Buchan Sustainable Transport Study

Executive Summary

Campaign for North East Rail and Aberdeen & Grampian Chamber of Commerce

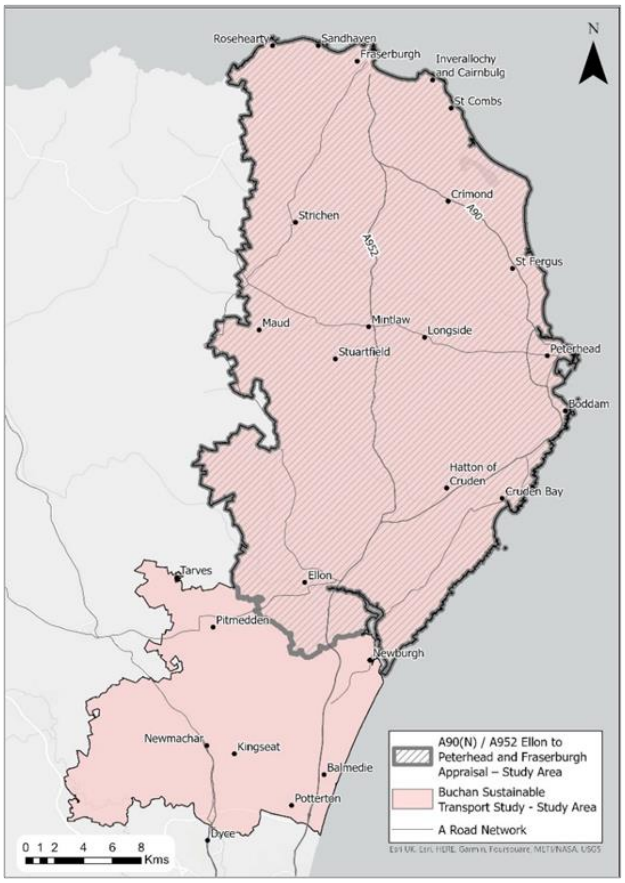
AECOM in partnership with Stantec UK Limited

May 2024

1. Introduction

1.1 Background and Purpose of the Study

Following the award of Scottish Government Just Transition funding, AECOM in partnership with Stantec have been commissioned by the Campaign for North East Rail (CNER), in partnership with Aberdeen and Grampian Chamber of Commerce (AGCC), to undertake an appraisal of the strategic transport links between Dyce, Ellon, Fraserburgh and Peterhead in north east Aberdeenshire in line with Scottish Transport Appraisal Guidance (STAG).



Buchan Sustainable Transport Study: Study Area

Previous studies undertaken for the study area include the Fraserburgh & Peterhead to Aberdeen Strategic Transport Study Pre and STAG Part 1 Appraisal (2016) and the STAG Part 1 Plus Ellon Rail Study (2017) which specifically examined the feasibility of a rail extension from Dyce to Ellon.

Since those studies were completed, there have been wider changes that have affected travel in the area, including the opening of the Aberdeen Western Peripheral Route (AWPR) and Balmedie-Tipperty (B-T) Dualling in 2019; new housing and employment land allocated within the Aberdeenshire Local Development Plan (LDP); and significant changes in the policy landscape. CNER has also produced an extensive body of work setting out proposals for a new rail service – including the use of the former Boddam Branch, not assessed in previous work – highlighting changing circumstances that can potentially strengthen the case for rail, and successfully securing support for the proposal from a wide range of stakeholders.

The study has been commissioned to review, build upon, and renew the evidence base developed in previous studies and examine the CNER proposals in greater detail, all in an evidence-based manner as facilitated by the STAG framework.

Importantly, the study is being delivered in parallel with the A90(N) / A952 study, which is also an appraisal of transport accessibility and connectivity on the strategic transport links to and from Fraserburgh and Peterhead, covering a similar study area and led by Nestrans. While the A90(N) / A952 study is focussed on short-to-medium term transport improvements, the Buchan Sustainable Transport Study is examining the potential of longer-term improvements.

1.2 Study Approach

The study has been undertaken having due regard to STAG, considering the initial stages of the process, as follows:

- **Case for Change** forms the first part of the overall process. It involves identifying evidenced transport problems and opportunities across the study area and setting Transport Planning Objectives (TPOs) to reflect the changes sought to address those problems and opportunities
- **Option Generation and Development** identifies a set of transport options that could potentially deliver the TPOs
- **Preliminary Options Appraisal** is an initial appraisal of the options brought forward from Option Generation and Development

2. Case for Change

2.1 Problems, Opportunities and Constraints

Three separate exercises have been undertaken to identify problems, opportunities, and constraints as follows:

- **Stakeholder Engagement:** undertaken with a wide range of stakeholders, including government agencies, local authorities, transport operators and elected members. Two online surveys were developed; one aimed at residents of the study area, and one aimed at businesses / organisations. In total, 769 people responded to the resident survey and 36 businesses responded to the business survey. An in-person stakeholder event was also held in January 2024 to allow interested stakeholders the opportunity to provide direct input to the study on problems and opportunities with travel across the study area, including feedback on emerging options
- **Data Analysis:** covering a mix of socio-economic and transport data sources
- **Documents Review:** undertaken via a detailed review of wider policy and previous and ongoing studies of relevance to the study area

