

## Draft North East Region Appraisal Summary Table

A draft Appraisal Summary Table (AST) has been developed for each of the eleven STPR Regions alongside the National AST. The ASTs are set out to provide:

- Regional/National Context, Problems and Opportunities - drawing on data presented in the Initial Appraisal: Case for Change reports<sup>1</sup> this summarises geographic, social, economic, environmental and transport matters in the region as well as the identified problems and opportunities. In line with STAG, appraisals are expected to explore location-specific problems and opportunities. Local problems and opportunities have been considered and presented to gain a full understanding of the regional and national issues, however some options to address these may not be within the scope of this strategic study.
- Package description – this presents the groupings (interventions) that were included in the detailed appraisal for the region.
- Fit with Policy – provides a summary of how well the appraised packages fit with key national policies including the second National Transport Strategy, Climate Change Plan Update, the draft National Planning Framework 4 and relevant regional policies.
- Transport Planning Objectives (TPO) Assessment - An assessment against each of the five TPOs is provided with quantified metrics provided, where appropriate, under the low traffic / emissions demand and high traffic / emissions demand scenarios (further information about these scenarios is provided in Appendix F). A seven point scoring scale is adopted for each TPO which is:
  - + + + = 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 STPR2 interventions, and this presenting the Strategic Case it

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<sup>1</sup> <https://www.transport.gov.scot/our-approach/strategy/strategic-transport-projects-review-2/>  
<https://www.transport.gov.scot/publication/borders-transport-corridors-pre-appraisal/>  
<https://www.transport.gov.scot/publication/north-east-region-option-sifting-update-report-feb-2021-stpr2/>  
<https://www.transport.gov.scot/publication/south-west-scotland-region-option-sifting-update-feb-2021-stpr2/>

has not been possible to derive cost estimates on a regional basis. However, broad capital spending ranges have been estimated over the period 2022 to 2042 at a national level.

- Other Criteria Assessment – a summary of the performance of the packages against the Strategic Environment Assessment (SEA), the Equalities Impact Assessment (EqIA), Island Communities Impact Assessment (ICIA), Fairer Scotland Duty Act (FSDA), Child Rights and Wellbeing Impact Assessment (CRWIA) is provided. The seven-point scale is adopted in these assessments where appropriate.

The assessments contained in the ASTs assume all interventions in the packages are progressed. However, it should be noted that not all interventions taken through the detailed appraisal will form a recommendation within STPR2.

The National AST is broadly similar to the regional documents, but presents the performance of the full package of interventions taken through detailed appraisal, relying on a combination of quantitative and qualitative information.

### **Summary of Assumptions**

Quantification of the costs and benefits in the packages has been provided through a modelling exercise. Further information has been provided in Appendix F to Technical Report on the modelling scenarios that have informed the assessment of the STPR2 interventions. A summary of key assumptions is provided here:

- Population projections are based on the 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 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)
- The economic results are presented, as is standard within appraisal as discounted values in 2010 prices. As a simple rule of thumb, presenting the numbers in current (2022) prices and discounted to 2022 only would cause the values to approximately double.

### **Modelling Tools**

For the purposes of modelling accessibility by public transport, NaPTAT (National Public Transport Accessibility Tool) has been used. This allows an assessment of journey time to be compared between with and without STPR package.

Due to the strategic and national nature of STPR2, the national Transport Model for Scotland (TMfS) has been used. TMfS is a national scale mode with a focus on inter-urban trips. As such, whilst TMfS provides a suitable level of robustness at this stage of the appraisal for the larger infrastructure based interventions, there are limitations associated with modelling of smaller/discrete interventions and those that are more urban in nature. As the recommended interventions are developed through the business case process, more detailed modelling will be undertaken using regional and / or local models as appropriate.

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

Metric	Comment/Consideration
CO <sub>2</sub> 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 urban areas due to the more limited representation of urban transport systems and a degree of insensitivity to mode shift mode in TMfS.
Change in veh-km 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 and the relative coarseness of the model zone system.
Lost Time due to congestion	Likely to underestimate the benefits associated with interventions that would reduce roadspace due to the under-representation of the local/secondary road network in TMfS
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. Likely to overestimate the dis-benefits to car-based trips due to the under-representation of the junctions and local/secondary road network in TMfS.



## Draft Detailed Appraisal Summary Table

### Region: North East Region

#### Regional Context

spread across the Region although positioned mainly on the approaches to Aberdeen, for example Stonehaven, Ellon and Inverurie. Peterhead and Fraserburgh are located to the far north eastern part of the Region. There are also several 'accessible small towns' such as Banchory, Oldmeldrum and Chapelton.

The Region has an extensive transport network, including active travel, bus, rail and road networks, park and ride facilities. In the context of STPR2 major ports are located at Aberdeen, Peterhead and Fraserburgh and ferry links to Kirkwall and Lerwick from Aberdeen and an International Airport.

**Social Context:** Aberdeen City and Aberdeenshire Council areas had populations of 228,670 and 261,210 respectively as of 2019, bringing the total population in the Region to 489,880, a 3.0% increase since 2011. This growth was similar to that of the Scottish national profile at 3.2%.<sup>ii</sup> The city of Aberdeen is the largest settlement within the Region with almost half (approximately 46.7%) of its population. In terms of age structure, 15% of residents in Aberdeen City were children (15 and under), 69% were of working age (Census defines this as 16 to 64), and 16% were 65 and over. In Aberdeenshire, 19% of residents were children (15 and under), 62% were of working age (aged 16 to 64), and 20% were 65 and over. This is broadly similar to Scotland as a whole, where 17% of residents were children (15 and under), 65% were of working age (aged 16 to 64), and 18% were 65 and over.<sup>iii</sup>

Performance against socio-economic indicators varies across the Region. Overall, the proportion of households with no access to a car is significantly lower in Aberdeenshire compared to Scotland as a whole (14% compared to 31%, based on 2011 Census), however the proportion for Aberdeen City (32%) was similar to the national figure. Travel to work by car is the dominant mode in the North East Region. Aberdeen City has higher car mode share compared to other Scottish cities, with 58% of people driving to work, and Aberdeenshire has significantly higher car mode share (70%) compared to the Scottish average (62%). 12% of commuting trips in Aberdeen City are by bus, which is higher than the Scottish average (10%), however bus accounts for only 4% of commuting trips in Aberdeenshire. Rail accounts for 1% in both local authority areas. 15% of people walk and 2% cycle to work in Aberdeen City, whilst 8% walk and 1% cycle in Aberdeenshire. Travel for work tends to be within the Region, with 95% of people working in the North East also living in the Region.<sup>iv</sup>

Overall 6.6% of people in Aberdeen City and 5.8% of people in Aberdeenshire had no qualifications in 2011; considerably lower than the 9.8% of people in Scotland.<sup>v</sup> There are pockets of deprivation across the Region, most notably in Aberdeen City where 10.2% of data zones in Aberdeen City are within the 20% most deprived compared to and 2.6% in Aberdeenshire.<sup>vi</sup> SIMD Health rankings indicate that health quality throughout the North East Region is varied: in Aberdeenshire, 0.3% of data zones are ranked within the lowest quintile (20% most deprived) for health in Scotland, whilst in Aberdeen City has 10.2% data zones within the lowest quintile.<sup>vii</sup>

**Economic Context:** Economic activity refers to an estimation of whether usual residents aged 16 to 64 were in work or actively looking for work. The North East Region contributed approximately 11.7% of Scottish GVA in 2019.<sup>viii</sup> Whilst there are pockets of deprivation across the Region

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(predominantly located within Aberdeen City), the Region benefits from high levels of economic activity and high educational attainment. Aberdeen City and Aberdeenshire have economic activity rates of 78% and 84% respectively compared to the Scottish national figure of 77% in 2017.<sup>ix</sup> Aberdeenshire had one of the lowest unemployment rates in Scotland in 2017, with only 2.8% of people unemployed. Aberdeen City had a slightly higher unemployment rate (4.2%) however this rate was similar to the Scottish average (4.1%).<sup>x</sup> The Region's economy has a wide spread of activity with high levels of employment in professional, scientific and technical activities; wholesale and retail trade, repair of motor vehicles and motorcycles; human health and social work activities; and mining and quarrying.<sup>xi</sup>

**Environmental Context:** Within the North East, there are many areas classified as environmentally sensitive, with varying levels of statutory protection. Environmental designations within the Region include biodiversity, and landscape and heritage designations which fall either wholly or partly within the Region. In addition, the Region contains a significant number of Category A-B Listed buildings and a high concentration of designated cultural heritage assets, as expected in a large urban area. The greatest noise levels are located around Aberdeen City, primarily associated with the trunk road network corridors<sup>xii</sup> and Aberdeen Airport<sup>xiii</sup>, together with the rail routes through the Region. Settlements at greatest risk of coastal flooding are located along coastal boundary of the Region. Areas at medium and high risk of river flooding include those located in the vicinity of the River Dee and River Don. Areas at high and medium risk of surface water flooding are scattered throughout the region. There are three Air Quality Management Areas (AQMAs) within the North East Region, at the City Centre, Wellington Road and Anderson Drive.<sup>xiv</sup> In 2018, CO<sub>2</sub> emissions from transport within the North East Region equated to 8.9% of Scotland's total transport emissions overall.<sup>xv</sup>

Linked to the above context and extensive stakeholder engagement exercise undertaken for the Aberdeen City Region Strategic Transport Appraisal, the following key problems and opportunities were identified for the region. As highlighted earlier, the regions Case for Change was undertaken in advance of STPR2, and therefore in advance of the full scope of STPR2 being known. Therefore some of the problems and opportunities identified for the Region are out with the scope of STPR2 but repeated here for consistency:

#### Problems:

- **Accessibility:** this is impacted by long journey times to key destinations, both within the Region and to / from other regions. The local geography also constrains ability to create an efficient accessible transport system; it is bounded to the north and east by the North Sea, to the west by sparsely populated and mountainous areas and to the south it is relatively remote from other regions of Scotland. Additionally the access to the airport from Dyce Rail Station is perceived to be poor as the two are divided by a runway.
- **Active Travel:** there is perceived to be a lack of high quality connected active travel provision across the region. This is against a backdrop of favourable conditions to travel actively, particularly into / out of Aberdeen with direct routes (generally via key traffic routes)

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### Region: North East Region

#### Regional Context

and relatively short distances to / from key settlements around Aberdeen. There is also a perceived lack of safe routes on or alongside key traffic routes and road safety concerns can therefore hinder active travel uptake as a result.

- **Connectivity:** relatively long distances and journey times to other parts of Scotland, particularly the central belt, lead to a perception of relative isolation of the Region. There is also a perception of poor inter-town connectivity within the region; key settlements generally link well to / from Aberdeen but not as well between them. While connectivity has improved with the Aberdeen Western Peripheral Route, connectivity issues still exist. There is a lack of quality accessible multi-modal interchanges away from the main public transport hub around Aberdeen Rail Station and a lack of high speed internet access, particularly in more rural parts of the region
- **Public Transport:** public transport options are perceived by many as not being a competitive alternative to the private car, in terms of journey times, reliability and cost. This is compounded by a general lack of public transport accessibility, principally outside Aberdeen and a lack of public transport capacity on key corridors. It can be difficult for vulnerable users to access public transport and there is limited scope for public sector funding for improved bus provision.
- **Road:** key corridors in the Region suffer journey time reliability issues, particularly during peak times. The low cost and relative ease of parking in the city centre can also contribute to this issue through increased traffic volumes in and around the city centre. Road infrastructure in some areas is perceived as not suitable for freight movements, particularly around the city's harbour and approaches from the south. There are also general safety issues associated with road network exacerbated by a poor perception of road maintenance on a road network that is constrained in parts and has a general lack of alternative vehicular routes. Vehicles are seen to be the dominant mode around the city and there is an associated perception of unsafe driver behaviour, particularly for non-motorised users.
- **Socio-economic:** over-reliance on car as main mode of travel has generally associated with high car ownership levels, and general access to one or more vehicles in the region. Historically there has been a perceived lack of integration between land use and transport meaning the car is often the easiest choice, even for short trips. High car use and congested conditions in parts of the city have led to negative health impacts associated with vehicle emissions, particularly around the three AQMA areas, and there is a growing and ageing population who may be more likely to use private vehicles. The local economy has long been dominated by the oil and gas industries and this has led to a skills shortage for other key industries. A lack of investment in tourism infrastructure is perceived to limit growth in what could otherwise be a high performing sector given the regions natural beauty and numerous attractions.

