

Draft South West Scotland 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 reports¹ 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 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.

¹ <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/>

- 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

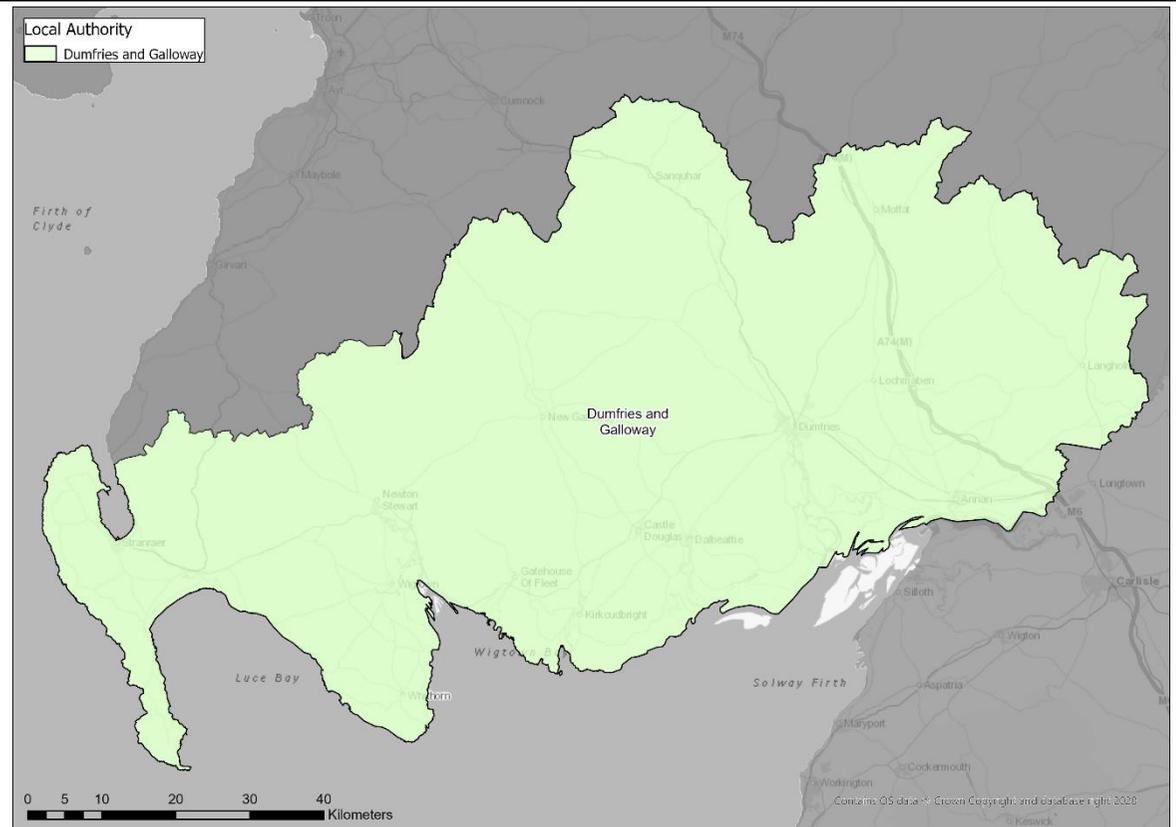
Metric	Comment/Consideration
CO ₂ emissions	Likely to underestimate the benefits associated with public transport interventions due to the more limited representation of transport systems in urban areas and a degree of insensitivity to mode shift in TMfS.
Mode Share	Likely shift to public transport modes 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: South West Scotland

Regional Context

Overview: The South West Scotland region (herein referred to as “The Region”) is one of three ‘advanced regions’ to have had their Case for Change studies undertaken in advance of STPR2. In these regions the Case for Change was established based on Pre/Initial appraisal studies, which included identification of problems and opportunities as well as option generation and sifting (which were informed by significant stakeholder engagement and data analysis). To ensure consistency with the other Case for Change exercises, the option sifting exercise for the three ‘advanced regions’ was revisited in 2020 through the STPR2 option sifting framework to cross-check the results; this confirmed broadly the same list of options to be recommended for further appraisal through STPR2. To assist with this further appraisal, the baseline data gathered during the ‘advanced studies’ was updated to match that used for all other regions for STPR2. In order to align with the wider process for establishing the Case for Change across Scotland, and to update the context for the Region, this Appraisal Summary Table therefore refers to some of this more recent data – this does not, however, affect the problems and opportunities established, or options generated and sifted, during the ‘advanced studies’.



Geographic Context: The South West Scotland region comprises the local authority area of Dumfries and Gallowayⁱ. The Region is primarily rural but there are urban areas with the Scottish Government’s Urban Rural Six-Fold classification showing the following breakdown in the Region: Other Urban Areas (30%), Accessible Small Towns (17%), Remote Small Towns (8%), Accessible Rural (24%) and Remote Rural (21%).

With regards to the Region’s transport network, there are several National Cycle Network routes, while public transport network is fairly limited; the most populated network is in and around Dumfries, with frequency much lower in rural parts of the Region. The rail network includes connections from Stranraer north to Glasgow where interchange to other services is possible while stations in the east, including Dumfries, are

served by services to Northern England and Glasgow. The West Coast Mainline connecting Scotland to England also passes through the Region. Dumfries and Galloway is home to Scotland's only Northern Ireland ferry ports at Cairnryan, offering regular connections to Belfast and Larne. The ports at Cairnryan have also been identified as major ports for the purposes of STPR2. Trunk road connections in the Region are provided by the A75 Gretna to Stranraer and the A77 south of Ayr provides connections to Stranraer from the north; both of these routes provide access to the ports at Cairnryan. Other trunk roads include the A76 Dumfries to Cumnock, A701 Dumfries to Moffat and A74(M).

Social Context: In 2019, the Region had a population of 148,860 which was a decrease of 1.6% from 2011; this compares to an increase across Scotland of 3.2% over the same period. In 2016, the largest settlement was Dumfries at 34,230, followed by Stranraer with 9,852 residentsⁱⁱ. The Region's population is spread over a large geographic area, resulting in low population density which can make provision of viable public transport services challenging and lead to higher levels of car dependency. Access to a car or van is high across the Region, with only 21.9% of households having no access in 2011 compared to the national average of 30.5%. This is indicative of a high degree of car dependence in more rural areas. While car dependency across the Region as a whole is high, there are several locations where the proportion of households with no car is above the national average, including Annan (31.9%) and Stranraer (33.9%). At a regional level, driving a car or van is the most common mode of travel to work or study (64.8%); this is followed by 'Works mainly from home' (16%) and 'On Foot' (12.8%). Overall, public transport use for travel to work is lower than the Scotland average across the Region.

Data from the Scottish Index of Multiple Deprivation (SIMD) shows that 9.5% of all data zones in the Region (equating to 19 data zones) in the 2020 release were within the 20% most deprived in Scotland. The main pockets of deprivation are most evident within Dumfries (9 data zones) and Stranraer (5 data zones), though there are also deprived data zones in Annan and the Kirkconnel area.

