STRATEGIC TRANSPORT PROJECTS REVIEW

PROTECTING OUR CLIMATE AND IMPROVING LIVES

Appendix I: Recommendation Appraisal Summary Tables

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1. Detailed Appraisal Summary

An 'Appendix I: Recommendation Appraisal Summary Tables (ASTs) Explanatory Note' accompanies this AST.

1.1. Recommendation 15 – Highland Main Line rail corridor enhancements

Recommendation Description

This recommendation would involve a programme of enhancements, including new and longer passing loops with more flexibility, and permissible speed increases. This would achieve increases in capacity and reliability for passenger and freight services, including infrastructure to enable journey time improvements where possible. Precise interventions would be developed following more detailed work in the business case process.

1.2. Relevance

Relevant to the Highland Main Line corridor

This recommendation would improve connectivity and deliver modal shift from road to rail by reducing rail journey times on the Highland Main Line corridor between Perth and Inverness for both passenger and freight rail services. Pre-Covid-19 passenger numbers were forecast to grow on the Inter-Cities network, including the Highland Main Line, to be amongst the highest in Scotland[i]. Leisure journeys have shown quicker recovery post-covid[ii] and the Highland Main Line is a key route to popular tourist destinations in the Highlands. Whilst the pandemic is likely to result in less commuting and in-work travel in the future, there is evidence that there may be increased willingness to travel further in general[iii]. Delivering quicker journey times, enhanced reliability, improved network resilience, increased frequency for freight services, and increased freight asset productivity on this strategic route, offers economic, social and environmental benefits and has therefore been recommended for delivery through STPR2.

The Highland Main Line was highlighted as an area of focus for enhanced rail freight services within the Scotland's Rail Freight Strategy[iv]. Indeed, the route is now effectively operating at capacity, so without infrastructure intervention, freight growth could only be accommodated by changing/reducing passenger services. Potential improvements to bolster the capability of the route in terms of gauge and train length, particularly for intermodal container movements, are seen as vital for freight.

1.3. Estimated Cost

£101 million – £500 million Capital

Capital costs for implementation of options to improve capacity and reliability on the Highland Main Line would depend on the specific interventions that are taken forward, driven by funding. Lower cost interventions would include lengthening freight loops (with increased entry/exit speeds where permissible), higher cost interventions would include more extensive track doubling, including longer dynamic loops, and infrastructure to remove lower differential speed limits for freight. At this stage cost estimates are derived from similar recent projects in Scotland and elsewhere in the UK.

The net impact on revenue / subsidy for services on this line would depend on the specific

impact on patronage and any additional applicable operational costs, noting that schemes; for example, additional services, which could be included in Scotrail specifications now, without the need for infrastructure intervention, are considered out of scope of STPR2.

For freight, there is unlikely to be a requirement for additional revenue support except for wider infrastructure financial support provided by the public sector including the use of Mode Shift Revenue Support and Freight Facilities Grant in respect of modal interchange.

1.4. Position in Sustainable Investment Hierarchy

Targeted Infrastructure Improvements

This recommendation would contribute to seven of the 12 NTS2 outcomes, as follows:

- Provide fair access to services we need;
- Help deliver our net zero target;
- Promote greener, cleaner choices;
- Get people and goods to where they need to get to;
- Be reliable, efficient and high quality;
- Use beneficial innovation; and
- Be safe and secure for all.

1.5. Summary Rationale

Summary of Appraisal

	TPO					STAG					SIA				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Low Scenario	++	+	+	++	++	+	+	+	++	+	+	+	0	+	+
High Scenario	++	+	+	++	++	+	+	+	++	+	+	+	0	+	+

This recommendation makes an overall positive contribution to the STPR2 Transport Planning Objectives (TPOs) and STAG criteria.

Highland Main Line rail corridor enhancements are implementable from a feasibility and public acceptability perspective, however a detailed assessment of local issues and constraints would require to be undertaken to fully establish the technical feasibility of the specific enhancements as the project progresses through the business case process.

The overall impact of this recommendation against the statutory impact assessments is considered to be minor positive, with the exception of the Island Communities Impact Assessment whereby the overall impact is expected to be neutral.