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##### Opportunities:

- **Accessibility:** opportunities exist to better connect the Region as a whole and specifically the City Centre Masterplan has the potential to considerably improve the sense of place and ease of movement around the city centre. There could be economic benefit of an airport well integrated with the city region, for both business and leisure travel, and coupled with improved regional accessibility and a change towards more sustainable movements more generally the accessibility of the transport system could become more sustainable. There is also a significant opportunity now to design the new harbour to provide efficient access for all modes.
- **Economy & Development:** there is a perception that sustainable economic growth can be achieved in the Region through economic diversification (with support from the City Deal). There is also an eagerness to increase collaboration between government and business across many areas as a means of achieving efficiencies and growth. There is a move towards higher density and well located developments to reduce the need to travel by car. The new harbour has the potential to generate significant growth economically and in employment and tourism. There is a local existing high skills base and high quality of life in the Aberdeen City Region which offer strong opportunities to support this and the transition to a low carbon economy.
- **Connectivity:** recent digital connectivity improvements can reduce the need to travel and to work and shop from home.
- **Active Travel:** evidence from elsewhere shows strongly that quality sustainable travel provision can increase uptake of these modes. Associated with this health benefits associated with an increase in walking and cycling are understood to be significant and the incorporation of high quality active travel provision as part of City Centre Masterplan could be a good showcase for demonstrating this in the region.
- **Public Transport:** positive perceptions around the opening of Kintore railway station, planned rail enhancements, increased in rail patronage (pre-COVID) and successful park & ride sites have added to the positive perceptions of sustainable transport in the region.
- **Environment:** technology is available and can play a major part in improving transport network efficiency and reducing emissions, which in turn can improve air quality.
- **Road:** desire to see the benefits of AWPR locked in, not just relieved routes filling up with traffic again but a move towards a less car dependent region. AWPR is also considered to offer major freight efficiency benefits, along with road safety improvements.



## Detailed Appraisal Package Description

### Package Groupings: Refer to Annex A for further grouping details

Active Travel	<ul style="list-style-type: none"> <li>Improving Access to Bikes</li> <li>Improving Active Travel on Trunk Roads through Communities</li> <li>Long-Distance Active Travel Network</li> </ul>	<ul style="list-style-type: none"> <li>Connected Neighbourhoods</li> <li>Active Freeways</li> <li>Connecting Towns by Active Travel</li> </ul>	<ul style="list-style-type: none"> <li>Increasing Active Travel to School</li> <li>Village – Town Active Travel Connections</li> <li>Cycle Parking Hubs</li> </ul>
Bus	<ul style="list-style-type: none"> <li>Bus Priority Infrastructure</li> <li>Decarbonisation of the Bus Network</li> <li>Demand Responsive Transport (DRT) / Community Transport</li> </ul>		
Rail	<ul style="list-style-type: none"> <li>Inter-7-Cities Strategic Corridor Enhancements</li> <li>Decarbonisation of the Rail Network</li> </ul>		
Interchange	<ul style="list-style-type: none"> <li>Mobility Hubs and Multi-modal Interchanges</li> <li>Regional Passenger Facilities/Station Enhancements</li> </ul>		
Mass Transit	<ul style="list-style-type: none"> <li>Aberdeen Rapid Transit</li> </ul>		
Behaviour Change	<ul style="list-style-type: none"> <li>Behaviour Change Initiatives</li> <li>Expansion of 20mph zones and limits</li> </ul>		
Ferries and Ports	<ul style="list-style-type: none"> <li>Northern Isles Connectivity</li> <li>Decarbonisation of CHFS and NIFS Ferry Network</li> <li>Improve Access to Major Ports and Airports</li> </ul>		
Freight	<ul style="list-style-type: none"> <li>Decarbonisation of Freight Deliveries</li> <li>Freight Consolidation and Last-Mile Logistics</li> <li>Rail Freight Enhancements</li> </ul>	<ul style="list-style-type: none"> <li>Railway Freight Terminals and Facilities</li> <li>Freight Reliability, Resilience and Efficiency Improvements</li> <li>Freight Incentives and Freight Best Practice</li> </ul>	
Resilience	<ul style="list-style-type: none"> <li>Trunk Road and Motorway Network: Renewal for Reliability, Resilience and Safety</li> <li>Trunk Road and Motorway Climate Change Adaptation and Resilience</li> </ul>		

## Detailed Appraisal Package Description

### Package Groupings: Refer to Annex A for further grouping details

Technology	<ul style="list-style-type: none"><li>• Incident Management Software (IMS) Upgrade</li><li>• Control Centre of the Future</li><li>• Intelligent Transport Systems (ITS) Roadside Infrastructure</li><li>• Integrated Public Transport Ticketing</li></ul>
Road	<ul style="list-style-type: none"><li>• North East Trunk Road and Motorway Network Improvements</li><li>• Changing Road User Behaviour</li><li>• National Action Plan to support the transition to Low Emission/Ultra Low Emission/Electric Vehicles</li></ul>

## Fit with Established Policy

### Package Performance Against NTS2 Priorities and Outcomes:

Reduces inequalities	Reduces inequalities	Major Positive
	Will be easy to use for all	Major Positive
	Will be affordable for all	Minor Positive
Takes climate action	Will help deliver our net-zero target	Major Positive
	Will adapt to the effects of climate change	Minor Positive
	Will promote greener, cleaner choices	Major Positive
Helps deliver inclusive economic growth	Will get people and goods where they need to get to	Major Positive
	Will be reliable, efficient and high quality	Major Positive
	Will use beneficial innovation	Major Positive
Improves our Health and Wellbeing	Will be safe and secure for all	Major Positive
	Will enable us to make healthy travel choices	Major Positive
	Will help make our communities great places to live	Major Positive

The interventions included within this package support a wide range of national, regional and local policy documents in which transport improvements play a key role in both the enabling and delivery of outcomes.

Key policies supported include the Programme for Government, Infrastructure Investment Plan, NTS2, the Climate Change Plan Update 2018 - 2032, the Aberdeen City Region Deal, the NESTRANS Regional Transport Strategy, the City and Shire Strategic Development Plan, and Aberdeen City and Aberdeenshire Local Transport Strategies.

The draft NPF4 includes the Region within its North East transition area, along with Moray. It proposes that priorities for the North East area include actively planning the transition from oil and gas to a net zero future.

The framework is underpinned by the ambition to provide affordable, sustainable, inclusive, innovative, and reliable transport options to provide an attractive place for visitors, to provide opportunities for businesses to invest and grow, and to empower the Region's communities to thrive, thereby the package closely aligning with established policy directives.

## STPR2 Transport Planning Objectives (TPOs) Assessment

STPR2 TPOs	Appraisal Metrics			Performance Summary
	Metric	Low	High	
<p>A sustainable strategic transport system that contributes significantly to the Scottish Government's net-zero emissions target.</p>	<p>Change in CO<sub>2eq</sub> (non-traded and traded emissions from regional road transport inc. grid emissions from charging light-duty vehicles).</p>	<p>27,700 tonnes decrease of 0.5% in 2030</p> <p>21,600 tonnes decrease of 2.8% in 2045.</p> <p>1.3m tonnes reduction, of which - 1.1m were traded, for the 60-year appraisal period from 2030 to 2089.</p> <p>The net economic benefits for the 60-year appraisal period in 2010 prices and values would be in the range £10m to £25m for the Low Travel Demand scenario</p>	<p>31,3000 tonnes decrease of 0.4% in 2030</p> <p>65,300 tonnes decrease of 1.3% in 2045.</p> <p>3.7m tonnes reduction, of which 452,000 were traded, for the 60-year appraisal period from 2030 to 2089.</p> <p>The net economic benefits for the 60-year appraisal period in 2010 prices and values would be in the range £100m to £250m for the High Travel Demand scenario.</p>	<p>CO<sub>2eq</sub> is treated as a nationally important pollutant so it has not been appraised for individual regions.</p> <p>National CO<sub>2eq</sub> emissions decrease year-on year. This is due to decreasing vehicle exhaust (non-traded) emissions as numbers of internal combustion engine vehicles reduces. This is reflected in increasing traded grid emissions from charging increased numbers of battery-electric vehicles, and specifically in the Low Travel Demand scenario.</p> <p>The electricity grid is expected to be using predominantly renewable sources in the future and so increasing adoption of electric vehicles and a shift from direct, non-traded, emission to traded grid-based technology (i.e. battery) will support reducing CO<sub>2eq</sub> emissions.</p> <p>Across both scenarios the interventions would reduce emissions of CO<sub>2eq</sub>.</p> <p>There are predicted to be significantly higher overall emissions in the High Travel Demand scenario, either with, or without, the package.</p> <p>There is a relatively smaller overall reduction of emissions due to the interventions in the Low Travel Demand scenario due to the lower overall emissions.</p>
	<p>Change in mode share by active travel for all journeys</p>	<p>Potential increase in walking from 20% mode share to 24% mode share (4 percentage points)</p>		

## STPR2 Transport Planning Objectives (TPOs) Assessment

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		<p>Potential increase in cycling from 1.2% mode share to 19% (17.8 percentage points)</p> <p>The package will increase the proportions of journeys undertaken by active modes. If all the active travel and behaviour change interventions were fully implemented in every relevant location in the region, rates of walking and cycling are anticipated to increase by around the following proportions:</p> <table border="1"> <thead> <tr> <th colspan="3"><b>Walking</b></th> </tr> <tr> <th>Local Authority</th> <th>Without Package</th> <th>With Package</th> </tr> </thead> <tbody> <tr> <td>Aberdeen City</td> <td>24%</td> <td>28%</td> </tr> <tr> <td>Aberdeenshire</td> <td>16%</td> <td>20%</td> </tr> <tr> <td><b>Regional total</b></td> <td><b>20%</b></td> <td><b>24%</b></td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th colspan="3"><b>Cycling</b></th> </tr> <tr> <th>Local Authority</th> <th>Without Package</th> <th>With Package</th> </tr> </thead> <tbody> <tr> <td>Aberdeen City</td> <td>1.8%</td> <td>24%</td> </tr> <tr> <td>Aberdeenshire</td> <td>0.6%</td> <td>13%</td> </tr> <tr> <td><b>Regional total</b></td> <td><b>1.2%</b></td> <td><b>19%</b></td> </tr> </tbody> </table> <p>Note that the cycling and walking growth forecasts have been developed independently. Growth in use of one active mode is likely to abstract at least some trips from the other, but this effect is not accounted for within these forecasts.</p>	<b>Walking</b>			Local Authority	Without Package	With Package	Aberdeen City	24%	28%	Aberdeenshire	16%	20%	<b>Regional total</b>	<b>20%</b>	<b>24%</b>	<b>Cycling</b>			Local Authority	Without Package	With Package	Aberdeen City	1.8%	24%	Aberdeenshire	0.6%	13%	<b>Regional total</b>	<b>1.2%</b>	<b>19%</b>	<p>The economic impacts associated with air quality were assessed using the Department for Environment Food &amp; Rural Affairs (DEFRA) Damage Costs Appraisal Toolkit. The larger benefit from the High Travel Demand scenario is due to the greater overall emissions with, or without, the package, although the proportional change is lower.</p> <p>The package overall will contribute significantly to the net-zero emissions target by:</p> <ul style="list-style-type: none"> <li>• Enabling more passenger journeys to be made by active modes and public transport</li> <li>• Decarbonising most public transport operations</li> <li>• Facilitating uptake of electric vehicles</li> <li>• Enabling some road freight to switch to rail or other low carbon modes</li> </ul>
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## STPR2 Transport Planning Objectives (TPOs) Assessment

STPR2 TPOs	Appraisal Metrics			Performance Summary
	Metric	Low	High	
	Change in motorised veh-kms travelled	72million veh km 3% decrease (see Annex C)	65 million veh km 2% decrease (see Annex C)	
	<b>Scoring</b>	<b>+++</b>	<b>+++</b>	
An inclusive strategic transport system that improves the affordability and accessibility of public transport.	Change in transport poverty risk	Although the STPR2 interventions do not impact on the direct costs of travel (e.g. fares, fuel price), the package of interventions would see a small reduction in transport poverty, due to the overall improvements in public transport availability.		<p>The package will improve the inclusiveness of the transport system by:</p> <ul style="list-style-type: none"> <li>• Improving conditions for people walking, wheeling and cycling, the most inclusive transport modes, with particular benefits for people most often excluded (including children, older and disabled people, and people on low incomes)</li> <li>• Improving inclusive accessibility to public transport stops/stations</li> <li>• Seeking to promote public transport use and reduce operating costs, hence enhancing network sustainability</li> </ul>

Change in Accessibility - population catchments increases to key services by journey time by public transport.

- Major Hospitals – additional population of around 7,900 now able to access their closest major hospital in under 30 minutes by public transport, which represents a 4% increase compared to that in the Without package.
- Higher Education – an additional population of around 3,000 now able to access their closest higher education site within a 30 minute public transport journey, a 2% increase compared to that in the Without package.
- Major Shopping Centre – an additional population of around 6,600 can now access their closest major shopping centre by public transport within 60 minutes by public transport, a 3% increase compared to that in the Without package.
- GPs – population of approximately 900 now able to access a GP by public transport compared to that in the without package.
- Accessibility to High Schools and Food Stores was also assessed but the impacts were found to be negligible.