Economic Context: The Region is heavily dependent on Dumfries & Locharbriggs as a centre for employment; with a quarter of people employed in the health industry, which is concentrated around Dumfries & Galloway Royal Infirmary. This contributes to an above average dependence on the public sector for employment in the Region. With regards to workplace based employment growth, this increased in Dumfries & Galloway by 1.0% per year between 2013 and 2018, which is a faster rate than Scotland as a whole for the same period (0.7%)ⁱⁱⁱ. Over the ten year period 2008 – 2018, GVA increased in the South of Scotland area (which includes Dumfries & Galloway and Scottish Borders) by approximately 17%, which is a higher rate than Scotland as a whole^{iv}.

Environmental Context: Within the Region, there are many areas classified as environmentally sensitive, with varying levels of statutory protection. The Region contains a significant number of designated areas, including Galloway Forest Park which is a Gold-tier Dark Skies Park, and many SSSIs, including Flow of Dergoals and Carlingwark Loch which are adjacent to the A75. There are also areas of Ancient Woodland, particularly in the south and east of the Region. The key conservation areas in the Region are located in Annan, Stranraer and Dumfries, close to potential transport corridors. Furthermore, there are large Garden and Designed Landscape (GDL) Areas throughout the study area, including Castle Kennedy to the south of Cairnryan, Cally Palace and Threave Gardens along the A75 between Gatehouse of Fleet and Castle Douglas, Kinmount House near Annan and Drumlanrig Castle to the north of Thornhill. There are no Air Quality Management Areas (AQMAs) in the Region.

Problems:

- **Barriers to Active Travel Facilities and Infrastructure:** there is a perception that active travel facilities at interchange points (including bus and rail stations), and infrastructure to these points, are limited. For example, overall there is a mix of traffic free and on road routes (NCN7) between Gretna and Gretna Green Rail Station and some on road routes in the vicinity of Annan, Dumfries, Lockerbie, and Stranraer Stations; however, these NCN routes do not link directly to the stations. There is also a lack of (safe) off-road cycle routes alongside the key trunk road routes, offering limited active travel accessibility across the Region.
- **Public Transport Connectivity and Frequency:** there is a lack of overall public transport connectivity across the Region to enable effective access to employment, education, healthcare, retail and social opportunities and city and town centres. With regards to employment, analysis undertaken for the South West Scotland Transport Study found that Dumfries and the south east of the Region close to the border with England are most well connected to employment by public transport and the areas to the south of the A75 are the most poorly connected. Frequency of bus and rail services was also identified as a problem, with large gaps in bus and rail timetables in some parts of the Region. Other problems identified related to public transport include high fares and reliability of services.
- **Vehicle Platooning:** there is a mix of local and strategic traffic on the A75, with a high proportion of HGVs and platooning (or convoys) of vehicles. Surveys demonstrated that a significant proportion of platoons were formed by five or more vehicles, including at the A75 Castle Douglas westbound. Vehicle platooning contributes towards limited overtaking opportunities, which in turn contributes to driver frustration.
- **Slow Journey Times:** average speeds on the A75 are slower compared to other strategic routes at 45 mph; this is compared to 52 mph on the A9 Perth – Inverness and 56 mph on A74(M) Glasgow – Carlisle. This results in longer average journey times.
- **Journey Time Competitiveness:** analysis considered typical average road speeds for the ‘last 100 miles’ of journeys to Irish Sea ports: Cairnryan (from Gretna) - 44 mph; Heysham (from M6 north) - 55 mph; Liverpool Stena Terminal (from M6 north) - 51 mph; Holyhead (from M56/M6) - 58 mph. On this basis, travelling the last 100 miles to Cairnryan (from Gretna) takes up to 30 minutes longer than the equivalent trip to Holyhead. This level of road connectivity could further affect the choice of Irish Sea route, and potentially undermine the competitive position of the ports at Cairnryan. It is noted that Heysham, Liverpool Stena Terminal and Holyhead each benefit from direct connections to high standard roads, while differing HGV speed limits may also be a factor in the journey time results.
- **Long Diversionary Routes:** although journey times on the A75 can be longer compared to similar distances on other routes, journey times are generally reliable. However, network incidents and resulting lengthy diversions can impact journey times and reliability. For example, journey times increase by around 2 hrs 20 mins in the event of A75 closure at Cardoness Castle.
- **Accident Severity:** accident analysis showed that overall accident rates in the Region (2012 to 2016) are lower than the Scottish national rate, but when accidents do happen, they tend to be more serious in nature (e.g. accident breakdown by severity shows that the proportion of killed or seriously injured (KSI) is higher than the equivalent national rate).

- **Public/Stakeholder Dissatisfaction:** an online survey undertaken as part of the South West Scotland Transport Study in 2018 and completed by over 3,100 respondents identified high levels of dissatisfaction with aspects of the road network in the Region, including:
 - Over 80% dissatisfied with quality of road surfacing
 - Over 70% with overtaking opportunities
 - Over 60% dissatisfied with road safety

Opportunities:

- **Encouraging Inward Investment:** improvements to the overall accessibility of the area, by all modes, has the potential to encourage inward investment to the Region; this could also help to stimulate investment at the ports with associated positive impacts on the local economy.
- **Supporting Tourism:** the Region has a strong tourism offering with a long coastline, forests and green spaces but poor connectivity and long journey times have been cited as inhibiting the Region's tourism potential. Sustainable tourism can be promoted through better public transport connections and ensuring active travel is accommodated as part of the strategic sustainable transport network.
- **Promoting Rail Freight:** the timber industry is highly active in the Region and there is an opportunity to move timber more sustainably by rail if suitable road-to-rail facilities were available.
- **Realising Development Opportunities:** relocation of the ferry port from Stranraer to Cairnryan in 2011 has resulted in vacant land and an opportunity for redevelopment of Stranraer Waterfront. Stakeholder engagement has noted that for any development to be a success, good transport infrastructure and strong connectivity is required. The inactive Ministry of Defence site at Eastriggs and the former nuclear power station at Chapelcross both offer development opportunities with their potential better realised if easier and better accessibility to the sites were enabled.
- **Growth Deal:** specific projects and activities to be supported as part of the Borderlands Growth Deal are broadly outlined in an agreement signed in March 2021. The aforementioned redevelopment of the Chapelcross former power station development has been included as a project which encourages green growth within the Deal. Chapelcross is also identified as a national development site in the draft National Planning Framework 4, alongside Stranraer Gateway which supports the regeneration of Stranraer.
- **Increased electric vehicle use:** an increase in the availability of electric vehicle charging infrastructure has the potential to increase accessibility to sustainable vehicles throughout the Region, providing environmental benefits through reduced emissions.