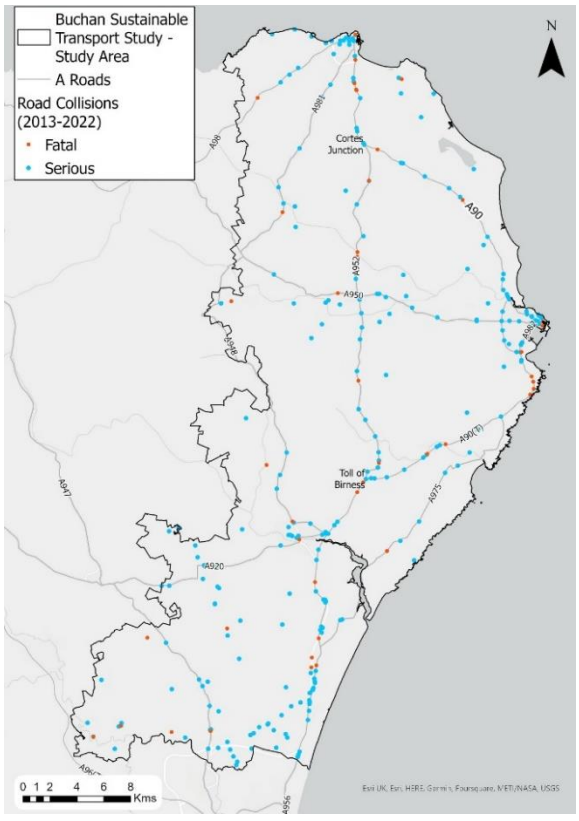
Based on these exercises, several problems, opportunities, and constraints have been identified.

Transport Problems: broadly described in STAG as undesirable or harmful circumstances with the transport system

Problem 1: Safety

Analysis of collision data indicated a **higher proportion of fatal collisions on the A90(N) / A952 corridors than on other single carriageway A-roads in Aberdeenshire and in Scotland more generally**. 9% of collisions on the A90(N) and A952 are classified as fatal compared to 7% on single carriageway A-roads in the rest of Aberdeenshire and 6% on single carriageway A-roads elsewhere in Scotland. This suggests that where collisions occur on these corridors, they are more likely to be fatal than on similar roads in Aberdeenshire and Scotland.

The public survey revealed that while a majority of respondents (48%) indicated they were satisfied with *'the feeling of safety during [their] trip,'* a large proportion (32%,) indicated dissatisfaction with this aspect. A range of comments on safety were also made, with the Toll of Birness junction specifically identified as an area of concern. The public survey also revealed a high level of dissatisfaction with aspects of road travel, which may be contributing to safety issues on the network, including the quality of the road surface (57%) and the provision of safe overtaking opportunities (43%).



Study Area Road Collision Data

Traffic data analysis indicates that there are high proportions of HGVs, particularly on the A90 between the Toll of Birness and Peterhead, where the proportion of HGVs (13%) is the joint highest in Aberdeenshire. The analysis also identifies evidence of platooning in the study area whereby convoys of vehicles travel together due to the lack of safe overtaking opportunities.

The business survey revealed that 80% of respondents indicated they were dissatisfied with *'safety concerns (i.e. risk of collisions)'* when transporting products by road. In addition, 50% of businesses

indicated they experience problems attracting and / or retaining staff. 38% of those who indicated that transport problems impact access to their site for customers, identified *'safety concerns when travelling (i.e. risk of collisions)'* as a major contributing factor. Interviews with key stakeholders also identified safety issues, with the Toll of Birness again cited as a problem. Several stakeholders noted that safety issues (as well as other incidents) on the network contribute to delays and that there is a level of unpredictability associated with these delays, which can make scheduling challenging. This was referenced specifically in relation to delays at the Toll of Birness junction by Stagecoach and more generally across the network by several business consultees, with impacts including loss of value when transporting time critical products and knock on impacts associated with transshipment by vessel.

Problem 2: Journey Time Reliability

The consistency and reliability of the same journey day to day was identified as a problem. Analysis of journey time data shows that the highest levels of variability, which is a measure of journey time reliability, are associated with southbound travel on the A90 during the morning peak on Tuesdays, Wednesdays, and Thursdays, with day-to-day journey time variation of up to ten minutes. This affects people travelling from the study area into Aberdeen City for work, education or for other purposes.

The data also highlights problems at Ellon north roundabout and Ellon south roundabout during the morning and evening peaks. These roundabouts were also identified during the stakeholder engagement as the most problematic in terms of traffic volumes and delay. There was general agreement amongst stakeholders that the issue has worsened following the opening of the Aberdeen Western Peripheral Route and Balmedie to Tipperty (AWPR-BT) improvements. Several stakeholders raised that the 'bottleneck' on the network has effectively moved north to the point at which the carriageway reduces to a single lane.

The public survey revealed the majority of respondents (59%) were satisfied with the *'reliability of journey times'* when travelling to Aberdeen; however, a large proportion (21%) indicated they were dissatisfied with this aspect. **The business survey revealed a different picture. 64% of respondents were dissatisfied with *'the reliability of journey times'* when transporting products by road. Also, 45% of businesses, who indicated they experience problems attracting and / or retaining staff, identified journey time reliability when travelling by road as a major contributing factor.**

Several stakeholders identified **network resilience** as a problem, noting that when there are collisions or incidents delays can be significant due to the limited diversionary routes. As one stakeholder summarised *"collisions have a disproportionate effect on the regularity of journey times due to the lack of resilience in the network."*

Problem 3: Long Journey Times

The public survey revealed that long journey times are the main barrier to greater bus use for travelling to and from Aberdeen. 85% of people surveyed, who said they would like to use the bus to Aberdeen more, identified the **length of time it takes to travel by bus** as the main factor preventing them travelling more frequently.

