



Photo by Othar, licensed under Shutterstock.com



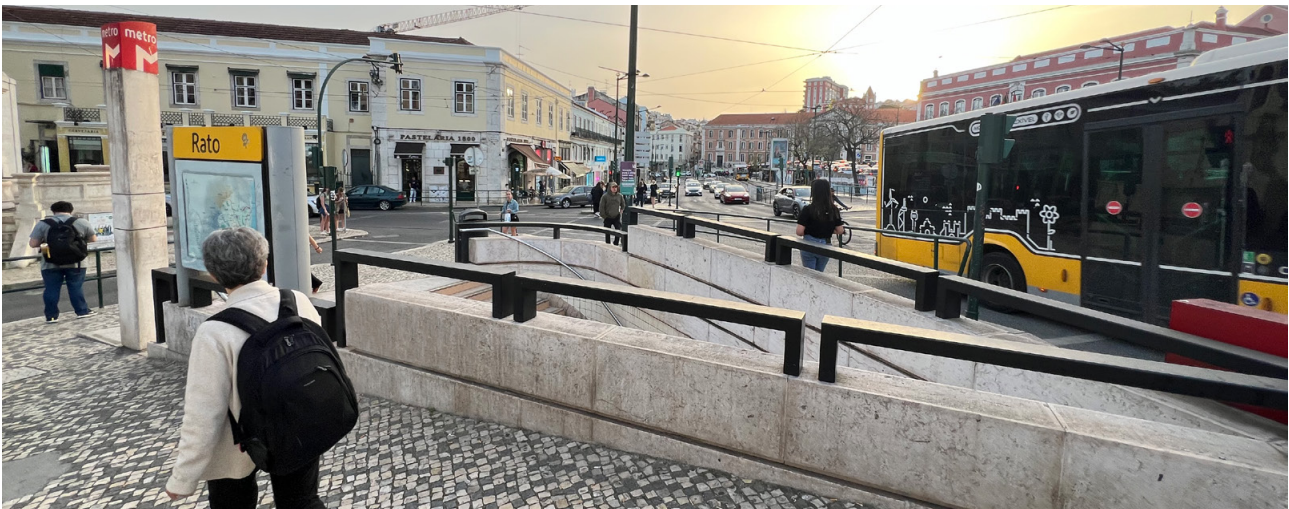
INTEGRATING WALKING + PUBLIC TRANSPORT

Most public transport journeys start and end with a walk. In fact, walking can constitute half the time spent on multimodal trips and can be the main element of what people remember afterwards.



Policy Brief
April 2024





01 Fixing a missed connection

Most public transport journeys start and end with a walk. In fact, walking can constitute half the time spent on multimodal trips and can be the main element of what people remember afterwards.

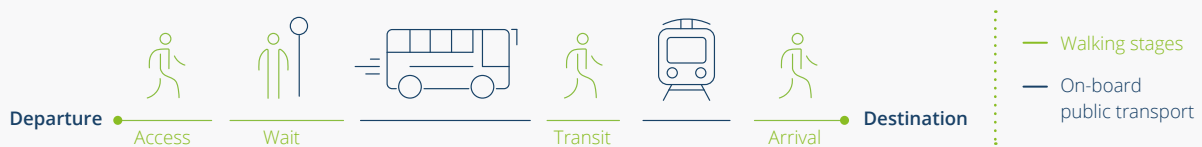
Despite this striking interdependency between walking and public transport, the modes are often considered and delivered separately. This can lead to poor walking experiences reducing public transport usage, and increasing car dependency, which negatively impacts our health and well-being, social equity, urban and infrastructure resilience, economic vitality and the predictability of our climate.

More attention to the integration of walking and public transport is needed in travel surveys, environmental audits, urban mobility plans and investment decisions to enhance both active travel and public transport and reduce the use of private cars.

This policy note provides recommendations that can increase walking activity and public transport ridership by creating and promoting safe, accessible and comfortable walkable catchments to and from public transport stops and stations.

The integration of walking and public transport is presented as a key strategy for reducing the use of private cars, reducing carbon emissions and improving the fiscal viability of public transport services while enhancing urban efficiency and livability.

Figure 1: Walking as part of a public transport journey



An integrated approach is necessary to meet SDG Target 11.2

“By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons.”

