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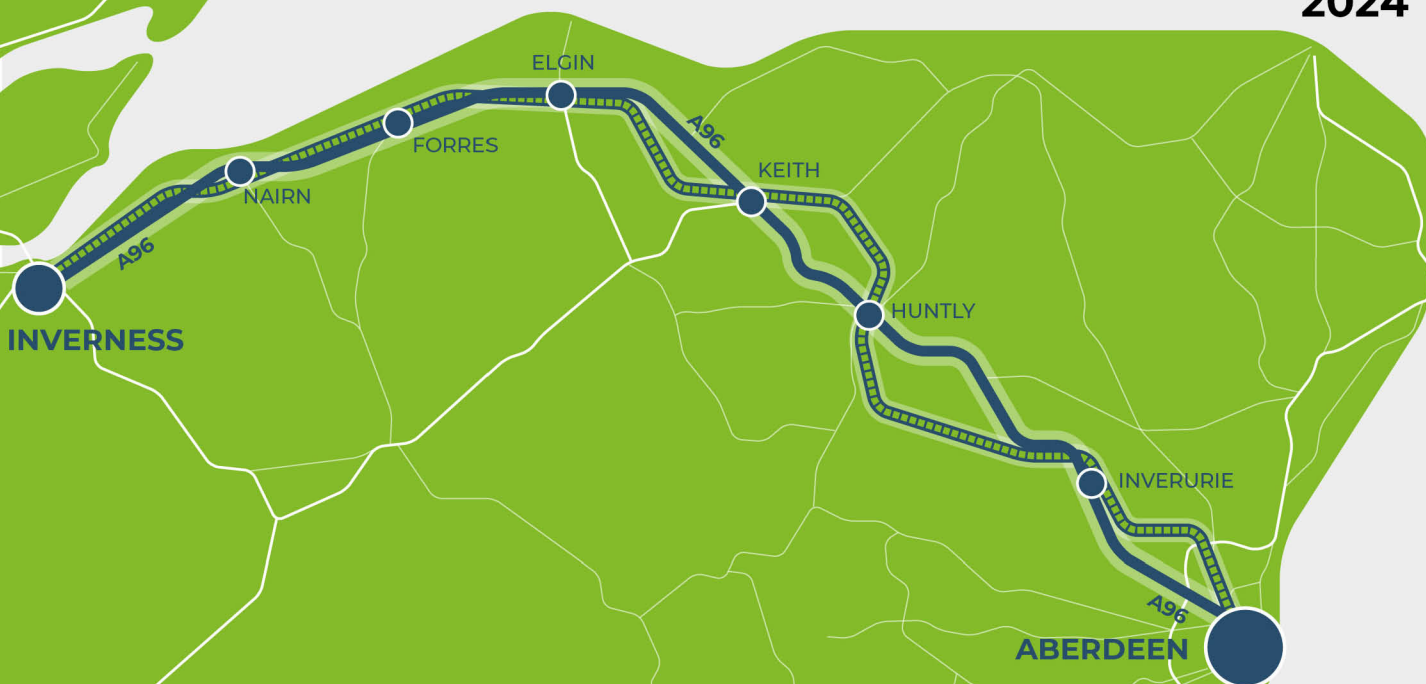
for



A96 Corridor Review

Strategic Business Case –
Transport Appraisal Report (Draft)
Appendix D: Detailed Appraisal
Summary Tables

2024



A96 Corridor Review Detailed Appraisal Summary Table

An Appraisal Summary Table (AST) has been prepared for each of the packages developed for the A96 Corridor Review and for A96 Full Dualling. The package ASTs are set out to provide:

- Detailed Package Description – this presents the interventions that were included in the package for the detailed appraisal, their relevance to transport users in the corridor, the estimated cost of the package, the position in the Sustainable Investment and Sustainable Travel Hierarchies and an overall summary of the appraisal.
- Problems and Opportunities Context – drawing on data presented in the [Case for Change](#) report, this summarises the identified problems and opportunities in the corridor that are relevant to the package, and sets out where the package complements wider Scottish Government policies and strategies.
- Transport Planning Objectives (TPO) Assessment – An assessment against each of the five TPOs is provided with quantified metrics, where appropriate, under the 'With Policy' Scenario that includes the 20% reduction policy ambition on car kilometres (hereon referred to as the 'With Policy' Scenario) and a 'Without Policy' Scenario with no policy ambition on car kilometres reduction (hereon referred to as the 'Without Policy' Scenario). Further information about these scenarios is provided in Appendix A. A seven-point scoring scale is adopted for each TPO, as follows:
 - + + + = major positive (3 plus signs)
 - + + = moderate positive
 - + = minor positive
 - 0 = neutral
 - - = minor negative
 - - - = moderate negative
 - - - - = major negative (3 minus signs)
- STAG Criteria assessment – as above for the TPO assessment, key points regarding the performance of the package against each of the STAG criteria is presented, with quantified metrics provided where appropriate.
- Deliverability – commentary is provided on the assessment of the package in terms of its feasibility, affordability and public acceptability. Note that due to the nature of a number of the interventions, and this AST presenting the Strategic Case it has not been possible to derive a single cost estimate. However, broad capital spending ranges have been estimated for each package.
- Statutory Impact Assessment Criteria – a summary of the performance of the packages against the Equalities Impact Assessment (EqIA), Child Rights and Wellbeing Impact Assessment (CRWIA) and Fairer Scotland Duty Assessment (FSDA) is provided. The seven-point scoring scale is adopted in these assessments where appropriate. Note that the separate Strategic Environmental Assessment (SEA) has provided input to the STAG

Environment and Climate Change criteria, with the full SEA including scoring and narrative for each of the Preliminary Appraisal interventions, the Detailed Appraisal packages and for A96 Full Dualling presented in the [SEA Draft Environmental Report](#)ⁱ.

Summary of Assumptions

Quantification of the costs and benefits in the packages has been provided through a modelling exercise. Further information is provided in Appendix A of the Technical Report on the modelling scenarios that have informed the assessment of the A96 Corridor Review packages and A96 Full Dualling. A summary of the key assumptions is provided here:

- Population projections are based on the National Records of Scotland (NRS) Population Projections (2018-based).
- Economic projections are a combination of projections by Oxford Economics bought in 2019, the Scottish Fiscal Commission forecasts and more recently the Office for Budget Responsibility (OBR) post-COVID estimates.
- Land use plans are based on data collected for Transport Scotland's Assembly of Planning Policy Inputs in 2018 from Scotland's 34 Planning Authorities.
- Permitting of vacant office and retail floorspace to be converted or redeveloped as housing post 2030.
- Working age is taken to be 16-64 (as a constant) to avoid difficulties with changing state pension age (and to reflect non-mandatory retirement).
- In line with appraisal standards, the present value of benefits within the economic assessment are presented as discounted values in 2010 prices.

Modelling Tools

For the purposes of modelling accessibility by public transport, the National Public Transport Accessibility Tool (NaPTAT) has been used. This allows an assessment of accessibility to be compared between the with package and without package scenarios. Results for key services (such as healthcare and education) are generally reported in the context of the additional number of people able to access their closest facility within a defined public transport journey time band.

Due to the multi-modal appraisal process, the national Transport Model for Scotland version 2018 (TMfS) and the A96 Corridor Road Assignment Model version 1.6 (A96CRAM) have been used. TMfS is a national scale multi-modal transport model with a focus on inter-urban trips and as such has been used to inform the appraisal of the larger scale public transport interventions. The A96CRAM is a strategic highway assignment model which covers the A96 corridor (between Inverness and Aberdeen) and parallel routes and has been used to inform the appraisal of the roads-based options. Whilst TMfS and A96CRAM provide for a suitable level of robustness at this stage of the appraisal there are nevertheless limitations associated with modelling of smaller/discrete interventions and those that are more urban in nature, particularly where the calculation of benefits of an intervention depends upon an accurate representation of the existing urban congestion. Separate forecasts of the potential impacts

of active travel recommendations on walking and cycling mode share have therefore been made. As the recommended interventions are progressed through the next stages of development, it is anticipated that more detailed modelling will be undertaken using local models as appropriate.

When considering the outputs presented in this AST the following metrics should be considered:

- **CO₂ emissions:** Likely to underestimate the benefits associated with public transport interventions due to the more limited representation of transport systems in urban areas and a degree of insensitivity to mode shift in TMfS.
- **Mode share:** Likely shift to public transport modes underestimated in the more urban areas due to the more limited representation of urban transport systems and a degree of insensitivity to mode shift in TMfS.
- **Change in vehicle kilometres travelled:** Likely to underestimate the benefits of reducing vehicle kilometres travelled particularly for short distance journeys due to the more limited representation of urban transport systems, the relative coarseness of the model zone system and the lack of direct representation of walk/cycle modes in the transport models.
- **Lost time due to congestion:** Likely to underestimate the benefits associated with mode shift to public transport and walk/cycle modes due to a degree of insensitivity to mode shift in TMfS and the lack of direct representation of walk/cycle modes in the transport models.
- **Change in accidents:** Likely to underestimate the benefits associated with mode shift to public transport interventions due to the more limited representation of urban transport systems and a degree of insensitivity to mode shift in TMfS.
- **Present Value of Benefits:** Likely to underestimate the benefits to public transport users due to the more limited representation of urban transport systems.

1. Detailed Appraisal Summary

1.1 Package Description

Package 2

This package is focused on providing transport network improvements to some of the less populated settlements along the A96 corridor that are not suggested to be bypassed within Package 1. The package would provide enhancements which would aim to encourage a shift to sustainable modes, increase opportunities for residents and businesses and improve road safety.

The interventions included in Package 2 are shown in Figure 1.1.



Figure 1.1: Interventions Included in Package 2

The specific settlements considered in this package are Lhanbryde, Mosstodloch, Fochabers, Huntly, Kintore and Blackburn and are shown within the context of the wider A96 Corridor Review transport appraisal study area (as defined within the [A96 Corridor Review Case for Change](#)ⁱⁱ) in Figure 1.2. It should be noted that whilst this package is primarily targeted at the aforementioned settlements, the package also includes corridor-wide interventions which are anticipated to result in benefits to other areas within the corridor.

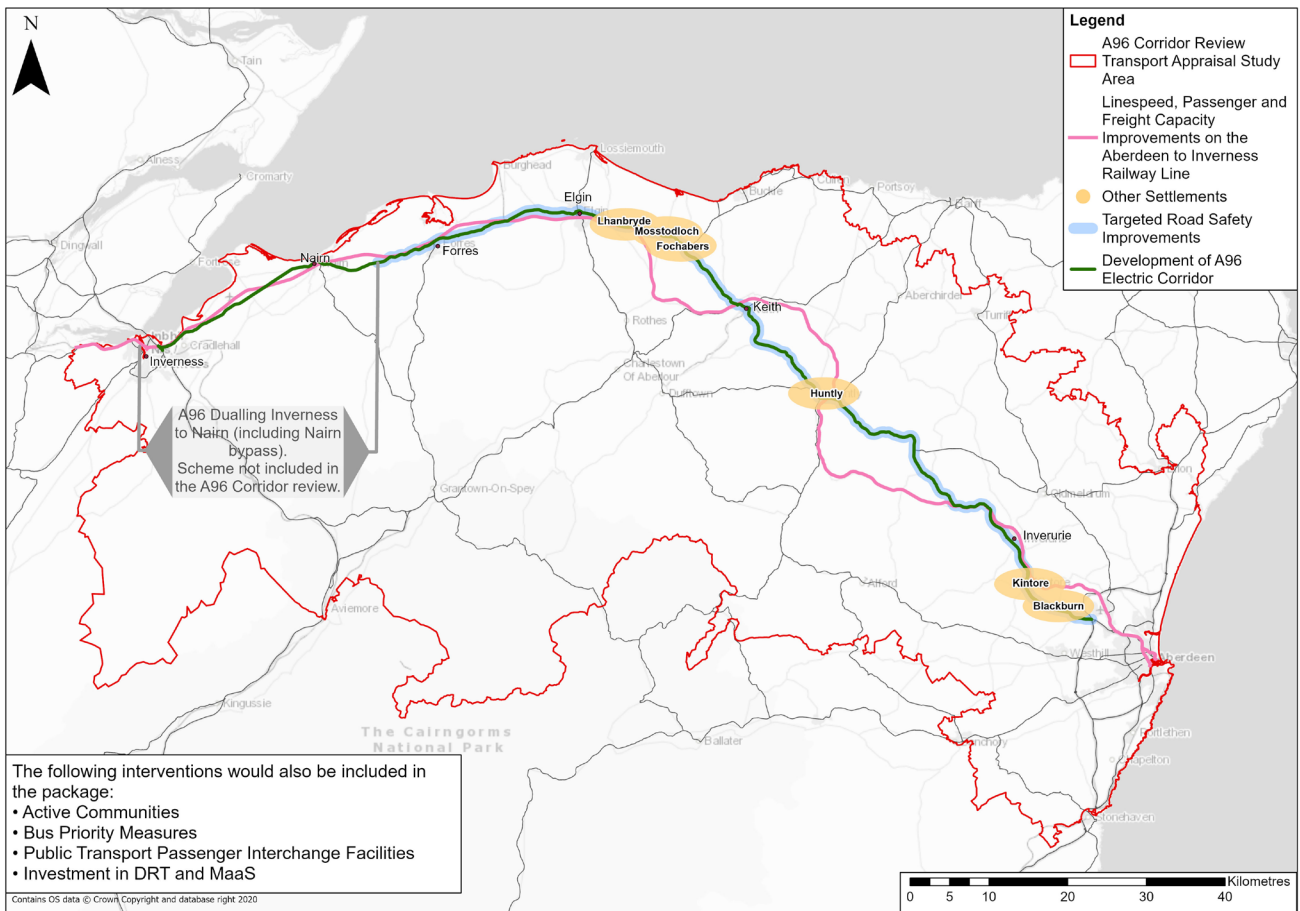


Figure 1.2: Package 2 Extents

This package would provide high quality active travel routes and facilitate placemaking improvements within the aforementioned settlements through the provision of ‘Active Communities’, where more space would be provided for people rather than traffic, which could reduce the need to travel unsustainably. Active Communities draws from the ‘20-minute neighbourhood’ concept (10 minutes there, 10 minutes back) and is built around an approximate radius of 800m from the centre of each town or settlement, whilst also creating safer routes to school and encouraging more inclusive environments for people walking, wheeling and cycling. This would enhance the sense of place and encourage the local communities to spend more time within their local areas.

A number of public transport interventions targeted at delivering faster and more reliable journey times as well as improving the overall passenger experience form part of this package. Journey time and reliability improvements would be achieved through the inclusion of bus priority measures at appropriate locations within the aforementioned settlements, with rail improvements delivered through linespeed and capacity improvements on the wider Aberdeen to Inverness rail line. Linespeed improvements would target a reduction in end-to-end journey times to two hours (currently approximately two hours and 25 minutes). This would be facilitated through the provision of passing loops, new rolling stock and freight opportunities. This package does not however consider the provision of new Park and Ride

facilities for onward travel by bus as they are only likely to be a viable option for capturing trips travelling to the larger cities of Aberdeen and Inverness where congestion is highest.

The package also includes interventions to improve accessibility and quality of public transport interchange facilities such as bus and railway stations throughout the corridor. Improvements are most likely to include smaller scale interventions such as placemaking enhancements, improved wayfinding, enhancements to the waiting environment and/or improved accessibility, including lifts and step-free access. The intervention may also include the construction of new interchange facilities.

Improvements to the public transport network coverage are also proposed through the use of flexible services, such as Demand Responsive Transport (DRT) or Community Transport (CT), supported by Mobility as a Service (MaaS) or smart technology where appropriate, at a corridor level.

This package aims to improve road safety through the provision of targeted safety improvements to address both real and perceived safety concerns on the A96 Trunk Road. It is envisaged that this would be achieved through the provision of improved overtaking opportunities, junction improvements and improvements to the alignment of the carriageway at targeted locations along the route.

Development of the A96 Electric Corridor is also included within this package to encourage a shift away from internal combustion engine (ICE) vehicles. This intervention would seek to improve the provision of alternative refuelling infrastructure and facilities within the A96 transport corridor and its interfacing local roads, including those in Lhanbryde, Mosstodloch, Fochabers, Huntly, Kintore and Blackburn.

1.2 Relevance

Relevant to the A96 Corridor

The multi-modal interventions included within this package mean different aspects are relevant to different travel users. The interventions included within this package would be most relevant to those who reside and travel within the settlements along the A96 corridor that are not included within Package 1, namely Lhanbryde, Mosstodloch, Fochabers, Huntly, Kintore and Blackburn; however, there are elements of this package such as improvements on the Aberdeen to Inverness rail line, Investment in DRT and MaaS, Bus Priority Measures, improvements to public transport passenger interchange facilities and the A96 Electric Corridor that are corridor-wide which would result in benefits outwith the settlements mentioned above.