Detailed Appraisal Package Description

Package Groupings: Refer to Annex A for further grouping details

Active Travel	<ul style="list-style-type: none"> Improving Access to Bikes Connected Neighbourhoods Improving Active Travel on Trunk Roads through Communities Increasing Active Travel to School 	<ul style="list-style-type: none"> Village – Town Active Travel Connections Long-distance Active Travel Network Connecting Towns by Active Travel
Bus	<ul style="list-style-type: none"> Decarbonisation of the Bus Network Bus Priority Infrastructure 	<ul style="list-style-type: none"> Demand Responsive Transport (DRT) / Community Transport
Rail	<ul style="list-style-type: none"> Corridor Enhancements: Central Belt Decarbonisation of the Rail Network 	<ul style="list-style-type: none"> High Speed Rail
Interchange	<ul style="list-style-type: none"> Mobility Hubs and Multi-modal Interchanges 	<ul style="list-style-type: none"> Regional Passenger Facilities/Station Enhancements
Behaviour Change	<ul style="list-style-type: none"> Behaviour Change Initiatives Expansion of 20mph limits and zones 	
Freight	<ul style="list-style-type: none"> Decarbonisation of Freight Deliveries Railway Freight Terminals and Facilities Freight Reliability, Resilience and Efficiency Improvements 	<ul style="list-style-type: none"> Freight Consolidation and Last-Mile Logistics Freight Incentives and Freight Best Practice Rail Freight Enhancements
Resilience	<ul style="list-style-type: none"> Improve Access to Major Ports and Airports Trunk Road and Motorway Network Renewal for Reliability, Resilience and Safety 	<ul style="list-style-type: none"> Trunk Road and Motorway Climate Change Adaptation and Resilience
Technology	<ul style="list-style-type: none"> Incident Management Software (IMS) Upgrade Control Centre of the Future 	<ul style="list-style-type: none"> Intelligent Transport Systems (ITS) Roadside Infrastructure Integrated Public Transport Ticketing
Road	<ul style="list-style-type: none"> South West Trunk Road and Motorway Network Improvements 	<ul style="list-style-type: none"> A National Action Plan to support the transition to Low Emission/Ultra Low Emission/Electric Vehicles Changing Road User Behaviour

Fit with Established Policy

Package Performance Against NTS2 Priorities and Outcomes:

Reduces inequalities	Reduces inequalities	Moderate 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	Moderate 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 and SWestrans Regional Transport Strategy as well as non-transport-specific plans, such as the Dumfries and Galloway Regional Economic Strategy and Borderlands Inclusive Growth Deal.

Interventions included in this package will also support more resilient connections to the Draft National Planning Framework 4 national developments at Stranraer Gateway, Chapelcross Power Station Redevelopment and the ports at Cairnryan.

The policy framework for the Region has a strong emphasis on delivering strengthened connectivity to support a sustainable economy. This includes providing travel choices which promote equality and social inclusion and which promotes modal shift away from private car, increases walking and cycling opportunities, and provides an attractive place for visitors and businesses to invest and grow; the package thereby closely aligns 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 CO₂eq (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>31,300 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>CO₂eq is treated as a nationally important pollutant and so it has not been appraised for individual regions.</p> <p>National CO₂eq 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</p>

STPR2 Transport Planning Objectives (TPOs) Assessment

STPR2 TPOs	Appraisal Metrics		Performance Summary									
	Metric	Low		High								
	Change in mode share by active travel for all journeys	<p>Potential increase in walking from 17% mode share to 20% mode share (3 percentage points)</p> <p>Potential increase in cycling from 0.9% mode share to 13% mode share (12 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></th> <th>Without package</th> <th>With STPR2 package</th> </tr> </thead> <tbody> <tr> <td>Walking</td> <td>17%</td> <td>20%</td> </tr> <tr> <td>Cycling</td> <td>0.9%</td> <td>13%</td> </tr> </tbody> </table> <p>Note that the cycling and walking growth forecasts have been developed independently of each other. 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>		Without package	With STPR2 package	Walking	17%	20%	Cycling	0.9%	13%	<p>traded grid-based technology (i.e. battery) will support reducing CO₂eq emissions. Across both scenarios the interventions would reduce emissions of CO₂eq.</p> <p>There are predicted to be significantly higher overall emissions in the High Travel Demand scenario, either with, or without, the package. 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>The economic impacts associated with air quality were assessed using the Department for Environment Food & 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>Overall, the package will contribute to the net-zero emissions target by:</p> <ul style="list-style-type: none"> • Enabling more passenger journeys to be made by active modes and public transport • Decarbonising most public transport operations • Facilitating uptake of electric vehicles
	Without package	With STPR2 package										
Walking	17%	20%										
Cycling	0.9%	13%										
	Change in motorised veh-kms travelled	26.1 million veh km 1% decrease (see Annex C)	22.9 million veh km 1% decrease (see Annex C)									

STPR2 Transport Planning Objectives (TPOs) Assessment

STPR2 TPOs	Appraisal Metrics			Performance Summary
	Metric	Low	High	
	Scoring	++	++	<ul style="list-style-type: none"> Enabling some road freight to switch to rail or other low carbon modes Providing a more resilient road network that will reduce congestion and associated emissions
An inclusive strategic transport system that improves the affordability and accessibility of public transport.	Change in transport poverty risk	Although the STPR2 interventions don't 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"> 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) Improving inclusive accessibility to public transport stops/stations Seeking to promote public transport use and reduce operating costs, hence enhancing network sustainability

	<p>Change in Accessibility - population catchments increases to key services by journey time by public transport.</p>	<ul style="list-style-type: none">• Major Hospital Accessibility: The largest change in population accessibility of all the destination types considered was for major hospitals, whereby up to an additional 2,200 people in the Region (primarily around Dumfries) would be able to access a major hospital by public transport within 30 minutes, which represents a 5% increase compared to that in the without package assessment.• Major Shopping Centre Accessibility: A small increase (around 1,300 people) in the number of people able to access their nearest shopping centre within a 60 minute public transport journey, compared to that in the without package assessment. <p>Accessibility to Major Food stores and Higher Education were also assessed but the impacts were found to be negligible.</p> <p>(see Annex B for mapping)</p>	
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STPR2 Transport Planning Objectives (TPOs) Assessment

STPR2 TPOs	Appraisal Metrics		Performance Summary
	Metric	Low	
	Scoring	+	+
A cohesive strategic transport system that enhances communities as places, supporting health and wellbeing.	Change in mode share by active travel for all journeys	<p>Potential increase in walking from 17% mode share to 20% mode share (3 percentage points)</p> <p>Potential increase in cycling from 0.9% mode share to 13% mode share (12 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"> • 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) • Reduce the adverse impacts of car use on communities and health (including reduced air pollution, noise, accident risk and perceived road danger) <p>The analysis shows that through improved uptake of walking and cycling, there would be a forecast reduction of between 3 and 4 premature deaths per annum due to the health benefits arising from active travel.</p>
	Potential for Change in 'Place'	<p>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.</p> <p>Particular benefits may arise in towns and villages in the Region where interventions reduce the impact of road traffic through settlements.</p>	
	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 WHO's HEAT tool. This shows that approximately 3.8 premature deaths would be prevented per annum.</p>	
	Scoring	++	

STPR2 Transport Planning Objectives (TPOs) Assessment

STPR2 TPOs	Appraisal Metrics			Performance Summary
	Metric	Low	High	
An integrated strategic transport system that contributes towards sustainable inclusive growth in Scotland.	Increased labour catchment by sustainable travel (PT/Active Travel)	Local access to employment, which represents accessibility of employment located in the surrounding area of an origin, showed minor improvements in the numbers of additional people who could access employment within 40 minutes by public transport compared to the without package assessment. For regional employment accessibility, the model showed that the package would also provide small improvements in the number of jobs that could be accessed in less than 60 minutes by public transport compared to the without package assessment, primarily associated with movements to Ayr, Dumfries and Stranraer. (see Annex B for mapping)		<p>The package will contribute to sustainable inclusive growth in Scotland by:</p> <ul style="list-style-type: none"> Improving integration of transport modes (especially between active modes and public transport) and between transport and major developments Improving journey time reliability Enabling more people to travel by improving the accessibility and affordability of the transport system, through greater mode choice and reduced reliance on the private car. This enables 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>Encouraging modal shift to sustainable modes and reducing the volume of vehicles on the network is anticipated to marginally improve journey time reliability for all vehicles, providing benefits to businesses across the Region. A reduction in lost vehicles hours of between 14,000 and 18,000 hours is anticipated in the respective growth scenarios for business and commercial travel, contributing towards sustainable inclusive growth in Scotland.</p>
	Change in lost time due to congestion (for business/commercial transport)	Reduction of 14,200 hours 4% decrease	Reduction of 18,100 hours 3% decrease	
	Scoring	++	++	
A reliable and resilient strategic	Change in accidents (PIA)	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 improve reliability, safety and personal security on the transport system by:

