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DEVELOPING INTEGRATED MASS TRANSIT FOR THE GLASGOW CITY REGION:

INFORMING THE CLYDE METRO CASE FOR INVESTMENT

REPORT A:

ALIGNING ACTIVE TRAVEL AND MASS TRANSIT

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Developing integrated mass-transit for the Glasgow City Region: Informing the Clyde Metro Case for Investment

Report A: Aligning active travel and mass-transit.

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Executive Summary

Background

Clyde Metro

Glasgow has the most ambitious net zero goal in the UK, with a key priority being reducing emissions from transport. The Clyde Metro mass-transit initiative is a key sustainable transport project supported by the Scottish Government and in alignment with national and regional transport strategies.

The Clyde Metro Case for Investment has been progressed jointly by Strathclyde Partnership for Transport (SPT) as Case for Investment Lead, Glasgow City Council (GCC) on behalf of the Glasgow City Region, and Transport Scotland in an assurance role, from February 2024 to March 2026. The development of the Case for Investment (CFI) commenced in February 2024, with a first-stage Case for Change report, including indicative network options, published in February 2025[1].

Between 2025 and 2027, work will continue to develop the Programme Business Case in line with Scottish Transport Appraisal Guidance and HM Treasury Green Book requirements. This will include establishing a preferred network option and setting out proposed governance arrangements, commercial and funding options, and delivery and operating models. As part of a recent governance review, SPT will be the sole accountable body for the CFI Stage from April 2026 onwards and will be the delivery lead for all workstreams.

Over a 30-year period, this multi-billion investment aims to improve connectivity for over 1.5 million individuals in the Glasgow City Region, serving as a comprehensive and integrated public transport system, offering a sustainable alternative to private car usage (e.g. bus, tram, light rail, and/or metro rail). It aims to connect people to employment, education, and health services in and around the Glasgow City Region.

GALLANT Collaboration

This study is a collaboration between the University of Glasgow and Glasgow City Council that aims to inform the development of the Clyde Metro Case for Investment. The collaboration is a sub-project of the Glasgow As a Living Lab Accelerating Novel Transformation (GALLANT) project funded by the Natural Environment Research Council (reference NE/W005042/1). GALLANT is a partnership between the University of Glasgow and Glasgow City Council that uses Glasgow as a living lab to trial new sustainable solutions throughout the city.

This study was awarded GALLANT Innovation Funding to strengthen internal partnerships (School of Cardiovascular and Metabolic Health and Health Economics and Health Technology Assessment Unit) and external partnerships with Glasgow City Council to respond to their sustainable transport policy priorities. The Carnegie Trust for the Universities of Scotland also supported the study.

Overview of Study

Aim

This study aims to inform the development of the Clyde Metro Case for Investment in three key areas:

- Alignment of active travel infrastructure with mass-transit
- Widening the use of the Clyde Metro and increasing accessibility
- Realising the wider benefits of investment in regional mass-transit

Study Design

This publication forms **Report A** of *two reports* designed to inform the Case for Investment. The objectives and methods used in each report are summarised in **Table 1.** Report A is highlighted in green: there are two key parts (1 and 2) and three objectives (i-iii). Report B is published separately.

Table 1: Summary of Report A and B including relevant objectives and methods.

Report	Part	Objectives		Methods
A	**1**	i	To identify what comparable cities or city regions have planned and implemented a mass-transit system and what learning can be applied to proposals for the Glasgow City Region	Rapid literature review
		ii	To understand how other cities or city regions have integrated active travel infrastructure and mass-transit to enable safe multimodal journeys.	
	2	iii	To explore experiences of active travel and public transport with those who face barriers to sustainable transport usage.	Interviews with optional photo elicitation
B (reported elsewhere)	1	iv	To summarise the published health economic evidence on the costs, health, and broader societal impact of mass-transit schemes.	Scoping literature review
		v	To develop a conceptual model that maps out the costs and benefits likely to arise from a regional mass-transit scheme such as Clyde Metro in both the short and long-term.	Conceptual model

Outcomes

This report provides a summary of evidence to inform the Case for Investment, drawing on international case studies and the experiences of those who face barriers to sustainable transport across the Glasgow City Region. The outcomes are a set of recommendations for consideration as part of the development of regional mass-transit systems such as the Clyde Metro Case for Investment. To continue to support the development of Clyde Metro and provide evidence for the Case for Investment, the potential next steps for research are outlined in the report.