The package aims to reduce the reliance on private car through the provision of interventions to encourage a mode shift to sustainable transport. These types of interventions are directly relevant to the Scottish Government's environmental targets and would be anticipated to support the [Scottish Government's target of reducing the number of kilometres travelled by car by 20% by 2030](#)ⁱⁱⁱ as well as the commitment to [achieve net zero by 2045](#)^{iv}.

Furthermore, accompanying the mode shift achieved, the provision of alternative fuelling stations throughout the A96 corridor, including in the settlements considered within this package specifically, would also contribute towards the emissions targets. With the phasing out of new petrol and diesel cars and vans by 2030 set out in the Scottish Government's [Climate Change Plan](#)^v and [all sales of Heavy Goods Vehicles \(HGVs\) in the UK to be zero emission by 2040](#)^{vi}, this intervention would contribute to the rapid decarbonisation of the transportation sector required to help meet these targets.

Interventions within this package also align with the [National Transport Strategy 2 \(NTS2\)](#)^{vii}, in particular with the key priority of Takes Climate Action, which sets out the ambition to both help support delivery of net zero targets and promote greener and cleaner travel choices. Interventions are also relevant to other NTS2 priorities in terms of reducing inequalities by improving access to jobs, services and leisure; improving health and wellbeing by delivering more pleasant places to live and encouraging healthy travel choices; and helping deliver inclusive economic growth by assisting people and good movement; and improving reliability and efficiency of the transport network.

Better active travel provision creates particular opportunities for people vulnerable to social exclusion such as disabled, young and older people, and those without access to a car. Active Communities interventions in this package are relevant to key settlements along the A96, though the specific make-up of this intervention in each settlement would be dependent on local needs and aspirations.

This package is also directly relevant to [Scotland's Road Safety Framework to 2030](#)^{viii}. The framework sets out the vision for Scotland to have the best road safety performance in the world by 2030 and the long-term goal of Vision Zero where there are zero fatalities and serious injuries on Scotland's roads by 2050 with ambitious interim targets for the number of people killed or seriously injured to be halved by 2030. The framework is aligned with NTS2 and embeds the Safe System approach to road safety delivery, which consists of five key pillars focusing efforts not only on road traffic casualty reduction (vulnerability of the casualties) but also on road traffic danger reduction (sources of the danger).

1.3 Estimated Cost

£501m – £1,000m Capital

Costs for each individual element of the package are dependent on the location, scale and complexity of providing infrastructure or services. The anticipated costs of the individual interventions within this package place the estimated capital cost of this package as a whole between £501m and £1,000m (not discounted), with the percentage contribution of each intervention shown graphically in **Figure 1.3**. The percentages are based on the mid-point of the cost range of each intervention.

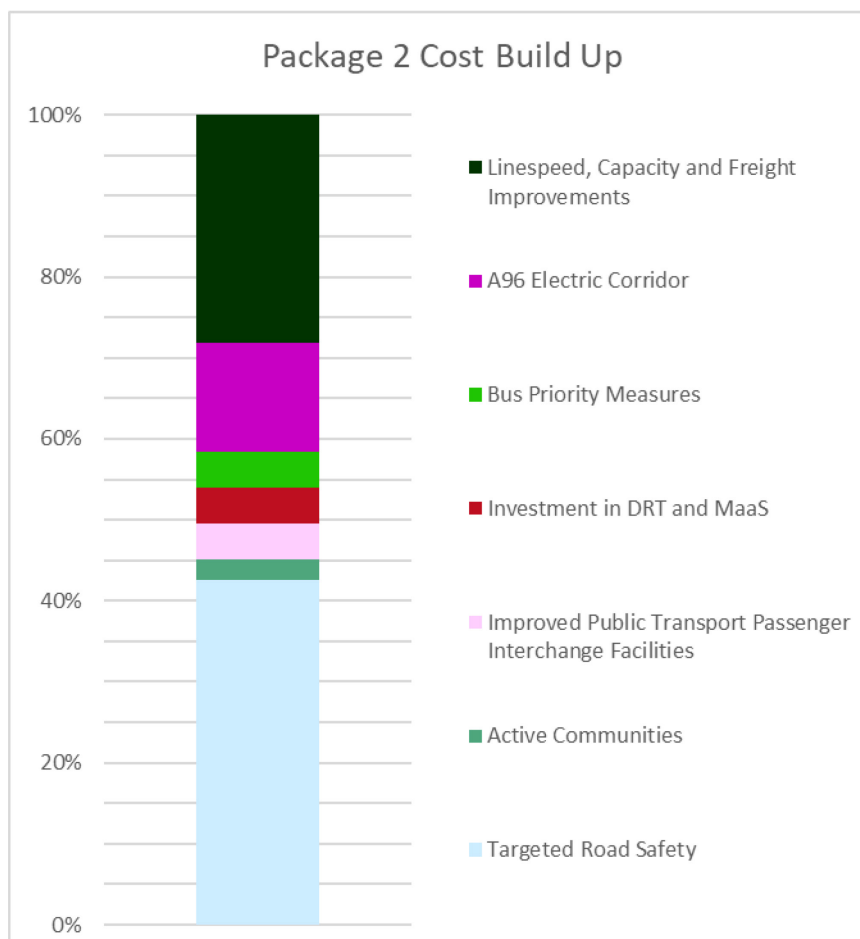


Figure 1.3 Percentage Contribution of Each Intervention to the Overall Cost

Transport Scotland is identified to be the responsible asset owner for any intervention introduced on the trunk road network, whereas local authorities would be responsible for assets on local roads. Private and social enterprises and Regional Transport Partnerships may also be asset owners, particularly for the A96 Electric Corridor and public transport interventions. It is anticipated that the asset owners would take on the operation and maintenance associated with any intervention, which would have ongoing costs, though third parties or a collaborative approach between asset owners may also be utilised.

1.4 Position in Sustainable Hierarchies

Sustainable Investment Hierarchy / Sustainable Travel Hierarchy

Given the variety of different interventions included within this package, it sits across multiple levels within the Sustainable Investment Hierarchy, but is mostly aimed at reducing the need to travel unsustainably. The various interventions included within Package 2 would also sit across all tiers of the Sustainable Travel Hierarchy.

This package would contribute to all 12 of the 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
- Adapt to the effects of climate change
- Promote greener, cleaner choices
- Get people and goods where they need to get to
- Be reliable, efficient and high quality
- Use beneficial innovation
- Be safe and secure for all
- Enable us to make healthy travel choices
- Help make our communities great places to live.

1.5 Summary Rationale

Summary of Appraisal

	TPO					STAG					SIA		
	1	2	3	4	5	Env	CC	HS W	Eco	EqA	EqIA	CR W	FSD
'With Policy' Scenario	+	+	+	+	++	-	-	+	+	+	+	+	+
'Without Policy' Scenario	+	+	+	+	++	-	-	+	+	+	+	+	+

This package makes a positive contribution to all A96 Corridor Review Transport Planning Objectives (TPOs) and Statutory Impact Assessment (SIA) criteria. However, the package has both positive contributions and negative impacts to the STAG criteria, with negative impacts specifically when considering the Environmental and Climate Change criteria. The following paragraphs provide additional detail on the scoring of Package 2.

The package is anticipated to have a minor positive impact on the A96 Corridor Review TPOs in relation to contributing to Scottish Government’s net zero targets (TPO1), improving inclusion through the accessibility of public transport (TPO2), enhancing communities as places to support health, wellbeing and the environment (TPO3) and contributing to sustainable inclusive growth (TPO4). Furthermore, the inclusion of targeted road safety interventions in particular would provide a moderate positive contribution for TPO5 regarding the provision of a safe, reliable and resilient transport system. The package is also anticipated to have a minor positive impact on the STAG Criteria in relation to Health, Safety and Wellbeing, Economy, and Equality and Accessibility. Of the SIAs scored as part of the A96 Corridor Review, the package is anticipated to have a minor positive impact on the Equality Impact Assessment (EqIA), the Child Rights and Wellbeing Impact Assessment (CRWIA) and the Fairer Scotland Duty Assessment (FSDA).

This package is anticipated to encourage more sustainable travel choices through enhanced active travel networks within communities, promote public transport use through bus and rail, and facilitate the growth in electric vehicles (EVs) and hydrogen vehicles through increased public charging and refuelling infrastructure. However, there is likely to be a negative impact

on environmental considerations such as biodiversity, landscape and visual amenity and agriculture and soils as a result of the infrastructure improvements required, resulting in a negative impact on the STAG Environmental criterion. In addition, the anticipated increase in greenhouse gas (GHG) emissions from construction is unlikely to be fully offset by reductions from mode shift to sustainable modes during future operation, leading to a minor negative impact for the STAG Climate Change criterion.

As the package predominantly focuses on smaller settlements along the A96 with lower local populations, the scale of benefits achieved is not anticipated to be as significant as it would be if implemented on a wider scale. Benefits are likely to be felt most by those living and working within the six settlements considered in the package, with some corridor-wide benefits through interventions such as rail improvements to linespeed and capacity. The overall impact on the problems and opportunities identified in the [A96 Corridor Review Case for Change](#)ⁱⁱ is therefore anticipated to be limited.

The majority of interventions included within this package are considered to be readily feasible and would likely be delivered by Transport Scotland or Network Rail, who have extensive experience of delivery and implementation across the country, with local authorities or Regional Transport Partnerships likely to deliver interventions on the local road network. However, the feasibility of delivery at specific locations considered within this package remains to be tested, and detailed development work and local decision making is required to identify the most appropriate solutions.

The capital cost of this package is estimated to be between £501m and £1,000m at this stage of the assessment process. The relatively high-level nature of a number of the interventions within the package makes capital costs and the operation and maintenance costs more difficult to estimate. Therefore, at this stage an appropriate level of risk has been included in the overall affordability of the package. Strategic partnerships between relevant parties and asset owners can help spread the burden of costs, particularly for ongoing maintenance and operation.

Overall, public acceptability is anticipated to be mixed, with some groups supporting the package and others disagreeing with the interventions included. There are certain user groups who are likely to welcome this package, given the focus on active and sustainable modes of travel. A focus on smaller communities would likely reflect well locally instead of further commitments to larger towns and cities. However, there may be some disapproval from larger, more populated towns and areas that do not receive as much infrastructure or investment. Real and perceived safety concerns are evident along the corridor, with improving road safety being the second most popular priority and suggestion theme identified in the A96 Corridor Review public consultation survey, therefore the inclusion of targeted road safety improvements is anticipated to be particularly welcomed. Any landowners who have land acquired to enable interventions to be developed may not be receptive to the proposals.

2. Context

2.1 Problems and Opportunities

This package could help to address the following problem and opportunity themes. Further detail on the identified problems and opportunities is provided in the published [A96 Corridor Review Case for Change](#)ⁱⁱ.

Relevant Problem and Opportunity Themes Identified in the A96 Corridor Review Case for Change

Safety and Resilience: The sections of the A96 through or next to the communities considered as part of this package have been highlighted to have a Personal Injury Accident (PIA) rate less than or equivalent to the national average for equivalent trunk A-roads. However, the Killed or Seriously Injured (KSI) accident rate is higher than the national average for the sections between Fochabers and Keith, Keith and East of Huntly and Kintore and Craibstone.

The A96 Trunk Road is affected by closures and delays due to accidents, maintenance and weather events. Recommended diversion routes can be lengthy throughout the corridor, up to approximately 65km depending on where the closure occurs. The economic impact of closures can be significant for HGVs and the movement of goods.

The rail network also demonstrates a certain level of unreliability. Services at key destinations such as Aberdeen, Inverness and Inverurie all had a Public Performance Measure (PPM) percentage pre-COVID worse than equivalent stations and the Scotrail defined target for this period. This is likely to contribute to the relatively low levels of rail mode share.

Socio-Economic and Location of Services: Employment and other key services tend to be found in the three most populous and key economic locations within the study area: Aberdeen, Inverness and Elgin. Considering the travel distances between these three key economic centres and the other settlements in the transport appraisal study area, travelling by sustainable modes is relatively unattractive.

The key economic centres contain essential facilities such as major hospitals as well as a much greater density of education facilities. In addition, almost half of the total jobs in the transport appraisal study area are found within these three locations. Outside of these three areas, people making a trip to a workplace are more likely to travel over 10km, therefore limiting the potential for active travel.

Public Transport Accessibility: Evidence across the transport appraisal study area suggests that outside of Aberdeen, the level of public transport use is low in comparison to the rest of the country. Outside of Aberdeen City, the use of bus for commuting to work is significantly lower than the national average, as it is for rail, with only Inch having a mode share above national average. The Scottish Accessibility to Bus Indicator (SABI) demonstrates that across the transport appraisal study area, the accessibility to bus is low outside of the urban areas of Aberdeen and parts of Inverness.

Rail station accessibility is also an issue, as raised by stakeholders and the public, with Nairn, Huntly, Inch and Inverurie stations specifically noted for not having completely step-free access to all platforms, potentially limiting patronage.

Large sections of the population in the transport appraisal study area cannot access key services such as emergency department hospitals or higher education within two hours by public transport. Moray and Aberdeenshire both have low accessibility to these services which are often centralised in more urban areas such as Inverness, Elgin or Aberdeen. As such, public transport is not an option for many trip purposes within the transport appraisal study area.

Competitiveness of Public Transport with Other Modes: Bus journey times are not competitive with train and car for longer distance trips across the transport appraisal study area. The cost of rail and some longer distance bus trips is high in relation to car fuel costs (as at March 2022). Public consultation has also revealed that the perception of delay and a lack of multi-modal integration combined with the perceived high cost of fares, particularly for rail, makes public transport across the transport appraisal study area unattractive to users.

Travel Choice and Behaviour (Problem): The number of homes without access to a private vehicle in the transport appraisal study area is consistently lower than the Scottish average. Aberdeenshire has a high level of access to a private vehicle, with approximately 90% of households located in the transport appraisal study area having access to at least one vehicle and over half have access to multiple vehicles. There is a greater availability of car in the rural areas across the transport appraisal study area and in towns such as Kintore and Blackburn. This combined with the travel to work mode shares, indicates a reliance on private vehicles for travel.

Health and Environment: Transport is a major contributor to CO₂ emissions along the corridor, particularly in the Aberdeenshire and Highland Council areas. Transport contributes over 35% of the total GHG emissions in both Aberdeenshire and Highland Council areas and between 25% and 30% in Aberdeen City and Moray. This is potentially an outcome of high dependence on cars for travel, long travel distances and the levels of road-based freight movements.

The route of the A96 puts some of the population, including those in the settlements considered in this package, in close proximity to potential noise pollution and pollutants from transport emissions that affect local air quality.

Sustainable Economic Growth: There is an opportunity to support and enhance sustainable economic growth across the transport appraisal study area. The key industries in the region, including food and drink production and agriculture, forestry and fishing have a high proportion of goods movement, as evidenced through the relatively high proportion of HGVs on the A96. A shift to more sustainable transport modes could improve journey time reliability, resulting in economic and environmental benefits, with trials being undertaken in recent years to increase the proportion of rail freight movements. Alternatively fuelled vehicles would also reduce transport emissions and the contribution to air quality issues from the road-based movement of goods.

The transport appraisal study area has shown growth in tourism spend in recent years with the rise of whisky tourism and the Speyside Whisky Trail being a major component of the economy in this sector. There are opportunities to change the way in which visitors travel to, from and around the region through improvements to the public transport network and active travel infrastructure. Walking and cycling tourism is one such opportunity and has the potential to create further economic growth by attracting new visitors to the region.

Improving Safety: There is an opportunity to reduce the number and severity of accidents on the A96 Trunk Road. There are a number of sections of the road where the KSI accident rates are high when compared to the national average for equivalent urban or rural trunk A-roads, including those which pass through the settlements considered as part of this package. Improving safety for roads users would contribute to meeting the targets set out in Scotland's Road Safety Framework to 2030 to achieve the 50% reduction in people killed or seriously injured (60% reduction for children). Reducing the level of car-based kilometres travelled would also contribute to a reduction in accident numbers.

Health and Environment Impacts of Travel: Reducing the use of car travel throughout the transport appraisal study area, particularly for short trips that could be undertaken by active modes, would help reduce the transport contribution to GHG emissions, an important requirement of the Scottish Government's net zero target. Fewer vehicle kilometres travelled would also improve the local air quality, with associated health benefits in communities along the A96.

The transition to EVs is underway and progressing rapidly but could be enhanced along the A96 by increasing the quantity, and improving the quality and reliability, of charging infrastructure. EVs would reduce road user GHG emissions and improve local air quality through the lower tailpipe emissions. Alternatively fuelled vehicles for freight and buses would also reduce GHG emissions, along with the electrification of rail.

Travel Choice and Behaviour (Opportunity): Travel choices throughout the transport appraisal study area would be increased through better integration of modes and the provision of more demand responsive interventions. Physical accessibility and interchange opportunities at rail stations could also be improved to reduce the reliance on cars. Increasing digital connectivity and technology advancements can result in opportunities to help integrate public transport and provide better information systems to improve the quality of journeys and enhance the travel experience.