STPR2 Transport Planning Objectives (TPOs) Assessment

STPR2 TPOs	Appraisal Metrics			Performance Summary
	Metric	Low	High	
transport system that is safe and secure for users.	and 'damage-only')	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 be significantly safer.		<ul style="list-style-type: none"> Improving journey time reliability, including through reduced likelihood of significant network disruptions Reducing the risk of road accidents at hotspot locations on the trunk road network e.g. through targeted infrastructure improvements on the A75 and A77 such as carriageway realignment and widening, the provision of overtaking opportunities and junction improvements. (It should be noted that replacing a priority junction with a signalised junction could increase the overall number of accidents, however the severity of accidents occurring should reduce). Reducing perceived risks to road safety and to personal security, so enabling more people (particularly children, women and older people) to travel independently Changing attitudes of road users, through behavioural change campaigns. This is anticipated to increase awareness of
	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>		
	Change in lost time due to congestion	Reduction of 37,500 hours 5% decrease (see Annex C)	Reduction of 61,100 hours 4% decrease (see Annex C)	

STPR2 Transport Planning Objectives (TPOs) Assessment

STPR2 TPOs	Appraisal Metrics		Performance Summary
	Metric	Low	
	Journey Time Reliability / Availability of alternatives (modes/routes)	<p>This package is forecast to reduce overall motorised vehicle kilometres by 2% under the Low and High growth scenarios respectively, thus reducing the risk of accidents occurring as a result of travel reductions, whilst improving resilience by reducing the number of road closures associated with accidents.</p> <p>Targeted improvements, such as carriageway realignment and widening and the provision of overtaking opportunities, are designed to improve journey time reliability, reduce driver frustration and the risk of accidents, which can impact route resilience. 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> <p>Encouraging modal shift to sustainable modes and reducing the volume of vehicles on the network is anticipated to improve journey time reliability, as indicated by reducing time lost to congestion by 37,500 and 61,100 hours in the Low and High growth scenarios respectively</p>	<p>interactions with those walking, wheeling and cycling.</p> <ul style="list-style-type: none"> Improving active travel provision and providing more dedicated and segregated routes for walking, cycling and wheeling.
	Scoring	++	++

STAG Assessment

STAG Criteria	Sub Criteria	Scoring		Performance Summary
		Low	High	
Environment	Air Quality	+	+	<p>Total emissions of NO_x were predicted to decrease in future in both the High and Low scenario.</p> <p>Total emissions of NO_x were predicted to be effectively zero in 2045 in the Low scenario, and 2052 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_x, 3% reduction in PM₁₀ and 3.1% reduction in PM_{2.5} in the Low scenario, and a 2.7% reduction in PM₁₀ and a 2.8% reduction in PM_{2.5} in the High scenario.</p>
	Noise and Vibration	+	+	<p>The anticipated modal shift is 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 road and rail improvements and High Speed Rail, however the magnitude of effect will depend on the design and location of the interventions.</p>
	Biodiversity and Habitats	Please refer to SEA performance summary text in the 'Other Criteria Assessment' section below.		
	Geology and Soils	Please note the scoring has been based on the SEA methodology for scoring, which has been agreed with the SEA Consultation Authorities.		

	Land Use (including Agriculture and Forestry)			
	Water, Drainage and Flooding			
	Historic Environment			
	Landscape			
Climate Change	Greenhouse Gas Emissions	+	+	CO ₂ eq is treated as a nationally important pollutant so it has not been appraised for individual regions.
	Vulnerability to Effects of Climate Change	+	+	National CO ₂ 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.
	Potential to Adapt to Effects of Climate Change	+	+	<p>Across both scenario's the package will reduce emissions of CO₂eq, although the change is greater in the High scenario due to overall higher emissions.</p> <p>The package provides an opportunity to adapt the transport network to the predicted effects of climate change, with one intervention specifically focused on adaptation.</p>
Health, Safety & Wellbeing	Change in Accidents (PIA and 'damage- only')	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. Improvements, such as carriageway realignment and widening, the provision of overtaking opportunities and junction improvements are anticipated to reduce the number and severity of accidents on

<p>Percentage accident change for Targeted Infrastructure Improvements over 60 years, using default accident rate (PIA only)</p>	<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>the trunk road network in the Region. Mode shift to sustainable modes will, by improving natural surveillance, make paths, bus stops, interchanges, and services, reduce the perception of isolation and this, accompanied by improved quality of facilities will improve perceived security.</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>Security</p>	<p>The package will, by increasing the number of people travelling actively, tend to improve natural surveillance and will, through improvements to lighting and urban realm, tend to reduce the number of locations at which security is a concern. Options related to improving public transport passenger facilities and enhancing stations, such as improvements to waiting facilities, would consider security as part of interventions.</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 £100m to £250m.</p> <p>The package will also tend, by encouraging car journeys to switch to less polluting modes, to improve local air quality, and hence health outcomes.</p>	
<p>Access to Health and Wellbeing Infrastructure</p>	<p>Up to an additional 2,200 people in the Region are able to access a major hospital by public transport in a journey time of under 30 minutes compared to the without package</p>	

		<p>assessment. The most significant reduction was in Dumfries, particularly to the south and east of the town compared to without package assessment.</p> <p>(see Annex B for mapping)</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'.</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 £50m to £100m</p> <p>Accidents Present Value of Benefits (PVB) of approximately £1m to £10m</p>	<p>Present Value of Benefits (PVB) of approximately £50m to £100m</p> <p>Accidents Present Value of Benefits (PVB) of approximately £1m to £10m</p>	<p>The modest 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 public transport interventions and to a lesser extent the Rail and Interchange interventions, are the main contributors to the public transport user benefits total in the Low Travel Demand 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>The level of public transport user benefits reduces slightly in the High Travel Demand scenario, although this is partially offset by an increase in road user benefits. Nevertheless, even under this scenario the sustainable transport interventions contribute to the majority of user benefits.</p> <p>In terms of accident savings, the level of benefits is similar in both planning demand scenarios. This is due to the reduction in road-based vehicle-kilometres travelled in the Region, as a result of the 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	Improving the active travel network and interchanges may provide users with access to a wider public transport network, by enabling easier access to multi-modal trips.	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.
	Active Travel Network Coverage	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 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	For deprived areas in the Region, around 900 additional people can now access the nearest major hospital site within a 30 minute journey by public transport compared to the without package assessment. (see Annex B for mapping)	
	Affordability	Although the STPR2 interventions don't 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 to access and connectivity between modes.	
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Deliverability

Criterion	Summary Assessment
Feasibility	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. There will be further work required on the feasibility of larger infrastructure provision including road improvements. Overall the package is expected to have a minor positive impact against this criterion.
Affordability	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.
Public Acceptability	The package is expected to improve accessibility, connectivity, choice and make transport cleaner, more efficient and more attractive across the Region, which would be positively received. Enhancements to improve safety and journey times on the trunk road network would also be supported. There may be concerns associated with interventions where major 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.