Part 1. Rapid Literature Review of Integrated Multimodal and Active Transport

The rapid literature review aimed to inform the Clyde Metro Case for Investment by exploring international case studies of cities that have implemented mass-transit systems and integrated active travel (walking, cycling, wheeling) to enable seamless multimodal journeys.

The objectives for Part 1 are:

i. To identify what comparable cities or city regions have planned and implemented a mass-transit system and what learning can be applied to proposals for the Glasgow City Region
ii. To understand how other cities or city regions have integrated active travel infrastructure and mass-transit to enable safe multimodal journeys.

Methods*:* Four databases (SCOPUS, TRID, Web of Science, EMBASE) were searched using terms related to mass-transit, active travel, case studies, and qualitative research, and reference lists of relevant reviews were hand-searched. Studies were included if they incorporated the integration of two or more modes of public transit, linked public transport with active travel (walking, cycling, or wheeling) and reported stakeholder experiences, evaluations, or case studies. The search criteria were reviewed iteratively with the Glasgow City Council, Clyde Metro Team to prioritise cities that are comparable to Glasgow i.e. similar climate, cities with rivers, situated in the Global North. Only peer-reviewed articles from the past 20 years were eligible to reflect the most relevant and timely literature.

Findings: Thirty-one studies were included. Most studies came from European countries including Germany (e.g. Freiburg, Munich, Berlin), the Netherlands (e.g. Amsterdam), Austria (e.g. Vienna), Denmark (e.g. Copenhagen, Odense), and Sweden (Lund). A limited number of studies explored United Kingdom case studies (e.g. London, Merseyside, and Manchester). Others came from Australia (e.g. Brisbane), the USA (e.g. Portland, Chicago, New York City), and Canada (e.g. Vancouver). Most used a case study approach or policy document analysis. There were twelve key themes from the rapid review that addressed Objectives i and ii.

A Summary of Key Themes For Objective i

Objective i: Cities with Integrated Mass-Transit:

- *Governance, funding, and responsibility:* Studies highlighted the importance of integration across multiple levels of government and organisations. Strong leadership and clear communication across levels are key to successful collaborations.
- *Citizen involvement and public support*: Grassroots citizen involvement and public consultation have contributed to increased acceptance and the refinement of new sustainable transport plans.
- *Integrated and affordable ticketing*: Cities with successful public transport systems have been shown to implement integrated ticketing across providers, low fares, discounts for monthly or annual tickets and further reductions for key groups such as the elderly.
- *Integrated information strategies and scheduling:* Clear information strategies are key to smooth transfers between modes. Digital information boards and smartphone applications have been beneficial for planning journeys at stations and while travelling.
- *Transport and land use policy integration:* Several cities have integrated mass-transit developments with land use policies to promote access to nodes and access to key services such as education and businesses.
- *Multimodal hubs and interchanges:* Multimodal hubs and interchanges are key features of an integrated transport system; they should provide clear information and multiple modes for transfer and a comfortable environment to rest while travelling.

Infographic Summary of Key Themes for Objective i:

A Summary of Key Themes for Objective ii

Objective ii: Cities with Integrated Mass-transit and Active travel

- *Walking for access and egress*: Studies suggest that walking is often the most common access mode to public transport, however, needs to be supported by the provision of safe infrastructure (e.g. wide pavements) and the distance to transport nodes needs to be carefully considered.
- *Bike and ride facilities and infrastructure:* To support cycling to public transport, stations need to provide sufficient and quality bike parking facilities.
- *Bike sharing as an extension of public transport:* Bike sharing systems are a promising means to support the integration of active and public transport, however, they are often developed independently of public transport policies. Integrated services (such as OV-fiets, a bike-hire service to promote egress in the Netherlands) are key.
- *Bringing bikes on board public transport:* Planning and infrastructure for bikes on public transport modes is more common in North America. European cities tend to prioritise bike parking and bike-sharing due to capacity demands on public transport which may be more applicable to the Glasgow City Region context.
- *Promoting accessibility:* Care needs to be taken to ensure that infrastructure is accessible for all (e.g. safe walking and cycling routes to stations, ramps or lifts to bring bikes to platforms) and is developed to ensure equitable access to public transport (e.g. bike sharing stations at key locations).
- *Responsibility for the integration of active travel and public transport:* In many cities, it was unclear who was responsible for the integration of active travel and public transport (e.g. bike parking at stations). Clear responsibilities and shared objectives need to be established across organisations and departments from the outset.

Infographic Summary of Key Themes for Objective ii:

Part 2. Photo Elicitation Interviews with Glasgow City Region Residents

The photo elicitation interviews aimed to inform the Case for Investment by exploring and identifying ways to support adults who may face barriers to using sustainable and active travel in the Glasgow City Region.

The objective for Part 2 is:

> iii) To explore experiences of active travel and public transport with those who face barriers to sustainable transport usage.

Methods*:* Photo-elicitation and traditional interviews (in person and online) were conducted with adults (N=20) who face barriers to public transport (e.g. older adults, those with health conditions or illnesses, parents of young children etc.). Eligible participants were asked to complete a screening questionnaire and purposively sampled to recruit across a range of barriers, geographic areas, and transport modes. Participants were provided with the option to receive a digital camera to take photos of their daily travel which were then used as prompts in the interview. Interviews were audio-recorded, transcribed, and analysed thematically.

Findings: A total of 22 participants were recruited from across the Glasgow City Region including the Local Authority areas of: Glasgow City Council, East Dunbartonshire, West Dunbartonshire, East Renfrewshire, and Renfrewshire. Many participants faced intersecting equity barriers to sustainable transport use, including chronic health issues, frailty, and the cost of travel. The bus was the most common mode of transport used by participants, followed by walking. There were eight key themes.

A Summary of Key Themes for Objective iii:

Objective iii: Experiences of Active and Public Transport

- *Service provision and journey times:* Infrequent, unreliable services (especially evenings/weekends) and long travel times compared to driving were major barriers to public transport use. Subway and trains were preferred as they were perceived to be more predictable than buses.
- *Information and communication:* Participants reported broken or inaccurate digital displays, poor signage, and lack of support for New Scots, non-English speakers, or disabled users. Mobile-phone applications and digital timetables were praised as a helpful means to plan journeys.
- *Affordability, subsidised travel and smartcards*: High costs and a lack of integrated ticketing systems were significant barriers for many, especially for those without subsidised travel. Free or discounted travel for older adults and young people was highly valued.
- *Infrastructure and accessibility:* Poor station access (e.g. lack of lifts), limited space for prams/wheelchairs, and unsafe walking/cycling conditions were cited as barriers by many participants.
- *Comfort and safety***:** For many, overcrowding, antisocial behaviour, and poor lighting affected their comfort and perceived safety while travelling.
- *Interactions with staff and passengers:* While generally positive, some participants reported discriminatory or unhelpful behaviour from transport staff. Public transport use also fostered social connections and a sense of community with other passengers.
- *Perspectives on an integrated mass-transit system*: Participants praised the idea of a new integrated public transport system, however, emphasised the need to ensure that these services are reliable, accessible, and affordable. Integrated ticketing was perceived as a key priority, and many participants emphasised the need for clearer information strategies to support transfer between modes.
- *Perspectives on the integration of active travel and sustainable transport:* Walking was the most common mode to access transport, but poor pavement conditions and lighting were barriers. There were several barriers to cycling including poor cycling infrastructure (e.g. inappropriate bike lane designs) and limited access to bike-sharing stations. Participants supported better integration of walking and cycling with public transport, including safe routes and signage to stops and stations.

Infographic Summary of Key Themes for Objective iii

Photo-Elicitation Interviews with Glasgow City Region Residents

Objective iii: Experiences of Active and Public Transport

Service provision and journey times:

Infrequent, unreliable services and long travel times compared to driving were key barriers to public transport, especially for buses.