The public survey also revealed that people use their car more often than they would like to, contributing to **higher car use**, because long bus journey times are a major deterrent. This was determined from the survey frequency data with 30% of respondents indicating that they had driven to Aberdeen at least 4-5 days a week over the last month compared to just 4% making this same trip at this frequency by bus.

In addition to higher car use, the survey revealed evidence of people missing out on opportunities / activities (e.g. being unable to take part in leisure activities and / or attend health appointments easily) because long bus journey times mean people are unable to make return day trips. This is a particular issue amongst people without access to a private vehicle and for whom public transport is the only option, with available data indicating that car availability levels in the study area are lower than elsewhere in Aberdeenshire.

Data analysis shows that towns with a shorter public transport travel time to Aberdeen associated with rail services experience higher levels of commuting to Aberdeen by public transport and reduced car use. For example:

- The average public transport mode share of those commuting to Aberdeen from settlements in Aberdeenshire with shorter journey times associated with rail services was **15%**, with car use at **76%**
- The average public transport mode share of those commuting to Aberdeen from other settlements with longer journey times associated with bus services was **11%**, with car use at **80%**

This suggest that the longer journey times associated with bus rather than rail connections is (i) a deterrent to people commuting to Aberdeen by bus and (ii) a contributor to higher levels of car use.

The business survey also revealed that long journey times are a problem, with 63% of respondents indicating they were dissatisfied with the length of time it takes to transport products by road. Amongst those businesses who indicated they experience problems attracting and / or retaining staff, 64% identified the absence of train services from Aberdeen as a major contributing factor and 57% identified the length of time it takes to travel by bus as another major contributing factor.

Other Problems

A range of other problems were identified through the data analysis and stakeholder engagement:

- A lack of segregated active travel provision
- High cost of travel, including by bus, and a difficulty interpreting appropriate ticketing, particularly for infrequent users
- Limited provision for people with accessibility needs due to the 'coach-style' vehicles deployed on bus services between Buchan and Aberdeen
- Limited bus network coverage and service frequency in more rural parts of the study area

Transport Opportunities: broadly described in STAG as where a change to the transport system may lead to a positive outcome

Opportunity: Just Transition

A range of **opportunities for transport to support the long-term plan set out in the Regional Economic Strategy 2035 and the transition from oil and gas to net zero** were identified. These include support for various potential growth areas, including Carbon Capture Usage and Storage (CCUS), hydrogen, offshore renewables, and decommissioning, as well as continuing support for existing long-established industries such as food and drink, and tourism.

Funding announced by the UK Government in July 2023 for the Acorn Project will enable **CCUS at St Fergus**, north of Peterhead. Adjacent to the St Fergus gas terminal, Acorn Hydrogen also plan to turn North Sea natural gas into clean-burning hydrogen. While it is understood that there will be a limited need for investment in landside transport infrastructure to support the industrial operation of this facility in the short term, this may change over the longer-term. In addition, the construction of this project will lead to a demand for construction workers with a resultant increase in travel demand to and from the Buchan area during the construction phase. Once operational, there is also the potential for significant job opportunities, with resultant impacts on the transport network. There is therefore an opportunity for transport investment to support this strategic growth area.

Beyond St Fergus, there is also an opportunity for **transport investment to support the delivery of other growth sectors and strategic development sites**, including opportunities associated with the North East Investment Zone. In addition, there is an existing issue whereby problems on the road network are currently constraining several development sites across the study area, including at Mintlaw and Ellon. While these sites are predominantly housing, it is important to recognise that the delivery of sufficient housing is also important to the wider economic transition of the region to provide suitable accommodation for the workforce needed to support industrial growth.

As well as supporting new and emerging industries, there is potential for transport investment to support existing and long-established industry, including the food and drink sector. Both Peterhead Port and Fraserburgh Harbour are vital for both region and Scotland's fishing industry. Peterhead is the UK's largest fishing port and Europe's biggest white fish port. The port set a record for fish landings in 2023 with £232 million worth of catches traded across its quaysides. Fraserburgh Harbour

is the largest producer of Shellfish in the UK. The fishing sector is a key industry in both towns, with fish landings and sales representing the central cog in a large industry. This includes fish processing, adding value, refrigeration and storage, and logistics and transportation, with large proportions of the working age population in each town employed in the sector.

There is also an opportunity for transport to play a role in supporting the **regeneration of Peterhead and Fraserburgh**. The data analysis shows that Fraserburgh and Peterhead are the most deprived areas in Aberdeenshire. Both towns have been identified as 'Regeneration Priority Areas' within the Aberdeenshire Local Development Plan (LDP). The towns perform less well on several indicators, with higher rates of unemployment, a lower proportion of higher paying jobs, and a lower mean household income compared to elsewhere in Aberdeenshire. Hansen connectivity analysis demonstrates that both Peterhead and Fraserburgh have some of the worst public transport access to higher paying jobs and jobs in Aberdeen of any location in Aberdeenshire. The data analysis also shows a strong correlation between poor public transport connectivity and high levels of multiple deprivation, suggesting that poor public transport connectivity may be contributing to some of the deprivation in these communities.

Constraints: broadly described in STAG as circumstances which may impact on the delivery of potential interventions or option generation / development

The constraints that have been considered in this appraisal are:

- Allocated sites within the Aberdeenshire LDP, which may act as a constraint on some of the potential options emerging from this study, have been considered as part of option generation development process
- The alignment of the former Buchan Railway is now the Formartine and Buchan Way (a long-distance shared cycle path). Should the emerging options use this route, alternative active travel provision would need to be provided alongside the current route
- There are a range of environmental designations in the study area which have been considered during the option generation and development process

2.2 Transport Planning Objectives

Following the analysis of Problems, Opportunities and Constraints, a series of TPOs have been developed such that they express the outcomes sought for the study, describe how the identified transport problems will be alleviated and reflect the opportunities to be realised. Given that the focus of this study is on longer-term improvement options, appropriate timeframes have been included in the TPOs.

