



STRATEGIC TRANSPORT PROJECTS REVIEW

PROTECTING OUR CLIMATE
AND IMPROVING LIVES



Appendix I: Recommendation Appraisal Summary Tables

December 2022

Jacobs **AECOM**

1. Detailed Appraisal Summary

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

1.1. Recommendation 39 – Sustainable access to Grangemouth Investment Zone

Recommendation Description

Grangemouth Investment Zone contains important strategic infrastructure, high value employment and manufacturing of materials that are currently vital for everyday life throughout Scotland. It forms part of the [Revised Draft Fourth National Planning Framework \(Revised Draft NPF4\)](#)ⁱ Industrial Green Transition Zones national development.

Given Grangemouth's strategic location, infrastructure, assets and skills base, there is great potential to reduce emissions at the Grangemouth complex and grow the cluster into a hub of low-carbon manufacturing that can unlock wider decarbonisation across Scotland. Activity at this critical hub of industrial and economic activity that is vital to Scotland's economy, will be designed to ensure that the region maintains and develops its competitiveness now and in our net-zero future. A sustainable transport access strategy should contribute towards realising that future.

This recommendation includes transport improvements to enhance sustainable access to Grangemouth Investment Zone for both people and freight. Whilst plans are at an early stage, improvements are likely to include, but not be limited to:

- Improved active travel connections, in line with the principles of the recommendations for Connected neighbourhoods (1) and Connecting towns by active travel (4). These would be to Grangemouth from key areas, including neighbouring towns and railway stations;
- Bus infrastructure improvements to support and encourage improved bus connections to Grangemouth from key areas, including neighbouring towns and railway stations;
- Supporting further transition to rail freight, in line with the principles of the recommendations for Edinburgh/Glasgow – Perth/Dundee rail corridor enhancements (17), Mode Shift for freight (27), Rail Freight terminals and facilities (44), and High speed and cross-border rail enhancements (45);
- M9 Junction 5 improvements for freight and bus (including potential introduction of priority for buses and Heavy Goods Vehicles (HGVs)). This is in support of potential priority or alternative freight routing strategies to access Grangemouth Port and Investment Zone and to improve access by bus to the area.

1.2. Relevance

Relevant to people, businesses, and freight in the Grangemouth area

Grangemouth is a key employment area with Grangemouth Port, Ministry of Defence facilities, large industrial areas and, most significantly, the Grangemouth Refinery which all support a significant number of jobs in the area. With regards to the Revised Draft NPF4, Grangemouth Investment Zone is recognised as an Industrial Green Transition Zone:

“Grangemouth Investment Zone currently hosts strategic and critical infrastructure, high value employment and manufacturing of materials that are currently vital for everyday life. This role will continue in the long term but must seek to decarbonise given the significant contribution of the industrial activities to Scotland’s emissions. It is a key location in the Scottish Cluster for carbon capture and storage, and hydrogen deployment. The Grangemouth Investment Zone will be a focus for transitioning the petrochemicals industry and associated activities into a leading exemplar of industrial decarbonisation, significantly helped through the coordination activities of the Scottish Government’s Grangemouth Future Industry Board. Decarbonisation could include opportunities for: renewable energy innovation; bioenergy; hydrogen production with carbon capture and storage; and repurposing of existing strategic and critical infrastructure such as pipelines.”

Within this, potential classes of development that could be designated as national developments of relevance include “New and/or upgraded facilities at the port for inter-modal freight handling and passenger facilities at Grangemouth.”

In keeping with the greening of industrial activity in the Investment Zone, enhancing sustainable access to the area would enhance the attractiveness of the location in support of the Revised Draft NPF4 proposals and support a just transition. It is also supported by the Falkirk Growth Deal which includes funding for several projects in the Falkirk and Grangemouth area to aid the transition to net zero. This will partly be delivered through the Falkirk Central Sustainable Transport Hub and Green Travel Corridor project.