[Read more here](#)



02 What is the evidence?

Most public transport users are also pedestrians

Travel surveys repeatedly show that nearly all public transport users walk as part of their trip. For example, a study of 12 international cities by the research institute Socialdata attests that an average of 91% of people walk from their journey origin to public transport and 98% from public transport to their destination (94% for round trips).¹ The National Household Travel Survey in the USA shows similar levels of walking: 80% of public transport users walk.²

Half of a public transport user's trip time is spent walking

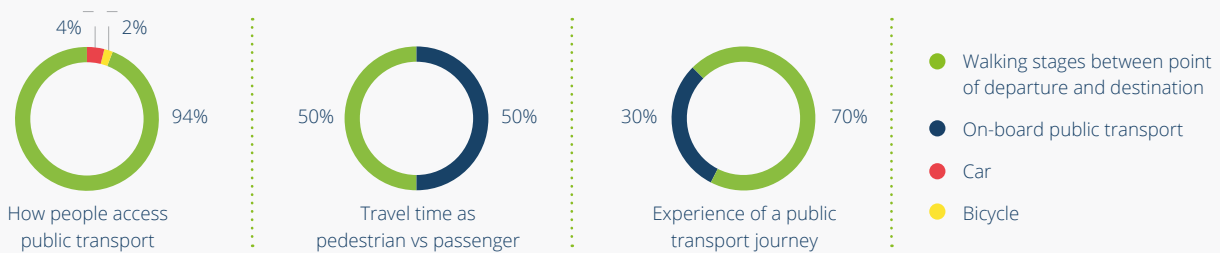
The walking stages of a public transport journey (see Fig 1) (walking, waiting and transferring) often constitute half of the overall trip time, as evidenced by surveys conducted by Socialdata involving multiple cities.¹ Another study in

Denmark established that only 54% of public transport trip time is actually spent in the vehicle.³ A review of 27 international studies reveals an average walking time of 12-15 minutes associated with public transport use.⁴ This fits well with the 15 minute city concept combined with public transport for longer journeys.⁵

It's the walking that defines the public transport experience

The quality of the walking stages of a public transport trip tends to define the experience of the overall journey. Research teams in Europe, USA and Australia, using a travel survey over 40 years invited interviewees to report freely on their remembered travel experiences. Between 65% and 70% of freely reported memories derived from the time when they were pedestrians - while waiting, transferring, and walking to and from stops or stations.¹

Figure 3: The walking component of a public transport journey



03 What does integration look like?

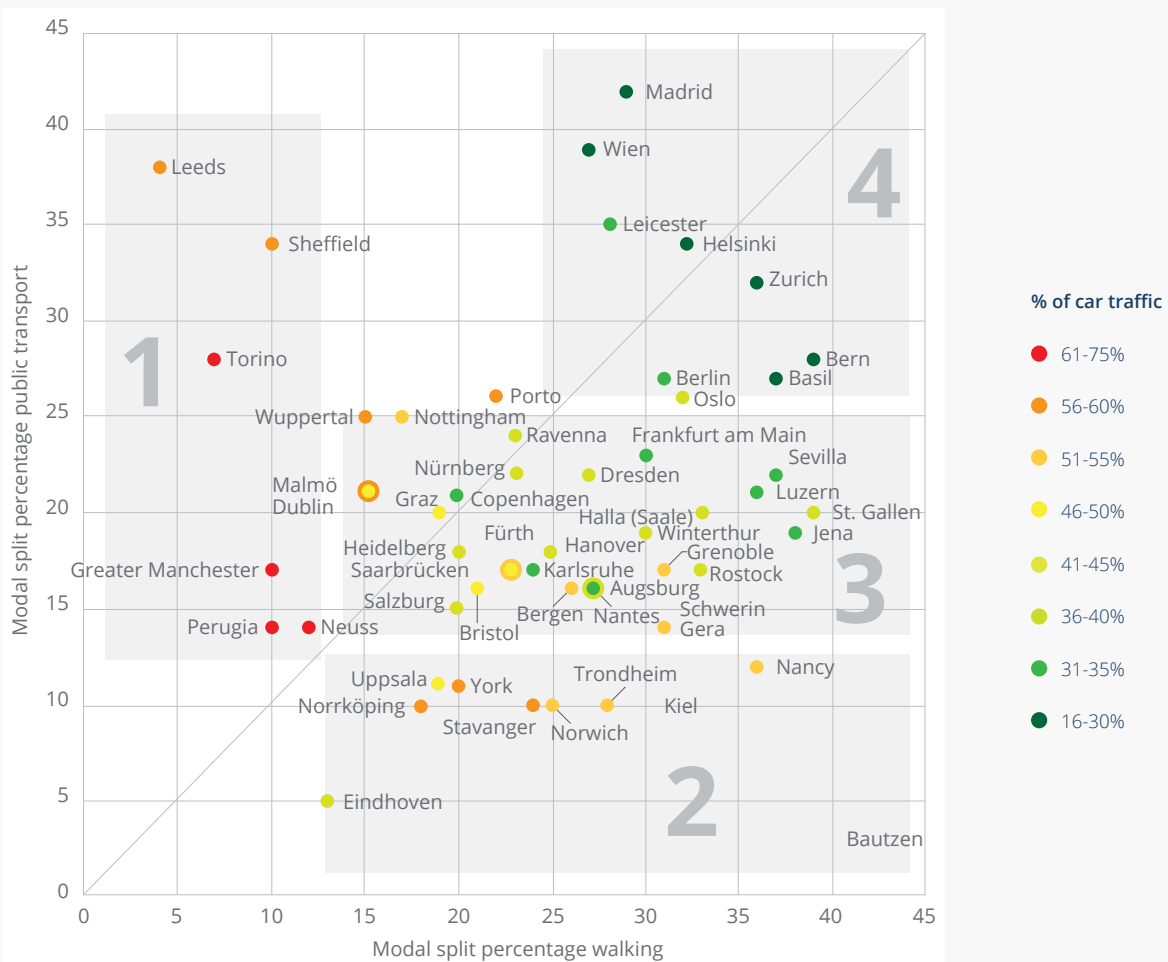
Cities that have the highest levels of walking and public transport users also have the least car traffic.