(See Annex B for mapping)

## STPR2 Transport Planning Objectives (TPOs) Assessment

STPR2 TPOs	Appraisal Metrics			Performance Summary
	Metric	Low	High	
	<b>Scoring</b>	<b>+++</b>	<b>+++</b>	
A cohesive strategic transport system that enhances communities as places, supporting health and wellbeing.	Change in mode share by active travel	<p>Potential increase in walking from 20% mode share to 24% (4 percentage points)</p> <p>Potential increase in cycling from 1.2% mode share to 19% (over 17 percentage points)</p> <p>These forecasts are subject to all active travel interventions being delivered in all relevant areas of the Region.</p>		<p>The package will improve communities as places, supporting health and wellbeing by enabling more journeys to be made by active and sustainable modes, and by improving road safety. This will:</p> <ul style="list-style-type: none"> <li>• Improve many people's physical health and mental wellbeing, with particular benefits for people most often excluded (including children, older and disabled people, and people on low incomes)</li> <li>• Reduce the adverse impacts of car use on communities and health (including reduced air pollution, noise, accident risk and perceived road danger)</li> </ul>
	Potential for Change in 'Place'	The package will tend to improve the quality of the region's places by improving local accessibility and reducing the adverse impacts of road traffic. In particular the rapid transit system could result in significant improvements to air quality around the three AQMA areas through reductions in traffic and use of low emission buses.		



## STPR2 Transport Planning Objectives (TPOs) Assessment

STPR2 TPOs	Appraisal Metrics			Performance Summary								
	Metric	Low	High									
	Change in Health Benefits	<p>The health benefits of increased rates of walking and cycling as a result of the package have been quantified using the WHO's HEAT tool. This shows the following benefits by Local Authority:</p> <table border="1"> <thead> <tr> <th>Local Authority</th> <th>Premature deaths prevented per annum</th> </tr> </thead> <tbody> <tr> <td>Aberdeen City</td> <td>12.6</td> </tr> <tr> <td>Aberdeenshire</td> <td>8.6</td> </tr> <tr> <td><b>Regional total</b></td> <td><b>21.2</b></td> </tr> </tbody> </table>		Local Authority	Premature deaths prevented per annum	Aberdeen City	12.6	Aberdeenshire	8.6	<b>Regional total</b>	<b>21.2</b>	<p>The analysis shows that through improved uptake of walking and cycling, there would be a forecast annual reduction of around 21 premature deaths due to the health benefits arising from active travel.</p>
Local Authority	Premature deaths prevented per annum											
Aberdeen City	12.6											
Aberdeenshire	8.6											
<b>Regional total</b>	<b>21.2</b>											
	<b>Scoring</b>	<b>+++</b>	<b>+++</b>									
An integrated strategic transport system that contributes towards sustainable inclusive	Increased labour catchment by sustainable travel (PT/Active Travel)	<ul style="list-style-type: none"> <li>Access to local employment, which represents accessibility of employment located in the surrounding area of an origin, showed improvements across Aberdeen City, with areas such as Bridge of Don, Seaton, Old Aberdeen, Heathryfold and Middlefield, and Garthdee; and Westhill in Aberdeenshire seeing an increase of 20% in additional jobs that can be assessed from within 40 minutes by public transport.</li> </ul>		<p>The package will contribute to sustainable inclusive growth in Scotland by:</p> <ul style="list-style-type: none"> <li>Improving integration of transport modes (especially between active modes and public transport) and between transport and major developments, particularly in the towns and cities</li> <li>Improving journey time reliability</li> <li>Enabling more people to travel by improving the accessibility and affordability of the</li> </ul>								

## STPR2 Transport Planning Objectives (TPOs) Assessment

STPR2 TPOs	Appraisal Metrics			Performance Summary
	Metric	Low	High	
growth in Scotland.		<ul style="list-style-type: none"> <li>Access to regional employment (employment located in Aberdeen City) within a 60 minute public transport journey saw the largest increases towards the Aberdeen City authority boundary (for example Dyce saw an increase of around 10,000 additional jobs); whilst Westhill, Stonehaven and Portlethen showed the biggest increases in Aberdeenshire (between 8,000 to 16,000 additional jobs). The modelling shows that on average, the increased number of jobs accessible within a 60 minute journey time by public transport in the North East is approximately 4,000. For public transport journey times up to two hours, Peterhead and Fraserburgh saw an average increase of around 6,000 regional jobs that could be accessed.</li> <li>The rural population observed little change in journey times to the nearest employment site by public transport.</li> </ul> <p><i>Annex B – NaPTAT mapping</i></p>		<p>transport system, so enabling more people to access local retail and services, and opportunities for employment and education/training. This is particularly relevant in the less rural areas of the Region.</p> <p>The introduction of Aberdeen Rapid Transit reduces the amount of road space available to other vehicles, including freight, in the region. As such the time lost due to congestion increases by approximately 170,000 and 490,000 hours in the Low and High scenarios respectively.</p>
	Change in lost time due to congestion (for business/commercial transport)	Increase of approximately 170,000 hours	Increase of approximately 490,000 hours	
	<b>Scoring</b>	<b>++</b>	<b>++</b>	

## STPR2 Transport Planning Objectives (TPOs) Assessment

STPR2 TPOs	Appraisal Metrics			Performance Summary
	Metric	Low	High	
A reliable and resilient strategic transport system that is safe and secure for users.	Change in accidents (PIA and Damage only)	Accident reduction related to motorised veh km 3% (8,840)	Accident reduction related to motorised veh km 3% (11,800)	<p>The package will improve reliability, safety and personal security on the transport system by:</p> <ul style="list-style-type: none"> <li>Improving journey time reliability, including through reduced likelihood of significant network disruptions</li> <li>Reducing the risk of road accidents at hotspot locations on the trunk road network e.g. through targeted infrastructure improvements such as carriageway realignment and widening, the provision of overtaking opportunities and junction improvements. (It should be noted for example that replacing a priority junction with a signalised junction could increase the overall number of accidents, however the severity of accidents occurring should reduce)</li> <li>Reducing perceived risks to road safety and to personal security, so enabling more people (particularly children, women and older people) to travel independently</li> <li>Changing attitudes of road users, through behavioural change campaigns. This is anticipated to increase awareness of interactions with those walking, wheeling and cycling</li> <li>Improving active travel provision and providing more dedicated and segregated routes for walking, cycling and wheeling</li> </ul>
		<p>Whilst the number of accidents involving motorised vehicles is anticipated to reduce following the introduction of the interventions within this package, it is anticipated that it would increase walking and cycling journeys. The number of accidents involving these modes is therefore anticipated to increase, although each individual journey is anticipated to be significantly safer.</p>		
	Percentage accident change for Targeted Infrastructure Improvements over 60 years, using default accident rate (PIA only)	<p>Sections of Realignment/Widening - reduction of 23% to 59%</p> <p>Sections of Overtaking Opportunities - reduction of 35% to 73%</p> <p>Locations of Junction Improvements – change of 42% (increase) to 64% (decrease)</p> <p>Whilst the number of accidents involving motorised vehicles is anticipated to reduce following the introduction of the interventions within this package, it is anticipated that it would increase walking and cycling journeys. The number of accidents involving these modes is therefore anticipated to increase, although each individual journey is anticipated to be significantly safer.</p>		
Change in lost time due to congestion	Increase of 342,000 hours (see Annex C)	Increase of 1.7 million hours (see Annex C)	Whilst the lost time metric shows a reduction in performance it is considered that is largely due to modelling limitations as noted in the introduction to	

## STPR2 Transport Planning Objectives (TPOs) Assessment

STPR2 TPOs	Appraisal Metrics			Performance Summary
	Metric	Low	High	
	Journey Time Reliability / Availability of alternatives (modes/routes)	<p>The main journey time reliability improvements associated with this package are likely to be associated with the rapid transit system, particularly for public transport journeys.</p> <p>Targeted improvements on the trunk road network where safety is a problem is forecast to reduce accidents and the associated reduction in road closures from such incidents would also help improve reliability. Improvements in terms of renewals and climate change adaptation to protect the operation of the trunk road and motorway network would also positively impact on the reliability of the network.</p>		the appraisal summary table. The model likely overestimates the disbenefits associated with interventions that would reduce roadspace due to the under-representation of the local/secondary road network in TMfS, and in turn may underestimate the related benefits of those interventions.
	<b>Scoring</b>	<b>++</b>	<b>++</b>	

## STAG Assessment

STAG Criteria	Sub Criteria	Scoring		Performance Summary
		Low	High	
Environment	Air Quality	+	+	<p>Total emissions of NO<sub>x</sub> were predicted to decrease in future in both the High and Low scenario.</p> <p>Total emissions of NO<sub>x</sub> were predicted to be effectively zero in 2045 in the Low scenario, and 2051 in the High scenario either with, or without, the proposed package.</p> <p>Total emissions of PM were predicted to increase in future predominantly due to non-exhaust emissions from road, tyre and brake-wear.</p> <p>However, the package will reduce harmful emissions slightly. Over the 60-year appraisal period there was a predicted 100% reduction in NO<sub>x</sub>, 3.3% reduction in PM<sub>10</sub> and 3.5% reduction in PM<sub>2.5</sub> in the Low Scenario, and a 4.1% reduction in PM<sub>10</sub> and a 4.2% reduction in PM<sub>2.5</sub> in the High Scenario.</p>
	Noise and Vibration	+	+	<p>The anticipated modal shift is also expected to reduce levels of noise and vibration associated with the transport network. There is potential for a localised negative effects on noise and vibration due to the construction and operation of specific interventions including Aberdeen Rapid Transit and ferry and rail infrastructure improvements however the magnitude of effect will depend on the design and location of the intervention.</p>
	Biodiversity and Habitats			
	Geology and Soils			

	Land Use (including Agriculture and Forestry)	Please refer to SEA performance summary text in the 'Other Criteria Assessment' section below. Please note, the scoring has been based on the SEA methodology for scoring, which has been agreed with the SEA Consultation Authorities.		
	Water, Drainage and Flooding			
	Historic Environment			
	Landscape			
Climate Change	Greenhouse Gas Emissions	+	+	CO <sub>2</sub> eq is treated as a nationally important pollutant so it has not been appraised for individual regions.  National CO <sub>2</sub> eq emissions decrease year-on year, with decreasing direct (non-traded) exhaust emissions and increasing traded grid emissions associated with increased adoption and charging of battery-electric vehicles, and specifically in the Low Travel Demand scenario.  Across both scenario's the package will reduce emissions of CO <sub>2</sub> eq compared to the corresponding baseline, although the change is greater in the High scenario due to overall higher emissions.
	Vulnerability to Effects of Climate Change	+	+	
	Potential to Adapt to Effects of Climate Change	+	+	The package provides an opportunity to adapt the transport network to the predicted effects of climate change, with one intervention specifically focused on adaptation.
Health, Safety & Wellbeing	Accidents	Accident reduction related to motorised veh km is forecast to be 2%	Accident reduction related to motorised veh km is forecast to be 2%	The package will reduce the number and severity of accidents through targeted infrastructure improvements and by encouraging modal shift away from private car, resulting in reduced accident risk due to reduced conflicts. Mode shift to sustainable modes will, by improving natural surveillance, make paths, stops, stations and services feel less isolated
	Security	The package will, by increasing the number of people travelling actively, tend to improve natural surveillance and will, through		

		<p>improvements to lighting and urban realm, tend to reduce the number of locations at which security is a concern. Aberdeen Rapid Transit would consider security as part of stops and station design.</p>	<p>and this, accompanied by improved quality of facilities will improve perceived security.</p>
	<p>Health Outcomes</p>	<p>The package will, by increasing rates of active travel and hence physical activity, improve both health and wellbeing outcomes. The estimated value of health benefits to the region's population, appraised over a 60-year period, is in the range £1bn to £5bn.</p> <p>Additionally, there will be health and wellbeing improvements associated with air quality improvements, particularly around the three AQMA areas.</p>	<p>The package will improve communities as places, supporting health and wellbeing, by encouraging modal shift away from private car and towards active travel. This will improve placemaking through reduced noise and better air quality due to reduced traffic, and reduced accident risk. It will also benefit many people's physical health and mental wellbeing.</p>
	<p>Access to Health and Wellbeing Infrastructure</p>	<p>Major Hospital Accessibility:</p> <p>The model indicates that with the regional package in place, an additional population of around 7,900 people (4% increase) would be able to access a major hospital site within a 30 minute journey by public transport.</p> <p>The model showed little reduction at the regional level for journey times to major hospitals, however localised improvements of between 1 to 5 minutes were found in areas such as Garthdee, Altens, Seaton and Old Aberdeen; and Westhill in Aberdeenshire.</p> <p>For access to GPs, the model showed that around 700 additional people residing in Aberdeenshire could access their closest GP within a 30 minute public transport journey, compared to the Without package.</p>	

	Visual Amenity	<p>The package should have a positive impact on visual amenity through improvements to walking and cycling infrastructure and an improved sense of 'place'. Aberdeen Rapid Transit would require to be designed to enhance the sense of place and not act as a visual barrier.</p> <p>Care would be required in the development of any rail freight facilities to ensure they did not detrimentally impact nearby communities.</p>		
Economy <i>(Transport Economic Efficiency)</i>	User Benefits (2010 prices and values for a 60 year appraisal period)	<p>Present Value of Benefits (PVB) of approximately £250m to £500m</p> <p>Accidents Present Value of Benefits (PVB) of approximately £10m to £25m</p>	<p>Present Value of Benefits (PVB) of approximately -£500m to -£250m</p> <p>Accidents Present Value of Benefits (PVB) of approximately £10m to £25m</p>	<p>The majority of economic benefits that accrue are as a result of the sustainable transport interventions in the Region's package to enable and encourage mode shift to public transport modes. The Rapid Transit intervention, in conjunction with the Bus Priority Infrastructure, Interchange and Rail interventions are the main contributors to the public transport user benefits total in the Low scenario. The remainder of the benefits are largely due to the increase in public transport operator revenue as a result of the increased patronage levels arising from the mode shift away from car.</p> <p>However, the reallocation of road space that would likely be required in order to implement the rapid transit intervention would result in an increased level of disbenefit to road users.</p> <p>The level of public transport user benefits also reduces in the High motorised demand scenario. The significantly higher levels of car-based demand would also result in an increased level of disbenefit to road users.</p> <p>In terms of accident savings, the level of benefits is larger in the High scenario. The benefits arise as a result of the reduction in road-based vehicle-kilometres</p>