Active travel will continue to play a key role in the transition to sustainable and zero carbon travel by reducing the reliance on private vehicles. In more remote areas and smaller towns such as those generally considered in this package, there is the potential to increase active travel with connections by safe walking and cycling infrastructure.

2.2 Interdependencies

This package would complement many other areas of Scottish Government activity. Of particular note are:

- [Access for All](#)^{ix} (a UK Government scheme, with details also provided by [Network Rail](#)^x)
- [Active Travel Framework \(2020\)](#)^{xi}
- [Bus Partnership Fund](#)^{xii}
- [City Region Deals](#)^{xiii}
- [Climate Change \(Emissions Reduction Targets\) \(Scotland\) Act 2019](#)^{xiv}
- [Climate Change Plan 2018-32 Update](#)^{xv}
- [Cycling Framework for Active Travel - A plan for everyday cycling \(2023\)](#)^{xvi}
- [Infrastructure Investment Plan 2021/22 – 2025/26 \(IIP\)](#)^{xvii}
- [MaaS Investment Fund](#)^{xviii}
- [Mission Zero for Transport](#)^{xix}
- [National Planning Framework 4 \(NPF4\)](#)^{xx}
- [National Transport Strategy 2 \(NTS2\)](#)^{xxi}
- [National Walking Strategy \(2014\)](#)^{xxii}
- [Rail Enhancements and Capital Investment Strategy](#)^{xxiii}
- [Rail Services Decarbonisation Action Plan](#)^{xxiv}
- [Regional Growth Deals](#)^{xxv}
- [Scotland's Accessible Travel Framework – Annual Delivery Plan 2021-22](#)^{xxvi}
- [Scotland's National Strategy for Economic Transformation](#)^{xxvii}
- [Scotland's Rail Freight Strategy](#)^{xxviii}
- [Scotland's Road Safety Framework to 2030](#)^{viii}
- [Strategic Road Safety Plan \(2016\)](#)^{xxix}
- [Strategic Transport Projects Review 2 \(STPR2\)](#)^{xxx}.

3. Appraisal

3.1 Appraisal Overview

This section provides an assessment of Package 2 against:

- A96 Corridor Review TPOs
- STAG criteria
- Deliverability criteria
- Statutory Impact Assessment criteria.

The seven-point assessment scale has been used to indicate the impact of the package when considered under the 'With Policy' and 'Without Policy' Travel Behaviour scenarios (which are described in Appendix A of the Transport Appraisal Report).

3.2 Transport Planning Objectives

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

Sub-objectives:

Reduce transport related emissions through a shift to more sustainable modes of transport.

Increase the active travel mode share for shorter everyday journeys.

'With Policy' Scenario	'Without Policy' Scenario
+	+

Aspects of this package are focused on providing or improving sustainable travel provision with the aim of promoting a mode shift to sustainable modes. Car ownership in each of the six settlements considered in this package is higher than the national average (69%), and particularly high in the settlements of Kintore (91%) and Blackburn (94%). Encouraging a mode shift and reducing the reliance on private car could contribute to both the [Scottish Government's net zero emission target, as well as the target of reducing the number of kilometres travelled by car by 20% by 2030^{xxxii}](#), albeit mainly within the settlements considered as part of this package. Air quality modelling has shown that this package is estimated to reduce road user greenhouse gas (GHG) emissions by approximately 1,200 tonnes CO₂e (tCO₂e) and 12,200 tCO₂e in the 'With Policy' and 'Without Policy' scenarios respectively over the 60-year appraisal period.

Data presented in the [A96 Corridor Review Case for Change](#) suggests that active travel is a popular mode of travel for journeys under 2km throughout the A96 corridor and therefore an opportunity exists to increase the amount of walking, wheeling and cycling in the settlements included in this package. [Research carried out in the London borough of Waltham Forest](#) showed that interventions to reallocate road space from general traffic and create low traffic neighbourhoods resulted in a 56% reduction in motor traffic on average^{xxxii}. Evidence also suggests that the interventions that could be introduced as part of this package would

positively encourage people to switch to a more active mode of travel for everyday journeys, with [research finding that individuals were 24% more likely to have used their bike in the previous week following implementation of interventions](#)^{xxxiii}.

The package is anticipated to increase the proportions of journeys undertaken by active modes within the settlements included. Assuming all the active travel interventions are fully implemented in the settlements within this package, the anticipated increase in mode share of walking and cycling proportions are shown in Table 3.1. If this mode share was realised, it would be anticipated that road-based travel could reduce, positively contributing to net zero targets.

Table 3.1: Walking and Cycling Mode Share

Settlements	Walking Without Package	Walking With Package	Cycling Without Package	Cycling With Package
Lhanbryde, Mosstodloch and Fochabers (Moray)	12%	13%	3%	14%
Huntly, Kintore and Blackburn (Aberdeenshire)	21%	28%	1%	13%

Note that separate methods have been used in the calculation of the potential walking and cycling mode share. The baseline and forecast percentages for walking were developed using Census data zone level information to apply a percentage mode share uplift to each settlement or area. The baseline data for cycling was developed as a single percentage for each local authority, and the forecast data was developed using an adapted Propensity to Cycle Tool which applies a percentage mode share uplift to each local authority's baseline.

There is further potential to encourage a mode shift from car to public transport resulting from the bus priority measures; however, this is anticipated to be minor due to the likely limited scale of measures implemented within settlements throughout the A96 corridor and the frequency of services. The inclusion of DRT and MaaS, combined with improved public transport interchange facilities may have a more significant impact on modal shift. In addition, improved rail journey times are also anticipated to impact on mode share for longer distance trips towards key economic hubs such as Inverness and Aberdeen and have a greater impact corridor-wide than bus priority in the aforementioned settlements in this package.

Furthermore, the introduction of DRT and MaaS is anticipated to improve connectivity in locations that do not currently have access to public transport, or where service frequency is low. This is likely to increase the attractiveness of public transport as a more flexible service is

introduced. A survey of those who participated in the [NaviGoGo MaaS trial in Dundee](#) indicated that 50% of respondents agreed or strongly agreed that NaviGoGo made public transport more attractive^{xxxiv}.

For rail passenger services, a reduction in end-to-end journey time between Aberdeen and Inverness is supportive of this TPO by providing enhanced opportunities to travel by rail, encouraging mode shift and therefore contributing to the target for a 20% reduction in car kilometres by 2030. The rolling stock replacement in this intervention is also likely to assist in the rail decarbonisation strategy, providing further benefits in support of this objective.

It is recognised that there would be a reliance on private car for certain journey types within the study area, and this package encourages a transfer from ICE vehicles to EVs and hydrogen fuelled vehicles through the provision of alternative refuelling infrastructure and facilities along the A96 corridor and its interfacing local roads. Providing alternative and greener fuel sources (that is, electric charging or hydrogen refuelling facilities) to replace fossil fuels would provide the means for low and zero emission vehicles to charge and support the decarbonisation of the transport sector and facilitate further the uptake of these cleaner and greener vehicles, helping to contribute to net zero targets.

Whilst there is the potential for this package to induce a mode shift to active travel and public transport and reduce vehicle GHG emissions, the impact is expected to be mainly experienced locally within the settlements included. The wider impact at a corridor level is anticipated to be limited due to the relatively small area this package covers, and the level of population within the settlements, with traffic modelling suggesting that this package would result in a very minor reduction (less than 1%) in vehicle kilometres at a corridor level in both the 'With Policy' and 'Without Policy' scenarios.

Through reducing the overall frequency of road traffic collisions and therefore the associated disruption, there may be slight benefits to road user GHG emissions through a reduction in stationary traffic or a reduction in the frequency of lengthy diversions. Implementing improvements to improve safety could also enhance the operation of the network. Given the level of traffic on the majority of the corridor, congestion is not identified within the [A96 Corridor Review Case for Change](#)^{xxxv} as a prevalent issue across the majority of the corridor outside of a few isolated junctions within settlements, but is anticipated to change moving forward and is likely to be experienced more intensely and for longer periods under the 'Without Policy' Scenario where traffic volumes are likely to be greater, compared to the 'With Policy' Scenario where car vehicle kilometres are anticipated to reduce. Traffic modelling indicates time lost due to congestion is anticipated to reduce for general traffic with the package in place by less than 1% in both the 'With Policy' and 'Without Policy' scenarios compared to a 'without package' scenario, in 2045, and as previously noted vehicle kilometres would reduce by less than 1% in both the 'With Policy' and 'Without Policy' scenarios. This could result in minimal localised benefits to road user GHG emissions where congestion occurs as traffic may be slightly more free flowing.

As the geographic scope for this package is relatively small, direct impacts are anticipated to be predominantly realised in the settlements considered. The difference between the 'With Policy' and 'Without Policy' scenarios is also therefore anticipated to be negligible.

Overall, it is expected that this package would have a **minor positive** impact on this objective under both the 'With Policy' and 'Without Policy' scenarios. This reflects the potential for local trips within the communities considered as part of this package to be made via active travel, along with the provision of alternative refuelling opportunities, an improved rail service for both passengers and freight that contribute towards the positive impacts of reducing transport based GHG emissions.

2. An inclusive strategic transport corridor that improves the accessibility of public transport in rural areas for access to healthcare, employment and education.

Sub-objectives:

Increase public transport mode share by improving connections between sustainable modes of transport.

Reduce the reliance on private car for access to healthcare, employment and education.

Improve mobility and inclusion, recognising the specific needs of disadvantaged and vulnerable users.

'With Policy' Scenario	'Without Policy' Scenario
+	+

An inclusive transport corridor should consider the interconnection between modes of transport, especially those between active travel and public transport, so as to not disadvantage travellers who do not have access to a car. [Car availability is generally high in the settlements considered within this package. However, approximately 20% to 30% of households do not have access to a car in some settlements, including Lhanbryde \(21%\), Fochabers \(20%\) and Huntly \(29%\)ⁱⁱ.](#)

This package supports health and wellbeing through the provision of active travel infrastructure within settlements, encouraging trips to be made by walking, wheeling and cycling. [Keeping physically active can improve both physical^{xxxvi} and mental health and wellbeing^{xxxvii}.](#) The health benefits of increased uptake in active travel with improved activity levels would be expected to reduce future demand on healthcare facilities. Maintaining physical activity has been proven to reduce the risk of heart and circulatory disease by as much as 35% and risk of early death by as much as 30%. It has also been shown to [greatly reduce the chances of asthma, diabetes, high blood pressure and cancer^{xxxviii}.](#) Furthermore, [adults who cycle regularly can have the fitness levels of someone up to 10 years younger^{xxxix}](#) and [people living in walkable, mixed-use neighbourhoods have higher levels of social capital](#), i.e. the extent and nature of our connections with others and the collective attitudes and behaviours between people that support a well-functioning, close-knit society, which positively supports wellbeing^{xl}.

The provision of active travel interventions within the settlements contained within this package would enhance inclusiveness by improving sustainable travel connections to local shops and healthcare, employment and education facilities. This would reduce transport poverty for disadvantaged and vulnerable users and improve mobility and inclusion. These

interventions could also enable a greater number of people to access public transport nodes (for example bus stops and rail stations), making routes safer and more convenient. It would be anticipated that this element of the package would result in an increase in multi-modal journeys within the settlements considered.

Providing reliable and efficient public transport services to the settlements considered in this package can be a challenge due their general rural nature and sometimes low population, which can limit demand. NaPTAT indicates that for Aberdeenshire and Moray in particular, there are significant proportions of the population with no or limited access to key services such as emergency department hospitals, GP surgeries or higher education sites by public transport. This indicates a large proportion of people who may reside in the settlements included within this package have no real alternative to private car for accessing key services, especially over longer distances.

Modelling undertaken using NaPTAT indicates that this package would improve the access to key destinations using public transport in the study area. The largest change in population accessibility would be to emergency department hospitals, where it is anticipated that an additional 12,200 people in the study area would be able to access the nearest emergency department hospital within a 30 minute public transport journey time. This represents a 2.7 percentage point increase in population accessibility from approximately 49% in the 'without package' assessment to approximately 52% in the 'with package' assessment. These improvements are reflected in the public transport journey time reduction to the three major settlements (Inverness, Aberdeen and Elgin) where emergency department hospitals are located in the study area.

Improvements for public transport access to emergency department hospital sites as a result of the interventions in Package 1 would be found predominately in Aberdeenshire, as shown by the map in Figure A.1 in Annex A. NaPTAT Maps. Notable locations where improvements are anticipated include:

- Inverurie, where an additional 2,700 people would be able to access an emergency department hospital within a 30 minute public transport journey time; with a further increase of 4,400 additional people within a 45 minute public transport journey time.

Many settlements demonstrate public transport journey time improvements to Aberdeen and Inverness, as shown by the maps in Figure A.2 and Figure A.3 in Annex A. NaPTAT Maps. It is anticipated that many of the public transport accessibility benefits resulting from the package would be attributed to rail linespeed improvements, combined with improved public transport interchange facilities. The improvements would be reflected in journey time reductions to the cities at either end of the A96 corridor, for example:

- Inch and Huntly are anticipated to benefit from a public transport travel time reduction of between five and seven minutes, respectively, to Aberdeen.
- An additional 9,600 people would be able to travel to Aberdeen from Elgin within two hours by public transport compared to the 'without package' assessment, with rail improvements in isolation contributing to approximately 40%-50% of this benefit.

- Some areas of Elgin and Forres would see a reduction in public transport journey time to Inverness by up to five minutes.

Population accessibility benefits would also be anticipated for journeys by public transport to higher education sites. An additional 8,200 people would be able to access the nearest higher education site within a 60 minute by public transport journey time, as shown by the map in Figure A.4 in Annex A. NaPTAT Maps. This represents a 1.8 percentage point increase in accessibility levels from approximately 78% in the 'without package' assessment to approximately 80% with the package in place.

The bus priority measures included within this package are unlikely to have a direct impact on service frequency and coverage or have an impact on fares, a key issue for disadvantaged users or people living in poverty. The interventions for bus priority in this package specifically would be small scale and likely not sufficient enough to facilitate frequency improvements for operators. These interventions are therefore not anticipated to have any significant impact on issues relating to the affordability and accessibility of public transport services, which are linked to wider issues related to the provision, frequency and integration of public transport in the area.

Improvements to linespeed and capacity on the Aberdeen to Inverness rail line would reduce journey times, providing enhanced accessibility to key services such as healthcare, employment and education throughout the corridor. This part of the package provides benefits to those with access to the rail network, including those without access to a car, providing a more inclusive transport system.

Improvements to interchange facilities would be expected to provide benefits to vulnerable users as accessibility at stations would be enhanced, providing increased transport choice for these users. DRT and MaaS solutions would also increase the travel choices for all, but particularly for those with reduced mobility or additional mobility needs, increasing accessibility to employment, education, healthcare and leisure activities. The benefits in accessibility would also impact passengers from more deprived households, who are less likely to own a car and are more reliant on travel by public transport, as well as those living in rural areas who are less likely to reside close to a public transport route. However, if DRT schemes delivered through the package are dependent on MaaS, this could exclude certain groups without access to the technology or bank accounts, for example, children and older people, and as such, these groups would need to be considered in the design of the DRT schemes to ensure that they benefit.

Overall, it is expected that this package would have a **minor positive** impact on this objective under both the 'With Policy' and 'Without Policy' scenarios.

3. A coherent strategic transport corridor that enhances communities as places, supporting health, wellbeing and the environment.

Sub-objectives:

Reduce demand for unsustainable travel by enhancing placemaking within settlements along the A96.

Increase active travel mode share for both shorter and longer distance journeys.

Reduce real and perceived severance caused by the strategic transport network both between and within communities.

Protect or enhance the natural environment and heritage.

'With Policy' Scenario	'Without Policy' Scenario
+	+

This package supports health and wellbeing through the provision of active travel infrastructure and with associated placemaking interventions within the settlements included, encouraging shorter trips to be made by walking, wheeling and cycling. [Keeping physically active can improve both physical^{xli} and mental health and wellbeing^{xlii}](#). The health benefits of increased uptake in active travel with improved activity levels would be expected to reduce the need to access healthcare facilities. Maintaining physical activity can reduce the risk of heart and circulatory disease by as much as 35% and risk of early death by as much as 30%. Increased physical activity has also been shown to [greatly reduce the chances of asthma, diabetes, high blood pressure and cancer^{xliii}](#). Furthermore, [adults who cycle regularly can have the fitness levels of someone up to 10 years younger^{xliv}](#). There are also benefits from a mental health perspective as [evidence suggests people living in walkable, mixed-use neighbourhoods have higher levels of social capital](#), i.e. the extent and nature of our connections with others and the collective attitudes and behaviours between people that support a well-functioning, close-knit society, [which positively supports wellbeing^{xlv}](#).

Improved public realm also allows people to gather and socialise, with Public Health Scotland [linking the quality of public spaces to people's perceptions of the attractiveness of an area, contributing towards their quality of life^{xlvi}](#). The inclusion of active travel infrastructure is also anticipated to reduce real and perceived severance within these communities. Furthermore, delivering high quality active travel routes could also directly improve access to local health and wellbeing infrastructure as a result of improved active travel provision.

