

Intervention 8 – Enhancing facilities at major rail stations (Rail Station Redevelopment)

1 Description of Package

Following on from the successful recent upgrade to Glasgow Queen Street Station and the imminent station improvements at Aberdeen and Stirling, this intervention would involve the redevelopment of four major rail stations in Scotland's cities: Edinburgh Waverley, Glasgow Central, Inverness and Perth railway stations. Station redevelopment would include a range of measures from development of station buildings and passenger facilities to enhancements to track and platforming remodelling to improve capacity and service operations.

The Edinburgh Waverley Masterplan proposes to improve city centre spaces for more efficient and effective public use, embracing active travel solutions, and refocusing the performance and operation of the centre of the city. In addition to better performance, enhancements in and around Edinburgh Waverley will enable a more frequent and reliable train service to operate, contributing to sustainable modal shift.

At Glasgow Central Station, redevelopment would involve a review of existing infrastructure capacity and identification of short-term improvement measures to enable longer and/or more frequent train services.

The works at Inverness Station would be related to improving the station's operational functionality as well as integrating the station better with its locality (including the city centre and nearby bus station) so as to ensure the station can operate as part of an effective integrated transport interchange.

At Perth Station, track and signalling infrastructure enhancements on the approaches to the station will support faster journey times and better service performance. This also provides the opportunity to enhance the station buildings and environs to provide an improved passenger experience (such as wayfinding, accessibility, and integration).



Glasgow Queen Street Station Improvements

Benefits of Station Redevelopment

Well designed, high quality station infrastructure can improve wayfinding, making rail a more attractive option and encouraging new and unfamiliar users to make their journeys by rail. This would be of particular benefit in city centre locations where there are significant numbers of visitor and tourist journeys, with stations acting as gateways that proudly announce arrival into Scotland's seven cities. Station redevelopment in line with placemaking principles can increase station attractiveness by improving perceptions of user safety and security and promote seamless multimodal journeys by improving the ease of integration with other modes, thereby extending the reach of the railway via other transport networks.

Redevelopment presents the opportunity to implement current best practice in accessible station design, ensuring safe and convenient access for all, to the station and between platforms.

The reconfiguration and optimisation of platform layouts could enable services to run more efficiently and increase network capacity at major interchange stations. Extended platforms could accommodate longer trains; effectively increasing the passenger-carrying capacity of the rail network. Signal enhancements on the approaches to stations could reduce headways, and effectively improve network capacity, allowing increased service frequency.

Station redevelopment could also include route clearance works to remove barriers to future electrification and other improvements.

Aspirations and aims highlighted in the respective Masterplans include:

- Edinburgh Waverley – operating efficiently and effectively as a major station providing a world class environment for passengers and becoming a distinctive gateway to Edinburgh and Scotland; seamlessly integrating the station with other transport modes; and optimising connectivity with the wider city and beyond.
- Perth – responding to the need to renew signalling and track infrastructure; providing a value for money exercise; providing a robust train service while responding to passenger connectivity demands; integrating modes; making best use of city centre land to support the local community; enabling the station to respond to other enhancements in the wider city region; reducing excessive operating costs; enhancing the heritage of the station; and providing an impressive gateway to Perthshire/the Highlands.
- Inverness – effective and efficient operation; accommodating projected service increases, future passenger demand and freight activity; integrating modes and optimising connectivity; and celebrating travel and proudly announcing arrival into Inverness.

For all of the above locations, appropriate provision for lightweight freight on passenger trains / passenger rolling stock by freight operating companies should also be considered as part of revised designs and layouts to ensure appropriate handling of roll cages and transfer to / from low / zero carbon vehicles for last mile deliveries.

It is recommended that plans for Station redevelopments are progressed within the current Rail Control Period 6 (2019 - 2024).

2 What we have heard?

Responses to the online survey undertaken for STPR2 revealed that 69% of respondents were either dissatisfied or very dissatisfied with transport integration. The opportunities afforded by redevelopment proposals were also identified through each of the regional engagement workstreams for STPR2. For example:

- At Glasgow Central Station, opportunities to redevelop the Station, such as through improving access from the riverside, enhancing platform capacity and improvements in preparation for the potential for High Speed Rail were identified through regional engagement undertaken in the Glasgow City Region.
- The redevelopment of Inverness Station, including integration with the bus station, was raised as an option during Highlands and Islands stakeholder engagement and has been a stakeholder aspiration held for many years by Hitrans and Abellio ScotRail in particular.
- Perth Station improvements are a regional aspiration for the Tay Cities Region, with various potential options for upgrades suggested through engagement, ranging from relatively minor station improvements to significant station redevelopment including co-location with a revamped bus station.