Other Criteria Assessment	
Criterion	Performance Summary
SEA	<p>The package supports modal shift to more sustainable modes of transport. Enhanced rail network, and the creation of mobility hubs/interchanges and the improvements to passengers' services and facilities seeks 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 and promotes a 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 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 rail network enhancement and High Speed Rail interventions 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>

	<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 minor positive impact on addressing this criterion overall.</p>
ICIA	<p>The package is not relevant to islands and would therefore have a negligible impact on addressing this criterion. However, there could be a minor positive impact for those from island communities visiting the mainland for services through improved accessibility to key services within the Region.</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> <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 overall.</p>

FSDIA	<p>The main pockets of deprivation are most evident within Dumfries (9 data zones) and Stranraer (5 data zones), though there are also deprived data zones in Annan and the Kirkconnel area. The package has the potential to improve public transport connectivity through rail corridor enhancements and High Speed Rail 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.</p> <p>The package would therefore be expected to have a minor positive impact on addressing this criterion overall.</p>
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Annex A: Grouping Interventions

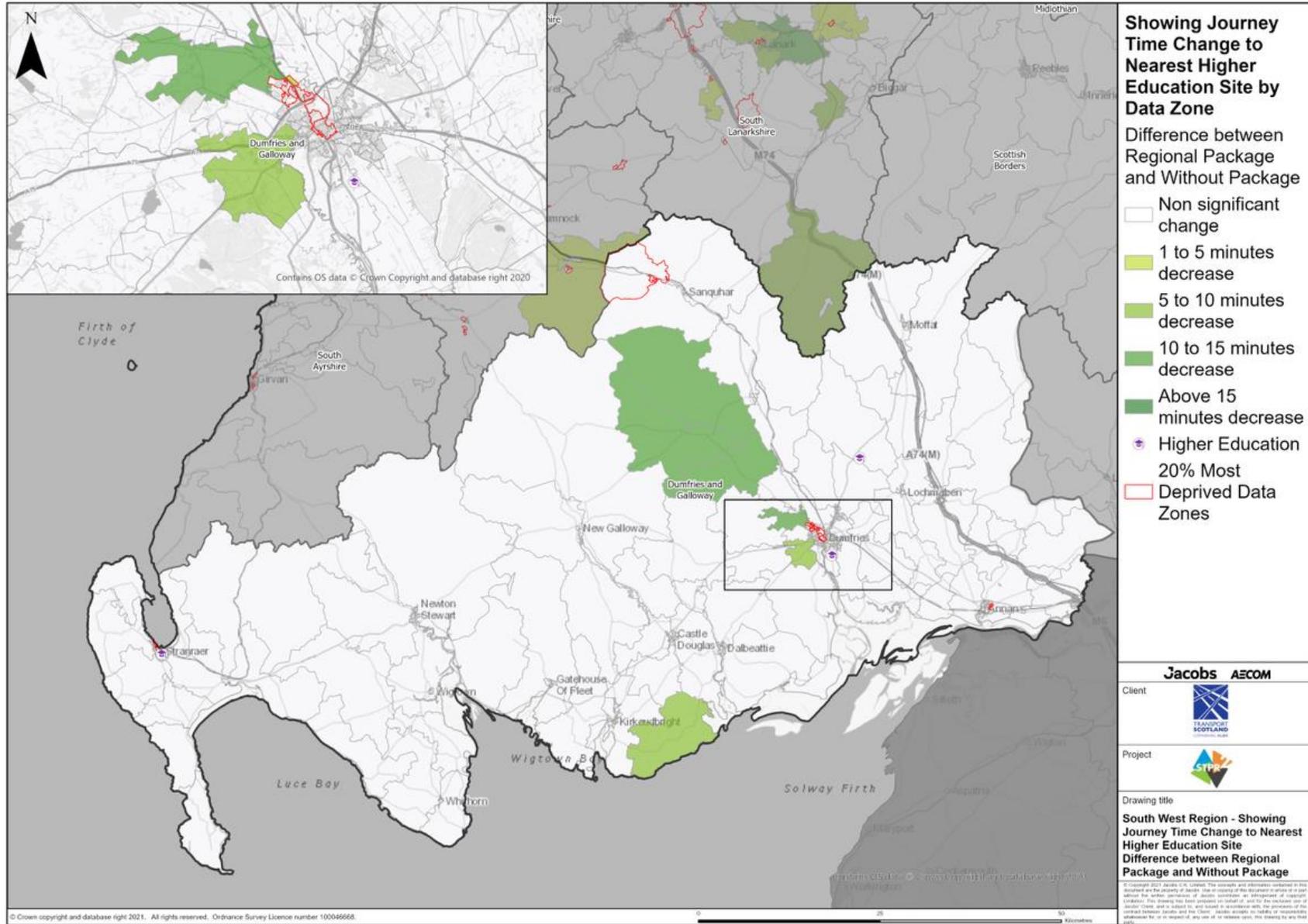
South West Scotland Region	
Grouping Description	Regional Description
Improving Access to Bikes	Improve access to bikes through a multi-faceted programme of interventions to enable people to cycle (and also to support walking/wheeling as appropriate), and to give them confidence and skills to do so, 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.
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.
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 STPR2 interventions 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 towns where congestion is highest; including 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	Bus fleet decarbonisation, including use of funding to further stimulate rapid commercial investment in the roll out of zero-emission buses 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; at a regional level this includes a review of potential terminal locations.
Freight Reliability, Resilience and Efficiency Improvements	Freight reliability, resilience and efficiency improvements sets out options on how 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. This includes: <ul style="list-style-type: none"> - Central Belt - Gretna via Glasgow South West Line - Improved route availability (axle weight), better freight schedules and clearance for taller and wider wagons
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.