This recommendation is therefore relevant to people who live in, work and visit Grangemouth and the surrounding area, businesses which operate in the Grangemouth Investment Zone, and freight.

1.3. Estimated Cost

£26 million - £50 million Capital

Interventions proposed as part of this package are anticipated to include active travel route improvements, and enhancements to the M9 Junction 5 for freight and bus (for example roadspace reallocation for the introduction of priority for buses and HGVs to support potential priority or alternative freight routing strategies to Grangemouth Port) and Investment Zone and to improve access to the area by bus.

Costs would be developed as more detailed studies are progressed.

1.4. Position in Sustainable Investment Hierarchy

Makes better use of existing capacity

This recommendation would also contribute to 7 of the 12 NTS2 outcomes, as follows:

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

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.

Sustainable access to Grangemouth Investment Zone is implementable from a feasibility and public acceptability perspective, however a detailed assessment of freight and sustainable access options, local and strategic issues and constraints would require to be undertaken to fully establish the technical feasibility of the specific proposals/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 Connectivity 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 (problems and opportunities specific to the Forth Valley region can be found in the [Forth Valley Initial Appraisal: Case for Change](#)):

Relevant Problem & Opportunity Themes Identified in National Case for Change

- **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.
- **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.
- **Spatial Planning:** the places where people live and work can have important impacts on health and wellbeing. The current and future transport needs of people should be at the heart of planning decisions to ensure sustainable places.
- **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 CO₂ emissions)ⁱⁱ in 2018 ([National Atmospheric Emissions Inventory 1990-2017](#))ⁱⁱⁱ. Our transport system needs to minimise the future impacts of transport on our climate.
- **Air Quality:** transport, and road transport in particular, remains a significant contributor to poor air quality. Air pollution increases the risks of diseases such as asthma, respiratory and heart disease, particularly for those who are more vulnerable. Air quality is often worse in areas of deprivation and is a health inequality issue.
- **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.
- **Trade and Connectivity:** transport is crucial for trade and competitiveness, within Scotland, across the UK and internationally.

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

- Connected neighbourhoods (1);
- Connecting towns by active travel (4);
- Provision of strategic bus priority measures (14);

- Highland Main Line rail corridor enhancements (15);
- Perth-Dundee-Aberdeen rail corridor enhancements (16);
- Edinburgh/Glasgow-Perth/Dundee rail corridor enhancements (17);
- Behavioural change and modal shift for freight (27);
- Rail freight terminals and facilities (44); and
- High speed and cross-border rail enhancements (45).

Other areas of Scottish Government activity

- [Revised Draft NPF4 National Development](#) 15. Industrial Green Transition Zones and 20-minute neighbourhoods supporting Liveable Places^{iv};
- [The Falkirk Growth Deal](#)^v – which includes funding for a number of projects in the Falkirk and Grangemouth area to aid the transition to net zero. This will partly be delivered through the Falkirk Central Sustainable Transport Hub and Green Travel Corridor projects; and
- [Grangemouth Future Industry Board](#)^{vi} – This is working to align public sector initiatives focusing on this critical hub of industrial and economic activity that is vital to Scotland’s economy, designed to ensure that the region maintains and develops its competitiveness now and in our net zero future.

3. Appraisal

This section provides an assessment of the recommendation against:

- STPR2 Transport Planning Objectives (TPOs);
- STAG criteria;
- Deliverability criteria; and
- 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
++	++

This recommendation would enhance sustainable access to Grangemouth Investment Zone for both people and freight. This would include improved active travel and bus infrastructure supporting connections to Grangemouth from key areas, including neighbouring towns and stations, along with measures to encourage the transfer of freight from road to rail (informed by the output of a market study as per recommendation 44, Rail freight terminals and facilities) and provide potential provide HGV priority at Junction 5 on the M9 to address freight routing issues as part of a sustainable access strategy.