The NTS2¹ highlighted the importance of integration in the context of an ageing population, with engagement finding that poor integration between transport services was one of the key factors impacting on older people. Being unable to interchange between all modes was also highlighted as a barrier to travel for disabled people, and one of the key challenges that the transport system must address.

A 2016 study by Transport Focus found that redevelopment of stations does lead to substantially higher passenger satisfaction with the station² once completed, although construction works inevitably create dissatisfaction for a short period of time.

¹ Transport Scotland, National Transport Strategy, 2020, <https://www.transport.gov.scot/media/47052/national-transport-strategy.pdf>

² Transport Focus, Improving stations: improving passenger satisfaction, October 2016, <https://www.transportfocus.org.uk/research-publications/publications/improving-stations-improving-passenger-satisfaction/>

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Consultation undertaken for the Edinburgh Waverley Masterplan³ identified a number of improvements that should be addressed, including improving ease of access and navigation of the station, especially for disabled and elderly users, improving connectivity of the station with other modes of transport, improving pavements and public spaces immediately adjoining the station to address congestion and improve perceptions of safety, and ensuring that the heritage of the station is respected in any redesign proposals. Furthermore, over 500 responses were received through a public consultation questionnaire with three quarters of respondents being dissatisfied with their current experience of the station. The main areas of concern raised were connectivity with other transport modes, improving access and providing adequate station facilities.

A 2015 study into Inverness station passenger experience⁴ found that overall satisfaction with the station was 75%. Top priorities for improvements were:

- Overall look and feel of the station (38%)
- The choice of shops and services available (38%)
- Range of food and drinks available at the station (35%)
- Availability of seating (35%)
- Ease of getting through the ticket gates to/from the platforms (27%)

Consultation undertaken as part of the development of an Inverness Station Travel Plan⁵ highlighted issues including a lack of information and facilities for first-time visitors and tourists, a lack of suitable cycle facilities and infrastructure, poor integration with the bus station, unwelcoming and unappealing first impression of the station with the entrance at Falcon Square feeling like a 'side door' with a narrow pedestrian gate, user conflicts outside the station entrances between pedestrians and vehicles, and a lack of mobile phone charging points at the station.

Consultation was also undertaken to support the development of a Travel Plan for Perth Station⁶, which highlighted issues including poor signage, problems with wayfinding, a lack of safe pedestrian routes to and from the station, a lack of bus and cycle route

³ Network Rail, Transport Scotland, City of Edinburgh Council, Edinburgh Waverley: Concept Masterplan Summary Report, <https://scotlandsrailway.com/images/site/Waverley-Station-Masterplan-Summary-Web.pdf>

⁴ Transport Focus, Inverness station passenger experience, December 2015, <https://www.transportfocus.org.uk/publication/inverness-station-passenger-experience/>

⁵ Scotrail, Inverness Station Travel Plan, 2017, https://www.scotrail.co.uk/sites/default/files/assets/download_ct/inverness_station_travel_plan_0.pdf

⁶ Scotrail, Perth Station Travel Plan, 2017, https://www.scotrail.co.uk/sites/default/files/assets/download_ct/perth_station_travel_plan.pdf

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connections, and poor quality cycle storage.

Consultation as part of Network Rail’s Scotland Route Study⁷ found that the option to remodel the track layout around Perth Station was positively supported and seen as key to facilitating faster and more frequent services. Station capacity at Glasgow Central was highlighted as a key concern by respondents and the choices which would address this within the station and around Glasgow were positively received.

3 The evidence base to support a case for change

All four stations have observed an increase in the number of station entries and exits, and interchanges⁸ between 2009-10 and 2018-19, as shown in Figure 1 and Figure 2. In 2018-19, Glasgow Central and Edinburgh Waverley were Scotland’s busiest two stations in terms of entries and exits. While Inverness and Perth were ranked lower in terms of entry and exits (21st and 25th respectively), they observed a relatively high number of rail interchanges, ranking 18th and 11th respectively, while Glasgow Central and Edinburgh Waverley ranked first and third.