				<p>travelled in the region, with the mass transit, active travel and public transport interventions encouraging a mode shift away from private car.</p> <p>Note that due to the nature of a number of the STPR2 interventions it has not been possible to derive indicative cost estimates on a regional basis.</p>
Equality & Accessibility	Public Transport Network Coverage	<p>The Region is expected to see major benefits from public transport coverage, particularly through the provision of Aberdeen Rapid Transit. This will extend Public Transport to areas not currently served or not well served and provide connections to key services including hospitals and higher education as well as better connections for employment. This will also improve the journey time and reliability of public transport services on the main radial corridors into and within the City Centre which are known to suffer from congestion.</p>		<p>The package will improve accessibility to public transport by improving the coverage of the walking, cycling and public transport networks. This will provide particular benefits for people often excluded from transport, including older and young people, women, disabled people, and people living in more deprived communities.</p> <p>The package will also improve affordability by reducing forced car ownership, and situations where taxi is the only viable mode for people without access to a car.</p> <p>By encouraging modal shift to more sustainable modes, the package has the potential to increase demand for public transport, improving commercial performance/viability, which could indirectly reduce ticket costs.</p>
	Active Travel Network Coverage	<p>Improvements to the Region's active travel network, both within and between settlements, mean that many more people will have convenient, high-quality and safe</p>		

		infrastructure for walking, wheeling and cycling journeys.	
	Comparative Access by People Group	Improvements to active travel networks and public transport will provide positive impacts on groups who are less likely to have access to car and more likely rely on public transport, walking and cycling for their journeys. This includes women, children and young people, older people, some ethnic minority groups and disabled people.	
	Comparative Access by Geographic Location	<p>From deprived areas in the North East, an additional 550 people from Aberdeen City can access a higher education site in under 30 minutes by public transport compared to that in the Without package.</p> <p>For access to employment, the average number of additional jobs that could be accessed from data zones in the Region by public transport that are identified as part of the 20% most deprived in Scotland increased in the regional package, as follows:</p> <p>For local jobs accessible within 40 minutes by public transport, this increased by approximately 6,900 people on average. All the 20% most deprived areas that would benefit were found to be located within Aberdeen City local authority, whereby the greatest increase in the number of accessible jobs occurred in Seaton, Tillydrone, Heathryfold and Middlefield (10% to 20%); and up to 2% in Torry.</p> <p>For regional jobs accessible within 60 minutes by public transport, this increased by</p>	

		<p>approximately 5,500 people on average for the 20% most deprived areas in the region. The greatest increases were found in Torry (15% to 25% increase); Heathryfold and Middlefield, and Woodside (8% to 10% increase); and Seaton (2% to 10% increase).</p> <p>For regional jobs accessible within a two hour public transport journey, increases were found in Fraserburgh and Peterhead, whereby an additional approximately 6,300 and 8,500 jobs, respectively, could be accessed from deprived areas in those localities, when compared to the Without package.</p> <p>(See Annex B for mapping)</p>	
	Affordability	<p>Although the STPR2 interventions do not impact on the direct costs of travel (e.g. fares, fuel price), the package of interventions would see small reduction in transport poverty, due to the overall improvements to access and connectivity between modes.</p>	

## Deliverability

Criterion	Summary Assessment
Feasibility	<p>The package has been developed with feasibility considerations in mind. The package mostly makes use of existing, proven technology and would generally be expected to largely operate inside existing design standards. The technology required to Decarbonise the ferry network is one element of this package that is still undergoing research, so may be less feasible than some of the interventions included within this package and there will be further work required on the feasibility of larger infrastructure provision including Aberdeen Rapid Transit. Additionally, road space allocation across modes will need consideration if multiple modes are competing for similar road space. Overall the package is expected to have a minor positive impact against this criterion.</p>
Affordability	<p>The package would require substantial capital and operational funding. Some aspects of the package may generate revenue, which could be used to offset some of these costs. Overall the package is expected to have a moderate negative impact against this criterion.</p>
Public Acceptability	<p>Public acceptability of the package is likely to be mixed. The package is expected to improve accessibility, connectivity, and choice and to make transport cleaner, more efficient and more attractive and would be positively received. There may be concerns in areas of congestion where road space reallocation or priority interventions are proposed, however the behavioural change elements of the package should also help to mitigate this. There may also be acceptability concerns where construction works are expected to cause disruption or require land-take. Overall the package is expected to have a minor positive impact against this criterion.</p>

## Other Criteria Assessment

Criterion	Performance Summary
SEA	<p>The package supports modal shift to more sustainable modes of transport. An enhanced rail network and the creation of mobility hubs/interchanges and Aberdeen Rapid Transit seek to encourage modal shift, and, as a result, reduce levels of transport related air pollution and carbon emissions. The decarbonisation of the rail and bus network and freight deliveries will also support a reduction in greenhouse gas emissions and improvement in air quality.</p> <p>The package provides an opportunity to adapt the transport network to the predicted effects of climate change, with one intervention focused on this adaptation, as well as others which promote more sustainable usage of the existing transport network.</p> <p>Positive effects are anticipated on Population and Human Health due to an expected increase in sustainable access to essential services, increased travel choice and improved connectivity and planning for the future capacity of public transport. Active travel interventions will have positive outcomes for the SEA Population and Human Health topic - for example through expected improvements in air quality and increased uptake of physical exercise through walking, wheeling and cycling.</p> <p>Road interventions are anticipated to have positive effects on safety. Trunk road improvements which are focused on junction improvements, realignment / widening and overtaking opportunities are also not anticipated to have a notable impact on traffic volumes or mode share and subsequently transport-based emissions in the majority of locations. The construction and operation of these interventions may result in result in minor negative effects on population and human health with the potential for an increase in noise and vibration during construction and operation. This is dependent on the location and design of individual schemes. There is also potential for a negative effect on material assets due to the use of natural resources.</p> <p>There is potential for negative environmental effects during construction and operation of the Aberdeen Rapid Transit, port upgrades and rail network improvements on the Population and Human Health (noise and vibration, public realm, safety), the Water Environment, Biodiversity, Soil, Historic Environment and Landscape and Visual Amenity. In addition, significant quantities of materials and construction related trips would be required. Depending on the source and type of materials/natural resources used, there is the potential for negative effects on Material Assets</p> <p>The Freight interventions are anticipated to result in minor negative effects on material assets as several interventions proposed involve enhancements to rail freight, terminals and facilities and therefore will require the use of natural resources.</p> <p>Where any new infrastructure is required this could result in negative effects on biodiversity, soil, landscape, water, historic environment and material assets however the magnitude of effect is uncertain at this stage and will be determined by the design (and physical footprint) of the interventions.</p>
EqIA	<p>The package could improve public transport and active travel accessibility to key destinations and services including employment, education, healthcare and shopping for people living in the area. This will have a major positive impact on certain protected</p>

## Other Criteria Assessment

Criterion	Performance Summary
	<p>characteristic groups who are less likely to have access to a car and more likely to depend on public transport and active travel to make their journeys. This includes women, children and young people, older people, disabled people and people from certain ethnic minority groups.</p> <p>By encouraging modal shift to more sustainable modes, this package could also contribute to improving local air quality. 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, disabled people and pregnant women.</p> <p>The package will reduce the severity of accidents through targeted infrastructure improvements and by encouraging modal shift away from private car, resulting in reduced accident risk due to reduced conflicts. Some protected characteristic groups are more likely to be involved in road accidents, for example, children as pedestrian casualties and young males involved as car drivers and as such would have positive impacts on these groups.</p> <p>Mode shift to sustainable modes will reduce the perception of isolation on paths, bus stops, stations and services, and this, accompanied by improved quality of facilities will improve perceived security. This is likely to provide some benefit to those for whom security is of particular concern including women, the LGBTQ+ community and those from religious backgrounds most subject to hate crime.</p> <p>The package would therefore be anticipated to have a moderate positive impact on addressing this criterion in both Low and High scenarios</p>
ICIA	<p>In addition to the overall benefits of the package, the investment into decarbonisation of the ferry network would deliver island connectivity improvements across the CHFS and NIFS Ferry Networks leading to a beneficial impact on island communities served by these routes. This could lead to a reduction in poor air quality for island communities within close proximity to ports and harbours.</p>
CRWIA	<p>By encouraging modal shift to more sustainable modes, this package could contribute to improving local air quality. 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.</p> <p>The package could also improve public transport and active travel accessibility to higher education institutions and employment opportunities for young people living in the area.</p> <p>Safety is a key issue for children with regards to transport with child pedestrian casualties recorded in Scotland in 2019, accounting for 44% of all pedestrian casualties. In particular children from deprived areas and certain ethnic groups are more at risk.</p>

## Other Criteria Assessment

Criterion	Performance Summary
	<p>The package will reduce the severity of accidents through targeted infrastructure improvements and by encouraging modal shift away from private car, resulting in reduced accident risk due to reduced conflicts.</p> <p>The package would therefore be anticipated to have a minor positive impact on addressing this criterion in both Low and High scenarios.</p>
FSDIA	<p>There are pockets of deprivation across the Region, most notably in Aberdeen City where 10.2% of data zones in Aberdeen City are within the 20% most deprived compared to and 2.6% in Aberdeenshire. The package has the potential to improve public transport connectivity, including through Aberdeen Rapid transit, bus priority measures and rail corridor enhancements and can therefore support regeneration and economic development and reduce inequalities caused by socio-economic disadvantage by improving accessibility for deprived communities or communities where transport options are limited. For local employment that can be reached within 40 minutes by public transport, approximately an additional 9,100 jobs on average are forecast to be accessed from the 20% nationally most deprived areas in the region. This means on average approximately 65,000 local jobs can be accessed from each of those deprived areas, which represents approximately 79% of all local jobs able to be accessed within 40 minutes of those areas by public transport.</p> <p>The package would therefore be expected to have a moderate positive impact on addressing this criterion in both Low and High scenarios.</p>

## Annex A: Grouping Interventions

### North East Region

Grouping Title	Regional Description
Improving Access to Bikes	Improve access to bikes through a multi-faceted programme of interventions to enable people to cycle (and also to support walking/wheeling as appropriate), and to give them confidence and skills to do so, such that they can make use of new or existing active travel infrastructure. Measures would be designed to meet local community needs, and address inequality.
Connected Neighbourhoods	The transport components of 20-minute neighbourhoods within towns and cities. This would include, for example, packages of improvements to footways, road crossings and urban realm, aiming to make walking, wheeling and cycling more attractive, inclusive and safe.
Improving Active Travel on Trunk Roads through Communities	Packages of measures to reduce the adverse effects of trunk road traffic on people walking, wheeling and cycling in those communities that have a trunk road passing through them (for example by reducing traffic speed and improving footways and road crossing facilities).
Increasing Active Travel to School	Improved and safer walking, wheeling and cycling routes to schools, accompanied by traffic speed reduction measures and School Streets schemes where appropriate, as well as behaviour change measures. The types of interventions would often be the same as those of Connected Neighbourhoods, but this intervention is distinct because not all schools are within/close to town/neighbourhood centres.
Active Freeways	High-quality segregated infrastructure for people walking, wheeling and cycling on radial routes and other high-demand corridors in Scotland's large urban areas, with priority given initially to the larger cities, including Aberdeen.
Village – Town Active Travel Connections	Active travel routes, segregated from busy roads but making use of quiet roads where appropriate, to connect smaller communities to nearby towns.
Long-Distance Active Travel Network	Interurban active travel routes, segregated from busy roads but making use of quiet roads where appropriate, connecting Scotland's cities and regions. The grouping would enhance the existing National Cycle Network to create a strategic national network of active travel routes mirroring in part the trunk road and rail networks.
Connecting Towns by Active Travel	Segregated active travel routes on interurban connections between adjacent towns in locations where demand is expected to be high. Complements the Long-Distance Network and existing links on the National Cycle Network.
Cycle Parking Hubs	High-quality, high-capacity cycle parking facilities in urban centres and at other key trip attractors to cater for increased demand in locations where Active Freeway networks are implemented (in Scotland's large urban areas, with priority given initially to the larger cities).
Behaviour Change Initiatives	Delivery of activities which provide encouragement, enablement and incentivisation for more people to make use of active and sustainable transport choices more often. The initiatives would complement many other interventions being considered for implementation by STPR2 by raising awareness of, and encouraging individuals to use, the most appropriate transport choice for their journey.
Expansion of 20mph limits and zones	Provision of new or expanded 20mph schemes across Scotland on appropriate roads in cities, towns and villages. This would reduce traffic speeds and create safer environments which promote and encourage active travel choices.