Details behind this summary are discussed in Section 3, below.

2. Context

2.1. Problems and Opportunities

This recommendation could help to tackle the following problems and opportunities:

Relevant Problem & Opportunity Themes Identified in National Case for Change
▪ **Global Climate Emergency:** the Scottish Parliament committed to an ambitious target of net zero emissions by 2045 and transport needs to play its part. Transport is currently Scotland's largest sectoral emitter, responsible for 37% of Scotland's total greenhouse gas emissions (greenhouse gas emissions encompass CO_2 emissions) [v] in 2018 (National Atmospheric Emissions Inventory 1990-2017)[vi]. Our transport system needs to minimise the future impacts of transport on our climate. ▪ **Reliability:** without intervention, forecast increases in traffic volumes on the road network will impact negatively on reliability through increased congestion and more roadworks as greater pressure is placed on the operational efficiency of the network. Reliability can also be an issue on the rail network[vii]. ▪ **Changing Travel Behaviour:** changing people's travel behaviour to use more sustainable modes will have a positive impact on the environment, as well as health and wellbeing. ▪ **Productivity:** whilst Scotland's productivity level is not solely driven by the efficiency of its transport system, improvements in transport connectivity between businesses reduces costs and increases productivity, thus generating higher levels of economic growth. ▪ **Labour Markets:** people often need transport to access employment, education and training and therefore help reduce the numbers out of work and support Scotland's ambitions for growth. Transport can ensure that the skills and experience of those in the labour force are effectively matched with the needs of businesses, helping to increase incomes and improve productivity. ▪ **Trade and Connectivity:** transport is crucial for trade and competitiveness, within Scotland, across the UK and internationally. ▪ **Freight:** whilst recognising the importance of freight within Scotland's economy, a key challenge will be to ensure that the negative impacts generated by the movement of goods vehicles, such as increased emissions from road freight, are tackled. ▪ **Tourism:** transport plays a vital part in supporting tourism. It enables people to get to, and travel within, Scotland and allows them to explore the many sights and experiences the country has to offer. Whilst tourism benefits are recognised, tourists should be encouraged to travel using sustainable modes.

2.2. Interdependencies

This recommendation has potential overlap with other STPR2 recommendations and would also complement other areas of Scottish Government activity.

Other STPR2 Recommendations

- Perth-Dundee-Aberdeen rail corridor enhancements (16);
- Edinburgh/Glasgow-Perth/Dundee rail corridor enhancements (17);
- Decarbonisation of the rail network (25);
- Major station masterplans (43);
- Rail freight terminals and facilities (44); and
- High speed and cross-border rail enhancements (45).

Other areas of Scottish Government activity:

- Climate Change Plan 2018-2032 Update (including car kilometre reduction target, road freight target and net zero target)[viii];
- Requirements set out by Scottish Minister in the Scottish Ministers' High-Level Output Specification (HLOS) for Control Period 6 aiming to grow rail freight traffic on the Scottish rail network by 7.5% by 31st March 2024[ix]; and
- The Decarbonising Scotland's Transport Sector report[x] cited that 23 per cent of freight goods moved by road must be shifted to rail and sea by 2030 (the same as all freight movements over 240 miles). Investment on the key routes of the Scottish Strategic Freight Network is critical to enable the necessary shift towards rail freight and provide a platform for more sustainable movement of goods to and from Scotland.
- This sits within the Revised Draft Fourth National Planning Framework (Revised Draft NPF4)[xi] regional spatial priorities proposes that priorities include low carbon urban living and transition away from oil and gas towards a net zero future. This recommendation contributes to these priorities and supporting actions.

3. Appraisal

This section provides an assessment of the recommendation against:

- STPR2 Transport Planning Objectives (TPOs)
- STAG criteria
- Deliverability criteria
- Statutory Impact Assessment criteria.

The seven-point assessment scale has been used to indicate the impact of the recommendation when considered under the 'Low' and 'High' Transport Behaviour Scenarios (which are described in Appendix F of the Technical Report).