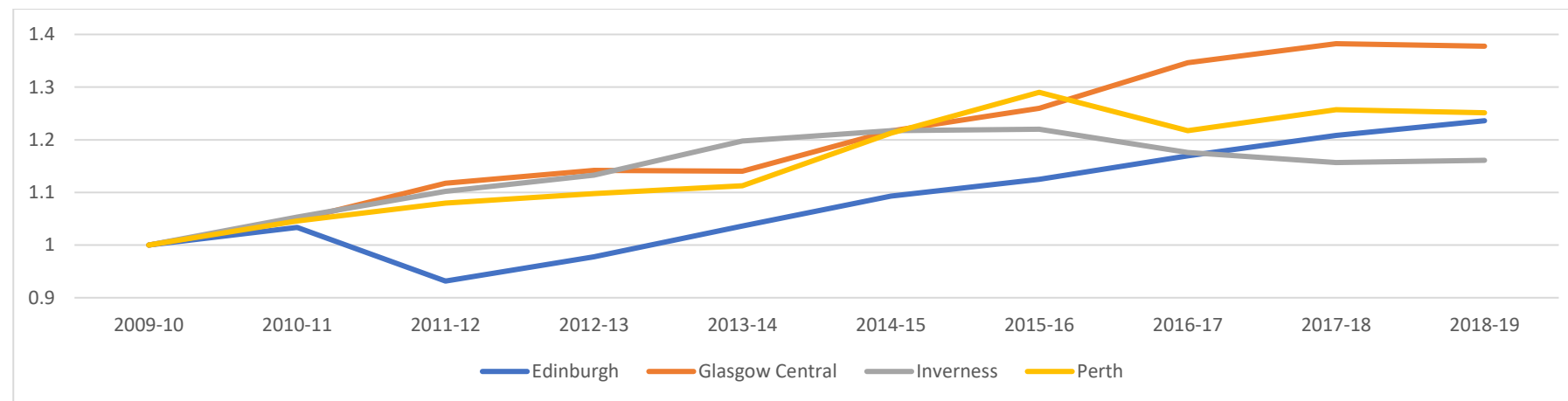


Figure 1 - Station Entries and Exits 2009-10 to 2018-19, Indexed to 2009-10

⁷ Network Rail, Scotland Route Study, July 2016, <https://www.networkrail.co.uk/wp-content/uploads/2016/11/Scotland-Route-Study.pdf>

⁸ ORR, Estimates of station usage time series 1997-98 to 2018-19, 2019, <https://dataportal.orr.gov.uk/statistics/usage/estimates-of-station-usage/>

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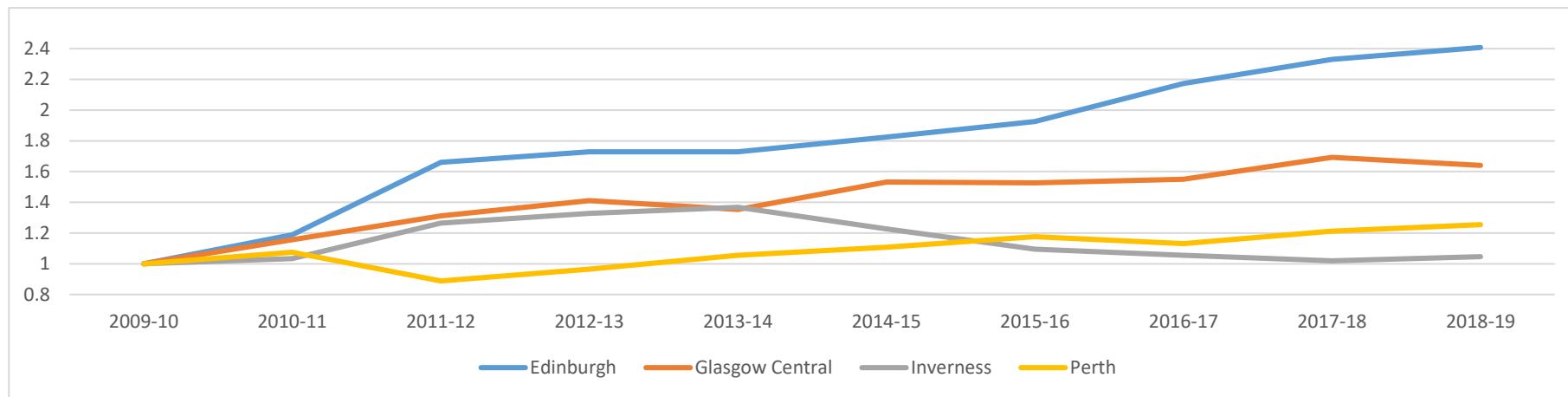