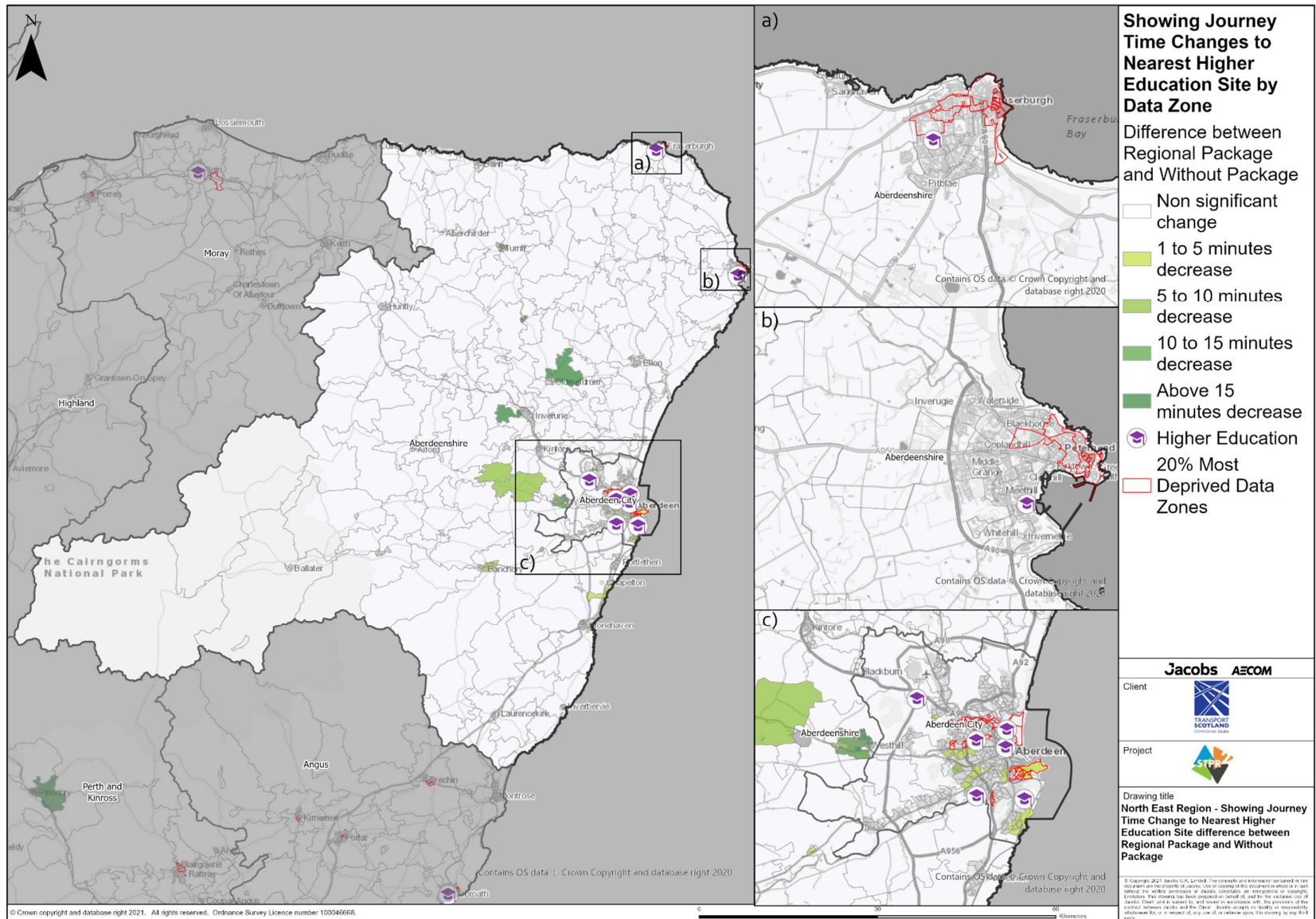


Bus Priority Infrastructure	Bus priority to deliver faster and more reliable journey times for bus passengers, particularly within Scotland's cities and towns where congestion is highest through support for local/regional schemes to improve bus priority. Funding for initial appraisal in some areas is currently being provided through the Bus Partnership Fund.
Decarbonisation of the Bus Network	Support to decarbonise the bus fleet through continuation of funding schemes to introduce zero emission vehicles to further stimulate rapid commercial investment in the roll out and associated infrastructure, including for vehicles used by the home to school and community transport sectors.
Demand Responsive Transport (DRT) / Community Transport	Consideration of whether the outcomes from pilot studies funded through Phase 1 of STPR2 would enable capital funding to be used to support Demand Responsive Transport/Community Transport in providing improved public transport connectivity in rural, island and peripheral areas.
Decarbonisation of Freight Deliveries	Interventions to support the decarbonisation of freight deliveries, including awareness and education activities, alternative fuel infrastructure and alternative fuel HGV trials.
Railway Freight Terminals and Facilities	Improving the modal shift of freight from road to rail primarily for trunk haul movements (but not exclusively) through a network of rail freight terminals and facilities to include direct connections to manufacturing facilities and warehousing. Would include review of potential terminal locations in the Region where modal shift from rail to rail may be possible.
Freight reliability, resilience and efficiency Improvements	Review options where the road freight industry can be supported by implementing a variety of hard and soft measures that will reduce overall disruption, improving journey times and reducing costs for operators, such as: strengthening bridges, 50mph speed limits, implementing freight route signage
Freight Consolidation and Last-Mile Logistics	Introduction of measures to improve freight connectivity within urban and rural areas, such as improved access to cargo bikes, approaches to consolidation centres to aid 'last-mile' logistics and use of innovative technologies.
Freight Incentives and Freight Best Practice	Evaluation of future of Freight Facilities Grant and Mode Shift Revenue Support to encourage more efficient, environmentally friendly practices within the freight industry, including promoting sustainable transport options
Rail Freight Enhancements	Rail freight enhancements required as outlined as part of the Scottish Strategic Freight Network (SSFN) by the Scotland Freight Joint Board in 2017. This infrastructure enables more efficient mode shift from road to rail. For Central Belt – Aberdeen & Aberdeen – Inverness may include: -Increased train length, improved route availability (axle weight), better freight schedules and clearance for taller and wider wagons, and removal of one train working on the Aberdeen-Waterloo branch
Northern Isles Connectivity	Connectivity options for the existing Northern Isles Ferry Services (NIFS) serving the Orkney Islands and Shetland Islands from the Scottish mainland including for freight and an option for a potential fixed link between Orkney and the Scottish mainland.
Decarbonisation of CHFS and NIFS Ferry Network	Decarbonisation of the CHFS and NIFS ferry networks as they exist in the Region
Improve Access to Major Ports and Airports	Introduction of a series of infrastructure and public transport service improvements that will provide better-quality surface connections to Scotland's major ports and airports by road, rail and public transport to allow Scotland to fully maximise the potential afforded by all its major ports and airports.

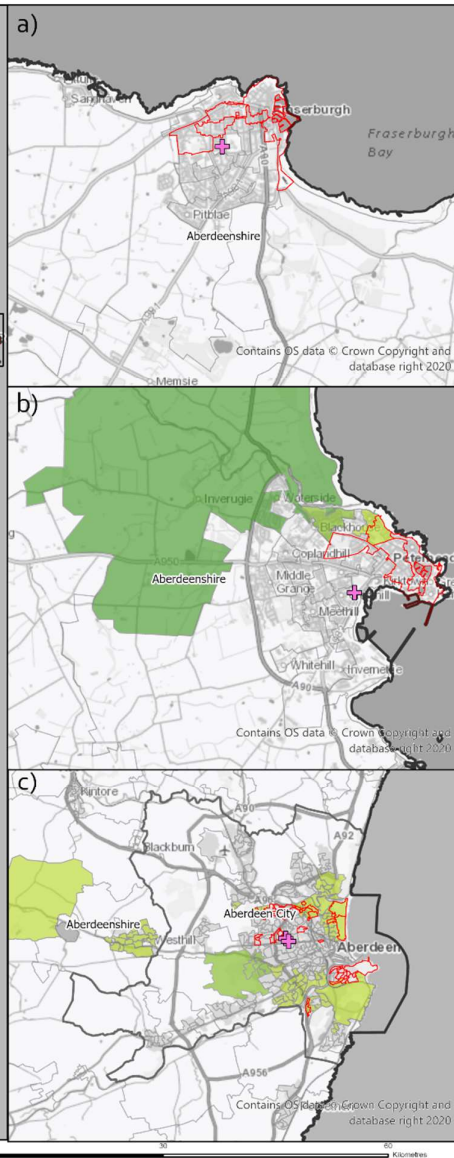
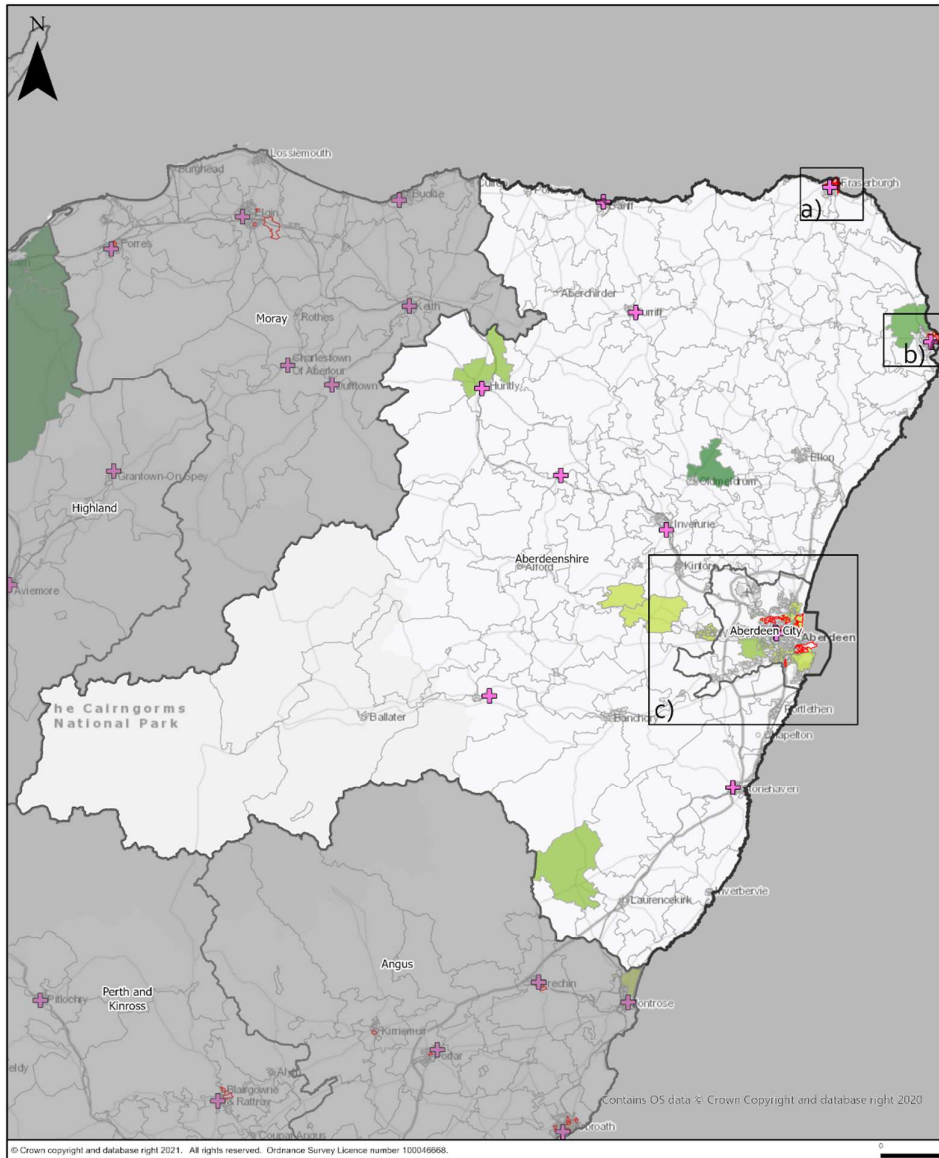
Trunk Road and Motorway Network: Renewal for Reliability, Resilience and Safety	Renew and improve the resilience of the trunk road and motorway network. This would include preventative and programmed structural renewals of carriageways and network structures for consideration over and above current maintenance levels. Potential measures would include carriageway and structure schemes as well as other roadside infrastructure, such as signage and safety barriers.
Trunk Road and Motorway Climate Change Adaptation and Resilience:	This focuses on the areas on the trunk road and motorway network most at risk of disruption due to weather events. This would involve identification of priorities and measures to strengthen the resilience of Scotland's trunk road and motorway network to adapt to a changing climate and unplanned events.
Aberdeen Rapid Transit	Development work currently ongoing by NESTRANS through the Bus Partnership Fund. Will be a scheme that prioritises buses connecting key destinations on the outskirts of Aberdeen to the city centre via busy residential corridors (including the A956/A92(South), A956/A90(North), A96 and A944 corridors).
Mobility Hubs and Multi-modal Interchanges	Construction of new or upgrades to existing mobility hubs, P&R sites and other multi-modal interchanges to improve interchanges between modes.
Regional Passenger Facilities/Station Enhancements	Building on the Phase 1 recommendation, improvements to public transport passenger facilities, focusing on bus stations seeking to improve passenger facilities both in terms of improved quality and in terms of improved accessibility for those with reduced mobility.
North East Trunk Road and Motorway Network Improvements	Improving trunk and motorway network road safety and strategic access to National Developments and Key Gateways. Road safety improvements will focus on route sections where calculated local KSI and/or PIA accident rates are over 2 times greater than the national rates for routes of a similar nature and standard, over the period 2015 to 2019. Improvements are anticipated to include widening / realignment on single carriageway sections, targeted overtaking opportunities and junction improvements, with a primary focus on helping to achieve the Scottish Government's Target of 'Vision Zero' by 2050.
A National Action Plan to support the transition to Low Emission/Ultra Low Emission/Electric Vehicles	A National Action Plan to support the transition to Low Emission/Ultra Low Emission/Electric Vehicles: A National Action Plan to support the transition to Low Emission/Ultra Low Emission/Electric Vehicles to support the delivery of the Scottish Government's net zero targets through a multi-faceted programme of interventions. Measures include funding streams to support the delivery of infrastructure and innovative schemes to allow an equitable transition across the country.
Changing Road User Behaviour	Implementation of speed enforcement technology and national road safety behaviour change campaigns, education and training initiatives to enable all road users to understand their road safety responsibilities, allowing them to improve their attitudes and behaviours for the safety of themselves and others.
Inter-7-Cities Strategic Corridor Enhancements:	Provision of enhancements on the Inter-7 Cities strategic rail network seeking to improve connectivity by reducing rail journey times on these corridors. Focussed on Dundee to Aberdeen and Aberdeen to Inverness rail corridor enhancements.
Decarbonisation of the Rail Network	Delivery of a continued, rolling programme of rail decarbonisation, including consideration of batteries and alternative fuel sources, in line with Transport Scotland's Rail Services Decarbonisation Action Plan (DAP).