3.1. Transport Planning Objectives

1. A sustainable strategic transport system that contributes significantly to the Scottish Government's net-zero emissions target

Low Scenario	High Scenario
++	++

Improving rail services on the Highland Main Line would encourage modal shift from car for passenger journeys, particularly where rail is faster than, or provides an equivalent journey time to car, for door-to-door journeys. There are significant congestion hotspots in and around Perth and Inverness, so more competitive rail journey times could encourage modal shift from private car. Removing vehicles from the road network would reduce emissions, helping to address the climate emergency and contributing to Scottish Government's net zero emissions target.

Proposed enhancements would release capacity for additional rail freight paths and longer trains which would drive modal shift from road to rail, improve the operating productivity, as new opportunities are opened up to allow the seamless transportation of goods between producers, distributors and consumers.

This recommendation is therefore expected to have a moderate positive impact on this objective in both Low and High scenarios.

2. An inclusive strategic transport system that improves the affordability and accessibility of public transport.

Low Scenario	High Scenario
+	+

Options which provide improved connections between Perth and Inverness (for example, improved rail journey times and reliability) would increase the accessibility of public transport. Improved connections can also complement, and be complemented by, other transport interventions as part of an inclusive transport network. This opens up new opportunities for young people to access further and higher education, and for elderly people to have access to public services. A more competitive rail system for inter-city travel can also encourage travel by a wide range of users, including leisure, tourist and business travellers. With respect to affordability, rail fares are considered out of scope, however it is noted they are in general higher than bus/coach fares.

This recommendation is expected to have a minor positive impact on this objective in both Low and High scenarios.

3. A cohesive strategic transport system that enhances communities as places, supporting health and wellbeing.

Low Scenario	High Scenario
+	+

Improving the passenger rail offer would create a more cohesive network with more frequent and faster travel opportunities between Perth and Inverness. Rail brings in visitors to areas and would enhance communities along the route as places and destinations. Improved rail services on the Highland Main Line, and the resulting modal shift this could bring, would support health and well-being outcomes, with rail trips often requiring an active travel component.

In terms of freight, improvements in railway infrastructure that delivers the capacity to support the transition of the goods movements from road to rail, would shift freight demand to a more sustainable mode of transport. Congestion on the strategic road network can be alleviated through a reduction in HGVs and LGVs. Modal shift would improve local air quality and ambience as a result of fewer vehicle movements, which would in turn make communities more attractive for walking and cycling. A typical freight train on the rail network can remove 76 HGV's from the road[xii].

This recommendation is expected to have a minor positive impact on this objective in both Low and High scenarios.

4. An integrated strategic transport system that contributes towards sustainable inclusive growth in Scotland.

Low Scenario	High Scenario
++	++

Inter-city corridor enhancements that increase capacity and speed of services on the Highland Main Line corridor would contribute to sustainable economic growth by improving connectivity, access to labour markets, and accessibility to jobs, education and training. For connections to / from Inverness and Perth in particular, the combination of greatest time savings (down to 3 hours Inverness-Central Belt) and the prevalence of key sector industries such as Tourism and Renewable Energy, would see these locations, and key intermediate locations such as Aviemore and Pitlochry, benefit from an increase in job opportunities.

Enhanced capacity for freight routes (both number of paths, train weight and length) would improve the competitiveness of Scottish businesses including those outside of the main population centres, in key domestic and international markets, providing more low carbon avenues of trade and offering lower unit costs for bulk transport. Overall, journey time reliability for freight would be protected supporting the requirements of manufacturers and end customers. Freight journeys which shift to rail would benefit from the better reliability afforded by rail relative to road (as well as road based journeys required to/from the freight terminal interchanges). Reliability for existing rail freight in Scotland is good, and this recommendation would introduce additional freight paths while maintaining reliability. Carrying out improvements on Scotland's railway network to facilitate freight travel provides a pathway for more sustainable movement of goods in the long-term addressing suppressed demand for modal shift of freight to rail and opening up new markets for rail as part of an overall supply chain.

Overall, this recommendation is expected to have a moderate positive impact on this objective in both Low and High scenarios.