It should be noted that there is no weighting or hierarchy applied to the TPOs and the numbering system is used for presentation and reference purposes only.

Safety

TPO1: Reduce the number of people killed or seriously injured on the A90/A952 during the period 2014-19 (12 and 59 respectively) by 75% by the period 2037-2041

Analysis of road traffic collision data on the A90(N) and A952 identified a higher proportion of 'fatal' and 'serious' accidents compared to other rural single carriageway routes in Scotland. The Scottish Government's Road Safety Framework to 2030 has a long-term goal of moving to zero fatalities and serious injuries in road transport by 2050.

Journey Time Variability

TPO2: Reduce weekday AM and PM peak road-based journey time variation to the level seen in the inter-peak across the A90 and A952 from Fraserburgh to south of the Ellon south roundabout by 2037

When roads and junctions are operating closer to capacity, day-to-day variations in traffic volumes can lead to significantly longer journey times, and hence the time that people or businesses must

'allocate' to a trip, particularly if the person or goods must be at a certain place at a certain time. Collisions and other incidents on the network exacerbate this. This is wasteful and can affect productivity. Data analysis has identified significant variations in journey times along the corridors in the morning and evening peak travel hours.

Labour Markets

TPO3: Increase the labour force who can access Peterhead and Fraserburgh town centres within 75 minutes by at least 65% by 2037

For Fraserburgh and Peterhead to prosper as a location for investment, and hence employment, both towns need a supply of skilled labour, which needs to be able to travel sustainably to and from the towns. Long journey times by public transport from and via Aberdeen are a deterrent to people taking up employment in Peterhead and Fraserburgh – this was evidenced in the public survey. In addition, evidence of travel times affecting recruitment emerged from the business survey, with almost two thirds of businesses saying that they have difficulty attracting staff because of long bus journey times.

Currently, around 26,000 working age adults in Aberdeen and 24,000 in Aberdeenshire can reach Peterhead and Fraserburgh town centres within 75 minutes for a 9am start by public transport, and an average between the two towns of 25,000. The equivalent figure for 90 minutes is 41,000. So, using the logic whereby we want to expand the 75-minute labour market catchment of the two towns to today's 90-minute catchment, this would imply a labour market increase of 65% in the longer term.

TPO4: Increase the average number of job opportunities available to Peterhead and Fraserburgh residents within 75 minutes by at least 40% by 2037

For Fraserburgh and Peterhead's residents to prosper, there is also a need to improve access to employment opportunities (particularly in higher paying sectors) for those living in the towns (or potentially moving to the area), and for this access to be provided by sustainable modes.

Currently, on average a resident of Peterhead and Fraserburgh can reach around 17,000 and 14,500 jobs respectively within 75 minutes for a 9am start by public transport, and an average between the two towns of around 16,000. The equivalent figure for 90 minutes is around 22,000. So, using the logic whereby we want to expand the 75-minute job market catchment of the two towns to today's 90-minute catchment, this would imply a job market increase of 40% in the longer term.

Just Transition / Net Zero

TPO5: The study area's transport networks should enable a sustainable and just transition away from oil and gas for current industries, and support key strategic industrial and other developments in new sectors

The study area, and the North East as a whole, is amid a transition from oil and gas to renewable energy as Scotland moves to meet its net zero aspirations. There are various investment and growth opportunities, many of which are centred around the ports and harbours, including offshore renewables, hydrogen, and carbon capture, transport, and storage. It will be important to ensure that the transport network is sufficient to support these growth sectors.

This was recognised by the Scottish Government's 2021 shared policy programme, which established a 10-year £500 million Just Transition Fund (JTF) for the North East and Moray. This fund is aimed at transitioning the regional economy away from carbon-intensive industries and to capitalise on the opportunities, including jobs and prosperity, that the transition to net zero will bring.

There are also opportunities to address areas of socio-economic deprivation in Peterhead and Fraserburgh. Both Peterhead and Fraserburgh are identified as 'Regeneration Priority Areas' within the Aberdeenshire LDP and Peterhead was identified as being particularly vulnerable to the consequences of Brexit in the Scottish Government's Brexit Vulnerability study (2019). There is therefore a policy recognition of the need for regeneration in these towns, and transport improvements could positively contribute to this, particularly considering the lower levels of car

availability than elsewhere in Aberdeenshire. It is essential that this is a *just transition* which positively and equitably benefits communities in terms of jobs and opportunities.

3. Option Generation and Development

3.1 Option Generation

This task was undertaken to identify a set of transport options that could meet the TPOs and address the evidenced problems and help realise the opportunities across the study area. The option generation process was informed by:

- The TPOs set for this study
- Consideration of previous transport studies, including the Fraserburgh and Peterhead to Aberdeen Strategic Transport Study Pre and Part 1 Appraisal (2014 - 2016) and Fraserburgh and Peterhead to Aberdeen Strategic Transport Study: STAG Part 1 Plus Road and Rail Studies (2017)
- Consideration of constraints identified as part of the Initial Appraisal: Case for Change
- Feedback from stakeholder and public engagement activities undertaken as part of the Initial Appraisal: Case for Change
- Suggestions from the Project Working Groups (AGCC/CNER and Nestrans), including CNER proposals

An initial long list of options was generated and then subjected to an option sifting exercise. The option sifting approach sought to reject options that were unlikely to be delivered due to technical and / or deliverability challenges, affordability, and wider established policy objectives. It was recognised that, in some cases, there was limited quantifiable information available and therefore the approach also sought to avoid rejecting any options too early without the necessary supporting evidence to do so.