Incident Management Software (IMS) Upgrade	New Incident Management System (IMS) Software to maintain and improve the current level of service across the network
Control Centre of the Future	This would involve investment enhancement of the capabilities of the Traffic Scotland National Control Centre, and how to plan for the future renewal and replacement of equipment, systems and services to maximise network operations.
Intelligent Transport Systems (ITS) Roadside Infrastructure	Investment in ITS which helps to ensure the availability, resilience, safety and quality of the transport infrastructure that is used to actively manage and control traffic during incidents and hazardous weather conditions.
Integrated Public Transport Ticketing	Integration of ticketing across public transport (bus, rail and ferries).

# Annex B: NAPTAT MAPPING



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**Showing Journey Time Changes to Nearest Major Hospital by Data Zone**

Difference between Regional Package and Without Package

- Non significant change
- 1 to 5 minutes decrease
- 5 to 10 minutes decrease
- 10 to 15 minutes decrease
- Above 15 minutes decrease
- ✚ Major Hospital
- ✚ 20% Most Deprived Data Zones

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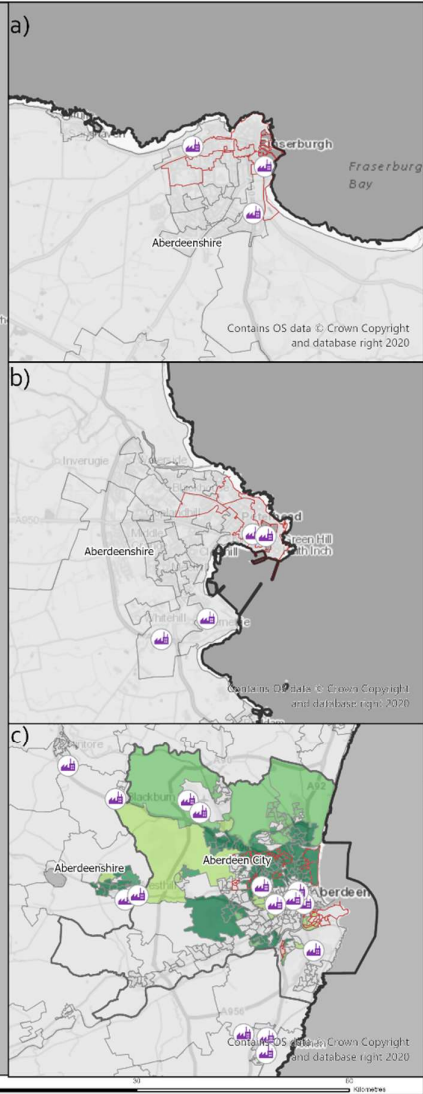
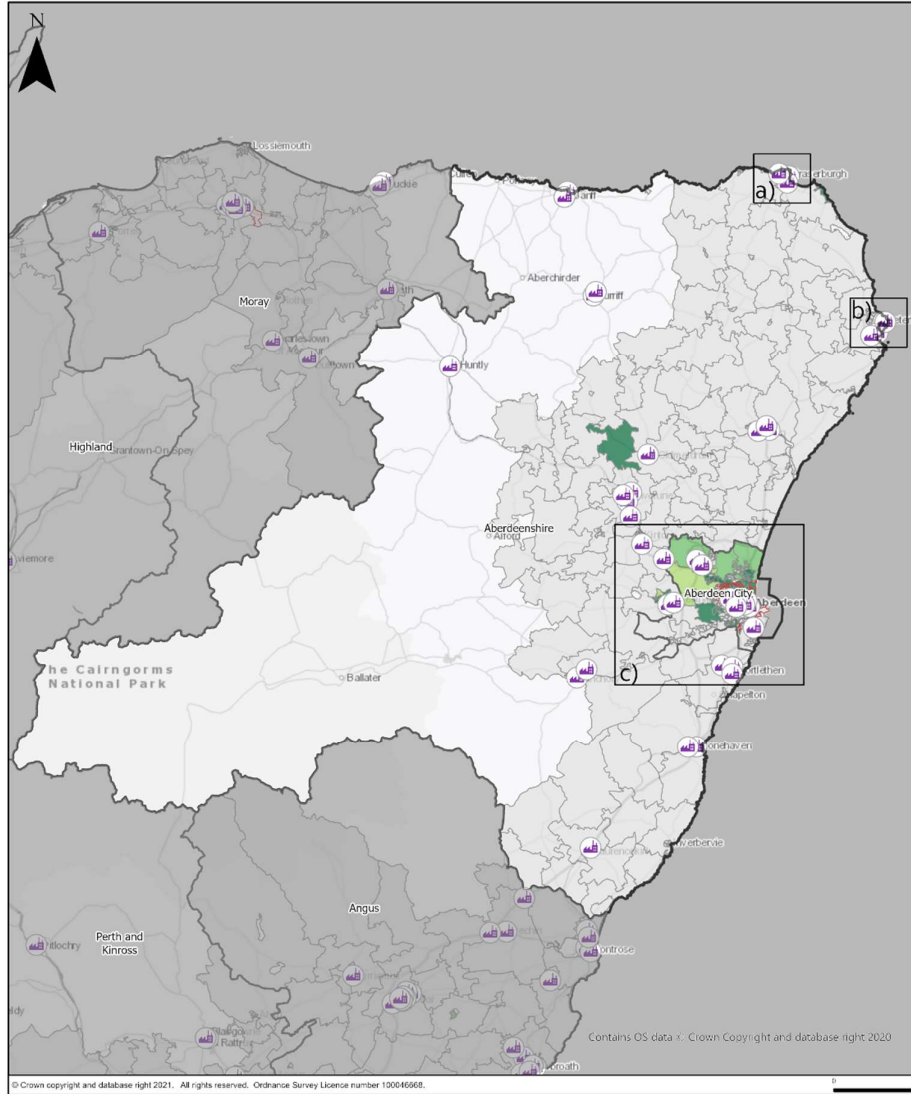
**JACOBS AECOM**

Client

Project

Drawing title  
**North East Region - Showing Journey Time Change to Nearest Major Hospital difference between Regional Package and Without Package**

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**Showing Percentage Change in Local Jobs that can be Accessed**  
 For Urban and Accessible Geographies for Journeys under 40 minutes

Difference between Regional Package and Without Package

- Non significant change
- 1%-5% more jobs that can be accessed
- 5%-10% more jobs that can be accessed
- 10%-15% more jobs that can be accessed
- >15% more jobs that can be accessed

⊙ Employment Centre

□ 20% Most Deprived Data Zones

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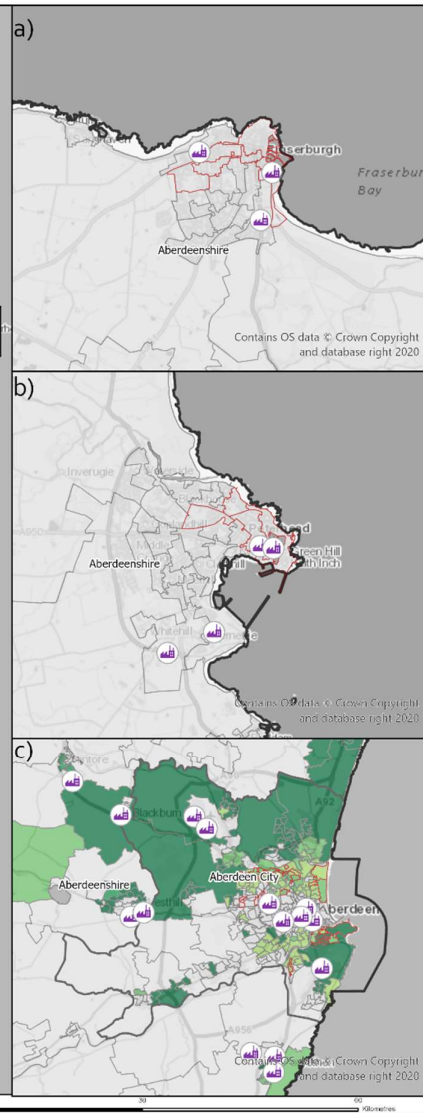
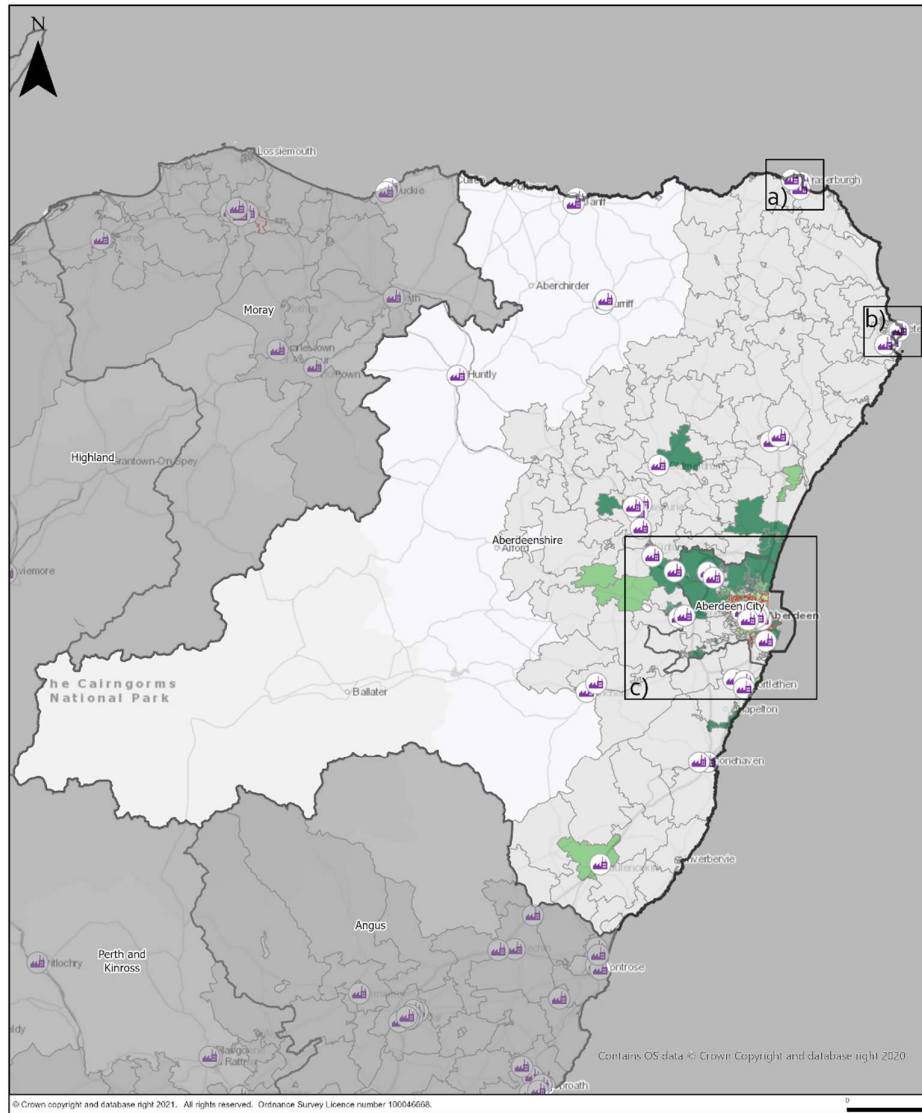
**JACOBS AECOM**