5. A reliable and resilient strategic transport system that is safe and secure for users.

Low Scenario	High Scenario
++	++

Strengthening and investing in the rail system, such as passing loops would improve the resilience of the rail network, helping to create a network that passengers and freight services can rely on. While rail freight journey time reliability is generally considered to be good in Scotland, this recommendation would allow reliability to be maintained while enabling the introduction of additional freight paths and services to accommodate the rail freight growth targets. The recommendation would also improve reliability for journeys which shift from road to rail, and would reduce congestion for remaining road journeys.

This recommendation contributes to the rail network's resilience against climate change, as additional works can be carried out alongside enhancements, such as improving rail track bed drainage, for example. Ensuring that rail operators can provide reliable, consistent services is key to encouraging behavioural change, and therefore long-term modal shift, for both passenger and freight movements.

A reduction in the number of vehicles, including LGVs and HGVs, on Scotland's road network due to modal shift would lead to a reduction in transport-related casualties. HGVs in particular account for a significant number of casualties for pedestrians and pedal cyclists, thus reducing the potential for conflicts with vulnerable road users would lead to a safer transport system.

This recommendation would also be expected to have a positive impact on security, as movement of freight by rail is more secure than by road. Rail freight terminals are well fenced off with CCTV protections, rail services rarely stop near roads and signalling systems are difficult to interfere with. Rail is also a safe and secure mode of travel for passengers (see Health, Safety and Wellbeing STAG criterion below).

Overall, this recommendation is expected to have a moderate positive impact on this objective in both Low and High scenarios.

3.2. STAG Criteria

1. Environment

Low Scenario	High Scenario
+	+

See SEA Assessment below.

This recommendation is expected to have a minor positive effect on this criterion in both Low and High scenarios.

2. Climate Change

Low Scenario	High Scenario
+	+

This recommendation would help generate a modal shift from car to rail for passenger journeys between Perth and Inverness, reducing greenhouse gas emissions.

It also seeks to improve the use of sustainable modes of transport through modal shift of freight from road to rail, reducing the number of freight vehicles (associated congestion) and emissions from freight deliveries.

This recommendation contributes to increasing the rail network's resilience against climate change, as additional works can be carried out as part of improvements to support climate resilience, for example enhanced drainage for rail track beds.

This recommendation is expected to have a minor positive impact on this criterion in both Low and High scenarios.

3. Health, Safety and Wellbeing

Low Scenario	High Scenario
+	+

Overall rail is considered a safe mode of travel. In 2019/20, the Department for Transport reported 0.2 fatalities per billion passenger miles[xiii]. Encouraging modal shift to rail for passenger journeys would therefore be anticipated to support a reduction in accidents.

There may be some health benefits from improved air quality due to reduced emissions attributed to modal shift from car to rail and road freight to rail. A reduction in HGVs and LGVs may also improve community ambience as a result of fewer vehicle movements, which can in turn make a community more attractive for walking and cycling, with associated benefits on health and wellbeing.

Access to health and wellbeing infrastructure may improve slightly due to improved rail journey times and reliability for rail passengers.

The movement of freight by rail is more secure than by road. Rail freight terminals are typically well fenced off with CCTV protection, rail services rarely stop near roads and signalling systems are difficult to interfere with.

There is potential for negative effects on Visual Amenity during construction and operation of the improvements. It is therefore recommended that further environmental assessment is undertaken in order to identify potentially significant location-specific environmental effects and mitigation where appropriate.

Overall, this recommendation is expected to have a minor positive impact on this criterion in both Low and High scenarios.

4. Economy

Low Scenario	High Scenario
++	++

There is strong, published evidence of the benefits of new railway infrastructure to local economies[xiv] [xv] [xvi]. Key benefits would include journey time savings, increased labour markets and improving productivity. Highland Main Line corridor enhancements that increase network capacity and speed of services would contribute to sustainable economic growth in Perth and Inverness and the surrounding areas, contributing to national Gross Domestic Product (GDP):

- Inverness: Life sciences represent a key economic sector in Inverness with the city hosting Lifescan Scotland, the country's largest life science business. Other key sectors include energy (both oil and gas and renewables sectors), tourism, construction, financial and business services as well as the public sector[xvii].
- Perth: Perth is home to several corporate headquarters, including, Aviva, Stagecoach and Highland Spring. Key sectors include food and drink, tourism and clean technology[xviii].
- There are also a number of key tourist destinations along the route including at Aviemore and Pitlochry.