The package is anticipated to increase the proportion of journeys undertaken by active modes within the settlements included. Assuming all the active travel interventions are fully implemented in the settlements within this package, the anticipated increase in mode share of walking and cycling are shown in Table 3.2. If this mode share was realised, it would be anticipated that road-based travel could reduce, positively contributing to net zero targets.

Table 3.2: Walking and Cycling Mode Share

Settlements	Walking Without Package	Walking With Package	Cycling Without Package	Cycling With Package
Lhanbryde, Mosstodloch and Fochabers (Moray)	12%	13%	3%	14%
Huntly, Kintore and Blackburn (Aberdeenshire)	21%	28%	1%	13%

(For further information on the calculation of the mode share baseline and forecasts, please refer to the text below Table 3.1)

The health benefits associated with the above increased rates of active travel have been quantified using the World Health Organisation’s (WHO) Health Economic Assessment Tool (HEAT). HEAT estimates the health and economic impacts of increased walking and cycling, providing assessments of the impacts on premature mortality and on exposure to air pollution. Outputs from the tool show that the interventions considered as part of this package could reduce premature deaths by 0.60 a year, which equates to a benefit of up to (+) £10m-£15m over a 20-year appraisal period. The forecasts that these values are based on assume that all active travel interventions are fully implemented to a high standard, and are well maintained on an ongoing basis, in all settlements covered by this package.

The inclusion of DRT and MaaS would also improve these connections across the corridor, providing benefits to all transport users, but particularly vulnerable users. As DRT services do not follow a fixed route, the services provide flexibility, allowing wider coverage and therefore potentially providing an alternative mode of transport when accessing healthcare services. Combining DRT with improved public transport interchange locations and rail enhancements to improve journey times would increase the proportion of population specifically for the settlements in this package who can access these services.

As this package is focused on specific settlements that are generally small in terms of area and population, there is limited scope to increase the proportion of long distance active travel journeys. Improvements are focused within settlements along the A96, rather than between them. There may be some slight benefits in improved routes to longer distance active travel connections, joining together routes and creating a connected network for example, but in general there would be a minimal impact.

The linespeed and capacity improvements on the Aberdeen to Inverness rail line are likely to reduce the number of medium to long distance trips on the trunk road network as they would

be expected to encourage mode shift away from car. Freight capacity enhancements are also anticipated to reduce the number of HGVs travelling on the route. Both of these elements could reduce severance, enhancing the sense of place within communities along the corridor, due to improved local air quality and ambience as a result of fewer vehicle movements. This in turn would make communities more attractive for walking, wheeling and cycling, encouraging a mode shift to active modes for shorter, everyday trips, which would enhance health and wellbeing and benefit the environment by reducing GHG emissions related to road-based transport.

The provision of alternative refuelling infrastructure along the corridor would be expected to induce a shift away from ICE vehicles. This shift would improve air quality along the A96 corridor, particularly within settlements where more people reside in close proximity to the existing route. Where air quality is improved, it is likely to subsequently improve health outcomes, thus reducing the travel demand for healthcare facilities.

Infrastructure improvements on the A96 within the vicinity of these settlements are likely to be within the existing carriageway boundaries, limiting impacts on the natural environment. There is the potential for targeted road safety improvements and the creation of large-scale public alternative refuelling facilities to require land take and result in a net loss of green space. Active travel interventions would look to create more pleasant and visually attractive town centres that would likely introduce more local greenspaces and promote a healthier local air quality. Any reduction in vehicle travel could also improve the local air quality and reduce road user GHG emissions. However, benefits are likely to be localised as vehicle kilometre reductions are estimated to be very minor across the wider corridor in both the 'With Policy' and 'Without Policy' scenarios.

Implementation of targeted road safety improvements would reduce the number and severity of accidents as a result of the types of improvements considered in this package, resulting in health benefits to individuals through the provision of safer environment to travel.

Overall, it is expected that this package would have a **minor positive** impact on this objective under both the 'With Policy' and 'Without Policy' scenarios.

4. An integrated strategic transport system that contributes towards sustainable inclusive growth throughout the corridor and beyond.

Sub-objectives:

Increase sustainable access to labour markets and key centres for employment, education and training.

Increase the mode share of freight by sustainable modes.

Increase competitiveness of key sectors by improving journey time reliability for commercial transport.

'With Policy' Scenario	'Without Policy' Scenario
+	+

The A96 plays an important strategic role in the regional economy of the north-east of Scotland, connecting people to employment and education opportunities as well as providing businesses with access to the labour market. Traffic modelling suggests this package would reduce the time lost due to congestion and delay experienced by general traffic across the whole corridor by less than 1% compared to the 'without package' scenario in both the 'With Policy' and 'Without Policy' scenarios, in 2045. Though minor in relation to the whole corridor, reducing the impact of congestion may induce confidence in the reliability of the trunk road network and encourage inclusive growth in the region.

Industries such as food and drink production and agriculture, forestry and fishing are prominent in the area and rely on the A96 for the movement of goods to maintain business productivity. Traffic modelling undertaken indicates that this package is anticipated to reduce delay to business vehicles by less than 1% compared to the 'without package' scenario in both the 'With Policy' and 'Without Policy' scenarios, in 2045, with time lost to congestion reducing by less than 1% in both scenarios as well, suggesting minor improvements for the reliability of commercial traffic on the A96 Trunk Road, which can be critical for those industries that transport perishable goods, such as food and drink that equates to over £100m of goods annually^{xlvii}.

The improvement to rail linespeed, provision of bus priority infrastructure and improved passenger interchange facilities elements of this package are likely to have a positive impact on this objective. Public transport improvements would aim to reduce journey times and improve passenger experience through enhanced facilities. These interventions are anticipated to subsequently improve the sustainable access to labour markets and key centres of employment, education and training, particularly for those from more deprived households and those who are less likely to own a car. The Scottish Index of Multiple Deprivation (SIMD) across the A96 corridor indicates that although deprivation tends to be relatively low, there are varying degrees of deprivation within the cities at either end of the A96 corridor and in most of the towns along the route. Further information on the deprivation profile of the corridor is presented in the [A96 Corridor Review Case for Change](#)ⁱⁱ.

Modelling undertaken using NaPTAT indicates that this package would improve public transport journey time access to existing jobs located in the study area, particularly within Aberdeenshire, as shown in the map in Figure A.5 in Annex A. NaPTAT Maps.

Residents living within Aberdeenshire would see a benefit in the number of existing jobs (located within Aberdeen, Inverness and Elgin) they can access within a 60 minute public transport journey time. In summary:

- On average, up to an approximate 14,000 additional existing jobs located in Aberdeen City would be accessible within a 60 minute public transport journey time from Inverurie, an increase of just under 10% compared to the 'without package' assessment. It is anticipated that many of these journey time benefits would likely be linked to the rail linespeed intervention which are further enhanced when combined with public transport interchange improvements.
- On average, an additional 8% (just over 13,000) of existing jobs located in Aberdeen City would be accessible within a 60 minute public transport journey time from Insch.

In terms of public transport journey times to existing jobs within Inverness, residents living within some areas of Nairn and Forres would see a reduction of up to five minutes.

Many of the potential public transport journey time benefits for rural settlements such as Inch would be linked to rail interventions by either reducing the travel time to the destination directly or through an onward connection with a local bus service to the destination. Interchange and bus priority interventions would be expected to provide and contribute to journey time improvements in the case of multi-modal journeys. It would also provide a benefit where bus directly serves an employment centre.

The use of DRT and MaaS could improve the efficiency of service provision relative to fixed route timetables if these services can be replaced by a flexible service that is better targeted at demand, both by location and time. Provision of new flexible services could also improve network coverage, including within the settlements considered in this package, which could increase the level of real and perceived integration between services and modes, making it easier for people to travel where they wish to go whilst increasing sustainable access to labour markets and key centres of employment, education and training. When asked “what would make you use public transport more” in the [Stakeholder and Public Consultation Report for the A96 Corridor Review](#)^{xlvi}, 20% of respondents answered with “better interlinking bus routes between communities”. Also, the [NaviGoGo trial in Dundee](#) found that 29% of participants said the system had made them travel without a car^{xlix}, indicating the potential of MaaS and DRT in restricting car use across the corridor and promoting more sustainable choices.

Resilience is a problem on the road and rail network that costs businesses time and money. Between 2016 and 2021, the trunk road maintenance company’s Management of Incidents Database suggests that a section of the A96 was closed on average 24 times each year, and a total of 143 times in this six-year period^l, with closures due to incidents such as accidents and maintenance work. Recommended diversions for all traffic due to incidents on the A96 can be lengthy, up to 65km for accidents at Huntly, and expensive to businesses due to additional time and fuel costs. Reducing accidents and generally improving road safety in and around the settlements would therefore improve journey time reliability for commercial transport by reducing the amount of time spent in delays or on diversion routes.

Problems on the rail network are generally related to delays due to rolling stock, staffing or line issues. Provision of passing loops on the rail line would improve the resilience and reliability of the rail network, possibly encouraging a mode shift from road to rail for both passengers and freight. Benefits are more likely to be realised for longer distance movements, where rail freight is both more competitive and advantageous. Overall, the rail enhancements in this package would be anticipated to both support and enhance economic growth.

Additional alternative refuelling infrastructure for electric and/or hydrogen vehicles would increase confidence in making trips across the region and through the towns in this package by alternatively fuelled vehicles. Encouraging the uptake of alternatively fuelled vehicles for both users of private vehicles and freight haulage would increase the mode share of freight by sustainable means and provide more sustainable access to employment opportunities.

Reallocating road space and prioritising active modes can have economic benefits and provide better spaces for people to live, work and shop locally. [Case studies show typical increases in footfall in retail areas of up to 20-30% result^{li} from such schemes](#). Regeneration of the public realm in the settlements in this package could [boost commercial trade, increase local retail sales, raise rental rates and property values and provide opportunity for cost-saving cycle freight^{lii}](#).

The package does little to directly improve road freight journey times and reliability. However, improvements to the rail network could encourage a transfer of freight from road to rail across the wider context of the A96 corridor, which could not only result in an increased mode share by sustainable modes, but also improved journey time reliability for commercial transport accessing key markets.

Overall, it is expected that this package would have a **minor positive** impact on this objective under both the 'With Policy' and 'Without Policy' scenarios.

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

Sub-objectives:

Reduce the accident rates and severity of transport related casualties in line with reduction targets.

Improve resilience to disruption (from climate change events and maintenance activities) through adaptation of the corridor's trunk road and rail infrastructure.

'With Policy' Scenario	'Without Policy' Scenario
++	++

Generally, [the PIA rate on the A96 is lower than the national average for equivalent trunk A-roads; however, there are sections on the route where the KSI rate is higher^{liii}](#). There are also perceived safety concerns on the route, such as the lack of safe overtaking opportunities, which can result in driver frustration and poor driving behaviours. Hardmuir to Forres, Fochabers to Keith, Keith to East of Huntly and Kintore to Craibstone are identified as sections of the A96 with a KSI rate slightly higher than the national average. Sections of the A96 through Forres and Keith have also been identified as having a PIA and KSI rate higher than the national average. At a corridor level, between 2015 and 2019 there were 175 recorded accidents on the A96 between Hardmuir and Craibstone, of which over 40% involved a KSI casualty.

Targeted road safety improvements could be implemented at identified accident hotspot locations throughout the corridor, as well as others where there is a perceived safety risk, to reduce accident frequency and severity in line with national reduction targets. There may also be accident benefits associated with mode shift that may occur as a result of active and sustainable travel interventions that are implemented within the settlements if a reduction in overall vehicle kilometres is achieved. However, modelling indicates the impact across the wider corridor of this package is very minor in terms of reducing overall vehicle kilometres.

Evaluations of road schemes following the Scottish Trunk Road Infrastructure Project Evaluation (STRIPE) framework provide an illustration of the potential benefits, as illustrated by the Three-Year After opening project evaluations for the following schemes:

- [A9 Bankfoot junction improvement](#) involving the removal of right-turn movement across the main A9(T) carriageway to/from the B867 and Bankfoot village through improvement to the existing A9/B867 and realignment of a minor road to provide a left in/left out junction on the A9 resulted in an 80% reduction in accidents^{liv}.
- [A9 Ballinluig grade-separation](#) resulted in over a 90% reduction in accidents^{lv}.
- [A9 Helmsdale widening scheme](#) (including the provision of climbing lanes) resulted in a 60% reduction in accidents^{lvi}.
- [A76 Glenairlie overtaking scheme](#) resulted in a reduction in accidents of 75%^{lvii}.

A combination of a spreadsheet-based process compliant with the DfT COBALT software and the software itself has been used to identify the predicted accident impacts of this package. The spreadsheet-based analysis was used to determine accident benefits derived from a change in vehicle kilometres, whilst the COBALT software has been used to calculate accidents benefits associated with the targeted road safety improvements for the link-based options within this package, using default accident rates.

The accident analysis indicates that the number of accidents reduces on the corridor following the introduction of this package, with a safety benefit of (+) £10m-£15m in the 'With Policy' Scenario and (+) £15m-£20m in the 'Without Policy' Scenario, with most of the benefits associated with the introduction of targeted road safety improvements. The analysis also indicates that across the 60-year appraisal period, this package is anticipated to save a total of over 350 casualties in the 'With Policy' Scenario and almost 500 in the 'Without Policy' Scenario over the 'without package' scenario, including approximately 50 and 70 KSI casualties respectively. Similarly, over the 60-year appraisal period the package could save approximately 250 PIAs in the 'With Policy' Scenario and over 300 PIAs in the 'Without Policy' Scenario. It should be noted that an assessment on the junction related accidents has not been undertaken at this stage due to the level of uncertainty over the types of options that would be implemented.

Reducing the number and severity of accidents could also improve the reliability and resilience of the road network. Fewer and less severe accidents reduce the risk of road closures and the need for diversions, which can be extremely lengthy in this area. A closure to the A96 Trunk Road at Huntly for example, which occurred a total of nine times between 2016 and 2021, results in a 65km recommended diversion route. Any reduction in the number of closures is therefore not only a direct benefit for safety, but also important for the reliability of the network and ensuring people and goods can get to where they need to be on time. Reliability for alternatively fuelled vehicles would also be improved through the development of the A96 Electric Corridor, ensuring fuelling points for these vehicles are readily available along the A96 Trunk Road.

Improved pedestrian and cycling infrastructure together with other interventions such as placemaking can significantly reduce road casualties. In 2018, 86% of cycling casualties and

95% of pedestrian casualties in Scotland occurred on built-up roads with a speed limit of 40mph or less. [Accident survival rates are between about three^{lviii} and five^{lix} times higher when a pedestrian is hit by a car driving at 20mph, compared to 30mph. The introduction of a Low Traffic Neighbourhood \(LTN\) in the London borough of Waltham Forest \[led to a three-fold decline in the number of injuries in the area and estimated that walking, cycling and driving all became approximately three to four times safer per trip^{lx}\]\(#\). The introduction of this package could encourage mode shift to active travel, reducing car use, which is likely to reduce the number of accidents.](#)

The introduction of the public transport elements, including both rail and bus, as part of this package could encourage a mode shift to public transport, and there may be a minor positive impact on accidents as a result of reduced car use. Furthermore, reducing the number of HGVs travelling along the A96 corridor as a result of a shift to rail-based freight would also reduce the potential for platoons, and consequently driver frustration, which could also reduce the number of accidents on the route, further improving reliability. Reducing the number of accidents on the route would also reduce the likelihood of lengthy diversion routes, providing confidence in the trunk road network for both general and commercial traffic and ensuring people and goods can get to where they need to be on time.

The improvements to the rail linespeed, passenger and freight capacity between Aberdeen and Inverness considers three distinct improvements to the route. This includes the provision of additional passing loops which would serve to increase the reliability and resilience of the rail infrastructure to mitigate the impacts of trains running not-to-time and other incidents (for example weather-related incidents and maintenance), thus helping to create a network that passengers can rely on. The provision of a modern decarbonised rolling stock on the line is also likely to increase the reliability of services in terms of unit availability. Should the improvements lead to an increase in service frequency, this too would provide a positive impact on resilience by limiting the time delay impact on travel of individual service cancellation.

The infrastructure implemented as part of this package would be designed to be resilient to impacts arising from current and future weather events and climatic conditions, and designed in accordance with current planning, design, engineering practice, and codes. A number of mitigation and adaptation measures would be considered at later design development stages to address potential risks. Significant infrastructure would be required for rail linespeed and capacity improvements but the amount of infrastructure that is constructed on the trunk road is limited to where targeted safety improvements are identified.

Overall, it is expected that this package would have a **moderate positive** impact on this objective under both the 'With Policy' and 'Without Policy' scenarios.

3.3 STAG Criteria

1. Environment

'With Policy' Scenario	'Without Policy' Scenario
-	-

This package aims to promote a shift to sustainable modes of travel, which could see a reduction in road traffic, with positive effects in terms of noise and vibration within and around settlements. There may be a reduction in noise (from both engines and tyre interaction) and vibration from reduced vehicle use in the short-term. There could also be a further reduction in engine noise should electric vehicles come to prominence, assisted by the development of the A96 Electric Corridor intervention included as part of this package.