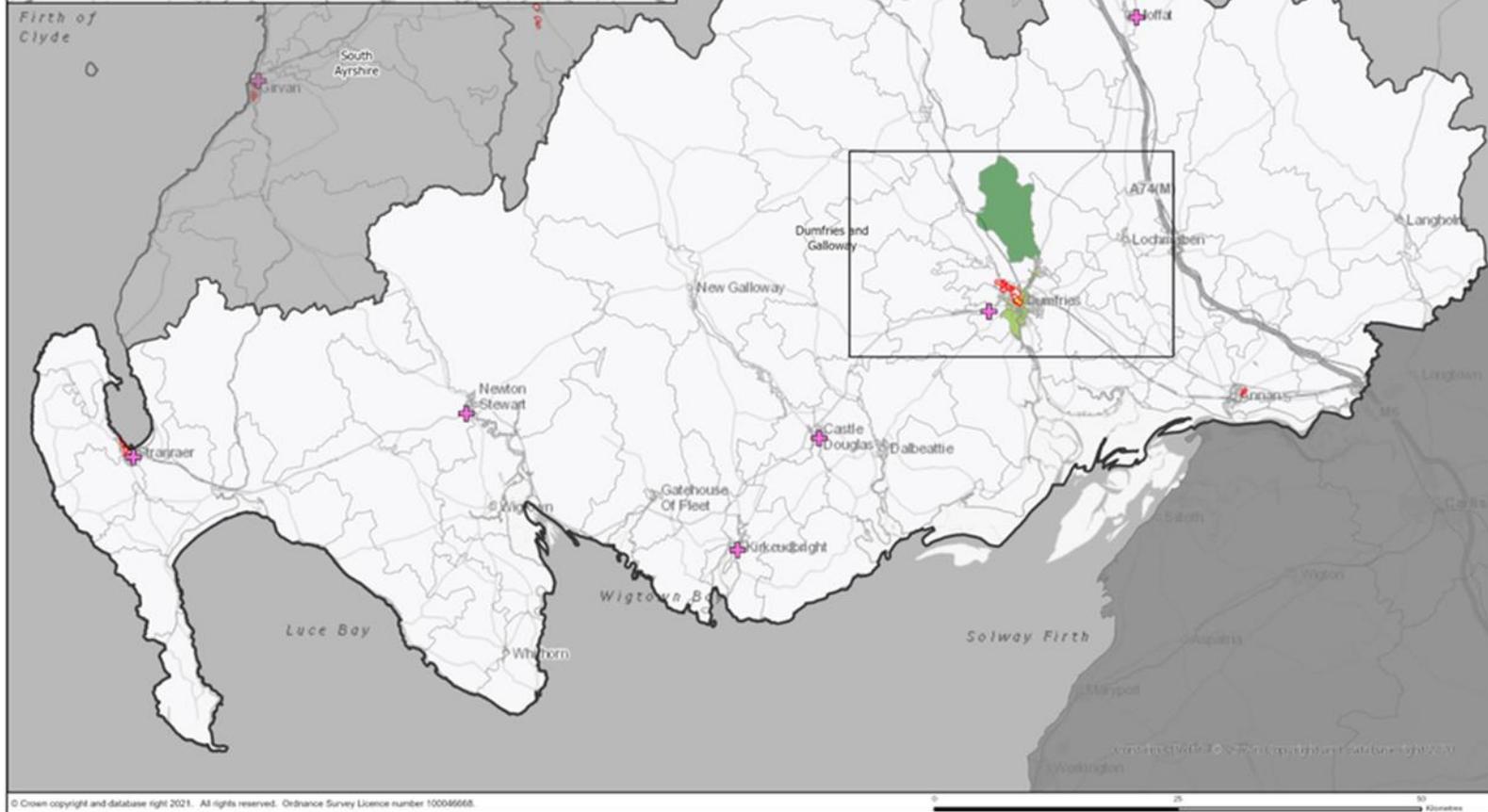
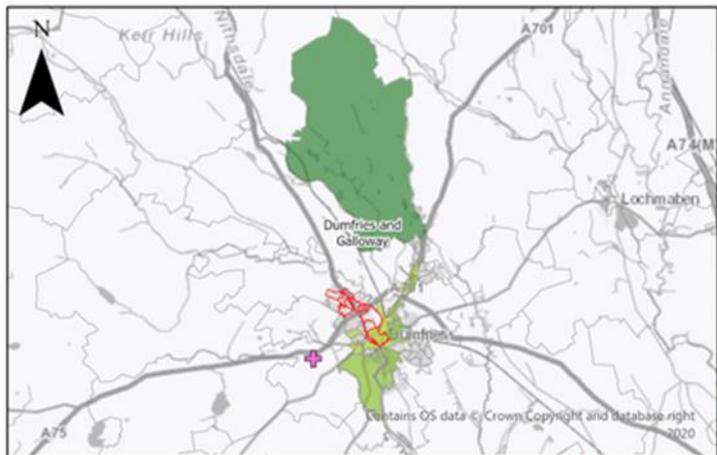
Trunk Road and Motorway Climate Change Adaptation and Resilience	This focuses on the areas on the trunk road and motorway network most at risk of disruption due to weather events. This would involve identification of priorities and measures to strengthen the resilience of Scotland's trunk road and motorway network to adapt to a changing climate and unplanned events.
Mobility Hubs and Multi-modal Interchanges	Construction of new or upgrades to existing mobility hubs 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.
South West 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 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.
Corridor Enhancements: Central Belt	Provision of a platform for rail network enhancements within the Central Belt and on cross-border routes. This includes enhancements to reduce capacity constraints on the West Coast Main Line including interventions across the wider network such as the Glasgow-Dumfries-Carlisle route.
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).
High Speed Rail	Investment in measures to complement the introduction of cross border High Speed Rail, including options which are required to facilitate Scotland to England rail journeys including HS2 services and options which will facilitate new HSR services within Scotland. Options that will support the introduction of higher speed connections to reduce journey time between Glasgow/Edinburgh and London.

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



South West Scotland Region – Showing Journey Time Change to Nearest Higher Education Site Difference between Regional Package and Without Package



Showing Journey Time Change 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

JACOBS AECOM

Client 

Project 

Drawing title
South West Region - Showing Journey Time Change to Nearest Major Hospital by Data Zone Difference between Regional Package and Without Package

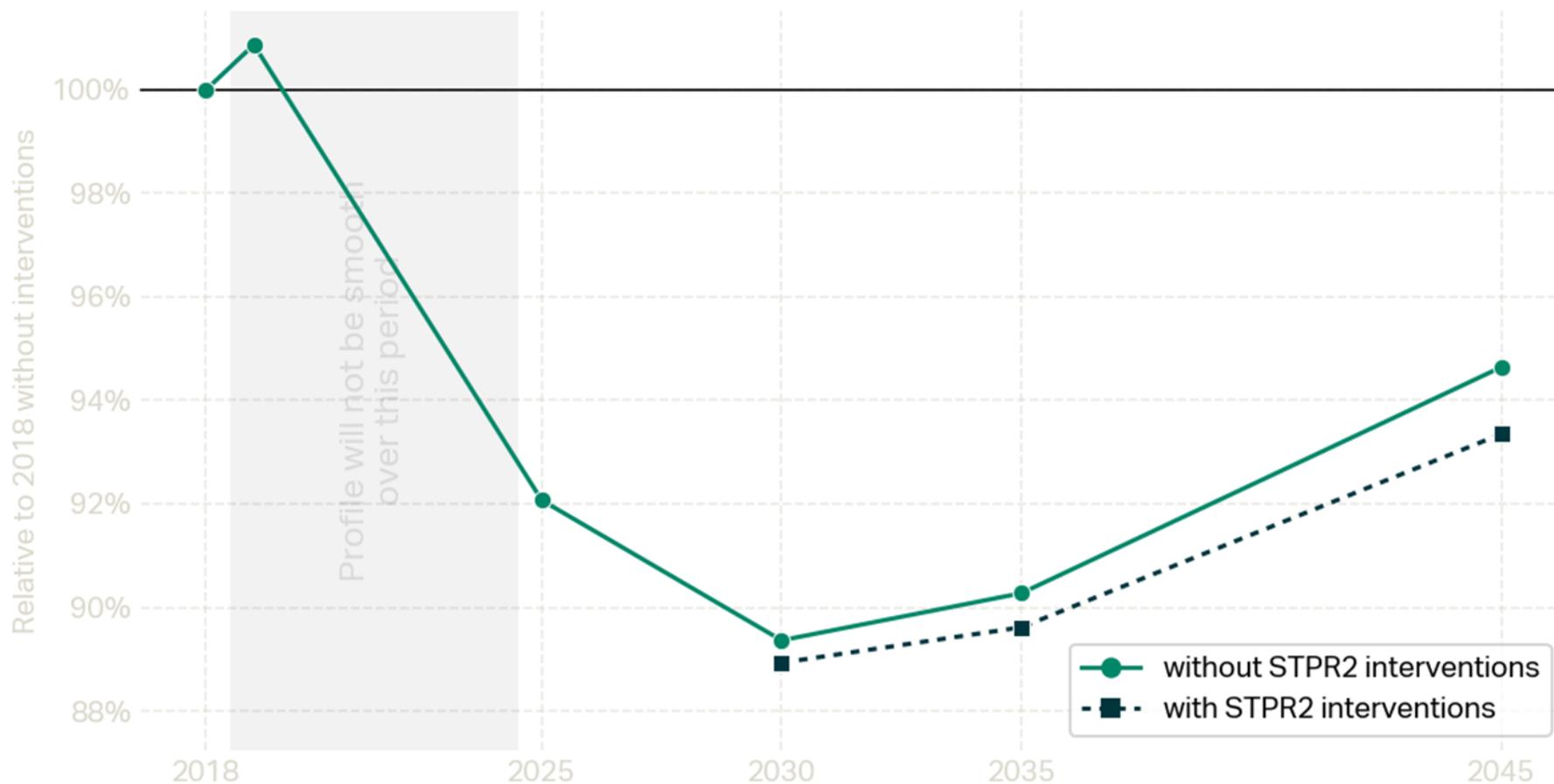
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South West Scotland Region – Showing Journey Time Change to Nearest Major Hospital by Data Zone Difference between Regional Package and Without Package