An analytical representation of modal split data from 56 Western European cities highlights the predictability of reduced car dependency in cities with high levels of walking and public transport. Fig 4 categorises the cities based on their proportion of car traffic (dot colour) and plots them relative to their levels of public transport use (vertical axis) and walking activity (horizontal axis). While most cities are a mix of modes in the middle of this graph (Group 3), to really reduce car traffic more walking is needed, as public

transport alone does not seem effective enough (Group 1). While having high levels of public transport usage, Group 1 cities have low levels of walking and retain the highest levels of car traffic. Group 4 are cities with the lowest car traffic (green dots) and highest levels of both walking and public transport.

The graph highlights that irrespective of their size or geographical location, cities that have a significant share of walking and public transport have the least amounts of car traffic. This substantiates the potential effectiveness of promoting and investing in walking and public transport infrastructure as a viable alternative to car use.

Figure 4: Relationship between modal share for walking, public transport and car use in European cities⁶



Cont'd overleaf >

03 What does integration look like? (cont'd)

People are willing to walk longer distances to access public transport in cities that offer high-quality walking experiences.

For public transport systems to be viable, proximity is vital. The official reportable indicator to measure convenient access to public transport is 500m to a stop or a station (SDG11.2). However, most current indicators fail to consider and measure the quality of the walking experience to access such stops or stations. There is evidence that the distances people are willing to walk depend on both individual factors (such as health, fitness, travel purpose, available transportation options, and personal attitudes) and external factors, such as the ones included in the following table.⁷

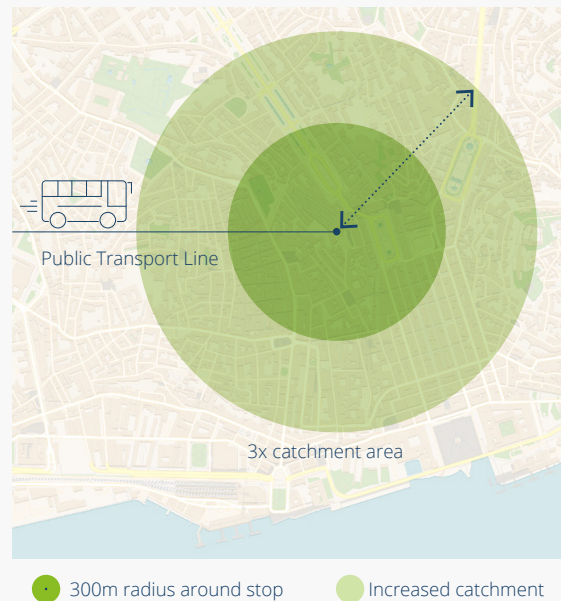
Figure 5: External factors influence how much people are willing to walk⁸