[Scotland's Noise Map](#)^{lxi} illustrates that vehicle noise from the A96 Trunk Road is a significant contributor of noise within settlements and along the A96 Trunk Road generally. The modal shift to sustainable modes of transport and away from the private car should result in an overall betterment in terms of noise and vibration through reduction of vehicles on the A96 and within settlements. However, this package has the potential to have negative effects in terms of noise and vibration through the increase of freight on the railway and as a result of capacity improvements. The significance of the effect would depend on the location of such facilities. The construction of interventions included in this package and associated traffic is also likely to lead to minor negative effects on noise and vibration during the construction phase. Overall, in the operational phase, the modal shift to rail freight, sustainable modes of transport and away from the private car should result in positive effects in terms of noise and vibration through the reduction of vehicles on the A96.

This package has the potential to have positive effects on air quality. The inclusion of infrastructure interventions in the settlements to promote walking, cycling and public transport use, would help reduce reliance on private vehicles throughout the network, resulting in an overall decrease in vehicles to the betterment of air quality within the settlements considered. There would also be a reduction in HGV traffic through a modal shift in freight to the rail network. In addition, the promotion of vehicles with lower or no tailpipe GHG emissions through the inclusion of alternative refuelling infrastructure and facilities should help to reduce vehicle GHG emissions and thereby reduce overall air pollution.

Following the introduction of the package, total emissions of nitrogen oxides (NOx) and particulate matter (PM) are predicted to decrease, under both the 'With Policy' and 'Without Policy' scenarios over the 60-year appraisal period. This is due to a decrease in traffic flows and emissions as a result of the potential interventions, which are anticipated to reduce congestion as users are encouraged to transfer to more sustainable modes and reduced emissions from low emission vehicles which would benefit from new alternative refuelling infrastructure along the A96 Trunk Road. The package is predicted to decrease NOx by one tonne and PM of 2.5 microns or less (PM_{2.5}) emissions by two tonnes in the 'With Policy' Scenario; and NOx by eight tonnes and PM_{2.5} emissions by three tonnes in the 'Without Policy' Scenario, over the 60-year appraisal period.

The physical works associated with implementing the package, including new active travel, road safety, electric vehicle and public transport infrastructure, have the potential to have an overall minor to moderate negative effect on the physical environment (i.e. the water environment, biodiversity and habitats, landscape, the historic environment, geology and soils, and agriculture and forestry) during construction and operation. Such impacts could either be direct, such as demolition/land loss/habitat loss, or indirect such as impacts on setting or views and would depend on the siting of the interventions. Mitigation could be incorporated where appropriate, such as landscaping and tree planting to reduce impacts on the landscape or biodiversity. Impacts during construction are likely to be short-term and temporary and could be mitigated.

Raw materials required for construction have the potential to cause a negative effect on natural resources and at least a moderate negative effect on greenhouse gas emissions, due to the scale of construction required.

The A96 corridor and its surroundings, contain various local, regional, national, and international designated sites which would need to be considered.

The designated sites within the wider area include for example Special Areas of Conservation (SAC), Special Protection Areas (SPAs) and Sites of Special Scientific Interest (SSSI). There are also large swathes of Long-Established Woodland (of plantation origin), pockets of Ancient Woodland (of semi-natural origin) and areas with Tree Preservation Orders.

The following designated sites are noted in the overall A96 corridor study area:

- 43 SSSIs
- 8 SPAs
- 7 SAC
- 4 Ramsar sites
- 17 Gardens and Designed Landscapes
- 20 Conservation Areas
- 4 Inventory of Historic Battlefields Sites
- 236 Scheduled Monuments
- 2 Royal Society for the Protection of Birds Reserves.

Of these sites, the following designations are noted in and around the other settlements:

Lhanbryde

- 1 SSSI
- 1 Garden and Designed Landscape.

Mosstodloch/Fochabers

- 3 SSSIs
- 1 SPA
- 2 SAC
- 1 Ramsar site
- 1 Conservation Area
- 1 Garden and Designed Landscape.

Huntly

- 1 Conservation Area
- 2 Scheduled Monuments.

Kintore/Blackburn

- None.

In addition, interventions along the current A96 route have the potential to affect the following designations:

- 3 Inventory of Historic Battlefields
- 7 Gardens and Designed Landscapes
- 2 Ramsar sites
- 7 Scheduled Monuments
- 12 SSSIs
- 3 SAC
- 4 SPAs.

Whether there would be any impacts on these designations is not known at this stage. Moreover, the scale of the effects would be dependent on the design and location of the works and further environmental assessment would be undertaken as the designs progress. The statutory environmental bodies in Scotland would be consulted about the need and scope of future environmental assessment.

This package supports a modal shift to more sustainable transport modes including bus, rail, walking, wheeling and cycling. The increased opportunities to travel by these modes would be beneficial and create opportunities for communities to access key services, employment opportunities and healthcare. In addition, the network improvements could reduce disruption and congestion and increase safety and accessibility.

The new active travel infrastructure would provide connections within settlements, promoting walking, wheeling and cycling which could result in a positive impact on human health through improved physical fitness.

Overall, while this package is likely to have some positive environmental effects, the likely negative effects from some of the physical works, particularly improvements to the rail network and targeted road safety improvements, would result in the package having a **minor negative** impact on the Environment criterion under both the 'With Policy' and 'Without Policy' scenarios. This is a cumulative effect, that considers the range (minor, moderate and major) of negative effects predicted for various environmental topics. However, the extent of impact would depend on the extent of potential localised negative environmental effects from any new interventions implemented to deliver this package. If environmental constraints, such as designated sites, can be avoided or mitigated, then adverse environmental impacts may be reduced.

2. Climate Change

'With Policy' Scenario	'Without Policy' Scenario
-	-

The existing A96 Trunk Road is considered vulnerable to the effects of climate change, particularly in areas with a high risk of flooding or locations where current or future ground stability issues are known or anticipated.

The enhancements in the transport infrastructure to encourage sustainable transport modes in the area have the potential to partially mitigate road user GHG emissions over time in conjunction with a switch to electric vehicles.

Whilst there is potential to reduce transport based GHG emissions, current key long-term climate change trends for Scotland suggest that average temperatures will increase across all seasons; typically summers will be warmer and drier, and winters will be milder and wetter. These are likely to have an impact on this package of interventions. [Heavy rainfall events are anticipated to become more frequent in the coming decades, exacerbating flooding and landslide incidents](#)^{lxii}. These events have the potential to flood railway lines, or wash sections away, leading to significant disruption on the rail network and a resultant knock-on impact on other transport modes and routes.

Paved surfaces created as part of the active travel infrastructure, road safety improvements and potential bus priority measures included in this package might incur surface damage or be impacted by surface water flooding during periods of heavy rainfall. There is also an increased risk of thermal expansion and movement of paved surfaces due to increased summer temperatures. Higher summer temperatures might also lead to overheating and damage of electrical equipment developed as part of the 'Electric Corridor' intervention.

In order to account for the effects of climate change, the infrastructure would be designed to be resilient to impacts arising from current and future weather events and climatic conditions, in accordance with current planning, design, engineering practice, and codes. A number of mitigation and adaptation measures would be considered at later design development stages to address potential extreme weather events that would affect the region and other likely climate risks.

Based on the estimated cost range between £501m and £1,000m for this package, GHG emissions arising from the construction stage are estimated to be in the range of approximately 140,000 tonnes CO₂e (tCO₂e) to approximately 280,000 tCO₂e.

Traffic flows and road user GHG emissions along the A96 are predicted to decrease as a result of this package, due to an increase in sustainable travel mode share over the 60-year appraisal period, resulting in a net decrease in GHG emissions. The estimated decrease in road user GHG emissions over the appraisal period between the 'with package' and 'without package' scenarios is approximately 1,200 tCO₂e under the 'With Policy' Scenario and 12,200 tCO₂e under the 'Without Policy' Scenario. The Net Present Value of tCO₂e of the package,

calculated using the DfT GHG Workbook following the Transport Analysis Guidance (TAG) Unit A3 for the appraisal period, indicate an estimated net benefit under the 'With Policy' Scenario of approximately (+) <£0.5m and (+) £0.5m-£1m under the 'Without Policy' Scenario.

Overall, the potential climate change and GHG impacts of the package are considered to have a **minor negative** impact on the Climate Change criterion under both the 'With Policy' and 'Without Policy' scenarios. This is on the basis that although there is estimated to be a decrease in road user GHG emissions in the long-term, these could be outweighed by GHG emissions arising from the construction stage. Further assessment should take into consideration mitigation to reduce the GHG impact of construction activities.

3. Health, Safety and Wellbeing

'With Policy' Scenario	'Without Policy' Scenario
+	+

Generally, [the PIA rate on the A96 is lower than the national average](#)^{lxiii} for equivalent trunk A-Roads in Scotland; however, some rural sections do indicate a slightly higher than average rate of KSIs. Fochabers to Keith, Keith to East of Huntly and Kintore to Craibstone are identified as sections of the A96 with a KSI rate slightly higher than the national average. There are also perceived safety concerns on the route, such as the lack of safe overtaking opportunities, which can result in driver frustration and poor driving behaviours. Targeted safety improvements could be implemented at these locations, as well as others where there is a perceived safety risk, to reduce accident frequency and severity in line with national reduction targets. There may also be accident benefits associated with mode shift that may occur as a result of active and sustainable travel interventions that are implemented within the settlements considered within this package if a reduction in overall vehicle kilometres is achieved. A mode shift for freight to reduce the number of HGV trips would also contribute to this. Modelling indicates the impact across the wider corridor of this package is very minor in terms of reducing overall vehicle kilometres.

Evaluations of road schemes following the STRIPE framework provide an illustration of the potential benefits, as illustrated by the Three-Year After opening project evaluations for the following schemes:

- [A9 Bankfoot junction improvement](#) involving the removal of right-turn movement across the main A9(T) carriageway to/from the B867 and Bankfoot village through improvement to the existing A9/B867 and realignment of a minor road to provide a left in/left out junction on the A9 resulted in an 80% reduction in accidents^{lxiv}.
- [A9 Ballinluig grade-separation](#) resulted in over a 90% reduction in accidents^{lxv}.
- [A9 Helmsdale widening scheme](#) (including the provision of climbing lanes) resulted in a 60% reduction in accidents^{lxvi}.
- [A76 Glenairlie overtaking scheme](#) resulted in a reduction in accidents of 75%^{lxvii}.

A combination of a spreadsheet-based process compliant with the DfT COBALT software and the software itself has been used to identify the predicted accident impacts of the package. The spreadsheet-based analysis was used to determine accident benefits derived from a change in vehicle kilometres, whilst the COBALT software has been used to calculate accidents benefits associated with the targeted road safety improvements for the link-based options within this package, using default accident rates.

The accident analysis indicates that the number of accidents reduces on the corridor following the introduction of this package, with a safety benefit of (+) £10m-£15m in the 'With Policy' Scenario and (+) £15m-£20m in the 'Without Policy' Scenario over a 60-year appraisal period. The majority of the safety benefits come from the introduction of targeted road safety improvements. The analysis also indicates that over a 60-year appraisal period, this package is anticipated to save a total of over 350 casualties in the 'With Policy' Scenario and almost 500 in the 'Without Policy' Scenario over the 'without package' scenario, including approximately 50 and 70 KSI casualties respectively. Similarly, over the 60-year appraisal period the package could save approximately 250 PIAs in the 'With Policy' Scenario and over 300 PIAs in the 'Without Policy' Scenario. It should be noted that an assessment on the junction related accidents has not been undertaken at this stage due to the level of uncertainty over the types of options that would be implemented.

Improved pedestrian and cycling infrastructure together with other specific interventions such as speed reduction can significantly reduce road casualties. In 2018, 86% of cycling casualties and 95% of pedestrian casualties in Scotland occurred on built-up roads, with a speed limit of 40mph or less. [Accident survival rates are between about three^{lxviii} and five^{lxix} times higher](#) when a pedestrian is hit by a car driving at 20mph, compared to 30mph. [Previous studies](#) also suggests that segregated cycle lanes can lead to a lower risk of cyclist injury, reduced severity of accidents, as well as fewer accidents involving cyclists in general^{lxx}. Evidence obtained following the introduction of a Low Traffic Neighbourhood in a London suburb led to a [three-fold decline in the number of injuries in the area and estimated that walking, cycling and driving all became approximately three to four times safer per trip^{lxxi}](#).

The provision of interventions that encourage walking, wheeling and cycling within communities can lead to residents feeling more connected with their local community and improve public health through increased physical activity. Public realm improvements such as the provision of street lighting can also [prevent road traffic collisions and increase pedestrian activity through reduction in the fear of crime^{lxxii}](#), thus also slightly improving personal security through greater natural surveillance.

The health benefits of increased rates of active travel as a result of the package have been assessed using the WHO HEAT. HEAT estimates the health and economic impacts of increased walking and cycling, providing assessments of the health and economic impacts of walking and cycling on premature mortality and on exposure to air pollution. Outputs from the tool show that the interventions implemented as part of this package could reduce premature deaths by 0.60 a year, which equates to a benefit of approximately (+) £10m-£15m over a 20-year appraisal period. The forecasts that these values are based on assume that all active

travel interventions are fully implemented to a high standard, and are well maintained on an ongoing basis, in all settlements covered by this package.

Public transport interchange improvements and DRT/MaaS may also improve personal security and create a safer network for travellers, either directly through improved security facilities at interchanges, such as improved lighting and CCTV coverage or indirectly through better passenger assistance or minimising wait times. MaaS and DRT can also help those with mobility issues travel, thereby reducing social isolation by allowing trips to be made more easily. These interventions could also deliver better access to healthcare and wellbeing infrastructure, with additional safety benefits where people are currently travelling longer distances to bus stops using roads with poor pedestrian infrastructure.

The options within this package could result in a modal shift to sustainable transport including bus, rail, walking, wheeling and cycling. The increased opportunities to travel by these modes would be beneficial and create opportunities for communities to access key services such as healthcare.

Modelling undertaken using NaPTAT indicates this package would improve the public transport access to health and wellbeing infrastructure. The largest change in population accessibility of health and wellbeing infrastructure would be to emergency department hospitals. It is anticipated that an additional 12,200 people (2.7 percentage point increase) in the study area would be able to access their nearest emergency department hospital within a 30 minute public transport journey time with the package in place, compared to the 'without package' assessment.

Population accessibility improvements would be anticipated to be found predominately along the A96 corridor in Aberdeenshire, as shown in map in Figure A.1 in Annex A. NaPTAT Maps, including:

- Inverurie, where an additional 2,700 people to access the nearest emergency department hospital within a 30 minute public transport journey time, increasing by a further 4,400 people within 45 minutes.

These population accessibility improvements would also benefit groups who may be more reliant on public transport for accessing such healthcare services, such as:

- An additional 3,100 people aged 65 and over, and 2,500 people across all age groups with long term health problems or disability, whose day-to-day activities are limited, could access healthcare in a 30 minute public transport journey time.
- The population accessibility improvements along the A96 corridor would be found in Aberdeen City (approximately 5,900 people) as a result of interchange interventions which would improve the connection between services, as well as Aberdeenshire (approximately 3,900 people) and Moray (approximately 2,300 people), with a reduction in journey times in settlements such as Inverurie, Kintore and Elgin, which would likely be linked to bus related improvements.

Journey time reductions by public transport would be anticipated for many settlements. Huntly and Inch would be anticipated to have some of the highest journey time reductions to

the nearest emergency department hospital, with up to six minutes for both. This improvement would be reflected in the journey time reduction to the major settlements of Inverness, Aberdeen and Elgin where the emergency hospitals are located. Many settlements with access to railway stations and bus provision show public transport journey time reductions for journeys to Aberdeen and Inverness. This is shown by the maps in Figure A.2 and Figure A.3 in Annex A. NaPTAT Maps.

The active travel improvements within the settlements would have a positive environmental effect for the communities. These improvements would help create a sense of place and promote walking, wheeling and cycling to the betterment of the population. Enhanced placemaking, along with reducing demand for unsustainable travel for shorter everyday trips, would also offer improvements to visual amenity in communities where centres become more about a sense of place rather than a connection of roads for the purpose of movement. Improved routes and crossing facilities for walking, wheeling and cycling would also offer better access to existing local green space. Improved public realm allows for people to gather and socialise. Public Health Scotland [has linked the quality of public spaces to people's perceptions of attractiveness of an area, contributing towards their quality of life](#)^{lxxiii}.

The A96 corridor is identified to have a PIA rate lower than the national average; however, the KSI rate on some rural sections is higher than the national average. Through increasing the overall availability of alternative refuelling assets across the region and expanding coverage, the package should reduce the required distance to reach these assets and therefore the overall number of vehicle kilometres travelled. This could help contribute towards reducing the overall frequency of collisions and their associated causalities, though this is likely to be minimal.