South West Scotland Low Motorised Traffic / Emission Demand

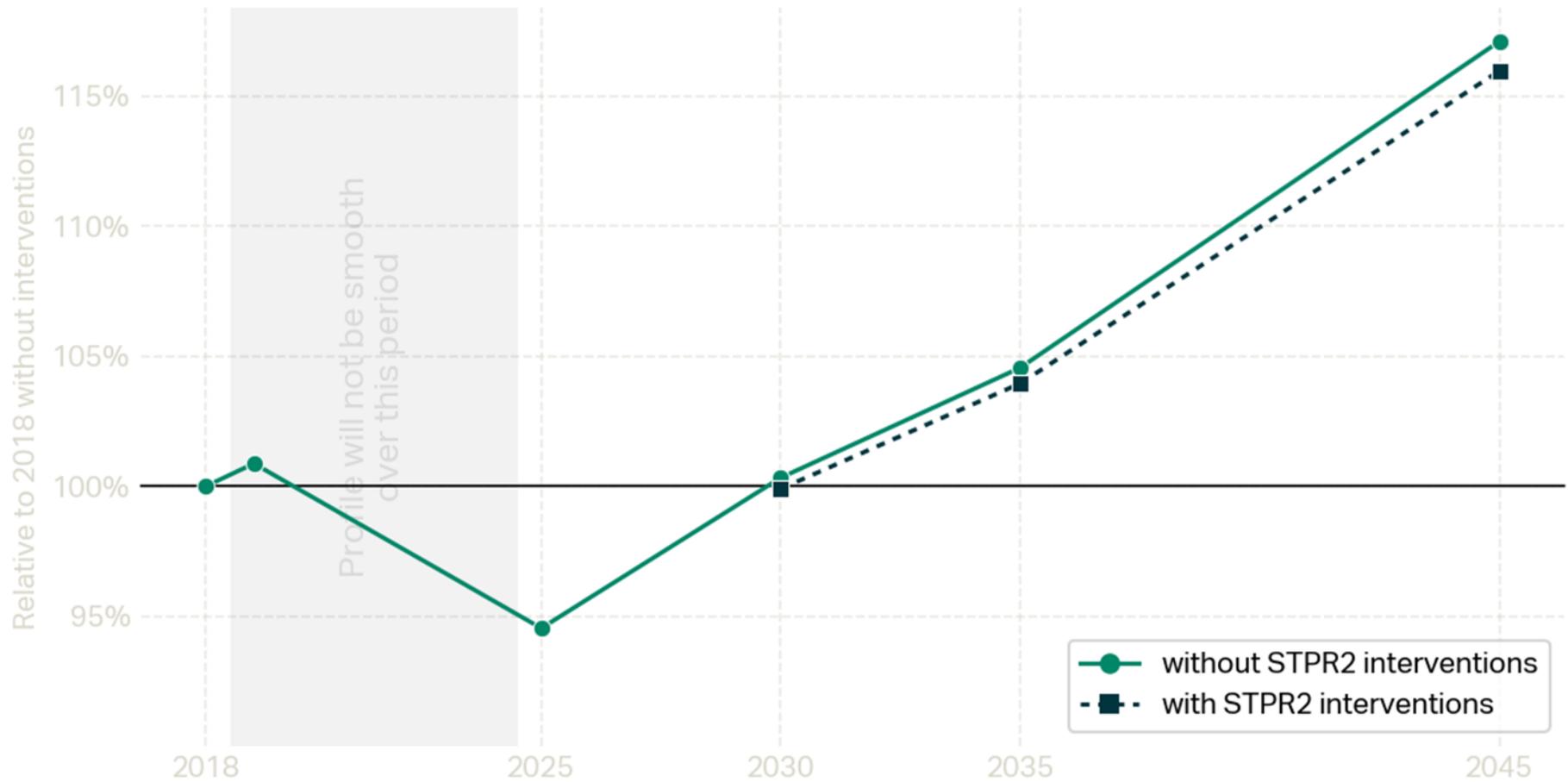
Modelled Annual Road Traffic (vehicle-kilometres)