Client

Project

Drawing title  
**North East Region - Access to Employment Destinations (i.e. jobs) located Locally for Urban and Accessible Geographies**  
**Difference between Regional Package and Without Package**

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**Showing Percentage Change in Regional Jobs that can be Accessed**  
 For Urban and Accessible Geographies for Journeys under 60 minutes

Difference between Regional Package and Without Package

- Non significant change
- 1%-5% more jobs that can be accessed
- 5%-10% more jobs that can be accessed
- 10%-15% more jobs can be accessed
- >15% more jobs that can be accessed

Employment Centre  
 20% Most Deprived Data Zones

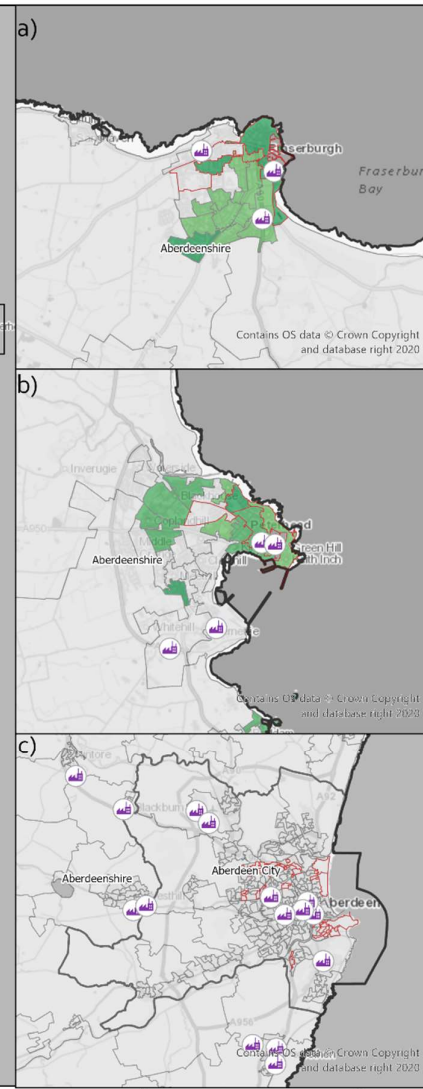
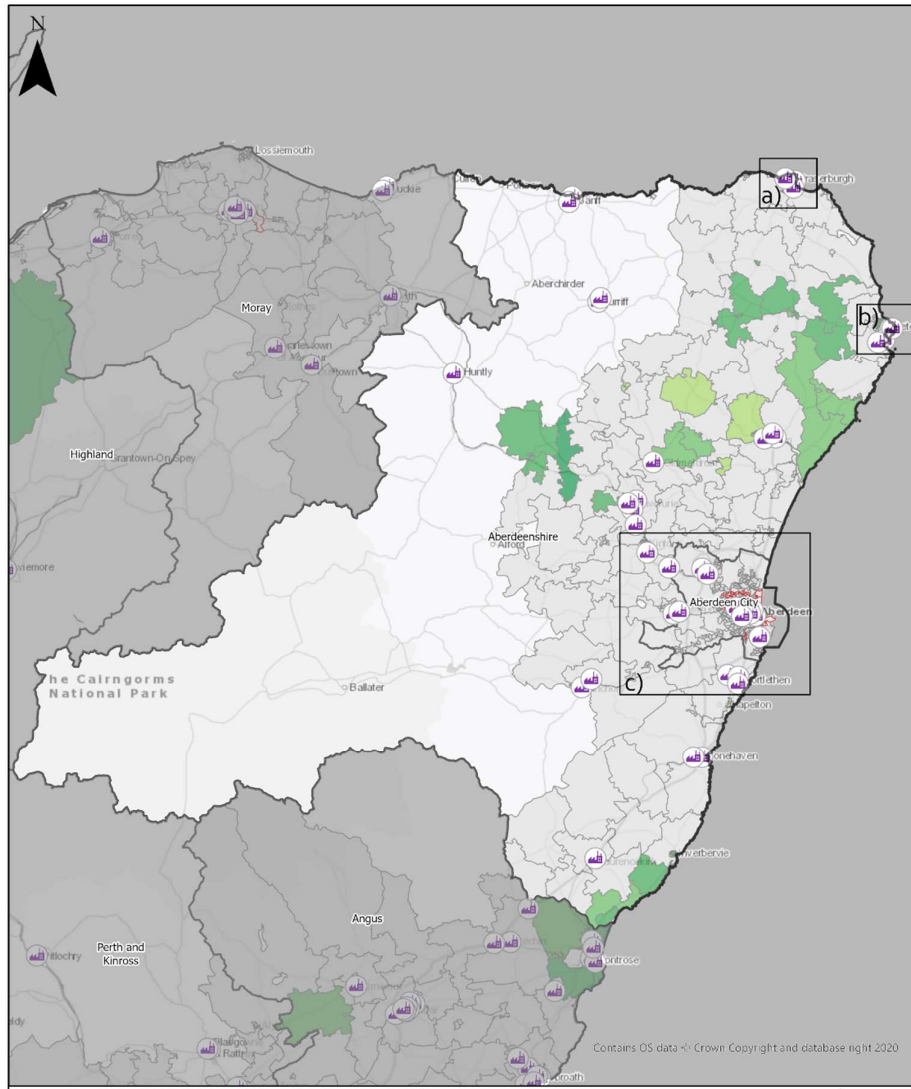
**JACOBS AECOM**

Client

Project

Drawing title  
**North East Region - Access to Employment Destinations (i.e. jobs) located Regionally for Urban and Accessible Geographies**  
**Difference between Regional Package and Without Package**

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**Showing Percentage Change in Regional Jobs that can be Accessed**

For Urban and Accessible Geographies for Journeys under 120 minutes

Difference between Regional Package and Without Package

- Non significant change
- 1%-5% more jobs that can be accessed
- 5%-10% more jobs that can be accessed
- 10%-15% more jobs that can be accessed
- >15% more jobs that can be accessed

Employment Centre

20% Most Deprived Data Zones

**Jacobs AECOM**

Client: TRANSPORT SCOTLAND

Project: STP

**Drawing title**  
 North East Region - Access to Employment Destinations (i.e. jobs) located Regionally for Urban and Accessible Geographies Difference between Regional Package and Without Package

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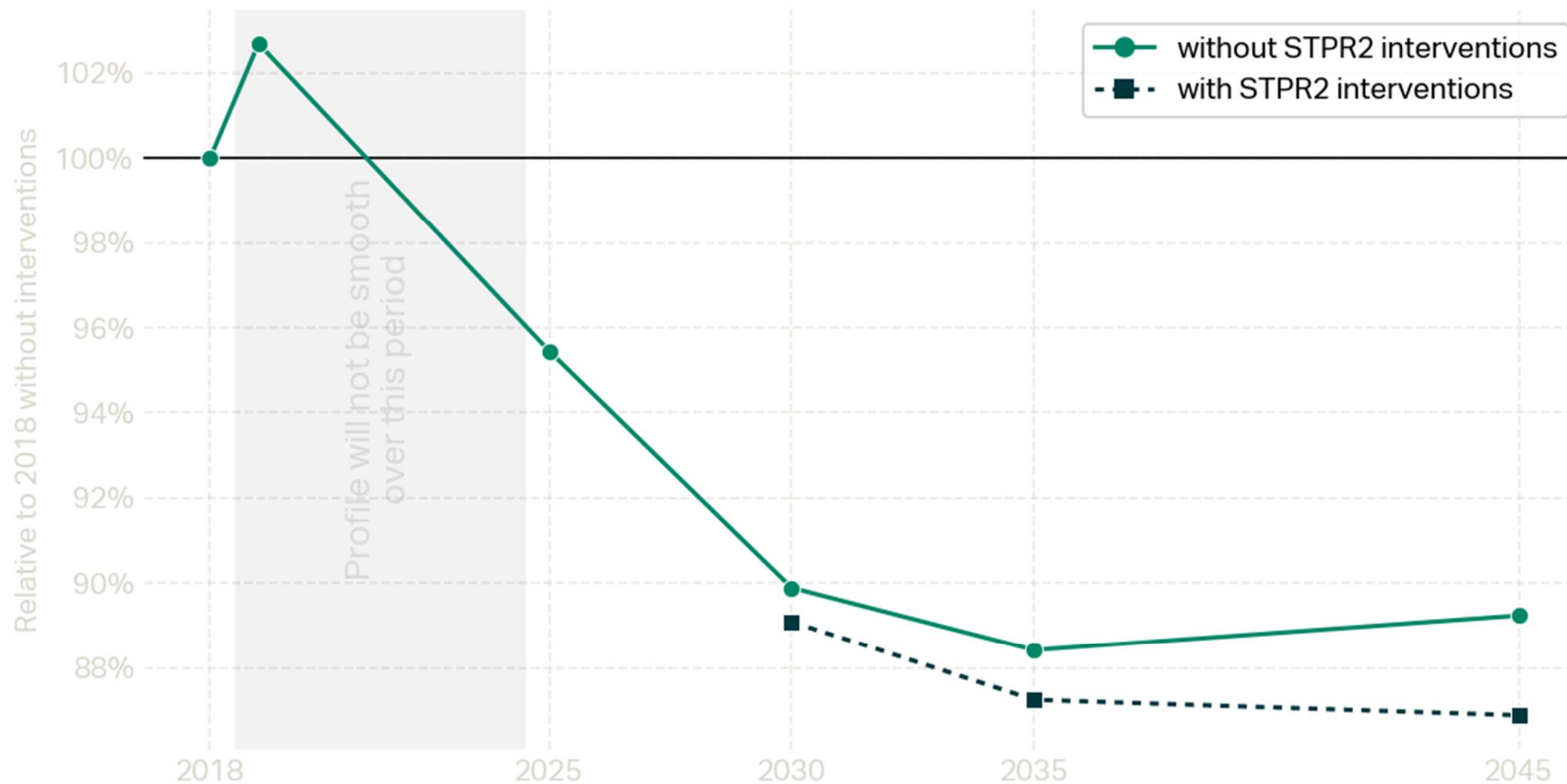


## Annex C: Detailed Appraisal Outputs

Traffic Modelling Outputs: NOTE – Aberdeen Western Peripheral Route is included in the forecasts from 2019 onwards. This is a contributing factor to falls in veh-kms from 2018, under both Low and High scenarios.

### North East Scotland Low Motorised Traffic / Emission Demand

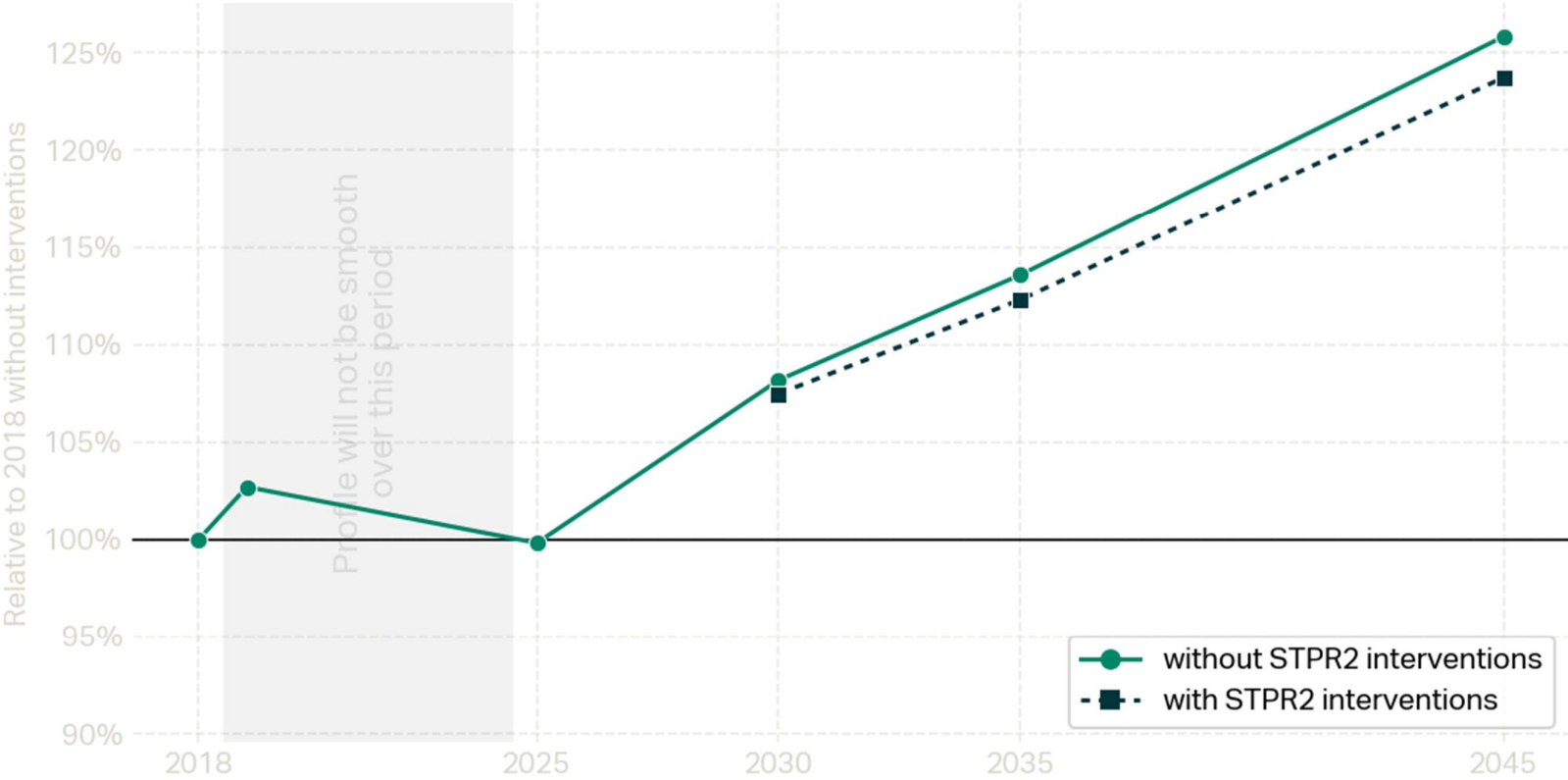
Modelled Annual Road Traffic (vehicle-kilometres)



Analysis undertaken January 2022. "Road" includes both Car and Goods Vehicle trips.