There is potential for negative environmental effects on visual amenity during construction and operation of any new road infrastructure, including safety improvements and the development of new alternative fuelling stations. The rail improvements are also likely to impact on visual amenity where passing loops and freight yards are created. This would need to be assessed in more detail during the development of these aspects of the package.

This package is most likely to directly impact on the Health, Safety and Wellbeing criteria within the six settlements specifically considered within this package. There would be some benefits to the wider corridor through interventions such as rail improvements but generally the package is targeted at those within the aforementioned settlements. This would limit the potential impact of the package on benefits achieved through aspects such as mode shift and vehicle kilometre reduction as the population in the affected settlements is small in relation to the wider corridor.

Overall, it is expected that this package would have a **minor positive** impact on the Health, Safety and Wellbeing criterion under both the 'With Policy' and 'Without Policy' scenarios.

4. Economy

'With Policy' Scenario	'Without Policy' Scenario
+	+

The A96 Trunk Road plays an important strategic role in the regional economy of the north-east of Scotland, connecting people to employment and education opportunities as well as providing businesses with access to the labour market. Traffic modelling indicates that this package is anticipated to reduce time lost due to congestion and delay experienced by business vehicles across the whole corridor by less than 1% compared to the 'without package' scenario in both the 'With Policy' and 'Without Policy' scenarios, in 2045.

A high-level economic assessment has been undertaken using a number of tools including the DfT TUBA software (v1.9.17), the DfT GHG Workbook, DfT COBALT and WHO HEAT. The analysis indicates that the implementation of this package is likely to result in user benefits, with journey time savings for public transport users being the main source of benefits. Selected benefits are anticipated to be higher under the 'Without Policy' Scenario where traffic volumes are likely to be greater compared to the 'With Policy' Scenario. The journey time benefits for public transport are most likely to be achieved through the introduction of Linespeed, Passenger and Freight Capacity improvements on the Aberdeen to Inverness rail line.

Minor improvements in transport based GHG emissions are forecast as a result of particular interventions included in this package, which includes the Linespeed, Passenger and Freight Capacity improvements on the Aberdeen to Inverness rail line as well as Bus Priority Measures and Active Communities. These interventions would encourage mode shift from private car to more sustainable modes of transport (public transport and active travel) for both short and longer distance journeys, leading to a reduction in road user GHG emissions. There is also a minor reduction in vehicle kilometres of less than 1% in 2045 for both the 'With Policy' and 'Without Policy' scenarios as a result of the interventions modelled under the package, which would further contribute to the reduction of road user GHG emissions.

There are benefits that relate to the improvements in public transport travel time. The Linespeed, Passenger and Freight Capacity improvements on the Aberdeen to Inverness rail line is anticipated to reduce rail travel time, benefitting public transport users.

The core present value of benefits, which included the benefits associated with Transport Economic Efficiencies (TEE), changes in GHG and accident analysis, are forecast to be (+) £60m-£70m in both the 'With Policy' and 'Without Policy' scenarios. Public transport travel time improvements are the main contributor to the overall present value of benefits, worth over 80% of the total 'With Policy' Scenario benefits and just over 75% of the 'Without Policy' Scenario benefits. It should be noted that the monetised benefits are discounted to 2010 prices and values.

The health benefits of this package were measured using the WHO HEAT. Increased levels of physical activity within the settlements considered in this package as a result of the interventions included as part of Active Communities are forecast to reduce the economic impact of premature deaths by approximately (+) £10m-£15m over a 20-year appraisal period.

Additionally, Wider Economic Impacts (WEIs) have been calculated in line with STAG and consider non-transport markets that may be affected by the introduction or change in the

transport infrastructure. WEIs have been calculated to provide an estimation of the economic impact on three areas; agglomeration, labour supply and market power. The WEIs for this package are considered to be negligible due to the scale, location and likely population affected by the individual options within the package itself. Driver frustration benefits have also been calculated following introduction of additional overtaking opportunities that are included within this package as part of the targeted road safety improvements. This equates to a benefit of approximately (+) £30m-£40m under the 'With Policy' Scenario and (+) £40m-£50m under the 'Without Policy' Scenario.

This package would also provide reliability and resilience benefits to freight movements, as well as other road users, by reducing the impact of accidents on the network, helping to improve confidence in the trunk road network. Diversions can be lengthy, up to 65km for accidents on the A96 at Huntly, and expensive to businesses due to additional time and fuel costs. Reducing accidents and generally improving road safety in and around the settlements would improve the resilience and reliability of the road network, thus minimising the economic impact of disruption on the A96 Trunk Road. In 2015, a study estimated that the annual value of food and drink transported on the A96 Trunk Road was over £100m, and that freight values in general would be over £850m^{lxxiv}, highlighting the importance of the road for freight and the wider economy. The additional or extended passing loops on the rail line in this package would improve the resilience and reliability of the rail network as well, possibly encouraging a mode shift from road to rail for both passengers for access to key employment markets and freight.

There is published evidence supporting the realisation of benefits following improvements to public realm, with an increase in walking and cycling increasing footfall, supporting local and regional economies. Well-planned regeneration of the public realm alongside the enabling of active travel, using interventions of the types proposed in this package, [can typically boost local retail trade by up to 20-30%](#)^{lxxv}. Furthermore, [cycle parking can deliver five times the retail spend per square metre than the same area of car parking](#)^{lxxvi}, and over the period of a month, people who walk to local high streets spend up to 40% more than people who drive to the high street.

There could also be a beneficial economic impact through investment in bus priority and improved passenger interchange infrastructure, as well as DRT and MaaS, as improved connectivity could increase access to employment opportunities, education and other services. In locations where public transport network coverage is currently limited, the economic benefits could be significant if new flexible services are able to provide improved connectivity to key destinations.

The Aberdeen to Inverness rail line provides an important economic link between the two cities, within the corridor, and beyond through interchange with other rail services. As well as providing linkages for passenger services, the line is used by freight services. A reduction in end-to-end journey time is likely to have a positive impact on this criterion by reducing non-productive time and improving the linkage between economic activity in the two cities. It is also likely to assist in bolstering the local economies of settlements in the corridor that have railway stations by making them attractive places to live, work and visit, and would improve

access to both cities for opportunities for employment, education and access to other key services. Within the corridor, improvements to freight facilities to aid trans-shipment from road to rail is likely to have a positive economic impact. The additional or extended passing loops on the rail line in this package would improve the resilience and reliability of the rail network as well, possibly encouraging a mode shift from road to rail for both freight and passengers to access key employment markets.

The package could develop a more resilient transport network by accommodating the necessary charging infrastructure to enable vehicles, powered by alternative fuels, to operate seamlessly throughout the region. This in turn is likely, with the correct deployment of charging infrastructure points, to improve journey reliability. In addition, this would boost the consumer confidence in alternatively fuel vehicles helping to shift to vehicles which may have lower operating costs due to the reduced dependency on fossil fuels.

Overall, it is expected that this package would have a **minor positive** impact on the Economy criterion under both the 'With Policy' and 'Without Policy' scenarios.

5. Equality and Accessibility

'With Policy' Scenario	'Without Policy' Scenario
+	+

The interventions within this package are likely to induce a modal shift to sustainable transport including bus, rail, walking, wheeling and cycling. The increased opportunities to travel by these modes would be beneficial and create opportunities for communities to access key services, such as employment opportunities and healthcare facilities.

The active travel interventions within this package would improve the active travel network coverage within the communities that are captured by this package. These interventions should improve comparative access and transport inclusivity for commonly disadvantaged groups, providing social and community benefits particularly to young people, older people and people with disabilities, all of whom are more likely to be restricted from accessing services and facilities by traffic dominated environments and other local barriers. Improved safety measures would also reduce road and personal safety concerns for active travel users, including children and women. However, the reallocation of road space could also have potential adverse effects on certain groups, such as disabled people who rely on parking spaces close to essential services.

Encouraging modal shift from road freight to rail through investment in the line itself to improve speed and capacity may contribute to a reduction in harmful transport emissions and improve local air quality. This would benefit public health, particularly for vulnerable groups such as children, disabled people, older people and pregnant women.

Public transport improvements which form part of this package, such as bus priority measures, could result in improved public transport network coverage, providing better comparative access to locations with employment, education, healthcare and leisure activities.

The inclusion of DRT and MaaS would result in an improvement to the public transport network, which could lead to improved inclusivity through increased accessibility, particularly for vulnerable groups including those with reduced mobility, impaired vision or hearing and those who are neurodivergent. Increasing the quality of passenger interchange facilities would also improve the travel experience for those who do not have access to a car, particularly those from more deprived households. This, therefore, would have a positive impact on comparative access for affected groups and affected locations.

Modelling undertaken using NaPTAT suggests this package would improve the access to key destinations using public transport in the study area such as employment, health and education sites. The majority of benefits would be achieved from the inclusion of the rail improvements as part of the package. In summary, it is anticipated that public transport journey times to cities would reduce, with the benefits being experienced in those settlements with access to both rail stations and bus service provision.

NaPTAT indicates that the type of destination with the largest change in population, as a result of the package, would be emergency department hospitals. It is anticipated that an additional 12,200 people in the study area would be able to access the nearest site within a 30 minute public transport journey time compared to the 'without package' assessment. Included within this group are approximately 3,100 people aged 65 and over, and 2,500 people across all age groups with long term health problems or disability, whose day-to-day activities are limited and who may be reliant on public transport for accessing such health services.

Settlements would be anticipated to benefit from the public transport journey time reductions, including Inverurie, where a journey time reduction of seven minutes to the nearest emergency department hospital using public transport would be anticipated. This would benefit 2,800 people aged 65 and over, and 2,000 people across all age groups with long term health problems or disability, whose day-to-day activities are limited, who reside in the settlement.

Many of the anticipated improvements in the package would also be reflected in the public transport journey time reduction to the two cities and Elgin in the study area, as a result of the rail improvements within the package. This includes an additional 500 people aged 16-64 who reside in areas categorised as income deprived (20% most deprived in Scotland) in Elgin being able to access Aberdeen within two hours by public transport.

Residents living within Aberdeenshire would see a benefit in the number of existing jobs (located within Aberdeen, Inverness and Elgin) they can access within a 60 minute journey by public transport. Improvements would however be seen in geographically deprived areas, which are known to have relatively poor access to facilities and/or digital connectivity. In summary:

- The package would enable people aged 16 to 64 living in geographically deprived areas in Aberdeenshire to access on average an additional 2,700 existing jobs in Aberdeen City within a 60 minute public transport journey time.

Journey time benefits would also be anticipated for travel to other destinations in the study area using public transport, including higher education sites. The public transport journey

time improvements to higher education sites can be seen in the map in Figure A.4 in Annex A. NaPTAT Maps. In summary:

- 8,200 additional people aged 16 and over in the study area would be able to access their nearest higher education site a 60 minute public transport journey time. The impacted population includes 900 young people aged 16-24, and 1,200 people across all age groups with long term health problems or disability, whose day-to-day activities are limited.

The inclusion of DRT and MaaS and active travel interventions is likely to help transport become more affordable to more people, reducing transport poverty in the communities considered. Parts of Lhanbryde, Fochabers and Huntly all fall into the lower half of SIMD deciles, indicating a level of poverty and potentially low income. Similarly, for geographic access specifically, many of the datazones in the settlements in this package outside of Huntly demonstrate relatively greater levels of poverty. Therefore, transport poverty is likely felt across these settlements. This package can directly improve this through providing better local access to public transport services, particularly buses.

Reference should also be made to the SIAs in Section 3.5 for further evidence on equality and accessibility.

Overall, it is expected that this package would have a **minor positive** impact on the Equality and Accessibility criterion under both the 'With Policy' and 'Without Policy' scenarios.

3.4 Deliverability

1. Feasibility

Dependent on the nature and location(s) of interventions included within this package, the organisation responsible for delivery and the asset owner on completion is likely to include Transport Scotland, local authorities, Network Rail, Regional Transport Partnerships or private/social enterprises.

As the A96 is a trunk road, Transport Scotland would likely be the promotor and procuring body for any interventions that have an interface with the trunk road network. Interventions could be delivered on a project-by-project basis through the development of a route action plan or as part of a wider strategy. Improvements to interfacing local roads and/or adjacent to the trunk road network may be led by the respective local authorities.

The majority of interventions included within this package are considered readily feasible and would be delivered by Transport Scotland or Network Rail, who have extensive experience of delivery and implementation across the country, with local authorities or Regional Transport Partnerships potentially delivering interventions on the local road network. However, the feasibility of delivery at specific locations remains to be tested, and detailed development work and local decision-making is required to identify the most appropriate solutions. If technological advances are required to support any interventions, the availability of the appropriate technology would need to be considered, as would the extent to which it can be accessed.

The engineering constraints are anticipated to vary significantly from location to location along the A96 corridor. This would include various existing residential and business properties, roads, rivers and railways. Geotechnical constraints, potentially poor ground conditions and various other environmental and planning/land use constraints would also have to be considered at each location. More detailed assessment would be required at the next stages of design development to understand the extent of these impacts and to ascertain any appropriate mitigation to reduce potential negative effects.

It is noted that further investigation of the potential to raise the linespeed on the rail line between Inch and Keith would need to be undertaken.

Despite the constraints and challenges outlined above, the work undertaken to date indicates that this package is considered feasible.

2. Affordability

Overall, the estimated capital cost of this package is anticipated to be between £501 million and £1,000 million. The relatively high-level nature of a number of the interventions within the package makes capital costs and the operation and maintenance costs more difficult to estimate. Therefore, at this stage an appropriate level of risk has been included in the overall affordability of the package.

The cost to implement active travel improvements within communities for example is dependent on the nature and location of interventions and facilities. However, individually the costs are not anticipated to be excessive and would be made up of relatively small-scale improvements brought together over a period of time.

The costs associated with targeted road safety improvements would be primarily dependent upon the scale, complexity and location of any interventions. More significant interventions such as junction improvements and route realignments are likely to have a higher cost estimate than less-intrusive interventions such as the closure of access points off the A96 as well as any signage and lighting improvements.

Interventions associated with the development of the A96 Electric Corridor such as alternative refuelling infrastructure and facilities can have a wide ranging cost associated with them, ranging from being relatively modest to quite substantial, depending on their scale and size. Depending on the nature of the option, funding may be required for personnel to operate and maintain the sites although it is recognised that this cost could be reduced if the infrastructure is of a self-serve nature.

Provision of strategic bus priority measures generally involves relatively low-cost interventions across the A96 corridor. The Scottish Government has already committed to long-term investment in bus priority infrastructure. If this demonstrates value for money, funding could be extended, especially if there is evidence of bus priority investment being leveraged to support improvements from operators and local transport authorities.

Public transport interchange improvements may be relatively affordable and, in some cases, may attract part-funding from another organisation, such as Network Rail. There may also be

income generated through rental of commercial space to cafés and retail outlets if these are included in the enhancements.

Investment in DRT and MaaS may not be affordable if ongoing revenue support is required. However, capital funding provided through a new fund to support an innovative pilot study across the A96 corridor, and/or through new funding targeted at DRT, CT and MaaS, or at supporting growth in rural and peripheral communities may support interventions to improve the efficiency of service provision, reducing the need for ongoing revenue support.

Part of the wider rail line improvements included within this package is related to new rolling stock and this is already anticipated to occur due to both periodic replacement of older stock and the extant decarbonisation programme. Other costs are related to the infrastructure elements and are considered to be of a magnitude that is affordable in the context of rail system interventions.

Some aspects of the package are likely to create or increase revenue. Alternative fuelling stations and improvement of public transport interchange hubs are all opportunities to recuperate capital costs and cover operation and maintenance costs. It is still anticipated operation and maintenance would require revenue funding for multiple aspects of the package.

Strategic partnerships between relevant parties and asset owners can help spread the burden of costs, particularly for ongoing maintenance and operation. Involved parties may include Transport Scotland, Network Rail, local authorities, Regional Transport Partnerships, commercial bodies and private stakeholders.

The decision to fund capital infrastructure projects ultimately rests with Transport Scotland and the Scottish Government.

3. Public Acceptability

There are certain user groups who are likely to welcome this package, given the focus on active and sustainable modes. Those within the settlements considered within this package would see direct benefits to many aspects of local travel and are anticipated to welcome elements of this package.

Real and perceived safety concerns are evident on the corridor, and the inclusion of targeted road safety improvements is anticipated to be welcomed. The A96 Corridor Review public consultation survey indicated that 73% of respondents were either dissatisfied or very dissatisfied with road safety in general. Also, over half of respondents (58%) said they felt somewhat or very unsafe on the A96 and noted that dangerous overtaking (48%) and a lack of overtaking opportunities (35%) were the top road safety concerns. Improving road safety was the second most popular suggestion (30%) and priority (50%) of all user groups, suggesting a strong public support for an option to specifically target this issue.

Users of public transport within settlements throughout the A96 corridor would likely welcome the interventions to improve integration and overall accessibility to key destinations across the region. From the A96 Corridor Review public consultation survey 24% of all

respondents considered improving bus services (including bus connections, cost, and comfort of travel) as a priority, with some level of dissatisfaction prominent for journey times relevant to car/van (50%), accessibility to key services (38%) and frequency of services (37%). Almost half (46%) also said quicker journeys would make them use bus services more regularly.

