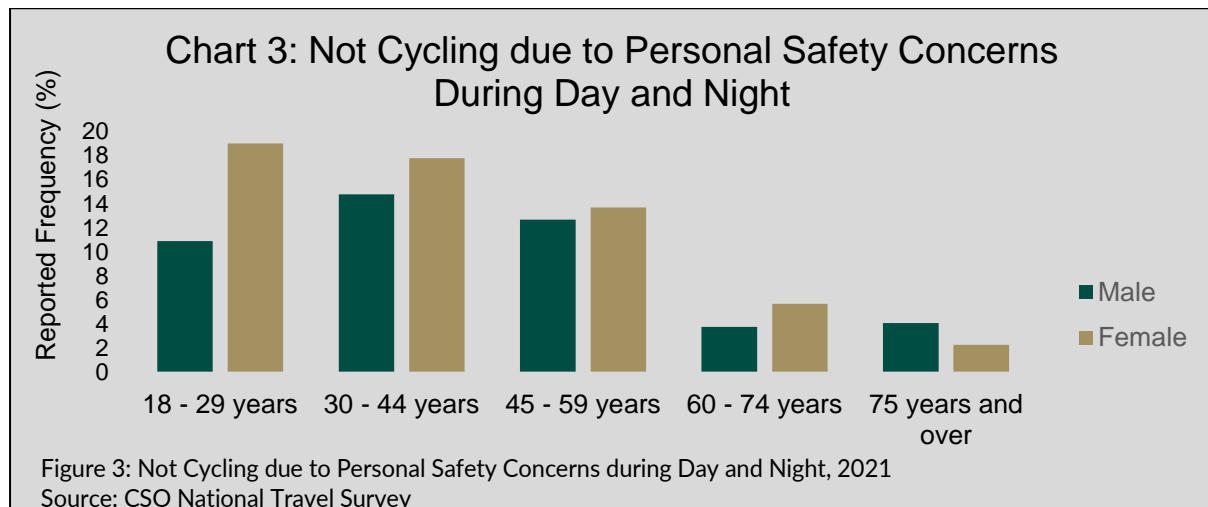
Personal safety concerns are frequently reported for walking and cycling. When National Travel Survey respondents who reported walking less than weekly were asked why they do not walk more often, significant gender imbalances were apparent in levels of concern for personal safety. Additionally, **personal safety concerns are exacerbated at night: women in Ireland are much more likely to report feeling unsafe walking in their local area after dark according to CSO Crime and Victimisation Survey data**.[10] It is likely that this has an impact on women's choices: if women own cars they may choose to drive instead of walking a short journey, or they may choose not to travel.

Chart 2: Level of Safety Felt Walking in Local Area at Night in the last 12 Months

Figure 2: Level of safety felt walking in local area in last 12 months by sex, 2019
Source: CSO Crime and Victimisation

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[9] Anna Gekoski et al. *'What works' in reducing sexual harassment and sexual offences on public transport nationally and internationally: a rapid evidence assessment*. 2015
[10] CSO *Crime and Victimisation 2019 Perception of Crime*

Similarly to walking, National Travel Survey respondents also displayed a gender disparity in being discouraged from cycling due to personal safety concerns, at all times of day.

Chart 3: Not Cycling due to Personal Safety Concerns During Day and Night

Figure 3: Not Cycling due to Personal Safety Concerns during Day and Night, 2021
Source: CSO National Travel Survey

Overall, domestic and international evidence suggests that **personal safety concerns can be a determinant of travel choices, particularly for women, and this can lead to reduced mobility** due to safety concerns.[11] The UK evidence described above suggests that increased staffing and enforcement efforts can improve perceptions of safety, as well as environmental design measures.

Safety from Collisions

For influencing modal choices, safety from collisions is most relevant for cycling and walking. The risk of collisions and accidents in active travel modes is generally higher for men than for women, but **women appear more responsive to risk**, particularly when choosing to travel by bicycle. A Red C polling carried out for the Department of Transport in 2023 found that 38% of respondents reported concerns about the danger from other road users as a barrier to cycling more often as a car alternative, with these concerns most common among women.

The differential risks experienced by men and women call for targeted responses, but many of these may have general positive effects. For example, reductions in speed limits would likely have a larger active travel impact on women, as they are more responsive to perceptions of safety. Overall, safety in our transport system can be improved, and this may contribute to closing gender gaps in sustainable transport, as well as having the obvious benefit of reduced injuries and deaths.