External Factors	Average variation of walking distance
Positive walking experience resulting from attractive urban environment	Up to 30%
Possibilities to access shops and services	+15% to +25%
Time delays when crossing streets with much traffic	-5% to -15%
Incomplete footpath networks around stops	-10% to -20%
Unsuited public space layout and location of street crossing facilities	-10% to -20%
Sloping terrain	-30% to -50%

The quality of the walking environment impacts the perception of whether public transport is within an acceptable walking distance by as much as 70%.⁸ In other words, high-quality walking catchment areas can be three times larger than low-quality walking catchment areas around stops and stations.

Improving the quality of catchment areas not only increases the distance that some people are willing to walk, but also encourages and enables those within these areas to change their mobility habits to walk and use public transport. This is especially relevant and necessary when the improvement of the public space responds to the specific needs and concerns of people with reduced mobility, children, older persons and women.

Figure 6: Catchment areas can be extended in areas with higher levels of walkability



Recommendations

- Promote and invest in walking and public transport infrastructure to mitigate the negative effects of car use.
- Extend the catchment area around public transport networks by improving the quality of the public realm.

04 What are the benefits?

Most current transport policies separate the need to plan and invest in walking and public transport. However, when research and policy simultaneously consider walking accessibility to public transport, based on both the proximity and the quality of the walking catchment, many additional benefits can be realised.⁹

1 Fiscal viability

High quality walkable catchments can increase ridership on public transport services, increasing ticket sales and ensure the fiscal viability of the service as well as return on investment.

2 Health and wellbeing

More people walking and using public transport increases physical and social activity, improves health and well-being, and reduces the risk of being killed or injured from traffic.

3 Climate change mitigation

Encouraging and enabling sustainable mobility choices reduces air and noise pollution and has the potential to reduce carbon emissions by as much as 50%. Cities that prioritise active mobility and public transport are also better equipped to renature their urban environment, support biodiversity and mitigate the urban heat island effect.

4 Social equity

Young people, women, older persons, persons with disabilities and those on low incomes tend to walk and use public transport more. They therefore benefit most from an integrated walking and public transport system.

5 Public space efficiency

Giving priority to active and public modes of transport reduces congestion, improves the reliability of all trips, and allows public space to be reallocated to improve biodiversity, social capital and urban efficiency.

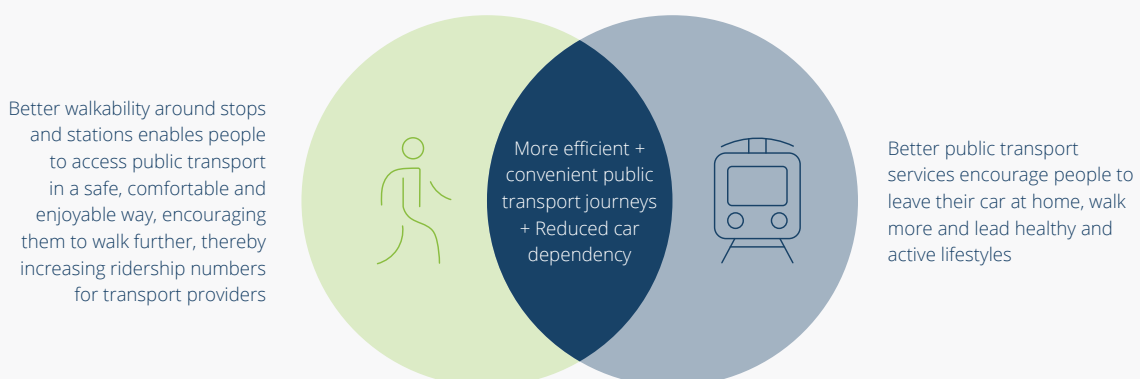
6 Economic vitality

Active and public transport users spend more money with local businesses than people driving and help create more liveable and vibrant communities that attract both skilled professionals and visitors. Walkable and transit-oriented cities are associated with economic efficiency and reduced healthcare costs.

7 City resilience

Sustainable mobility habits and the associated supportive infrastructure give cities with increasing levels of urbanisation the ability to absorb, recover and prepare better for economic, environmental, social or institutional shocks, such as a future pandemic.