Figure 2 - Station Interchanges 2009-10 to 2018-19, Indexed to 2009-10

Network Rail's Scotland Route Study⁹ identified areas of the Scottish rail network where changes would be required to support the delivery of the 2043 Indicative Train Service Specification (ITSS). The ITSS is an aspirational train service for 2043, developed by the rail industry, which reflects the opportunities which could be achieved if the Conditional Outputs from the Scotland Market Study, Long Distance Market Study, and Freight Market Study are met within Scotland. Findings reported in the Scotland Route Study included:

- Extra track and platform capacity is required at Glasgow Central Station, both within the station and on its approaches to meet demand.
- Significant growth is forecast for commuter services into Edinburgh Waverley Station which cannot be met by 2043 simply through lengthening existing services.
- The capability and capacity of Inverness Station is a key constraint between Perth and Inverness.
- Perth Station is a key interchange for local, inter-urban and freight services on the Scottish Central Main Line. In its current form, the station will not be able to accommodate the increase in passenger and freight forecast demand to 2043.

It should be noted that the Scotland Route Study was reported in 2016, and while the ITSS remains the most recent forecasting available, the COVID-19 pandemic has resulted in unprecedented change in travel behaviour and therefore brings considerable

⁹ Network Rail, Scotland Route Study, July 2016, <https://www.networkrail.co.uk/wp-content/uploads/2016/11/Scotland-Route-Study.pdf>

uncertainty around future attitudes to travel, including confidence in using public transport modes. However, if a significant long-term switch from public transport to car travel is to be prevented, investment will be required in a range of measures that increase user confidence in public transport networks, including rail services for which Station Redevelopment can play an important role.

There is an opportunity to capitalise on technological improvements and changes in attitudes and behaviour, with on-demand and micromobility services making the “first and last mile” of multi-modal rail journeys more attractive and enabling seamless end-to-end trips.

Another opportunity exists in unlocking the potential for electrification. Clearance is often difficult in built-up areas such as city centre stations, and there could be efficiencies in undertaking clearance work as part of station redevelopment.

Additionally, alignment of station redevelopment with planned renewals can afford efficiencies by combining necessary maintenance and replacement of existing infrastructure with improvements.

Station redevelopment can improve the city environment, improving links into the city and potentially inducing regeneration. There would be improvements to the historic environment, with more focus afforded to the Grade A listed ticket hall at Edinburgh Waverley¹⁰ and historic buildings at Perth Station, some of which are currently obscured by the current station roof.

Station Masterplan proposals are a key component of the overall drive to increase the attractiveness and modal share of public transport, which in turn will support wider efforts to reduce the impact of transport on climate change, in line with national policy aspirations.

4 The Strategic Rationale

Station redevelopment proposals would have benefits for integration, both between platforms for multi-stage rail journeys, and with other modes for multi-modal journeys, contributing to a seamless travel experience and making multi-stage and multi-modal journeys more attractive relative to private car.

As outlined above, capacity constraints have been identified by Network Rail’s Scotland Route Study at Glasgow Central, Edinburgh Waverley, Inverness and Perth station. In order to support the delivery of the 2043 ITSS, the Scotland Route Study proposes remodelling of all four of the stations proposed within its choices for funders. Rationale for these proposals included:

- Without investment in Glasgow Central Station, trains will not be able to be lengthened (or frequency increased) to accommodate forecast demand with customers being crowded off trains and unable to travel by rail to key employment

¹⁰ Network Rail, Waverley Masterplan Proposals, <https://www.networkrail.co.uk/wp-content/uploads/2019/05/Waverley-masterplan-proposals-1.pdf>