Investment in rail generally is anticipated to have a high level of 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 (fewer delays and cancellations) and increase accessibility of key locations (for example, employment) by rail. This is backed up with evidence from the A96 Corridor Review public consultation survey, in which 30% of respondents considered improving rail services (including train connections, cost, and comfort of travel) as a priority. Furthermore, 14% of respondents suggested more capacity on trains. Around one third said an increased frequency (35%) and quicker journey times (32%) would make them use public transport more and 20% suggested general public transport improvements (including integration). Therefore, it is likely that the public transport improvements suggested in this package would have some public support. However, it is likely that those without access to the rail network, those in transport poverty or economically deprived may not universally accept this particular aspect and would prefer investment in the bus network instead. Public transport interchange improvements may go some way to benefit these users.

Active travel interventions are also likely to be seen as a positive within communities themselves, especially if routes are made safer. Responses from the A96 Corridor Review public consultation survey indicated that enhanced safety would encourage more people to walk and wheel (33%) and cycle (40%) more. Almost half of respondents also said they were either dissatisfied or very dissatisfied with the availability of cycling infrastructure (46%) and cycle routes (45%), suggesting Active Communities would be welcomed.

Vulnerable users, including the elderly, disabled and those in transport poverty in the settlements considered could all benefit from interventions, including investment in DRT and MaaS, and are therefore likely to welcome the package. Furthermore, alternative refuelling stations to encourage the take up of EVs and hydrogen vehicles would likely be well received by those who have access to or are considering purchasing these vehicles, environmental groups and a proportion of the public who are conscious about their environment and air quality. Although the A96 Corridor Review public consultation survey suggested that only 5% of respondents considered providing infrastructure for an electric highway was a priority and 6% suggested that infrastructure for electric highway should be implemented, it is highly likely that with future policy changes and a growing environmental agenda that this would become a bigger priority to a lot of car owners in the near future.

A focus on these smaller communities would likely reflect well locally, though there may be some opposition from other areas in the corridor if the perception is that the package does not appear to offer much benefit.

Overall, public acceptability is anticipated to be mixed, with some groups supporting the package and others disagreeing with the focus and scale of interventions included.

3.5 Statutory Impact Assessment Criteria

1. Strategic Environmental Assessment (SEA)

An SEA has been prepared and has provided inputs to the 'Environment' criterion of the STAG appraisal. There is also considerable overlap between the SEA and the Climate Change criterion. The SEA utilises a set of SEA objectives that covers a wide range of environmental topics including Climatic Factors, Air Quality, Noise, Population and Human Health, Material Assets, Water Environment, Biodiversity, Geology and Soils, Cultural Heritage, Landscape and Visual Amenity. The full SEA, including scoring and narrative for each of the Preliminary Appraisal interventions and Detailed Appraisal packages is presented in the [SEA Draft Environmental Report](#)^{lxvii}.

2. Equalities Impact Assessment (EqIA)

'With Policy' Scenario	'Without Policy' Scenario
+	+

Modelling undertaken using NaPTAT suggests that this package would improve the access to key destinations in the study area such as employment, health and education, especially for groups who may otherwise be socially excluded by limited transport options including children, young people, women, disabled people and older people. Public transport interventions such as step-free access at stations would improve transport choices for people who are currently excluded, and improved facilities may also benefit those with impaired vision or hearing and those who are neurodivergent.

While most accessibility benefits would be concentrated around settlements with rail stations and access to bus provision, journey time improvements would also be anticipated in areas where bus priority measures and public transport interchange improvements could be introduced. These interventions would improve connections between settlements without rail stations and limited bus provision to those that do have a station or greater bus provision, such as areas around Inverurie including Kemnay. This would increase the connectivity of public transport and reduce journey times across the corridor.

NaPTAT modelling indicates the type of destination with the largest change in population accessibility would be emergency department hospital sites, whereby it is anticipated that an additional 12,200 people would be able to access the nearest site in a 30 minute public transport journey time. This includes groups of people who may be more reliant on public transport to access health services, for example 3,100 people aged 65 and over, and 2,500 people across all age groups with a long-term health problem or disability whose day-to-day activities are limited.

Reduced journey times for travel to higher education sites using public transport would also be anticipated across the study area and would be anticipated to generate benefits for a wide range of protected characteristic groups. The package would enable an additional 8,200 people aged 16 and over to access their nearest higher education site within a 60 minute public transport journey time across the study area. This would include:

- 900 young people aged 16-24.

- 4,200 who are female.
- 200 from non-white ethnic groups.
- 1,200 people across all age groups with a long-term health problem or disability whose day-to-day activities are limited.

Further benefits would be anticipated for access to employment opportunities found in Aberdeen City for residents residing in geographically deprived areas (20% most deprived in the country). The package would enable on average an additional 2,700 existing jobs located in Aberdeen City to be reached within a 60 minute public transport journey time from geographically deprived areas in Aberdeenshire for those aged 16 and over.

Investment in DRT and MaaS in particular could provide benefits for protected characteristic groups due to more flexible public transport options helping improve connectivity to key services, including children, young people, women, disabled people and older people. There could also be a beneficial impact in terms of reduced barriers to travel for those with reduced mobility if improvements in public transport connectivity reduces walking distance in order to use a service. However, MaaS could exclude certain groups without access to relevant technology, bank accounts or the appropriate level of support to apply for entitlement schemes, and as such, these groups would need to be considered in the design of the schemes to ensure that they benefit.

Interventions that improve active travel provision, such as improved surfaces and crossing points would allow for infrastructure to be designed to incorporate adapted cycles and, as such, address mobility issues experienced by commonly disadvantaged groups, such as pregnant women, disabled people and older people. Targeted safety interventions would also reduce road and personal safety concerns for active travel users, including children. However, the reallocation of road space could also have potential adverse effects on certain groups, such as disabled people who rely on parking spaces close to essential services.

An uptake in active travel may additionally improve physical health and mental wellbeing outcomes and is also likely to lead to air quality improvements if the uptake is matched by a reduction in private vehicle use and traffic congestion. Air quality modelling forecasts show that as a result of reduced traffic flows and an attraction of traffic away from key communities, NO_x emissions are predicted to decrease over the 60-year appraisal period for both the 'With Policy' and 'Without Policy' scenarios. 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.

An increase in the use of alternative fuels by vehicles, which could be achieved through the development of the A96 Electric Corridor, could also improve local air quality. In turn, this could have positive effects on those groups who are more vulnerable to the adverse health effects of traffic related GHG emissions.

However, the extent to which groups with protected characteristics would benefit from the interventions would depend on the extent to which interventions included within this package can be adopted, as it is noted that this would depend on local circumstances within each key

community. In addition, the extent of benefit would depend on the location and routing of active and sustainable travel networks and facilities, their proximity to local services and the ability for people to access the network.

Construction activities associated with elements of this package that require new infrastructure, such as the rail linespeed, passenger and freight capacity enhancements and targeted road safety improvements, may result in negative impacts for local communities. The construction of this infrastructure may adversely impact on groups who are more vulnerable to noise, vibration, and air quality such as children, older people, disabled people, and pregnant women. More detailed assessment would be required to understand the extent of these impacts and the appropriate mitigation to reduce any negative effects and enhance benefits for protected characteristic groups. In general, air quality modelling has shown that construction is anticipated to produce between approximately 140,000 tonnes CO₂e (tCO₂e) and 280,000 tCO₂e.

The package focuses on six key settlements that have a small population in the context of the wider corridor. Though some interventions, such as rail improvements, would be delivered corridor-wide and benefit users on a wider scale, the predominant impacts would be felt locally. This limits the potential benefits on equality due to the relatively small number of people in relation to the wider A96 corridor that are anticipated to be directly impacted.

Overall, it is expected that this package would have a **minor positive** impact under both the 'With Policy' and 'Without Policy' scenarios on this criterion.

3. Child Rights and Wellbeing Impact Assessment (CRWIA)

'With Policy' Scenario	'Without Policy' Scenario
+	+

Modelling undertaken using NaPTAT indicates that this package would improve public transport connectivity to higher education in the study area, which could have particular beneficial impact on children and young people given that [16% of children travel to school by bus](#)^{lxxviii}. Furthermore, children and young people may be more likely to depend on buses for leisure travel, given that those under 17 are unable to drive.

NaPTAT modelling indicates that the package would improve the population accessibility to higher education sites in Aberdeenshire using public transport for young people across the A96 corridor. It is anticipated:

- An additional 900 young people aged 16-24 would be able to access their nearest site within a 60 minute public transport journey time.

These accessibility improvements would be linked to the rail linespeed improvements included within this package, reducing the travel time to the cities where higher education sites are largely located. Further benefits would be provided from the improved interchange facilities and bus priority measures within the package, which would improve the connection between services or reduce journey times associated with bus.

The largest journey time benefits to the nearest higher education site would be anticipated in rural settlements with access to rail stations, including:

- Inch, with a reduction of approximately eight minutes.
- Kintore, with parts of the town expected to have a public transport journey time benefit of approximately six minutes.

In rural areas, children and young people may experience longer walks to bus stops, infrequent services and long waiting times for connecting services. An increase in DRT and MaaS could help to improve connectivity for children and young people, improving access to key services such as education. Improved connectivity could also result in improved personal safety and security through more direct services between origins and destinations. This improved provision would supplement the benefit of free bus travel for those aged under 22 with all young people and children aged 5-21 years eligible to apply for a National Entitlement Card (NEC) entitling access to the Young Persons' (Under 22s) Free Bus Travel Scheme. However, some children may still be excluded without the appropriate level of support to apply for an NEC.

Air quality modelling forecasts that this package would result in improved air quality over the 60-year appraisal period as a result of mode shift, which should contribute towards a reduction in traffic volumes. This would be a particular benefit to children as they are more vulnerable to the adverse health effects of traffic related emissions and traffic noise. Reduced traffic levels could also help to address local severance issues, improve the active travel environment, reduce road safety concerns and improve access to education for children and young people. In addition, the habit-forming effect of embedding active travel at a younger age has the potential to have longer-term benefits in terms of moving to a more active population.

However, the extent to which this package would improve outcomes for children would depend on the extent that the interventions included within this package are adopted (especially in regard to the reallocation of road space and other safety interventions), the location of the interventions, and proximity to local services. The relatively small population of the settlements considered in this package is likely to limit the impact the potential outcomes for children in the context of the wider corridor.

Overall, it is expected that this package would have a **minor positive** impact under both the 'With Policy' and 'Without Policy' scenarios on this criterion.

4. Fairer Scotland Duty Assessment (FSDA)

'With Policy' Scenario	'Without Policy' Scenario
+	+

Modelling undertaken using NaPTAT indicates that this package would improve access to essential services and key destinations, including employment and education sites, for socio-economically disadvantaged groups across the region. There could be a large beneficial impact in tackling inequality, with improved public transport connectivity supporting reduced social isolation and improved health and wellbeing.

Given that 48% of the most deprived households (SIMD quintile 1) do not have access to a car and are [twice as likely to use the bus to travel to work as households in the least deprived three quintiles](#)^{lxxix}, the beneficial impacts associated with public transport connectivity are likely to be highest for those from the most deprived households. However, only 6.9% of SIMD datazones within the transport appraisal study area fall into the most deprived quintile. Nevertheless, the barriers created through not having access to a car are likely to be exacerbated in communities where public transport service levels are lower. As such, the positive impact of improved public transport for socially excluded groups in these areas is likely to be greater.

NaPTAT modelling indicates the largest journey time and accessibility benefits would be anticipated to key destinations and essential services in Aberdeenshire. These benefits would be largely linked to the rail interventions within the package and result in reduced public transport journey times between settlements along the rail line, particularly to Inverness and Aberdeen.

The package would reduce the public transport journey time to the nearest higher education site from Inverurie by between seven and 12 minutes, benefiting 1,400 people who reside in the town and within areas where the gross household income is within the 20% lowest in the study area.

Further benefits would be anticipated for access to employment opportunities found in Aberdeen City for residents residing in geographically deprived areas (20% most deprived in the country). The package would enable on average an additional 2,700 existing jobs located in Aberdeen City to be reached within a 60 minute public transport journey time from geographically deprived areas in Aberdeenshire aged 16 and over.

There is generally a heavier reliance on the use of the private car along the A96 corridor compared with the rest of the country. This is primarily due to the rural nature of the region, where there is greater dependency on the private car to access employment, education, healthcare and for social purposes. In the absence of viable alternatives to travel, some low-income households living along the A96 corridor may have no alternative to car ownership despite financial constraints. Therefore, there could be benefits for those groups with regards to the provision of alternative options to private vehicle use and ownership. However, this would depend on public transport fares being affordable. Moreover, if schemes delivered through the package are dependent on MaaS, it is likely to exclude certain groups without access to this technology, bank accounts or the appropriate level of support to apply for entitlement schemes, and as such this would need to be considered in the design of the schemes to ensure that they are able to benefit.

One of the alternative options expected to create benefits for socio-economically disadvantaged groups is an improved active travel environment. Including active travel interventions in conjunction with targeted road safety improvements, such as junction improvements, could aid the removal of barriers in communities through an improved sense of road safety and security for those walking, wheeling and cycling.

There is also the potential for a reduction in inequalities of health in disadvantaged and deprived communities through improved air quality at a local level. This is a result of an

uptake in active travel being accompanied by reduced congestion and as a result of a shift to more sustainable modes including public transport, which should contribute towards a reduction in traffic volumes, as shown in traffic modelling outputs.

[Evidence shows that people from deprived neighbourhoods are more likely to be injured or killed as road users](#)^{lxix}. Therefore, improved safety of the trunk road network could benefit those from deprived areas. However, it is acknowledged that wider factors affect road casualty rates and that more detailed assessment work is required to understand the safety benefits associated with individual schemes and how this might impact on people from deprived areas.

The extent to which this package would reduce inequalities of outcome would depend on the extent that the interventions included within this package are adopted, the location of the interventions, proximity to local services and the ability for those from deprived and disadvantaged communities to access the active and sustainable travel network.

The construction works associated with the interventions in this package could result in job opportunities for local communities including those from socio-economically disadvantaged groups.

Overall, it is expected that this package would have a **minor positive** impact under both the 'With Policy' and 'Without Policy' scenarios on this criterion.

Annex A. NaPTAT Maps

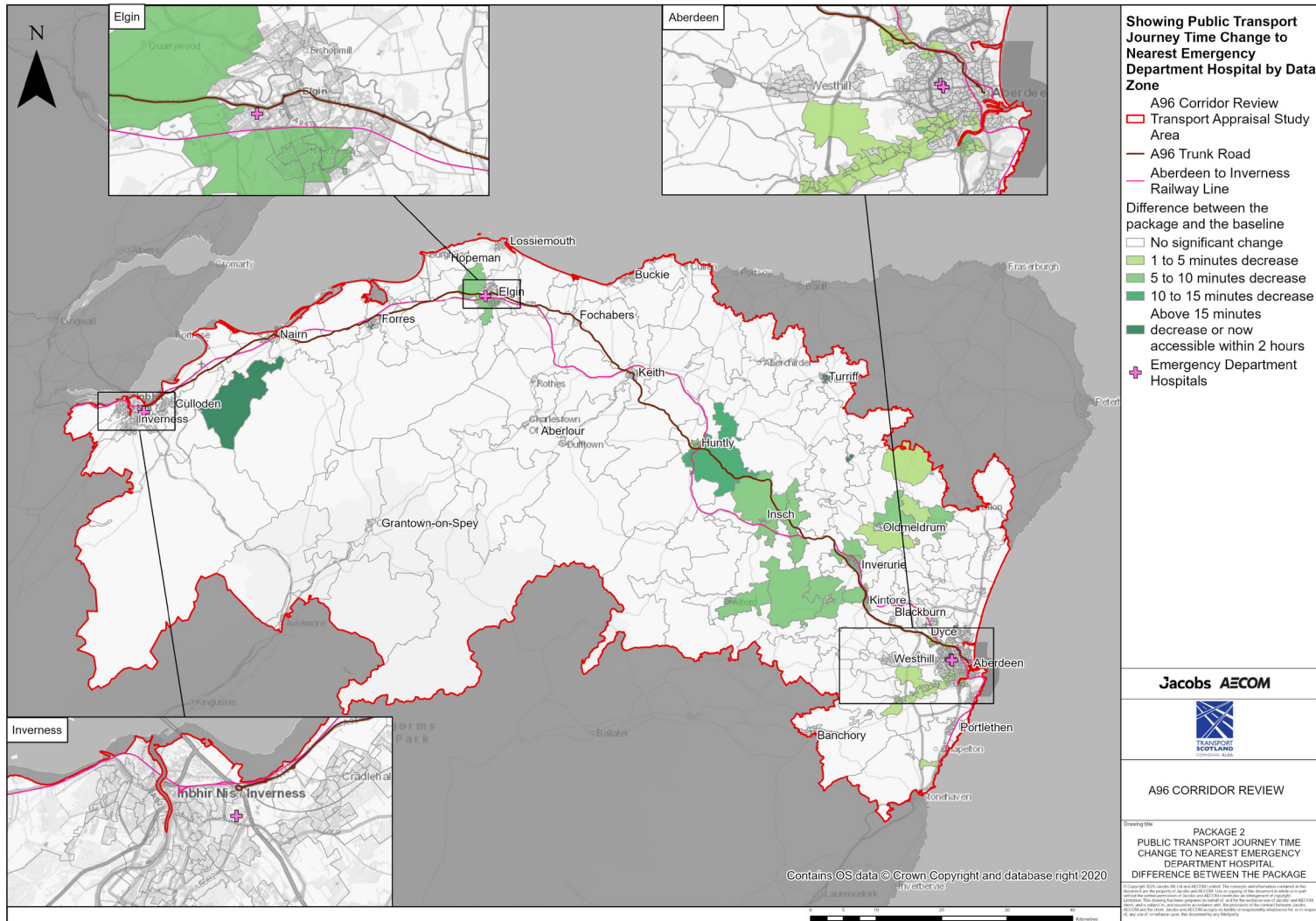


Figure A.1: Public Transport Journey Time Change to Nearest Emergency Department Hospital Showing Difference Between 'With Package' and Baseline