Investment in rail freight enhancements would deliver travel time savings for Freight Operating Companies (FOCs) operating on the network, as the introduction of electrification, gauge improvements and longer passing loops would allow more cost and time efficient routing on a mixed traffic railway. It would also provide more freight paths allowing more businesses to take advantages of the low unit costs for bulk transport afforded by rail freight. The increased network capacity can allow for an increased number of freight movements, therefore reducing travel times. Reliability for rail freight in Scotland is good, and this recommendation would introduce additional freight paths, and longer

trains while maintaining reliability. It would improve reliability for journeys which shift from road to rail, and also would reduce congestion for remaining road journeys.

Investing in railway line improvements generates wider economic benefits for the Scottish economy, including employment for Scottish people and businesses.

This recommendation is therefore expected to have a moderate positive impact on this criterion in both Low and High scenarios.

5. Equality and Accessibility

Low Scenario	High Scenario
+	+

This recommendation would not impact public transport network coverage, given its focus on improvements to the existing network, nor would there be impacts on active travel network coverage.

Quicker and more reliable journey times between Perth and Inverness would increase accessibility to jobs and other opportunities, promoting social inclusion and improving comparative access by geographic location.

Public transport accessibility is particularly important for enabling access to services, particularly for women and disabled people. Women are less likely to have access to a car[xix], and often have to "chain" trips together to meet the demands of their everyday lives[xx]. Disabled people make on average two and half times fewer trips compared to those without disabilities due to the challenges of using the railway[xxi]. It is important that vulnerable user groups, such as people with disabilities, are catered for by making their journeys as simple as possible by removing the need for interchange. The STPR2 National Case for Change identifies that people feel socially isolated and that "…many disabled people feel trapped due to lack of accessible transport". Whilst this recommendation would not change transport network coverage, it is expected to improve journey times and reliability for people who already rely on public transport, thereby improving comparative access by people group.

This recommendation also has the potential to encourage freight mode shift from road to rail and there may be examples of some minimal reduction in community severance due to a reduction in the number of goods vehicles on the road[xxii].

This recommendation is not expected to impact on affordability.

Also refer to EqIA/ICIA/FSDA/CRWIA Assessment in the next section.

Overall, this recommendation is expected to have a minor positive impact on this criterion in both Low and High scenarios.

3.3. Deliverability

1. Feasibility

Overall this recommendation is considered to be feasible, with proposed enhancements (for example, loops and, gauge clearance) representing tried and tested approaches to improving the rail network, with a number of similar schemes implemented across the Scottish rail network in previous years.

As with all rail enhancements, a number of risks require consideration. Risks may include strategic (relating to the rail infrastructure, wider transport network and trends with the transport industry for example increased freight traffic), regulatory/legal (alteration of planning legislation) and financial (unforeseen environmental conditions, asset condition, land assembly and acquisition). These would need to be considered alongside any cost, timescale or deliverability risks associated with the construction and operation of the recommendation.

In terms of the rail engineering and construction aspects required for line upgrades, there may be negative externalities of construction that would require to be considered, such as increased noise, train movements and dust in the local area. Furthermore, there may be unforeseen technical challenges on-site that would make the implementation more complex and expensive, particularly given the age of some structures along the route. Technologies and construction techniques are generally proven and present no significant risks to delivery, albeit a more thorough, detailed assessment would be required considering local issues and constraints, therefore identifying potential challenges that could lead to increased timescales and costs. However, line upgrades for passenger and freight rail are near-continuous within the UK, with Network Rail and its supply chain having expertise of the Scottish railway network, and the necessary work required to deliver upgrades.

In terms of the operational challenges, there may be short- to medium-term issues created by upgrades, with line closures and reduced services required in the interim. However, in the long-term, implementation of this recommendation would allow Train Operating Companies (TOCs) and FOCs more flexibility within the working timetable (due to more paths, improved line speeds, upgraded signalling systems).