It should be noted that the STAG process does not prioritise between options and therefore no weighting or hierarchy is applied to any of the options – the numbering system is used for presentation and reference purposes only. It is also important to note that no decisions on any preferred routes or alignments will be considered at this stage.

The broadly defined options recommended for Preliminary Options Appraisal are listed in Table 3-1:

Table 3-1: Recommended Options for Preliminary Options Appraisal

Option Ref.	Type	Title	Description
A2	Public Transport	New passenger and freight rail line between Aberdeen and Fraserburgh via Peterhead (no intermediate stations north of Peterhead)	■ Use of old railway alignments between Dyce and Cruden Bay ■ New railway alignment required between Longhaven and Fraserburgh, with no intermediate stations north of Peterhead ■ Option for route to serve Hatton (via old alignment) or more direct route via Cruden Bay only ■ Option for route to serve Pitmedden or to remain on more direct route to Ellon via old alignment ■ Potential freight terminals at Ellon, Peterhead and/or St Fergus ■ Active travel provision will be protected
B1	Public Transport	New passenger and freight rail line between Aberdeen and Peterhead, with	■ Route splits into two at Ellon serving Fraserburgh and Peterhead separately

Option Ref.	Type	Title	Description
		Fraserburgh branch from Ellon via Maud	▪ Route to Fraserburgh using old alignment, calling at Maud and Strichen ▪ Route to Peterhead using same alignment as Options A2, although options for a different station location serving Peterhead ▪ Option for route to serve Hatton (via old alignment) or more direct route via Cruden Bay only ▪ Option for route to serve Pitmedden or to remain on more direct route to Ellon via old alignment ▪ Potential freight terminals at Ellon, Peterhead and/or St Fergus ▪ Active travel provision will be protected
B2	Public Transport	New passenger and freight rail line between Aberdeen and Peterhead, with Fraserburgh branch from Ellon via Mintlaw	▪ Route splits into two at Ellon serving Fraserburgh and Peterhead separately ▪ Route to Fraserburgh using part old alignment and part new railway alignment via Mintlaw, offering shorter, more direct route than Option B1 ▪ Route to Peterhead using same alignment as Options A2/B1, with options for a different station location serving Peterhead ▪ Option for route to serve Hatton (via old alignment) or more direct route via Cruden Bay only ▪ Option for route to serve Pitmedden or to remain on more direct route to Ellon via old alignment ▪ Potential freight terminals at Ellon, Peterhead and/or St Fergus ▪ Active travel provision will be protected
C	Public Transport	New passenger and freight rail line between Aberdeen and Peterhead only	▪ No rail service to Fraserburgh ▪ Route to Peterhead using same alignment as Options A2/B1/B2, with options for a different station location serving Peterhead ▪ Option for route to serve Hatton (via old alignment) or more direct route via Cruden Bay only ▪ Option for route to serve Pitmedden or to remain on more direct route to Ellon via old alignment ▪ Potential freight terminals at Ellon, Peterhead and/or St Fergus ▪ Active travel provision will be protected
RD10	Road	A90 Dualling	A90 Ellon to Peterhead Dualling, comprising: ▪ A90 Ellon Bypass Dualling ▪ A90 Ellon to the Toll of Birness Dualling ▪ A90 Toll of Birness to Peterhead Dualling

4. Preliminary Options Appraisal

4.1 Options Appraisal Summary

The Preliminary Options Appraisal has assessed, in qualitative terms, the five transport options brought forward from the option generation and development task. In line with STAG, it has considered the performance of each option against the TPOs, STAG criteria, an initial assessment against Feasibility, Affordability and Public Acceptability, and considered the 'fit' of each option in light of relevant Established Policy Objectives. Performance against key measures contained within the Equality Act 2010 is set out in the Preliminary Options Appraisal Report (May 2024).

The STAG seven-point scale assessment is shown and has been undertaken for each option against the TPOs and STAG criteria. This considers the relative size and scale of the likely impacts (benefits / dis-benefits), in qualitative terms.

+3	+2	+1	0	-1	-2	-3
Major benefit	Moderate benefit	Minor benefit	Neutral (no benefit or impact)	Small minor cost or negative impact	Moderate cost or negative impact	Major cost or negative impacts

A summary of the Preliminary Options Appraisal findings is set out in Table 4-1.

Table 4-1: Preliminary Options Appraisal Summary

Option	A2	B1	B2	C	RD10
Transport Planning Objectives					
TPO 1: Reduce the number of people killed or seriously injured on the A90/A952 during the period 2014-19 (12 and 59 respectively) by 75% by the period 2037-2041	**2**	**2**	**2**	**2**	**2**
TPO 2: Reduce weekday AM and PM peak road-based journey time variation to the level seen in the inter-peak across the A90 and A952 from Fraserburgh to south of the Ellon south roundabout by 2037	**2**	**2**	**2**	**2**	**2**
TPO 3: Increase the labour force who can access Peterhead and Fraserburgh town centres within 75 minutes by at least 65% by 2037	**3**	**3**	**3**	**2**	**1**
TPO 4: Increase the average number of job opportunities available to Peterhead and Fraserburgh residents within 75 minutes by at least 40% by 2037	**3**	**3**	**3**	**2**	**1**
TPO 5: The study area's transport networks should enable a sustainable and just transition away from oil and gas for current industries, and support key strategic industrial and other developments in new sectors	**3**	**3**	**3**	**3**	**1**
STAG Criteria					
Environment:	**-3**	**-3**	**-3**	**-2**	**-2**
Climate Change:	**1**	**1**	**1**	**1**	**-1**
Health, Safety and Wellbeing:	**2**	**2**	**2**	**2**	**2**
Economy:	**2**	**2**	**2**	**2**	**1**
Equality and Accessibility:	**2**	**2**	**2**	**2**	**0**