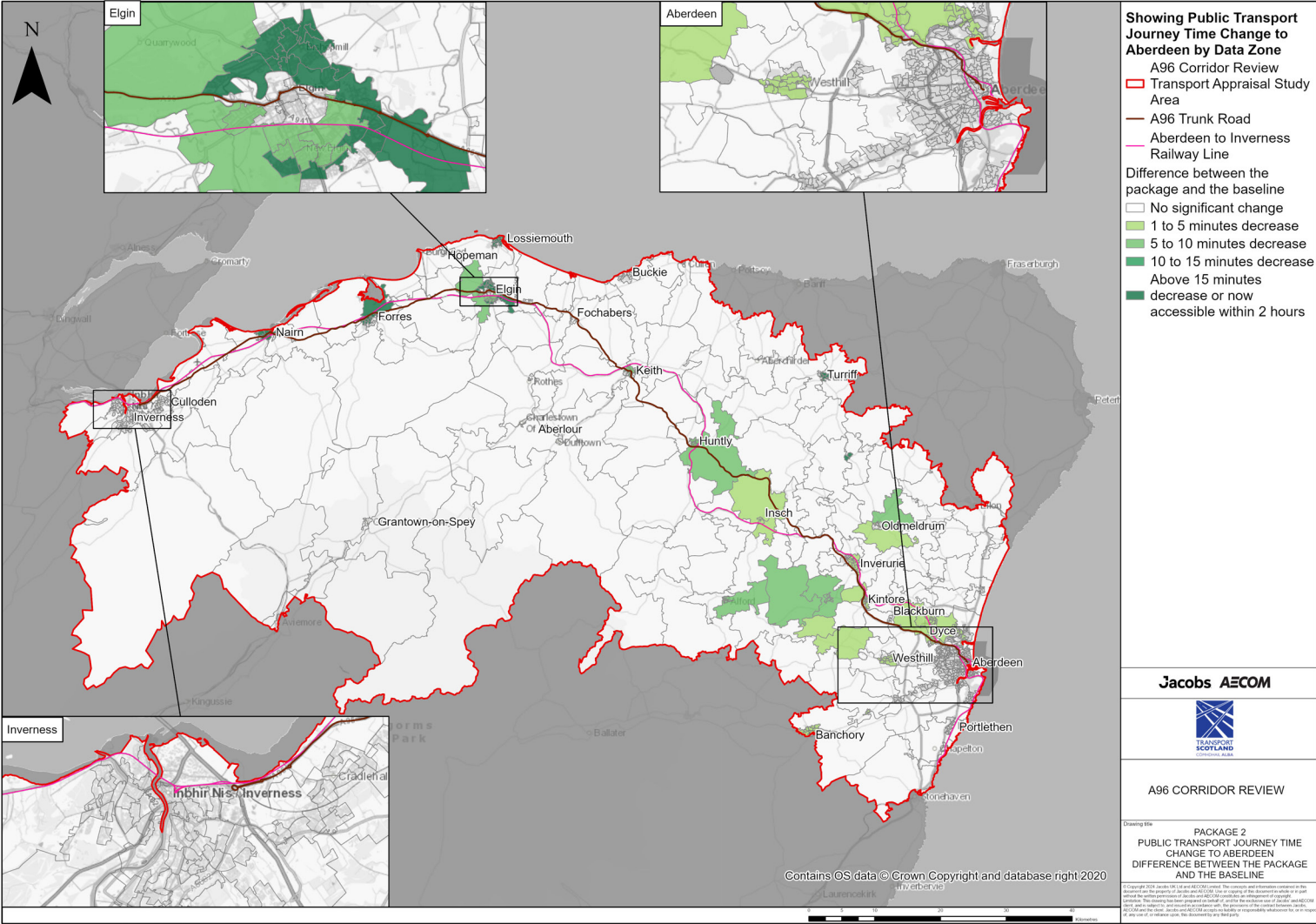


Figure A.2: Public Transport Journey Time Change to Aberdeen Showing Difference Between 'With Package' and Baseline

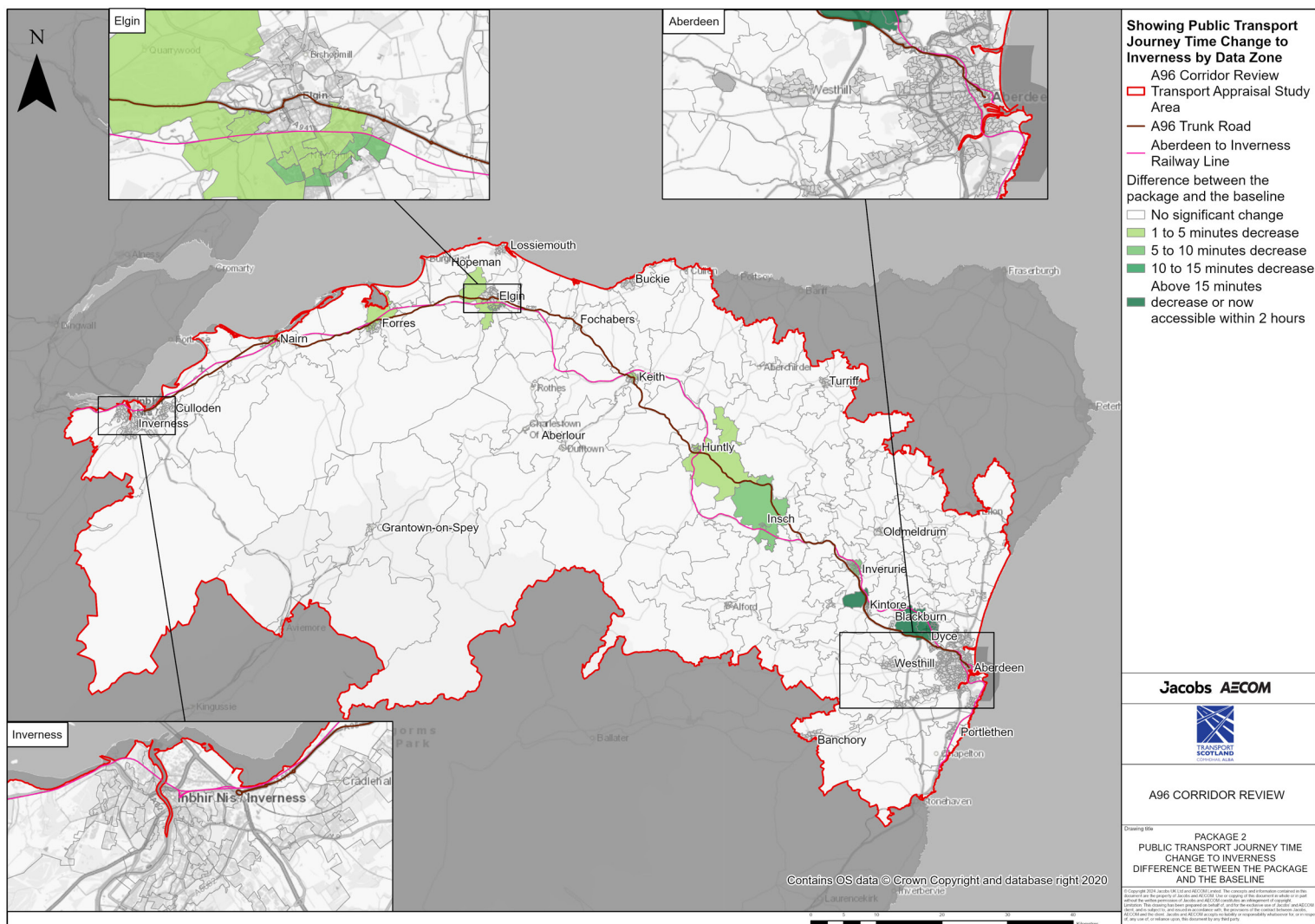


Figure A.3: Public Transport Journey Time Change to Inverness Showing Difference Between 'With Package' and Baseline

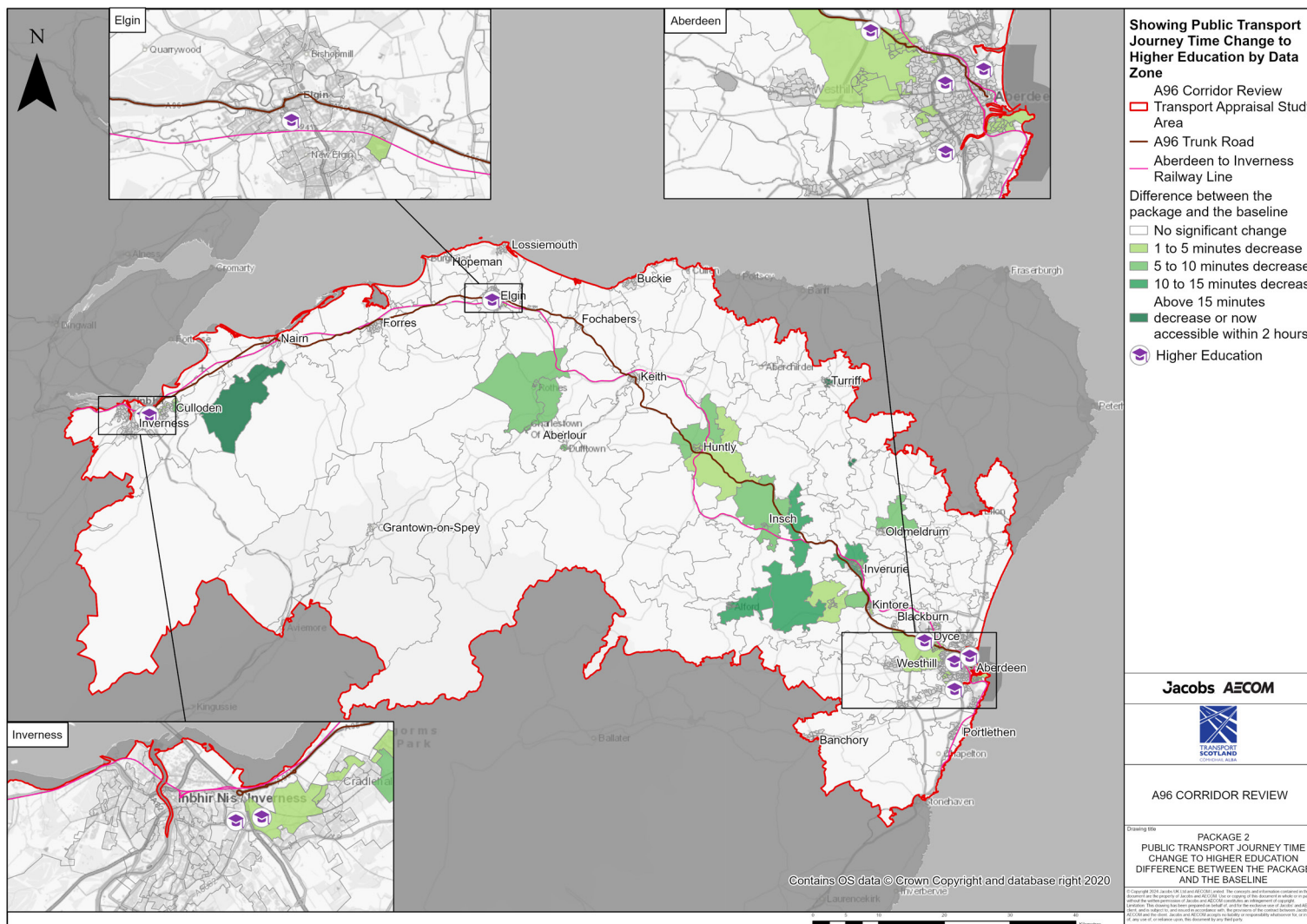


Figure A.4: Public Transport Journey Time Change to Nearest Higher Education Site Showing Difference Between 'With Package' and Baseline

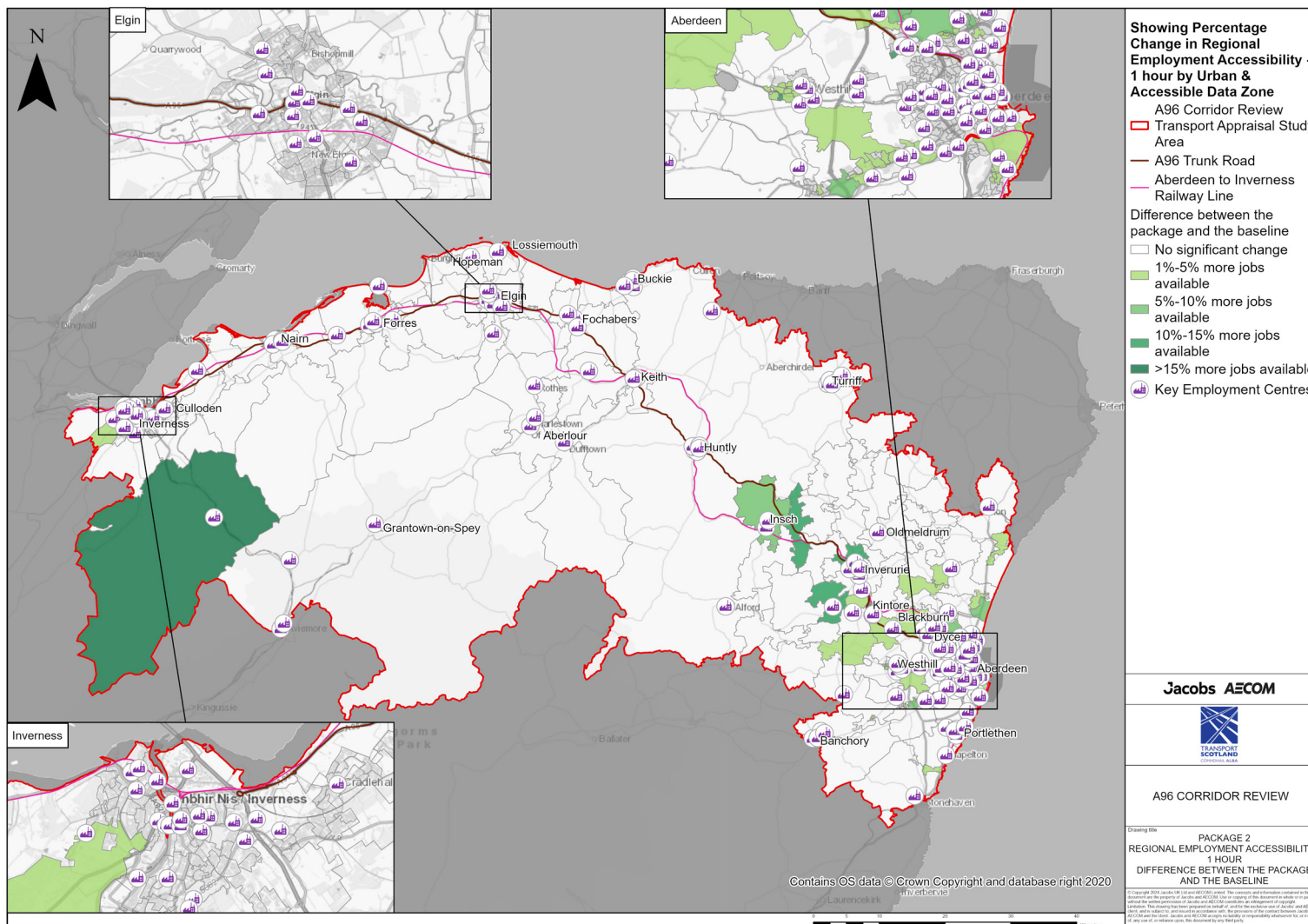


Figure A.5: Percentage Change to Key Regional Employment Centres Showing Difference Between 'With Package' and Baseline Accessibility

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