# North East Scotland High Motorised Traffic / Emission Demand

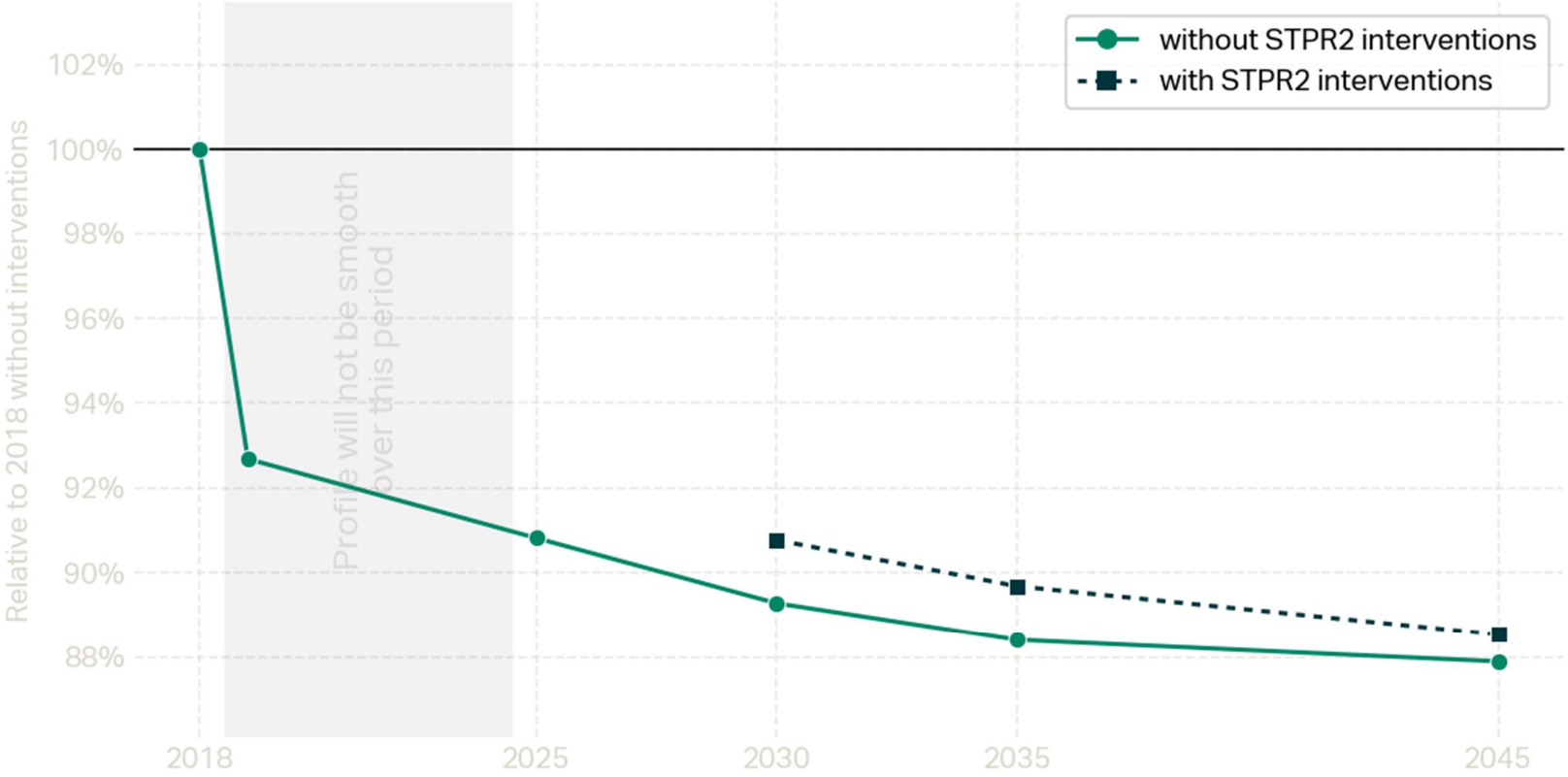
Modelled Annual Road Traffic (vehicle-kilometres)



Analysis undertaken January 2022. "Road" includes both Car and Goods Vehicle trips.

# North East Scotland Low Motorised Traffic / Emission Demand

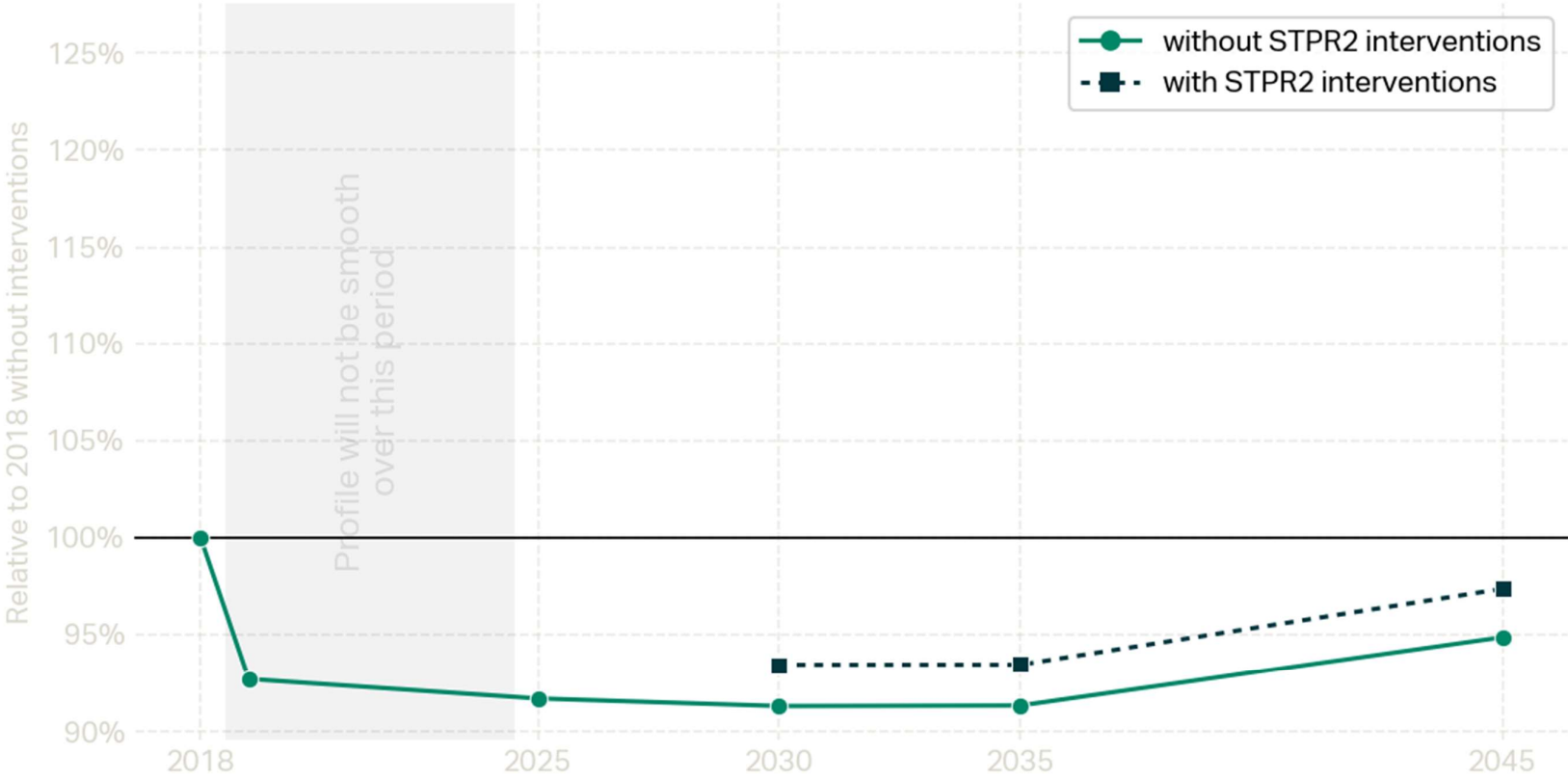
Modelled Road Journey Time (minutes per km)



Analysis undertaken January 2022. "Road" includes both Car and Goods Vehicle trips.

# North East Scotland High Motorised Traffic / Emission Demand

Modelled Road Journey Time (minutes per km)



Analysis undertaken January 2022. "Road" includes both Car and Goods Vehicle trips.

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- <sup>i</sup> Scottish Government, Urban Rural Classification, 2016, <https://www.gov.scot/publications/scottish-government-urban-rural-classification-2016/pages/5/>
- <sup>ii</sup> Scottish Government, Scotland's Census, 2011, <https://www.scotlandscensus.gov.uk/search-the-census#/explore>
- <sup>iii</sup> Scottish Government, Scotland's Census, 2011, <https://www.scotlandscensus.gov.uk/search-the-census#/explore>
- <sup>iv</sup> Jacobs, Aberdeen City Council, Aberdeenshire Council, Scottish Government, HM Government, ONE, Aberdeen City Region Deal Strategic Transport Appraisal, Pre-Appraisal, 2020, [https://www.transport.gov.scot/media/49045/stpr2-north-east-initial-appraisal-case-for-change-aberdeen-stag-pre-appraisal-interim-report\\_lores-final-report-published-october-2020.pdf](https://www.transport.gov.scot/media/49045/stpr2-north-east-initial-appraisal-case-for-change-aberdeen-stag-pre-appraisal-interim-report_lores-final-report-published-october-2020.pdf)
- <sup>v</sup> NOMIS, Local Authority Profile, 2019, <https://www.nomisweb.co.uk/reports/lmp/la/contents.aspx>
- <sup>vi</sup> Scottish Government, Scottish Index of Multiple Deprivation Local and National Share Calculator, 2020, <https://www.gov.scot/publications/scottish-index-of-multiple-deprivation-2020v2-local-and-national-share-calculator-2/>
- <sup>vii</sup> Scottish Government, Scottish Index of Multiple Deprivation, 2020, <https://simd.scot/>
- <sup>viii</sup> ONS, Regional Gross Domestic Product: Local Authorities, 2019, <https://www.ons.gov.uk/economy/grossdomesticproductgdp/datasets/regionalgrossdomesticproductlocalauthorities>
- <sup>ix</sup> Jacobs, Aberdeen City Council, Aberdeenshire Council, Scottish Government, HM Government, ONE, Aberdeen City Region Deal Strategic Transport Appraisal, Pre-Appraisal, 2020, [https://www.transport.gov.scot/media/49045/stpr2-north-east-initial-appraisal-case-for-change-aberdeen-stag-pre-appraisal-interim-report\\_lores-final-report-published-october-2020.pdf](https://www.transport.gov.scot/media/49045/stpr2-north-east-initial-appraisal-case-for-change-aberdeen-stag-pre-appraisal-interim-report_lores-final-report-published-october-2020.pdf)
- <sup>x</sup> NOMIS, Local Authority Profile, 2019, <https://www.nomisweb.co.uk/reports/lmp/la/contents.aspx>
- <sup>xi</sup> Aberdeen City Council, ONE, Aberdeenshire Council, Regional Economic Strategy, 2015, [https://investaberdeen.co.uk/images/uploads/Regional\\_Economic\\_Strategy\\_0.pdf](https://investaberdeen.co.uk/images/uploads/Regional_Economic_Strategy_0.pdf)
- <sup>xii</sup> Scottish Government, Scotland Noise Map, <https://noise.environment.gov.scot/noisemap/>
- <sup>xiii</sup> Aberdeen International Airport, Noise Action Plan 2018-2023, <https://www.aberdeenairport.com/media/uacsljpa/final-noise-action-plan-2018-compressed.pdf>
- <sup>xiv</sup> Air Quality in Scotland, Air Quality Management Areas, 2021, <http://www.scottishairquality.scot/laqm/aqma>
- <sup>xv</sup> HM Government, UK local authority and regional carbon dioxide emissions national statistics, 2019, <https://data.gov.uk/dataset/723c243d-2f1a-4d27-8b61-cdb93e5b10ff/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-2019>