Information and communication:

Broken/inaccurate digital timetables, poor signage and insufficient communication strategies for non-English speakers or disabled users were common challenges.

Affordability, subsidised travel and smartcards:

High costs and limited access to integrated tickets were barriers to travel. Subsidised travel for key groups was valued.

Infrastructure and accessibility:

Poor station access (e.g. lack of lifts) and limited space for prams/wheelchairs were common barriers to sustainable travel.

Comfort and safety:

Overcrowding, antisocial behaviour, and poor lighting affected comfort and perceived safety while travelling.

Interactions with staff and passengers:

Public transport use fostered social connections and a sense of community with other passengers. However, some reported discriminatory behaviour from transport staff.

Perspectives on an integrated mass-transit system:

Participants praised the idea of a new integrated public transport system, however, emphasised the need to ensure that these services are reliable, accessible, and affordable.

Perspectives on the Integration of Active Travel and Sustainable Transport:

Barriers to the integration included poor pavement conditions and lighting, poor cycling infrastructure (e.g. inappropriate bike lane designs) and limited access to bike-sharing stations.

Key Learning and Implications for Clyde Metro Case for Investment

This study reviewed international case studies and explored community members' perspectives of mass-transit in the Glasgow City Region. Key learning from the study has been summarised below, aligning with the study aims: 1) Alignment of active travel infrastructure with mass-transit; 2) Widening the use of Clyde Metro and increasing accessibility and 3) Realising the wider benefits of investment in regional mass-transit.

Alignment of active travel infrastructure with mass-transit

- Leadership, clear responsibilities and shared objectives across departments ensure that active travel and public transport infrastructure are developed in combination.
- The development and maintenance of active travel infrastructure connected to public transport nodes is key.
- Poor pavement quality and insufficient cycling infrastructure (cycle lanes and bike parking) are barriers to integrated journeys.
- The provision of bike repair and maintenance facilities at stops and stations can support integrated trips.
- Bike-sharing systems could be integrated with public transport by integrating fares with transport tickets and positioning stations at public transport nodes.

Widening the use of Clyde Metro and increasing accessibility

- Plans should be clearly communicated to the public and they should be involved in decision-making from the outset to support the acceptability of new mass-transit.
- Key barriers to public transport use include: cost, poor reliability and limited accessible infrastructure.
- Clear and up-to-date information strategies e.g. well-maintained digital timetables and smartphone apps would support efficient transfers and multimodal usage.
- Residents were positive about new integrated mass-transit developments and highlighted benefits of mass-transit for social connection and sustainability.

Realising the wider benefits of investment in regional mass-transit

- Integrating land-use policies with public transport development can contribute to the development of new housing, businesses and increase public transport use.
- Interviews with Glasgow City Region residents highlighted the economic benefits of a more reliable and frequent public transport service.
- Long, unreliable, or poorly connected journeys can impact residents abilities to visit local businesses (e.g. cafes), attend cultural activities (e.g. concerts) and access health services.

Recommendations

Five priority recommendations are proposed for consideration as the Case for Investment continues to be progressed:

1. Ensure strong cross departmental and cross-authority collaboration and leadership.
2. Develop a roadmap for meaningful community engagement pertaining to the planning and delivery of Clyde Metro across the Glasgow City Region. This should ensure involvement with seldom heard and hard to reach groups and those facing barriers to transport use.
3. Align Clyde Metro development with other plans to ensure integrated, reliable and equitable public transport provision such as bus network reform.
4. Work with transport operators to prioritise affordable, integrated ticketing across all modes, including potential integration with bike sharing.
5. Collaborate with transport and community partners to improve and maintain active travel infrastructure around key public transport nodes.

Conclusion

Clyde Metro has the potential to deliver a more equitable, sustainable, and connected Glasgow City Region. Achieving these goals will require integrated planning, community involvement, coordinated leadership, and an early focus on strengthening existing services. By centring the lived experiences of residents alongside international best practice, this report provides practical, evidence-informed recommendations and next steps for informing an integrated mass-transit system that serves the Glasgow City Region.