2. Affordability

Upgrades to the railway network are often highly expensive investments due to the need for specialist contractors, high safety standards and the need to compensate operators where lines are closed outside contractually permitted times. Network Rail's general funding covers renewals and maintenance but not enhancements. It is considered likely that the enhancements would be completed over several Control Periods, to minimise up-front financial costs.

Despite the rail freight market showing signs of growth, there are risks with respect to potential ongoing revenue costs, due to uncertainty about future passenger rail demand. There is some early evidence that leisure journeys are recovering more quickly[xxiii], and whilst the pandemic is expected to result in a continued reduction in commuting and in-

work travel, there is evidence that this may increase willingness to travel further[xxiv], potentially increasing demand for longer inter-city trips.

While there is inevitably some uncertainty around the uptake of new freight paths, overall at the UK level Rail Freight has recovered to pre-pandemic levels with the two growth areas being in Intermodal and Aggregates. Total freight moved in the Q3 (2021-22) was 4.06 billion tonne kilometres which was 2.1% higher than the same quarter in 2019 and total freight lifted was 20.6 million tonnes in Q3 (2021-22) the highest quarter since early 2017[xxv].

This recommendation would be subject to a financial risk assessment as part of its further business case development, which would provide further detail on risk exposure.

3. Public Acceptability
Passenger rail improvements are typically seen as positive by the public, as they can increase the frequency of services, reduce journey times, improve network resilience (with fewer delays and cancellations) and increase accessibility of key locations (for example, employment) by rail. The STPR2 online survey (undertaken December 2019 to January 2020) found that 49% of respondents were 'very dissatisfied' or 'dissatisfied' with the frequency and reliability of train services. However, residents may have concerns over localised impacts (for example, air quality and noise), particularly during construction. Rail freight improvements are generally also supported by the public, due to the potential reduction in the number of goods vehicles on the road network, resulting in reduced congestion and environmental benefits.

3.4. Statutory Impact Assessment Criteria

1. Strategic Environmental Assessment (SEA)

Low Scenario	High Scenario
+	+

In relation to Inverness railway station, there are various designated sites, with the Inner Moray Firth being the largest Special Protection Area (SPA), Special Area of Conservation (SAC), Sites of Special Scientific Interest (SSSI) and Ramsar wetland site adjacent to Inverness. The railway station is also located within the Inverness Conservation Area, surrounded by a number of Listed Buildings and Scheduled Monuments. There is a large Battlefields Inventory designation south of the Highland Main Line at Smithton. Perth railway station is located within the Perth Central Conservation Area, with Listed Buildings and Scheduled Monuments situated nearby. There are records of designated sites, including an inland river SAC and a large Ramsar Site, SSSI, SPA, and SAC designations in the coastal and marine environment. Sites or areas that have not been designated may also represent constraints or opportunities.

Biodiversity designated sites, including multiple SACs, SPAs, SSSIs, Marine Protected Areas and Ramsar Sites have been identified along the Highland Main Line rail corridor, which also runs through the Cairngorms National Park. The Highland Main Line route between Inverness and Perth passes through or adjacent to the following significant designated heritage assets:

- Two large Gardens and Designed Landscape (GDL) designations adjacent to the Highland Main Line near Loch Alvie;
- Two GDL between Calvine and Blair Atholl;
- Battle of Killiecrankie designated Battlefields Inventory site;
- Pitlochry Conservation Area;
- Two GDL, a Scheduled Monument and a Battlefields Inventory site at Dunkeld;
- One GDL at Birnam; and
- A large Scheduled Monument at Scone Park, and Bertha Roman Fort Scheduled Monument, both north of Perth.

This recommendation is likely to result in positive effects on the SEA objectives for reducing greenhouse gases (SEA Objective 1), improving air quality (Objective 3) and reducing noise and vibration (Objective 5), at least in some locations. It is also likely to increase sustainable accessibility (Objective 4) and improve safety (Objective 7), particularly in relation to reducing transport-related emissions and congestion as it seeks to encourage a modal shift to more sustainable public transport (rail) for passenger journeys, and from road to rail for freight. It would have a positive effect on encouraging sustainable access, increased travel choice, improved connectivity and potential for improved safety on the transport network. This recommendation would also have a positive effect on Objective 8 as it promotes a more sustainable use and management of the existing transport network.