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- locations. Pedestrian flow and retail/passenger facilities within Glasgow Central were also highlighted as a key consideration.
- At Edinburgh Waverley, extending platforms or creating new ones to meet forecast demand will reduce the current space available for passenger circulation and facilities in the station. The increase in passenger numbers and potential reduction in concourse space suggests that a major redevelopment of Edinburgh Waverley Swill be required in the medium to long term.
 - Improvements in the platform arrangements and track layout at Inverness Station may be required to create the capacity for more frequent train services to and from the Dingwall direction.
 - Perth Station re-modelling, redevelopment and re-signalling prior to electrification, including freight looping capacity and with improved transport interchange capabilities is identified as one of several strategic interventions which will be delivered more efficiently if they are undertaken, in conjunction with route clearance works, prior to electrification of the routes to Aberdeen and Inverness.

Why now?

The role of infrastructure investment in stimulating economic recovery is widely acknowledged¹¹, and will be a key priority following the economic downturn resulting from the COVID-19 pandemic. The Draft Infrastructure Investment Plan¹² commits to invest over £3.8 billion in the operation, maintenance and sustainable renewal of a high performing rail network for passengers and freight, highlighting the Scottish Government’s commitment to investment in Scotland’s rail network.

This intervention provides a strong statement of confidence in rail and will play an important role in post pandemic recovery and regeneration for both rail and Scotland’s cities.

This option aligns with the Scottish Ministers’ Strategic Priorities for rail, which are:

- **improved services** – faster journey times, strengthened commuter services and effective connections between cities and regions
- **improved capacity** – optimum utilisation of network and on-train capacity through high levels of performance
- **improved value** – efficiency and value for money, for the taxpayer and the fare-payer and the rail freight customer

¹¹ Pwc, Infrastructure investment for a sustainable economic recovery, 2020,

<https://www.pwc.com/gx/en/industries/assets/infrastructure-investment-for-a-sustainable-economic-recovery.pdf>

ICE, Investment in infrastructure could be the key to the UK’s economic recovery, November 2020, <https://www.ice.org.uk/news-and-insight/latest-ice-news/infrastructure-investment-key-to-economic-recovery>

¹² Scottish Government, Draft Infrastructure Investment Plan for Scotland 2021-22 to 2025-26, 2020,

<https://www.gov.scot/publications/national-mission-local-impact-draft-infrastructure-investment-plan-scotland-202122-202526/>

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- **more effective integration** – between rail operators and rail infrastructure management, and between rail and other transport modes
- **increasing inclusive economic growth**

5 Meeting the STPR2 Transport Planning Objectives

TRANSPORT PLANNING OBJECTIVE	CONTRIBUTION	SCALE OF IMPACT (-3 to +3)
A sustainable strategic transport system that contributes significantly to the Scottish Government’s net zero emissions target.	This option would make rail a more attractive travel option, with the potential to encourage modal shift from private car. This option would also potentially allow clearance for future electrification, potentially reducing emissions of rail itself.	✓
An inclusive strategic transport system that improves the affordability and accessibility of public transport.	Redevelopment of stations could lead to improved accessibility, making it easier and more convenient to travel by rail. Improved integration with other modes would enable seamless multi-modal journeys with rail as the main mode, improving the competitiveness of rail travel relative to car.	✓
A cohesive strategic transport system that enhances communities as places, supporting health and wellbeing.	Station redevelopment would improve the city environment, improving links into the city and potentially inducing regeneration both more broadly in the city, and within the stations themselves through placemaking and by encouraging new retail and food and drink outlets. There would be improvements to the historic environment, with more focus afforded to the Grade A listed ticket hall at Edinburgh Waverley and historic buildings at Perth Station, some of which are currently obscured. This option may also make multi-modal journeys involving rail more attractive than car-only trips, potentially increasing active travel and improving health outcomes.	✓✓
An integrated strategic transport system that contributes towards sustainable inclusive growth in	The option would improve integration for multi-stage rail trips by improving wayfinding between platforms. It would also improve integration between modes by establishing stations as multi-modal hubs. Improvements to station entrances and links into the city would support land use and transport integration.	✓✓✓

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Scotland.		
A reliable and resilient strategic transport system that is safe and secure for users.	Providing underground servicing at Edinburgh Waverley would remove vehicle deliveries from the concourse making the station safer from possible security threats and remove interaction of passengers and vehicles. Improving circulation for passengers within the stations would enable safer exit strategies in case of emergency, accommodating foot passenger travel demands safely and efficiently, and preventing bottlenecks or hazards.	✓