As noted within NPF4, given Grangemouth’s strategic location, infrastructure, assets and skills base, there is great potential not only to reduce emissions at the Grangemouth complex but also to grow the cluster into a hub of low-carbon manufacturing that can help unlock wider decarbonisation across the country. Opportunities include renewable energy innovation, bioenergy hydrogen production with carbon capture and storage, and repurposing of existing strategic and critical infrastructure such as pipelines. Interventions that increase the attractiveness of bus and active travel as well as improve the efficiency of freight access to the Investment Zone would encourage sustainable transport behaviours from the outset as these emerging industries are established and support the reduction of industrial carbon emissions required to meet Scotland’s net zero target.

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

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

Low Scenario	High Scenario
+	+

Improving public transport connectivity in the Grangemouth area would enhance sustainable access to the Grangemouth Investment Zone and wider Grangemouth area, improving access to jobs, education, healthcare and services, and reducing forced car ownership or reliance on taxis. New or upgraded facilities such as active travel paths and bus stops would be designed in line with modern accessibility standards.

This recommendation could, through the implementation of sustainable transport measures, improve transport inclusivity for disadvantaged groups, such as unemployed people and members of low-income households, by providing lower-cost transport choices and enhancing sustainable access to employment and other opportunities.

Whilst there is no anticipated impact on fares, there may be some affordability benefits associated with a reduction in forced car ownership and/or reliance on taxis.

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

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

Low Scenario	High Scenario
+	+

Improving public transport connectivity in the Grangemouth area would make it a more attractive place to live, work and visit. Improved active travel and public transport infrastructure provision would encourage modal shift away from private car, with health and wellbeing benefits due to improved air quality, increased physical activity and reduced social exclusion for those without access to a private car.

Modal shift would improve local ambience as a result of fewer vehicle movements, which can in turn make a community more attractive for walking and cycling and improve community cohesion.

The freight aspect of this recommendation would contribute to the sustainable and efficient movement of goods and the removal of freight vehicles from Scotland’s road network, reducing congestion and potentially enhancing communities, with associated benefits to health and wellbeing. Where potential new freight access routes are developed by partners then enhancements to the M9 Junction 5 could assist in reducing HGV impacts on the Falkirk area by direct access to the M9 and reducing vehicle km for freight on entry to the Port.

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

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

Low Scenario	High Scenario
++	++

Grangemouth is a key employment area with Grangemouth Port, Ministry of Defence facilities, large industrial areas and, most significantly, the Grangemouth Refinery all supporting jobs in the area. This recommendation would improve access to the area for both people and freight. In keeping with the greening of industrial activity in the Investment Zone, enhancing sustainable access to the area would enhance the attractiveness of the location in support of NPF4 proposals, improving connectivity to a wider labour market, and supporting continued growth of these industries. This would also help support a Just Transition.

In general, this recommendation would be anticipated to increase the mode share of freight by sustainable modes, contributing to sustainable, inclusive growth in Scotland.

This recommendation has the potential to improve access to employment for existing residents, [including those living in datazones within the most deprived SIMD decile \(in Kersiebank, Bowhouse and Grangemouth Town Centre\)^{vii}](#). This would support the regeneration of the area.

This recommendation is expected to have a moderate positive impact on this objective under both the Low and High transport behaviour scenarios.

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

Low Scenario	High Scenario
+	+

Grangemouth is a key employment area with Grangemouth Port, Ministry of Defence facilities, large industrial areas and, most significantly, the Grangemouth Refinery which all support a significant number of jobs in the area. Grangemouth Investment Zone is recognised as a draft National Development site in the Revised Draft NPF4. Resilient access to the critical infrastructure at Grangemouth is therefore of national importance. Interventions included in this recommendation could improve the efficiency and access for freight movements to the Zone.