Option	A2	B1	B2	C	RD10
Deliverability Criteria					
Feasibility:	**Medium - High Risk**	**Medium Risk**	**Medium - High Risk**	**Medium Risk**	**Medium Risk**
Affordability:	**High Risk**	**High Risk**	**High Risk**	**High Risk**	**High Risk**
Public Acceptability:	**Low Risk**	**Low Risk**	**Low Risk**	**Low Risk**	**Low Risk**

Each option would be expected to positively contribute to the TPOs, with Options A2, B1 and B2 performing better against TPO 3 and 4 than Option C as these options would enhance connectivity to Fraserburgh. Option RD10 does not perform as positively against TPOs 3, 4 and 5 since it relates to improving journey times and reliability to the existing route and does not provide the same step-change in connectivity as the rail options.

Regarding the STAG criteria, each option has been assessed as having a negative impact against the Environment criterion. For the rail options, this is primarily associated with construction of significant new rail infrastructure through predominantly rural landscapes. Otherwise, the rail options generally perform positively against the STAG criteria, with minor benefits against Climate Change, and moderate benefits against Health, Safety and Wellbeing; Economy; and Equality and Accessibility. The performance against some of the Equality and Accessibility sub-criteria for Option C is slightly reduced given that this option does not connect to Fraserburgh. Option RD10 has a minor negative impact against Climate Change; a minor benefit against Economy; and performs neutrally against Equality and Accessibility, since it only benefits road users of the A90 between Ellon and Peterhead.

Feasibility risks are anticipated to be Medium to High Risk for Options A2 and B2, and Medium Risk for Options B1, C and RD10, due to uncertainties relating to groundworks and existing structures, noting that Option C only requires feasibility of a route to Peterhead, while Options B1 and RD10 will largely follow the previous/existing alignments respectively (although there may still be uncertainty surrounding existing structures). Note that recent skills and experience built locally from construction of the AWPR-BT and rail infrastructure work in the Scottish Borders and Levenmouth could support the deliverability of options.

All options are considered to have significant affordability risks due to the high capital costs. There is uncertainty surrounding specifics such as land acquisition costs, groundworks, topography, existing structures, utilities, environmental considerations, and other exclusions.

Options A2, B1, B2 and C would be expected to benefit from public support in terms of them enhancing connectivity, supporting regeneration in Peterhead and Fraserburgh, and increasing the overall attractiveness of the study area as a place to live and work. However, these options may have some opposition from land owners and environmental groups. Option RD10 is expected to have an element of public support due to its anticipated journey time reliability and road network resilience benefits. It may, however, have some opposition from environmental groups due to the potential increase in road traffic associated with higher capacity.

The study has also undertaken an economic value for money assessment of the rail options, which is additional to requirements at preliminary options appraisal. The economic appraisal suggests the best performing rail option is Option C serving Peterhead only. This is because the incremental costs associated with extending the scheme to Fraserburgh (either via Peterhead or via Ellon) significantly outweigh the incremental benefits of doing so. The appraisal indicates that providing a Peterhead only rail service has the potential to capture approximately 90% of the rail demand being forecast for the full scheme (i.e. also serving Fraserburgh). This option also retains the ability to provide freight facilities at both Peterhead and Ellon, which have been identified through engagement with freight operators as offering the greatest opportunity to move goods traffic from road to rail in the region.

Should there be a desire for the rail scheme to reach Fraserburgh, then outcomes from the economic appraisal suggest that this should be considered via Peterhead (Option A2) as the incremental cost of extending to Fraserburgh is less than extending from Ellon. Extending from Peterhead also allows the scheme to access the Fraserburgh-Peterhead market (the largest flow to/from Fraserburgh) and continues to allow the opportunity to consider two trains per hour between Peterhead and Aberdeen, which is not possible between Fraserburgh and Aberdeen via Ellon. Furthermore, adopting the alignment under Option A2 would make it easier to serve a potential freight terminal at St Fergus.

Options B1 and B2, in economic appraisal terms, do not perform as well as Option C or Option A2. Option B1, however, would provide an alternative means of directly serving Fraserburgh using predominantly old railway alignment.

4.2 Options Contribution to Relevant Wider Policy Context

An assessment has been undertaken to determine how well each of the options align with and may contribute to the aims of transport and wider (non-transport) government policies and national transport objectives, including the National Transport Strategy 2, Nestrans' Regional Transport Strategy 2040, North East of Scotland Regional Economic Strategy 2035, and Scotland's Just Transition Objectives.

In terms of alignment with policy, Options A2, B1, B2 and C (the rail options) are considered to support most objectives set out in NTS2, RTS and the Regional Economic Strategy. These options would improve the efficiency and reliability of the public transport network, supporting improved journey times by public transport and thereby align with policy objectives around inclusive economic growth and improved journey efficiencies. They could also encourage modal shift to public transport which is likely to provide safety benefits and contribute towards policy objectives focused on safety, health, and wellbeing.