6 Addressing the Post COVID-19 Priorities

POST-C19 PRIORITIES	CONTRIBUTION
Employment	Station redevelopment would create jobs in planning and construction in the short to medium term. In the longer term, it would encourage regeneration around the station areas.
The Environment	This option would make rail a more attractive travel option, with the potential to encourage modal shift away from private car. This option would also potentially allow clearance for future electrification, potentially reducing greenhouse gas emissions for rail generally. There would be improvements to the historic environment, with visual amenity enhancements associated with the Grade A listed ticket hall at Edinburgh Waverley and historic buildings at Perth Station, some of which are currently obscured.
Education	Improved integration with other modes would enable more seamless multi-modal journeys with rail as the main mode, improving the competitiveness of rail travel relative to car.
Equalities	Redevelopment of stations could lead to improved accessibility, enabling people with mobility limitations (including disabled people, older people, pregnant people, and people travelling with young children) to travel by rail. Improved integration with other modes would enable more seamless multi-modal journeys with rail as the main mode, improving the competitiveness of rail travel relative to car and reducing the risk of forced car ownership and transport poverty for people who live and/or work on the periphery of the cities.

7 SEA, EqIA and Other Impact Assessments¹³

ASSESSMENT	COMMENTARY
SEA (Strategic Environmental Assessment)	This option would make rail a more attractive travel option, with the potential to encourage modal shift away from private car. This option would also potentially allow clearance for future electrification, potentially reducing greenhouse gas emissions of rail generally. Station redevelopment works would also be designed to support improvements to visual amenity and cultural heritage, through enhancing the visibility of the Grade A listed ticket hall at Edinburgh Waverley and historic buildings at Perth Station, some of which are currently obscured. This intervention will therefore complement the SEA and help to progress the SEA objectives.
EqIA (Equality Impact Assessment)	Redevelopment of stations could lead to improved accessibility, enabling people with mobility limitations (including disabled people, older people, pregnant people, and people travelling with young children) to travel by rail. Improved integration with other modes would enable more seamless multi-modal journeys with rail as the main mode, improving the competitiveness of rail travel relative to car.
ICIA (Island Communities Impact Assessment)	This intervention is aimed at rail stations in Scotland’s cities, and is therefore not directly relevant to islands (where there are no stations).
CRWIA (Children’s Rights and Wellbeing Impact Assessment)	This intervention is unlikely to have any specific implications for children.
FSDIA (Fairer Scotland Duty Impact Assessment)	Station redevelopment could provide significant benefit for inclusive accessibility and public health, including for members of target groups, and especially if networks are well designed to serve areas of highest needs.

¹³ All of these impact assessments are currently underway, but no formal assessments have yet been undertaken. Please note SEA and EqIA scoping reports have been produced and consulted upon.

8 Implementability and Interdependencies

IMPLEMENTABILITY CRITERIA	COMMENTARY
Feasibility	Redevelopment of stations is feasible in principle, and a Masterplan has been prepared for Edinburgh Waverley, however more detailed design work will be required for each station. It is considered that working in partnership to progress plans for station redevelopment is feasible within the timescales of Phase 1.
Affordability	There are likely to be significant costs associated with station redevelopment, however there may be efficiencies to be gained by aligning redevelopment with planned renewals.
Public Acceptability	<p>Responses to the online survey undertaken for STPR2 revealed that 69% of respondents were either dissatisfied or very dissatisfied with transport integration, suggesting that public support for this option is likely to be high.</p> <p>A 2016 study by Transport Focus found that redevelopment of stations does lead to substantially higher passenger satisfaction with the station.</p>

Key Interdependencies

Interventions which intend to improve multi-modal integration should do so from a collaborative perspective between modes. Station improvements should not be considered in isolation but should take account of bus stop and taxi rank locations, and links to walking and cycling routes. The development of active travel and micromobility hubs at stations should also be considered.

Specific station redevelopment proposals will also interact with wider rail improvement studies being considered, as well as the respective depot/stabling and rolling stock/fleet strategies for Scotland’s railways.

This intervention provides a strong statement of confidence in Scotland’s railways, and will play an important role in post pandemic recovery and regeneration of both rail and Scotland’s cities.