The provision of **improved active travel infrastructure** emerges as a popular intervention, as well as a feature of countries like the Netherlands which enjoy high levels of gender-balanced active travel. For cycling, policies like the construction of segregated cycle routes and the expansion of

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[11] Arup *Cities Alive, Designing Cities that work for Women* 2022

urban cycle networks may be helpful in both increasing cycling overall and reducing gender disparities. Similarly to cycling, improved infrastructure is likely to have a positive impact on encouraging more walking, as Red C polling[12] found that 24% of respondents reported **a lack of infrastructure as a barrier to walking more often**, with these issues most commonly reported among women, rural dwellers, and those with dependent children. Another policy for improving cycling safety is the provision of technological solutions for safer route planning. These could include planning routes that utilise cycling infrastructure, or are better-lit at night. Research in the UK found that 66% of women surveyed would feel safer if a 'well-lit route home' feature was integrated into mapping applications.[13]

Box 3: International Evidence on the Cycling Gender Gap

The gender gap in cycling is often less pronounced in countries where cycling is more common overall. For example: in the Netherlands, cycling is much more prevalent and gender-balanced. This is associated with the increased level of safety, as women can be especially sensitive to the risks of cycling in traffic. To combat this, the Netherlands has used a combination of segregated cycling infrastructure and strict traffic laws to encourage both drivers and cyclists to share the road safely.[14] In contrast to the Dutch case, a study of British census data showed an increase in commuting by bicycle increased after 2001, but no associated reduction in the gender gap. This indicates that interventions which increase overall cycling mode share may not impact the gender gap. The authors concluded that a more targeted approach would be necessary to close the gender gap in cycling.

To close the gender gap, one common intervention is segregated cycling infrastructure. It is a popular option with women according to the CSO National Travel Survey. Separate cycle lanes have been successful internationally where they are introduced. For example, where segregated cycle lanes were introduced in Australia, women were found to use them at higher rates than men.[15] *Travelling in a Woman's Shoes* also recommends improving cycling infrastructure, as well as attempting to establish clear cycling practices and make all road users aware of these.

Overall, the evidence indicates that an environment where women feel safe cycling is required to create a mass cycling culture, meaning policies should aim to meet this requirement, rather than expecting gender disparities to close naturally as the cycling level increases.

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[12] Polling was carried out as part of the *Your Journey Counts* campaign
[13] Opinium, *Tackling the Gender 'Pedal Gap' Women's Night Safety Report 2023*
[14] John Pucher and Ralph Buehler, *Making Cycling Irresistible: Lessons from the Netherlands, Denmark, and Germany*. Transport reviews, 2008
[15] Jan Garrard, Jeffrey Rose, and Sing Kai Lo. *Promoting transportation cycling for women: the role of bicycle infrastructure.* Preventive medicine, 2008

4. Frameworks for identifying Gendered Impacts

As outlined above, gender disparities have been clearly identified in active travel and public transport usage; this raises the question of what tools can be applied to help address these challenges? One prominent approach is to adopt theoretical and policy structures such as **gender mainstreaming**. Gender mainstreaming was introduced by the United Nations (UN) in 1997 as an approach for tackling gender disparities in policy. It refers to the explicit embedding of gendered issues and gender-based analysis into all stages of the policy design process, including resources to collect gender-disaggregated data and a recommendation that policy proposals include discussion of potential gendered impacts.[16] Put simply, **gender mainstreaming is about asking 'how might this impact women and men differently' at all levels and stages of policy**

To a certain extent, gender mainstreaming is built into decision-making in in Ireland. Memoranda for Government are required to include an assessment of gender equality, including a statement on the likely effects of the policy on both men and women and, if necessary, any actions to ensure that the policy promotes gender equality.[17] The most recent *National Strategy for Women and Girls* also commits the civil and public service to build capacity and develop in-house expertise in gender mainstreaming.[18]

In addition, for capital investment projects, gendered analysis has been implemented in the Transport Appraisal Framework (TAF) for transport projects in Ireland, where a qualitative appraisal of gender impacts is part of the Transport and Accessibility Appraisal (TAA) for projects costing over €30m.[19] TII has also published guidance on applying a 'Gender Lens' to Public Transport Projects.[20]

As part of the Sustainable Mobility Policy (SMP), the Department of Transport is committed to the SMP Research Network which advises on, and focuses research to provide an evidence base for implementation of the SMP. Within the Research Network[21], the Department of Transport is also committed to evaluate factors impacting user's perceptions of safety when using sustainable transport modes and analyse these based on factors such as gender. These frameworks and assessment tools are useful for ensuring that gender-based issues are considered throughout policymaking.