Improving sustainable access to Grangemouth Investment Zone would encourage mode shift from private car, which in turn would help to reduce road traffic congestion, improve reliability and resilience of the strategic transport network and support accident reduction targets. Increased active travel uptake associated with interventions included in this recommendation may improve security on paths as a result of natural surveillance attributable to more people being out and about.

Rail freight has reinforced its position as a reliable alternative during the COVID-19 pandemic, with road freight businesses suffering from increased demand, driver shortages and Brexit complexities. [Rail’s strong reliability has been reflected statistically, with the Office of Rail and Road \(ORR\) GB Rail Freight Delivery Metric recording 92.3% level of punctuality in 2021-22 Q4^{viii}.](#)

Remaining road freight would be supported by this proposal with improved efficiency and access for freight movements to one of Scotland’s key pieces of infrastructure. At the moment road freight from the docks has some inefficiency of access due to; existing freight routes, motorway junction layouts and local road restrictions that protect local communities from inappropriate routing. The result is longer than necessary routes from the dock to access the motorway network, where necessary in cases when rail freight is not suitable.

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

3.2. STAG Criteria

1. Environment	
Low Scenario	High Scenario
+	+

See Strategic Environmental Assessment (SEA) below.

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

2. Climate Change	
Low Scenario	High Scenario
++	++

This recommendation would provide sustainable access to Grangemouth for people and freight, encouraging modal shift and reducing greenhouse gas emissions from transport. Moreover, by supporting access to one of the NPF4 Industrial Green Transition zones, this recommendation would support productivity in emerging carbon-reducing industries and contribute to the Just Transition.

There is no anticipated impact of this recommendation on vulnerability to the effects of climate change or potential to adapt to the effects of climate change.

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

3. Health, Safety and Wellbeing

Low Scenario	High Scenario
+	+

This recommendation is expected to encourage modal shift and reduce road traffic flows, resulting in fewer accidents. The transition to rail would mean less freight traffic on the road network, potentially leading to a reduction in vehicular conflict with vulnerable road users on routes through communities and in the vicinity of Grangemouth and Falkirk.

Increased active travel uptake and new, high-quality infrastructure and facilities may improve security on paths due to increased natural surveillance.

Active travel and public transport improvements would encourage modal shift away from private car, with health and wellbeing benefits due to improved air quality and increased physical activity.

This recommendation would improve connectivity and make it easier to access health and wellbeing infrastructure using sustainable modes to neighbouring areas and towns.

Impacts on visual amenity associated with this recommendation are likely to be negligible.

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

4. Economy

Low Scenario	High Scenario
++	++

Improved connectivity by sustainable modes for both people and freight, and improvements to freight movements (for example, the use of HGV priority) would reduce end to end journey times and improve reliability, providing transport economic efficiency benefits. In addition, transferring freight from road to rail would encourage more efficient freight operations through anticipated lower operating costs, with associated positive benefits on transport economic efficiency.

In terms of wider economic impacts, potential bus priority measures that support enhanced public transport connectivity could increase the travel-to-work area for the existing and emerging industries, enabling workforce growth and ensuring the best people are matched to jobs, ultimately improving productivity. A better-connected Grangemouth would also be more attractive as a place to live and work, encouraging further development and investment in the area. Where potential new freight access routes are developed by partners then enhancements to the M9 Junction 5 could assist in reducing HGV impacts

on the Falkirk area by direct access to the M9 and reduce vehicle km for freight on entry to the Port, as well as supporting public transport infrastructure.

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

5. Equality and Accessibility

Low Scenario	High Scenario
+	+

This recommendation would improve access to Grangemouth by both active travel and public transport modes, with subsequent connectivity benefits for the Grangemouth area, [including for those living in datazones within the most deprived SIMD decile \(in Kersiebank, Bowhouse and Grangemouth Town Centre\)^{ix}](#), improving comparative access by geographic location.

This recommendation would, through the implementation of sustainable transport measures, improve transport inclusivity for commonly disadvantaged groups, such as unemployed people and members of low-income households, by providing lower-cost transport choices and enhancing access to employment and other opportunities.