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

South West Scotland High Motorised Traffic / Emission Demand

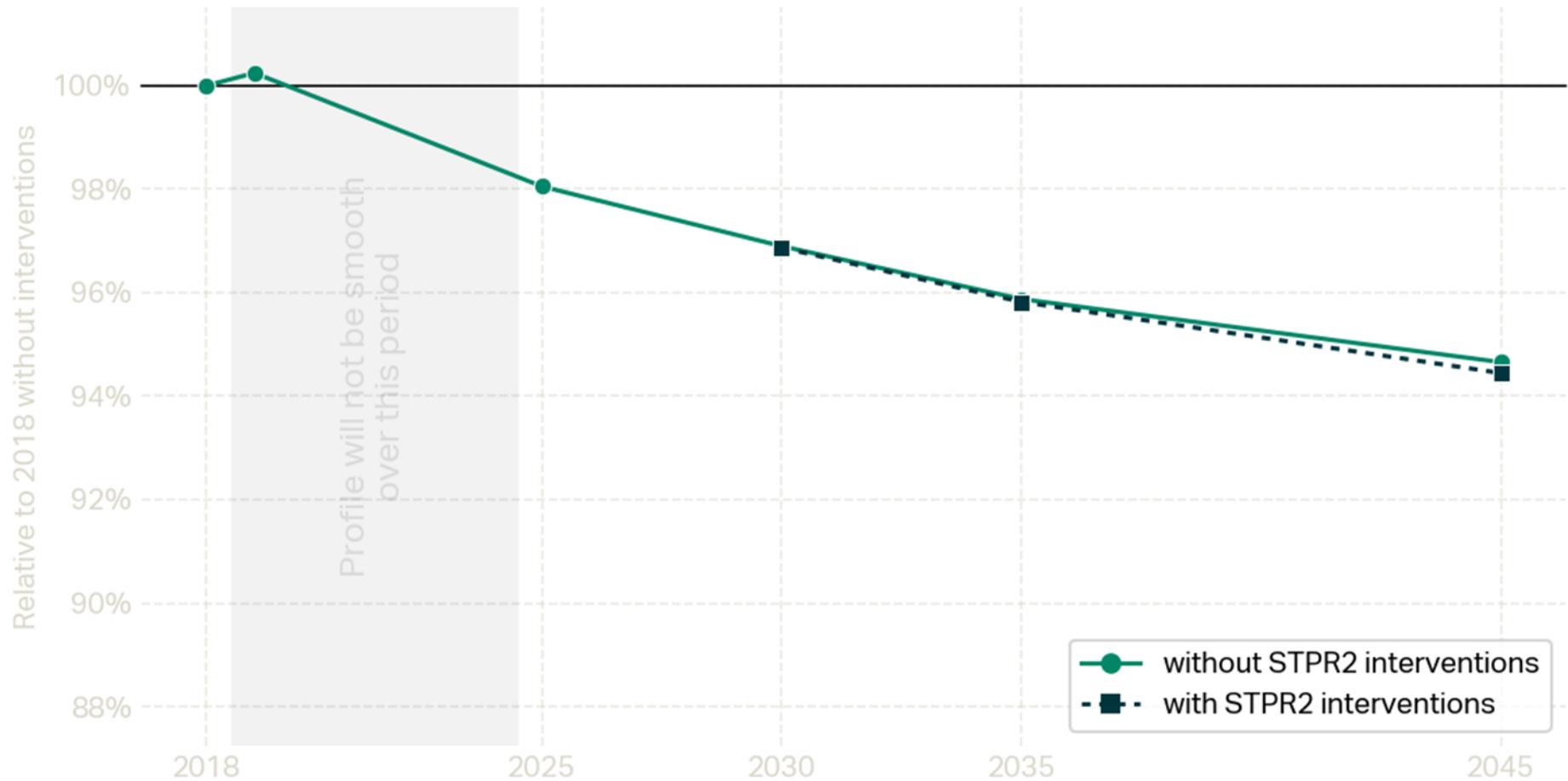
Modelled Annual Road Traffic (vehicle-kilometres)



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

South West Scotland Low Motorised Traffic / Emission Demand

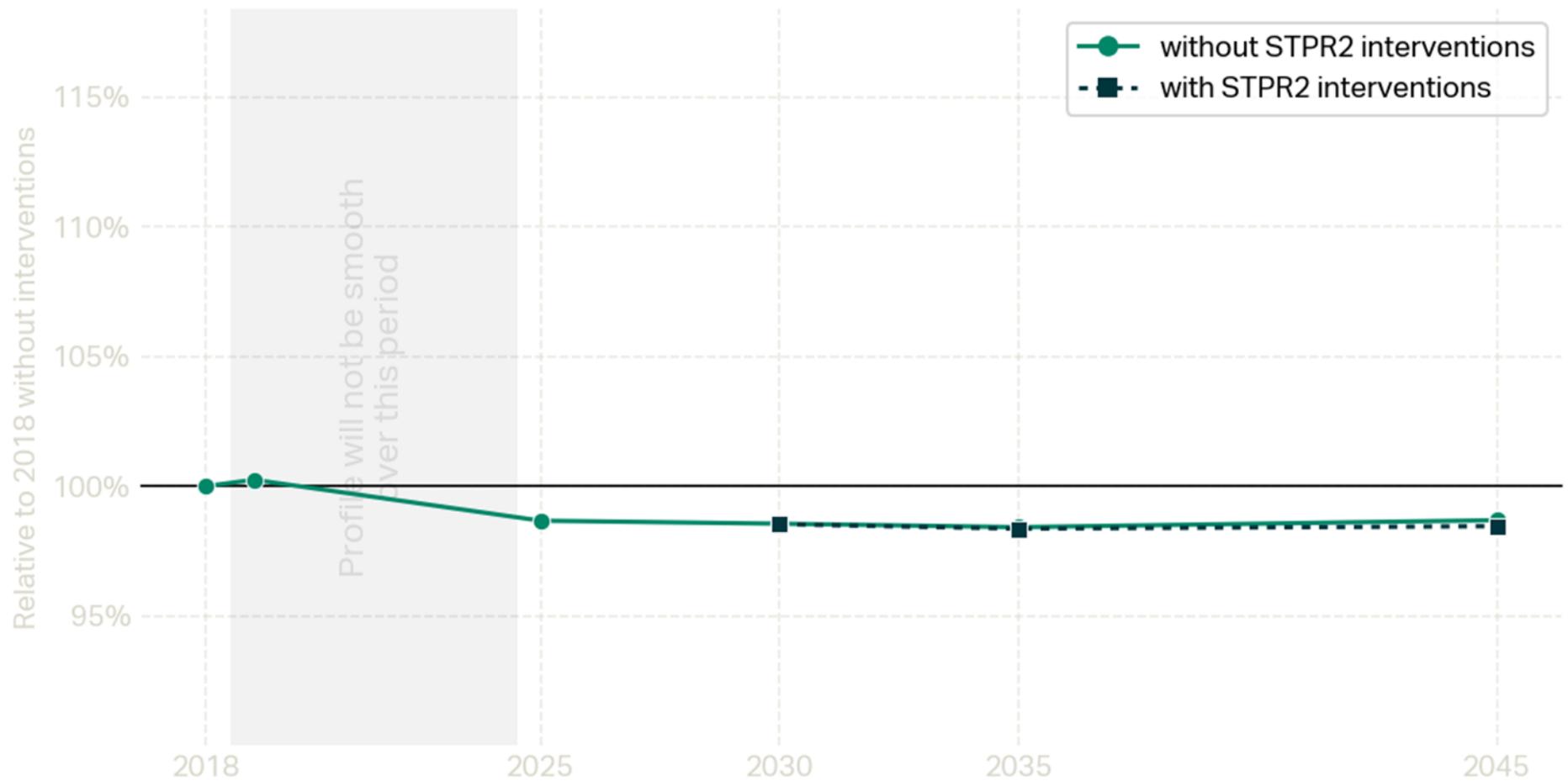
Modelled Road Journey Time (minutes per km)



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

South West 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.

ⁱ The South West Scotland Transport Study covered most of Dumfries & Galloway (excluding the easternmost part around Langholm) and the southern parts of South Ayrshire and East Ayrshire (broadly south of Ayr). As such this covered an area larger than the South West Region defined in this AST. Further details are available in the South West Scotland Transport Study Report available here: <https://www.transport.gov.scot/publication/south-west-scotland-transport-study-initial-appraisal-case-for-change/>

ⁱⁱ Mid-2016 Population Estimates for Settlements and Localities in Scotland, National Records of Scotland.

ⁱⁱⁱ Oxford Economics, International Research on Regional Economies - Implications for Delivering Inclusive Growth in Scotland, May 2019, <https://www.scottishfuturetrust.org.uk/storage/uploads/internationalresearchonregionaleconomiesmay2019.pdf>

^{iv} Oxford Economics, International Research on Regional Economies - Implications for Delivering Inclusive Growth in Scotland, May 2019, <https://www.scottishfuturetrust.org.uk/storage/uploads/internationalresearchonregionaleconomiesmay2019.pdf>