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[16] United Nations Department for Economic and Social Affairs, Division for the Advancement of Women. *Mainstreaming the gender perspective into all policies and programmes in the United Nations system, 1997*
[17] Department of the Taoiseach, *Cabinet Handbook*, 2006.
[18] Government of Ireland, *National Strategy for Women and Girls 2017-2020*
[19] Department of Transport, *Transport Appraisal Framework* 2023
[20] Transport Infrastructure Ireland Applying a Gender Lens to TII Public Transport Projects 2021
[21] Department of Transport, *Sustainable Mobility Policy* 2022

ITF Toolkit for Gender Mainstreaming in Transport

For transport, a more detailed framework for analysing proposals has been developed by the International Transport Forum (ITF). The *Gender Analysis Toolkit for Transport* aims to help the transport sector implement gender mainstreaming in policies and infrastructure projects.[22] The ITF toolkit includes three main tools which can be used to assess and improve the gender inclusivity of a transport project:

1. Gender Checklist
2. Gender Indicators
3. Gender Questionnaire

The **Gender Checklist**'s aim is to assess how extensively a gender perspective is represented in a policy or project, measured with a Gender Equality Score, which is the number of 'yes' answers on the checklist below. In the absence of data on the likely impacts of a project, this method can be used to produce an initial analysis of the gender inclusivity of the project:

1. Does the policy/project explicitly address gender equality in transport?
2. Have potential impacts on gender equality been identified in the development of the policy/project?
3. Does the project use gender-related data?
4. Are the outcomes of the policy or project designed to meet the different transport needs preferences and behaviour of women and men as transport users and workers?
5. Is the gender perspective incorporated into policy/project implementation?
6. Does the policy/project allocate financial resources for the implementation of gender-equality commitments?
7. Does the policy/project allocate financial resources for the collection and analysis of gender-disaggregated data?
8. Does the policy/project consult with bodies, internal or external, tasked with gender issues?
9. Is the wider team working on the policy/project gender balanced?
10. Is a dedicated gender expert part of the project team?
11. Does the policy/project foresee the monitoring and evaluation of impacts on gender equality?
12. Are team members gender aware?

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[22] International Transport Forum, *Gender Analysis Toolkit for Transport*

The **Gender Indicators** are suggested statistics to measure the gender-balance of policy. Many of the indicators suggested are also collected in Ireland by the Central Statistics Office (CSO) in the National Travel Survey, for example departure times and journey purposes by gender are suggested by the ITF toolkit and are collected by the CSO. The indicators are broken up into nine areas:

1. Do different genders travel in different ways?
2. Are there gender differences in the use of private vehicles?
3. Is mobility more expensive for some genders than for others?
4. Is traffic equally safe for all genders?
5. Can all genders feel equally safe and secure when travelling?
6. Does planning capture the needs and interests of different genders?
7. Is public transport equally accessible to everyone?
8. How are different genders represented in the transport workforce?
9. Are all genders educated and trained equally for transport careers?

Finally, **the toolkit** includes a gender questionnaire. The questionnaire provides a guide to assessing the level of gender analysis and inclusion in transport project and data collection.

The toolkit provides a useful mechanism for incorporating gender issues, and could be used in Ireland. As mentioned above, a qualitative assessment of Gender Impacts is required under the Social Impact heading within the Transport and Accessibility Appraisal (TAA), for capital investment projects over €30 million. Some or all of the ITF toolkit could be used here to assess the gender impacts, and inform the TAA score under this subcriterion. Tools such as this have been used with considerable success, for example in Canada.

Case Study: Canada and Gender Mainstreaming

The Canadian government introduced a process called Gender Based Analysis Plus (GBA+) in 1995, where policy is rigorously assessed for systematic inequality and bias. The plus refers to its intersectional approach. It looks at how these factors interact and how individuals are impacted by policy. The basis of GBA+ is the commitment to consider the impacts of all policies, even ones that seem gender or identity-neutral.[23] The Minister of Transport in Canada is mandated to apply GBA+ in all decisions.[24]

An intersectional approach attempts to take account of the variety of social groups that individuals fall into, along lines such as race, class, or gender, recognising that these factors may overlap rather than existing separately. For example, individuals may be harassed on public transport because of their race, their gender, or a combination of both along with other factors, forming an individual experience of discrimination which may be totally different to that of many others. GBA+ also takes account of the fact that gendered issues rarely impact one gender exclusively and making improvements will often benefit people of all backgrounds and identities. For example, safety concerns on public transport may be more prevalent among women, but improving safety will improve the experience for all passengers.