New facilities would be designed in line with modern accessibility standards, improving access to public transport and active travel for people with reduced mobility, improving comparative access by people group.

While there is no anticipated impact on fares, there may be some affordability benefits associated with a reduction in forced car ownership and reliance on taxis.

Also refer to EqIA/ICIA/FSDA/CRWIA Assessment overleaf.

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

3.3. Deliverability

1. Feasibility

There is already significant experience of delivering bus priority measures within Scotland, albeit fewer examples of interventions designed to provide HGV and bus priority. The impacts on environmental, geotechnical and land use may impact on the feasibility of individual aspects of this recommendation depending on location-specific conditions.

In terms of the active travel aspects of this recommendation, detailed development work, including community engagement, would be required to identify the most appropriate routes.

2. Affordability

The scale of capital costs associated with this recommendation would vary depending on the nature, scale and geographic extent of the interventions. Any improvements to the rail network to accommodate increased rail freight capacity or modifications to the strategic road network would likely require significant expenditure, whereas active travel infrastructure improvements and measures to enhance bus or freight priority would likely constitute lower costs interventions.

There would be maintenance costs to ensure that infrastructure is well maintained.

3. Public Acceptability

The active travel and bus connectivity improvements proposed as part of this recommendation would likely be welcomed by communities and businesses in and around Grangemouth and those who travel to the area for employment or other purposes. The STPR2 online survey found that 49% of respondents in the Forth Valley region were dissatisfied or very dissatisfied with connectivity within the region. However, this may depend on specific locations and whether significant road space reallocation is required.

Freight aspects of this option are likely to be supported by stakeholders. Overall, modal shift of freight to rail is viewed as positive due to its environmental benefits, and the industry further enhanced its reputation during the COVID-19 pandemic, mitigating supply chain challenges by providing a reliable alternative to road freight. Furthermore, there are already existing high freight levels given the industrial nature of the region. However, there could be some public acceptability concerns should the measures result in the reallocation of roadspace for freight priority.

It is noted that Let's Make Grangemouth Better – a community action plan supported by the Community Planning Partnership would focus on putting into practice a vision of how to tackle issues around housing, health, employment and town centre regeneration that would benefit from new active travel routes, public transport infrastructure and freight moving to rail.

3.4. Statutory Impact Assessment Criteria

1. Strategic Environmental Assessment (SEA)

Low Scenario	High Scenario
+	+

This recommendation is likely to result in positive effects on the SEA objectives related to greenhouse gas reduction and improving air quality (SEA Objectives 1 and 3), as it seeks to encourage a modal shift to more sustainable and active travel methods and reduce traffic and congestion through improved active travel and bus connections. This may help improve air quality within at least some parts of the Grangemouth Air Quality Management Area. However, air quality would need to continue to be closely monitored to ensure improvements in some areas are not counteracted by any worsening of air quality in other locations. In addition to helping reduce levels of transport related air pollution and carbon emissions, this recommendation is likely to help reduce transport related noise and vibration and improve the quantity and/ or quality of active travel routes and hence quality of life (Objectives 4, 5 and 6).

The recommendation would also help improve the sustainability of the transport network (Objective 8) and safety (Objective 7) as it mostly promotes a more sustainable use of the existing transport routes to Grangemouth, reducing private vehicle usage and encouraging sustainable access and increased travel choice.

There are uncertain environmental effects during construction and operation of the recommendation, particularly on natural resource requirements, cultural heritage and landscape and visual amenity (Objectives 9, 13 and 14) depending on the design and location of the interventions.

The recommendation has no significant relationship to the achievement of Objective 2 (climate change adaptation).

Whilst the recommendation is related to the remaining SEA objectives, it is unlikely to have a notable effect on the achievement of these objectives.