Figure 7: The benefits of integrating walking and public transport



05 How to achieve integration?

- 1 Provide safe, accessible and pleasant walking routes to public transport stops and stations, especially for people with reduced mobility, children, older persons and women. This includes:
 - Providing infrastructure to protect against adverse weather conditions.
 - Mitigating the impact of irregular terrain, such as slopes and stairs.
 - Installing adequate and high-quality street lighting.
 - Creating crossings that prioritise pedestrians with direct routes and short waiting times.
 - Providing wayfinding signage, essential for tourists and occasional users.
 - Ensuring obstacle-free pathways with ample space, including during maintenance works.
 - Recognising the importance of sidewalk life and active frontages.
- 2 Promote the physical and mental health benefits and cost savings of integrating walking and public transport in campaigns and messages.
- 3 Reduce the perception of distance and time by making walking and public transport more convenient than car journeys by:
 - Prioritising people walking in street design.
 - Identifying preferable walking routes and effective footpath networks that are direct and convenient.
 - Reviewing crossings to limit the barrier effect of car traffic.
 - Increasing possibilities to access shops and services.
- 4 Coordinate walking and public transport across departments, agencies, policies and funding mechanisms by:
 - Creating partnerships between public transport operators and authorities managing the public realm to ensure that more priority and investment is given to the walkability of public transport catchments.
 - Recognising the value of an integrated approach in policies relating to urban and transport planning, health, environment and climate.
 - Coordinating door-to-door trip surveys that map experiences from the traveller's viewpoint using on-site surveys that consistently measure the quality of the catchment area and how it impacts on accessibility to public transport.

06 Who can we learn from?

Transport Infrastructure, Ireland

A report commissioned by Transport Infrastructure Ireland found that the way public space and public transport was being designed and provided for in Dublin did not sufficiently meet the needs of women and that this influenced their decision to drive more rather than walk or use public transport.¹⁵ In a follow up report 'Every Step of The Way', a participative mapping process was utilised to assess walkability for women around the LUAS line, aiming to make Dublin a safer, more inclusive and friendly place for women to walk and access public transport. It is critical that we engage with the communities who benefit from walking and public transport the most and reflect their needs in the decision making.

Washington Metro, USA

The Washington Area Metro Authority recognised that improving walkable catchments was an extremely cost effective way to accommodate growth in ridership. They used statistical analysis to determine daily ridership impacts and potential additional fare revenue. For a proposed project, it was estimated that the new walkshed would generate about 42,000 trips annually or \$113,000 in revenue.¹¹ This is in line with a study that states that improving the walkability of public transport catchment areas may increase transit ridership by 10-50% over what would otherwise occur.¹²

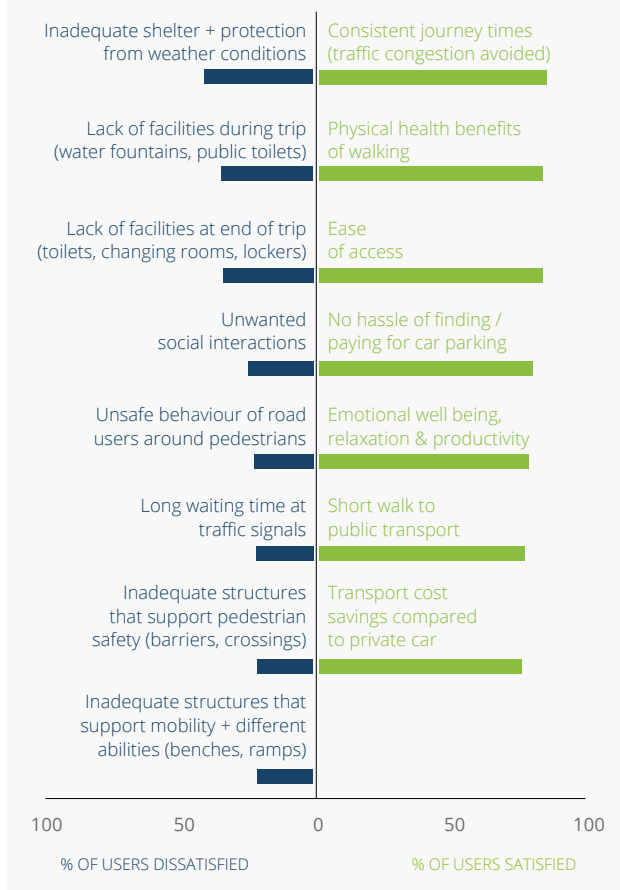
Cont'd overleaf >

06 Who can we learn from?

Transport for New South Wales, Australia

Understanding the main motivations and deterrents to walking and public transport use, as shown in Figure 8, provides valuable insights into context specific interventions for infrastructure, campaigns and policy to enhance and promote environmental attributes linked to satisfaction, while addressing attributes related to dissatisfaction.