The rail options would be expected to positively contribute to most of the Just Transition Fund objectives, particularly around 'decarbonisation and efficiencies.' Notably, the rail options would support modal shift from road freight to rail, reducing carbon emissions while increasing the efficiency of goods movements to and from the region. A reintroduced low carbon rail network serving Peterhead and Fraserburgh would be expected to encourage modal shift from private car to rail. By improving the accessibility of the Buchan region through the introduction of rail, the options would positively contribute to regeneration and economic development of the region, retaining and supporting skilled labour which will be key to supporting a Just Transition.

With regards to option RD10 (A90 Ellon to Peterhead Dualling), this option could support several objectives set out in NTS2, RTS and the Regional Economic Strategy. A dual carriageway between Ellon and Peterhead would improve journey times and thereby align with policy objectives around economic growth and improved journey efficiencies. Improvements to the reliability of the road network could also support the stimulation of new development in the Buchan region which, in turn, could support increased employment opportunities and contribute towards reduced inequalities. This option is also considered to support policy objectives around improving safety on the road network. Dual carriageway provision would allow traffic to move more freely and allow for safer overtaking manoeuvres, thereby reducing the risk of collisions. However, given the focus on road building, this option is not considered to align well with policy around taking climate action. It would sit at the bottom of the Sustainable Modal Hierarchy, which prioritises measures that promote low carbon, sustainable transport modes ahead of private vehicle use.

4.3 Rejected Options

A summary of the rationale for sifting out Options B2 and RD10 at this stage is provided in Table 4-3. The reader should refer to the Preliminary Options Appraisal Report (May 2024) for more detailed information of the performance of these options against the TPOs and the appraisal of the impacts under the STAG criteria that leads to these options being rejected at this stage of the study.

Table 4-3: Rejected Options at Preliminary Options Appraisal stage

Option Ref	Type	Title	Rationale for Option Rejection
B2	Public Transport	New passenger and freight rail line between Aberdeen and Peterhead, with Fraserburgh branch from Ellon via Mintlaw	Option B2, in economic appraisal terms, does not perform as well as either Option C or Option A2. This option does not offer any significant advantage over Option B1 in economic appraisal terms

Option Ref	Type	Title	Rationale for Option Rejection
RD10	Road	A90 Ellon to Peterhead Dualling	This option does not contribute as positively to the TPOs or STAG criteria as the other options. Road dualling also does not align well with the Sustainable Travel and Investment Hierarchies and it does not support Scottish Government's promotion of efficient and sustainable freight transport for the movement of goods, particularly the shift from road to rail. Furthermore, option RD10 does not align well with policy around taking climate action and does not contribute to wider policy objectives, including those set out in the Just Transition, as much as the other options. This option is anticipated to result in a disproportionate benefit to those with access to a private car and, as such, could increase inequalities associated with protected characteristics set out in the Equality Act 2010. Shorter-term road-based improvements proposed for the route as part of the parallel A90(N) / A952 STAG study could also address some of the identified problems across the study area, including safety and journey time reliability, in a more cost-effective manner