Further environmental assessment would be required as individual interventions (such as M9 junction improvements and/or any new infrastructure) are developed to determine local effects on landscape/townscape, visual amenity (Objective 13) and cultural heritage (Objective 14). This assessment should also include any necessary mitigation for expected construction stage effects, for example relating to air quality, embodied carbon and greenhouse gas emissions, noise and vibration, amenity, accessibility and nuisance.

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

2. Equalities Impact Assessment (EqIA)

Low Scenario	High Scenario
+	+

This recommendation would provide sustainable access to services including employment, education, health facilities and other transport services which are important to many groups with protected characteristics. The infrastructure installed to create the active travel routes would be designed to incorporate adapted cycles and address mobility issues experienced by groups such as disabled people and older people as well as those who are more likely to lack confidence (for example young people) or are underrepresented, such as women. Public transport aspect of this recommendation would be anticipated to incorporate accessible vehicles and stops.

An uptake in sustainable travel modes may additionally improve health outcomes through physical fitness and would potentially lead to air quality improvements if uptake is matched by a reduction in private vehicle use and traffic congestion. Encouraging modal shift from road freight to rail may further contribute to a reduction in harmful transport emissions and improved local air quality, although it is noted that as road vehicles shift to alternative fuel sources this benefit would diminish.

Improved health outcomes as a result of better air quality are of particular benefit to those who are more vulnerable to air pollution, including children, older people and disabled people. However, the extent to which groups with protected characteristics would benefit from this recommendation would depend on the location of transport routes, proximity to deprived areas and required services and the ability for certain to groups to access sustainable transport provision.

This recommendation is therefore expected to have a minor positive impact on this criterion in both the 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 for either scenario.

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

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

Low Scenario	High Scenario
+	+

Children and young people tend to be more reliant on public transport services, so may be more likely to benefit from this recommendation. 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 at risk from accidents.

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

5. Fairer Scotland Duty Assessment (FSDA)

Low Scenario	High Scenario
+	+

This recommendation would be anticipated to improve access to Grangemouth by both active travel and public transport modes, with subsequent connectivity benefits for the Grangemouth area, [including for those living in datazones within the most deprived SIMD decile \(in Kersiebank, Bowhouse and Grangemouth Town Centre\)](#)^x.

Supporting transition to rail freight is expected to enhance economic growth and private sector investment, thereby creating employment opportunities and potentially reducing socio-economic disadvantage.

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

References

-
- ⁱ Scottish Government, Fourth National Planning Framework – Revised Draft, 2022, <https://www.transformingplanning.scot/national-planning-framework/>
- ⁱⁱ Greenhouse gas emissions encompass CO₂ emissions
- ⁱⁱⁱ National Atmospheric Emissions Inventory 1990-2017
- ^{iv} Scottish Government, Fourth National Planning Framework – (Draft at time of writing) 2021, <https://www.gov.scot/binaries/content/documents/govscot/publications/consultation-paper/2021/11/scotland-2045-fourth-national-planning-framework-draft/documents/scotland-2045-fourth-national-planning-framework/scotland-2045-fourth-national-planning-framework/govscot%3Adocument/scotland-2045-fourth-national-planning-framework.pdf>
- ^v Falkirk Growth Deal, Heads of Terms Agreement, 2021, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1042665/Falkirk_Growth_Deal_-_Heads_of_Terms.pdf
- ^{vi} <https://www.gov.scot/groups/grangemouth-future-industry-board/>
- ^{vii} Scottish Government, Scottish Index of Multiple Deprivation, 2020, <https://simd.scot/>
- ^{viii} <https://dataportal.orr.gov.uk/media/2049/freight-rail-usage-and-performance-2021-22-q3.pdf>
- ^{ix} Scottish Government, Scottish Index of Multiple Deprivation, 2020, <https://simd.scot/>
- ^x Scottish Government, Scottish Index of Multiple Deprivation, 2020, <https://simd.scot/>