One example of a GBA+ development in transport policy is the use of car crash test dummies that are specifically modelled on small females. In most cases crash tests have previously used male dummies or scaled down male dummies to represent females, which fails to provide a good approximation of the impact of collisions on female bodies.[25] US data has shown that women are more likely to be seriously injured in collisions than men.[26] This disparity has not been previously identifiable in crash tests due to the wide use of male dummies, and some tests even using female dummies in passenger seats rather than in the driver's seat.[27] This illustrates the problem which gender analysis seeks to solve, as well as the real-world consequences of a failure to consider gender.

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[23] Government of Canada, *What is Gender Based Analysis Plus*
[24] *Prime Minister of Canada, Minister of Transport Supplementary Mandate Letter*, 2021
[25] Transport Canada, *2022-2023 Gender Based Analysis Plus (GBA+)*
[26] Dipan Bose, PhD, Maria Segui-Gomez, ScD, MD, MPH, and Jeff R. Crandall, PhD, Vulnerability of female drivers involved in motor vehicle crashes: an analysis of US population at risk. *American journal of public health*, 2011
[27] New York Times, *Crash Test Dummies Made Cars Safer (for Average-Size Men)*, 2021

5. Policy Interventions

There are numerous examples of policy interventions to tackle gender disparities in transport which have been effective in other countries. These interventions are discussed in the case studies above. Within an Irish context, various initiatives have been undertaken to address these challenges:

1. Public Transport Networks facilitating diverse travel patterns: The 'mobility of care' and trip-chaining constitute distinct travel patterns which have not always been facilitated by public transport networks. In Ireland, policies such as *BusConnects*, and the **90-Minute fare are likely to facilitate these diverse travel patterns**, expanding possibilities for mobility.
2. Segregated Cycling Infrastructure: Safety is a commonly reported factor discouraging women from cycling, and protected cycling infrastructure has been successful in alleviating these safety concerns. **Expansions of active travel infrastructure such as *CycleConnects* and *Safe Routes to School* are likely to improve this in Ireland**.

Similarly for safety on public transport, some interventions are consistently highly rated by women to improve perceptions of safety, and recommended both in *Travelling in a Woman's Shoes* and in UK research.[28]

1. Infrastructure and Environmental Design: **designing transport infrastructure so that the physical location fosters a sense of safety** is likely to improve perceptions of safety. Examples of this include designing stations so that there is good visibility and even lighting across the space.[29]
2. Surveillance and Staffing on Public Transport: **uniformed staff** (both security staff and other staff) and **effective surveillance technology** such as CCTV are both likely to improve perceptions of safety, particularly among women. It can also be beneficial if staff are clearly identifiable, and are regularly patrolling, for example on a train walking through carriages.
3. Alternative means of incident reporting, such as apps, hotlines, and text reporting: These can provide a safe method of reporting, and facilitate a rapid response. Text reporting is available on Irish Rail[30] and Luas[31] services, while Dublin Bus[32] passengers are encouraged to approach the driver to report antisocial behaviour on a bus, or email report afterwards.

Some of these policies may be more challenging to effectively implement in rural areas, where levels of infrastructure and staffing are lower. This may call for more research and a more targeted approach.

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[28] Anna Gekoski et al. *'What works' in reducing sexual harassment and sexual offences on public transport nationally and internationally: a rapid evidence assessment*. 2015
[29] Transport Infrastructure Ireland *Applying a Gender Lens to TII Public Transport Projects 2021*
[30] Irish Rail Anti Social Behaviour FAQs
[31] Luas Text Service Terms and FAQs
[32] Dublin Bus: Commute with Confidence

6. Conclusion

This paper has outlined two of the key gendered impacts in transport, namely differing trip patterns and safety issues. It has highlighted how decisions about the transport network design can impact genders differently. Frameworks such as the ITF Toolkit exist to assess the gendered impacts of proposals prior to implementation, and tools such as the TAA are incorporated in Irish transport planning. Awareness of these differences can lead to a more inclusive, effective transport network, particularly for active travel and public transport. In the context of the need for climate action, ensuring that sustainable mobility modes facilitate the movement of the population as a whole takes on additional importance. Gender mainstreaming can contribute to this goal and allow the identification of policy and investment interventions which may be successful in achieving strategic goals.