Figure 8: Main motivations and deterrents to walking and public transport use in New South Wales, Australia



Transport for Cairo, Egypt

Environmental determinants that influenced pedestrian experiences and walking satisfaction to public transport differed between inner and outer neighbourhoods in Cairo. In 2023 Transport for Cairo used the Walk21 Walkability App to visualise and understand what elements of public space positively or negatively influenced the pedestrian experience around stations (Fig 9). Public transport users were engaged with the app and invited to share their opinions and geo-locate their concerns. This will help steer investment to maximise catchment distances and improve user satisfaction.¹³

Figure 9: The Cairo study shows how some streets near stations are perceived as more walkable than others



Conclusions

- Giving more priority to better integration of walking and public transport can quickly, reliably and affordably underpin the efficacy, efficiency and effectiveness of our sustainable transport systems.
- Emerging research suggests that a safe, accessible, comfortable and enjoyable pedestrian environment results in more people choosing to walk and use public transport.
- More practice is needed to understand potential variations in different contexts and for different target populations.

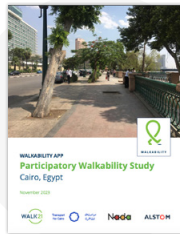
07 Where can we get more information?

Helge Hillnhütter



- Pedestrian access to public transport

Walk21



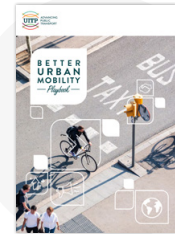
- Participatory Walkability Study, Cairo, Egypt
- Urban Mobility Indicators for walking and public transport
- Walkability app

WHO



- Walking and cycling: latest evidence to support policymaking and practice
- Health Economic Assessment Tool for walking and for cycling
- WHO Guidelines on physical activity and sedentary behaviour

UITP



- Better urban mobility playbook
- Pathways to a multimodal lifestyle: reinforcing public transport with active and micromobility
- Cities for people: public transport for better lives
- Promoting safe and sustainable cities with public transport
- How to build successful cities
- Friendly Streets • MENA

Notes

While this policy brief has focussed on catchment quality and walking, it is recognised that there are a range of other factors that impact on modal split and journey choices, including:

Integrated land use and transport planning, quality of public transport infrastructures and services, affordability, digitalisation and real time information, together with a better understanding of the benefits of public transport and active mobility.

These determinants are outside the scope of this brief but warrant further investigation.

References:

- 1 Research Institute Socialdata. Stavanger, München.
- 2 Le and Dannenberg, 2020. Moving Toward Physical Activity Targets by Walking to Transit: National Household Transportation Survey, 2001–2017.
- 3 Danish National Travel Survey, 2021.
- 4 Rissel, C. et al., 2012. Physical Activity Associated with Public Transport Use — A Review and Modelling of Potential Benefits.
- 5 The 15-Minute City, 2023.
- 6 European Platform on Mobility Management (EPOMM).
- 7 Yang et al., 2012. Walk the line: station context, corridor type and bus rapid transit walk access in Jinan, China.
- 8 Hillnhütter, H., 2016. Pedestrian Access to Public Transport (PhD Thesis).
- 9 European Commission, 2020. How many people can you reach by public transport, bicycle or on foot in European cities?
- 10 Transport for NSW, 2013. Walking Customer Value Proposition (CVP) Report.
- 11 Washington Metropolitan Area Transit Authority, 2016. Metrorail Station Investment Strategy Summary Report.
- 12 Litman, T., 2024. Evaluating Public Transit Benefits and Costs.
- 13 Transport for Cairo, 2023. Walkability App, Participatory Walkability Study, Cairo, Egypt.
- 14 Transport Infrastructure Ireland, 2020. Travelling in a Woman's Shoes.
- 15 Walk21, 2022. Women's perceived walkability at the Luas Tram catchment area in Dublin.