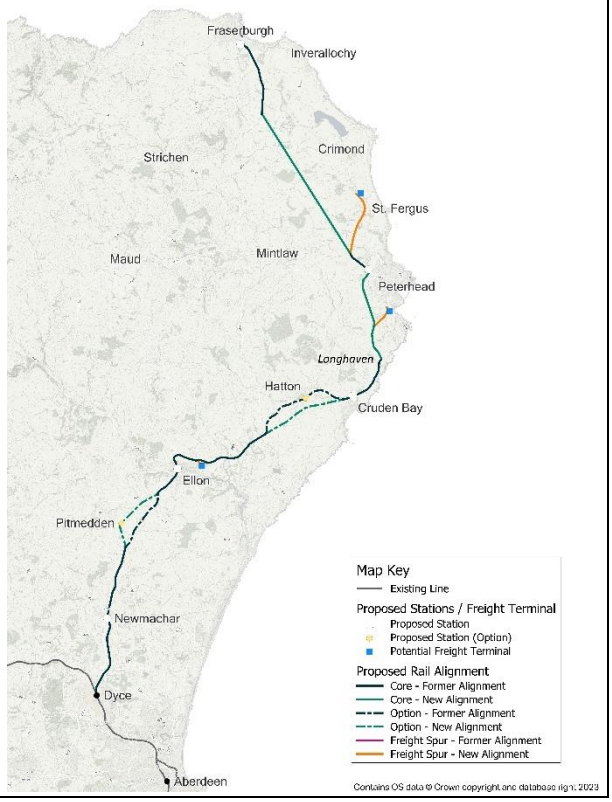
5. Recommendations and Next Steps

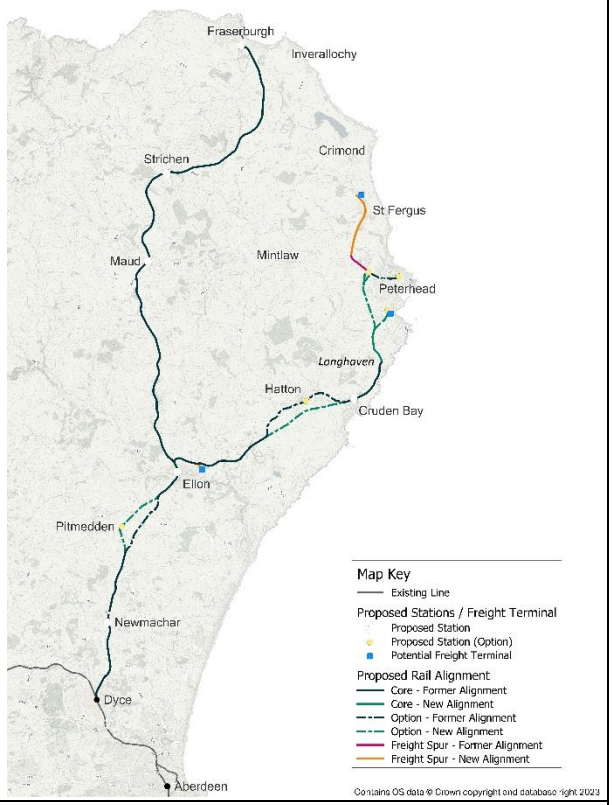
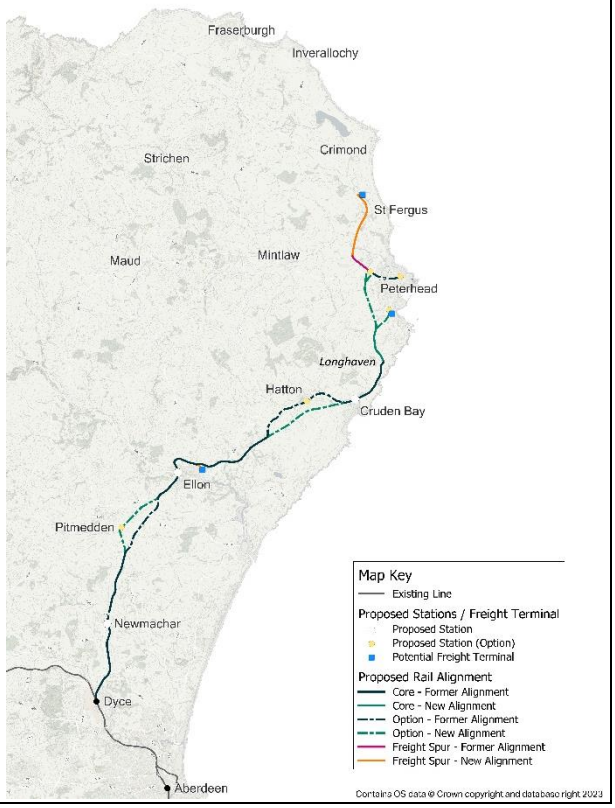
5.1 Options Recommended for Further Study

The appraisal of options at the Preliminary Options Appraisal stage has resulted in the recommendation of three options to be taken forward to Detailed Options Appraisal.

It is important to note that no decisions on any preferred routes or alignments will be considered at this stage – the graphics presented are for illustrative purposes only.

Table 5-1: Recommended Options for Detailed Appraisal

Option Ref.	Title	Indicative Alignments
A2	New passenger and freight rail line between Aberdeen and Fraserburgh via Peterhead (no intermediate stations north of Peterhead)	

Option Ref.	Title	Indicative Alignments
B1	New passenger and freight rail line between Aberdeen and Peterhead, with Fraserburgh branch from Ellon via Maud	
C	New passenger and freight rail line between Aberdeen and Peterhead only	

5.2 Next Steps

The purpose of the Detailed Options Appraisal is to undertake a detailed quantitative appraisal of the options taken forward from the Preliminary Options Appraisal. This includes a detailed appraisal of:

- The performance of options against SMART Transport Planning Objectives (TPOs)
- The impact of the options against the five STAG criteria (i.e. Environment; Climate Change; Health, Safety and Wellbeing; Economy; and Equality and Accessibility)
- Cost to Government
- Risk and Uncertainty

The potential feasibility, affordability and public acceptability risks associated with delivery of each option will also be investigated during this next and final stage of the study. A Monitoring and Evaluation plan will also be developed which will outline how the outcomes of the implemented option will be monitored and evaluated.

The economic appraisal undertaken to inform this stage of the study, as reported in the Preliminary Options Appraisal Report (May 2024), has provided an early indication of the likely challenges that the recommended options will face in relation to demonstrating value for money. It must be acknowledged, however, that the Benefit to Cost Ratio (BCR) is just one indicator of value for money in the wider context of achieving the objectives set for the scheme. Through detailed sensitivity testing, the appraisal has also identified where further refinement of the scheme specification will contribute to improving the overall value for money of the scheme. Examples include optimising the location of a station serving Peterhead and continuing to adopt the latest assumptions associated with improvements in rolling stock technology.

A key challenge moving into the next stage of appraisal will be providing detailed robust capital cost estimates, including providing greater transparency between the costs of converting old railway alignment and a completely new build. Rail options A2 and C both involve, to different degrees, a combination of new build and old railway alignment conversion. For Option A2 particularly, it is acknowledged that to extend a railway to Fraserburgh via Peterhead would involve considerable new build (as opposed to converting an old railway alignment) north of Peterhead. It is for this reason that Option B1 is also recommended for further development as an alternative means of directly serving Fraserburgh using predominantly old railway alignment[1]. As the costing exercise is refined and developed, it would therefore be expected that a more detailed picture comparing the relative merits of adopting new build versus using existing alignments can be developed.

Furthermore, given the wide range of demand projections generated to forecast rail freight potential in the region – understandable given the longer delivery timeframe (2037) and uncertainty over CO2 reduction pathways in different industrial sectors – there would be merit in undertaking a further demand assessment to understand the potential rail freight market size, including that of the non-pipeline transport market from Scottish emitters to St Fergus.

[1] Option B2 north of Ellon is predominantly new build and therefore does not offer an alternative to Option A2, which is also predominantly new build north of Peterhead, in the sense of offering a fundamentally alternative deliverability scenario.