There are possible positive effects on the water environment, biodiversity (including the designated sites mentioned above) and soil (Objectives 10, 11 and 12 respectively) as a result of a reduction in diffuse pollution on key receptors, however the significance of effects are uncertain at this stage.

There is also potential for negative environmental effects during construction and operation of the enhancements, particularly on natural resource usage, the water environment, biodiversity (including the designations listed above), soil, cultural heritage (including the designations listed above) and landscape and visual amenity (Objectives 9 to 14). There is also potential for negative effects on noise and vibration (Objective 5) in at least some locations. It is therefore recommended that further environmental assessment is undertaken as the recommendation develops, in order to identify potentially significant location-specific environmental effects and mitigation where appropriate.

Whilst the recommendation is related to the public realm (Objective 6), it is unlikely to have a notable effect on the achievement of this objective and is therefore considered neutral and, given the nature of the recommendation, it has no (or negligible) clear relationship to the achievement of Objective 2 (climate change adaptation).

This recommendation is expected to have a minor positive effect on this criterion in both Low and High scenarios

2. Equalities Impact Assessment (EqIA)

Low Scenario	High Scenario
+	+

Improvements to the rail network and service provision would potentially bring positive impacts for a wide range of protected characteristic groups who are more reliant on public transport services, such as older people, children, young people, women and people from certain ethnic minority groups.

Encouraging modal shift from road freight to rail would contribute to a reduction in harmful transport emissions and improved local air quality. This would benefit public health, particularly for vulnerable groups such as children, disabled people, older people and pregnant women.

This recommendation is therefore expected to have a minor positive impact on this criterion in both Low and High scenarios.

3. Island Communities Impact Assessment (ICIA)

Low Scenario	High Scenario
0	0

This recommendation is not considered directly or indirectly relevant to island communities.

This recommendation is therefore expected to have a neutral impact on this criterion in both Low and High scenarios.

4. Children's Rights and Wellbeing Impact Assessment (CRWIA)

Low Scenario	High Scenario
+	+

This recommendation is unlikely to have any significant implications for children and young people, albeit access to higher education may be improved depending on location of enhancements in relation to educational establishments and student's homes. Children and young people tend to be more reliant on public transport services, so are more likely to benefit from rail improvements. By encouraging modal shift from road to rail for both passenger and freight movements, this recommendation could contribute to a reduction in harmful transport emissions and improved local air quality in some places. This would benefit children and young people who are more vulnerable to the adverse health impacts of traffic-related emissions. By reducing the volume of road traffic, safety could also be improved which would benefit children who are more vulnerable to fear of road danger.

This recommendation is therefore expected to have a minor positive impact on this criterion in both Low and High scenarios.

5. Fairer Scotland Duty Assessment (FSDA)

Low Scenario	High Scenario
+	+

Air pollution disproportionately affects the most vulnerable people in society, including the young, older people, people with existing medical conditions and people living in deprived urban areas. There is also potential for health inequalities widening in deprived urban areas due to emissions being concentrated in the most heavily trafficked roads, which are used more by disadvantaged people as places where they live, work and shop[xxvi]. By encouraging modal shift from road to rail for both passenger and freight movements, this recommendation could contribute to improving local air quality in some places. This could result in reduced health inequalities caused by poor air quality in areas ranking highest in terms of health deprivation. However, as the air quality improvements are likely to be dispersed over a wider area, the benefits on the most deprived areas and groups are likely to be negligible for both high and low scenarios for this recommendation alone.

Rail freight is a key component of the rail sector's contribution to Scotland's economy. Enhancements to provision of rail freight are expected to increase economic growth and private sector investment, thereby creating employment opportunities and potentially

reducing socio-economic disadvantage.

This recommendation is therefore expected to have a minor positive impact on this criterion in both Low and High scenarios.

References

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[v] Greenhouse gas emissions encompass CO_2 emissions

[vi] National Atmospheric Emissions Inventory 1990-2017

[vii] ORR, Public Performance Measure – Table 3113, 2020-21 Q1, https://dataportal.orr.gov.uk/statistics/performance/passenger-rail-performance/table-3113- public-performance-measure-by-operator-and-sector/
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