GO SEStran

South East of Scotland Transport Partnership

REGIONAL TRANSPORT STRATEGY

STAG Preliminary Options Appraisal

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Introduction

SEStran Regional Transport Strategy

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1   Introduction

1.1   Background

1.1.1   The South East of Scotland Regional Transport Partnership (SEStran) is established under the Transport (Scotland) Act 2005 and is required to provide a statutory Regional Transport Strategy (RTS). The RTS aims to provide a strategic framework for transport management and investment for the Partnership area and constituent councils should seek to perform their transport functions in line with the RTS. The region consists of the following eight local authorities: the City of Edinburgh, Clackmannanshire, East Lothian, Falkirk, Fife, Midlothian, Scottish Borders, and West Lothian, as shown in Figure 1-1.

1.1.2   This Preliminary Options Appraisal report has been prepared to underpin the development of a new Regional Transport Strategy (RTS) for the South East of Scotland. It has been developed in accordance with the Scottish Transport Appraisal Guidance (STAG) and follows on from the Case for Change, submitted in June 2021. The Case for Change identified the problems to be addressed in the new RTS along with associated options to resolve them.

1.1.3   The development of the Case for Change was informed by an extensive review of policy documentation, data analysis in addition to stakeholder and public consultation. Utilising this evidence-based approach, the Case for Change set out the latest understanding of the problems and issues in the SEStran region and also reflected travel behaviour changes which have arisen since the onset of the COVID-19 pandemic. The approach was in line with STAG and considered each problem from a user's perspective then explored its root cause and associated societal consequences.

1.1.4   The development and initial analysis of the problems was used as a basis to develop a series of Transport Planning Objectives (TPO), each of which was linked to an identified problem. Subsequently, potential options were set out alongside each problem in the initial option generation process. To add, the TPOs then acted as components in the development of four Strategy Objectives which were set out in the Case for Change and will ultimately frame the RTS itself.

Figure 1-1: Map of SEStran and each Local Authority

1.1.5   The long-list of options from the Case for Change have now been taken forward to STAG Preliminary Options Appraisal where each has been appraised against the STAG criteria and Strategy Objectives. The findings from this appraisal are set out in this report and have then been used to identify which options should form part of the new SEStran RTS.

1.1.6   The preparation of the new SEStran RTS including the development of this Preliminary Options Appraisal Report is also being informed by Strategic Environmental Assessment (SEA) and Equalities Impact Assessment (EqIA) processes, each of which has already identified (at Scoping stage) relevant baseline conditions and key environmental and equalities issues which need to be addressed in the new RTS.

1.2   This Report

1.2.1   This report consists of the following chapters:

- **Chapter 2 – Option Generation:** This chapter revisits the initial option generation which was set out within the Case for Change. This provides the starting point for the preliminary option appraisal undertaken in Chapter 4.

- **Chapter 3 – Methodology and Approach:** The preliminary options appraisal method is detailed which includes the STAG and Implementability criteria. The 'do minimum' approach to the appraisal is also set out along with the treatment of COVID-19 sensitivity scenario.

- **Chapter 4 – Options Appraisal:** The 71 options which were generated within the Case for Change are set out within the following categories;

    o   Active Travel;
    o   Public Transport;
    o   Multi-Modal;
    o   Freight;
    o   Car – Fleet Transition;
    o   Car – Parking and Demand Management; and
    o   Car – Road Network.

- **Chapter 5 – Appraisal Summary and Option Selection / Rejection:** This chapter includes a summary table of each option and their score (using the STAG 7-point scoring scale) against the various criteria. It also highlights any of the options which have been rejected from further consideration in the RTS process.

- **Chapter 6 – Conclusions and Next Steps:** This chapter summarises the report's findings and outlines the next steps in developing the RTS.

Option Generation

SEStran Regional Transport Strategy

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2   Option Generation

2.1   Overview

2.1.1   This chapter outlines the process of developing problems via the application of a user-focussed Transport Problems Framework, illustrated in Figure 2-1, which was also used to guide the setting of TPOs and initial option generation as well. This process was originally set out in the Case for Change and provides the foundation for the generation of the options which have subsequently been appraised in detail in Chapter 4 of this report.

2.2   Transport Problems Framework

2.2.1   Every STAG-based project starts from a set of transport problems and, to a lesser extent, transport opportunities. These are the foundations of any study and STAG notes that as well as the problem themselves (i.e., as experienced by the user) the:

> '*analysis should, instead, explore the root causes and consequences of problems*'.

2.2.2   To be meaningful to the public, the transport problems which the RTS is aiming to address must reflect problems experienced in everyday life by individuals, organisations, and businesses in the SEStran area. Additionally, these problems should be evidenced where possible and defined by a series of metrics or key performance indicators (KPIs) using the evidence base set out in this Case for Change, the Equalities Impact Assessment Scoping and Strategic Environmental Assessment
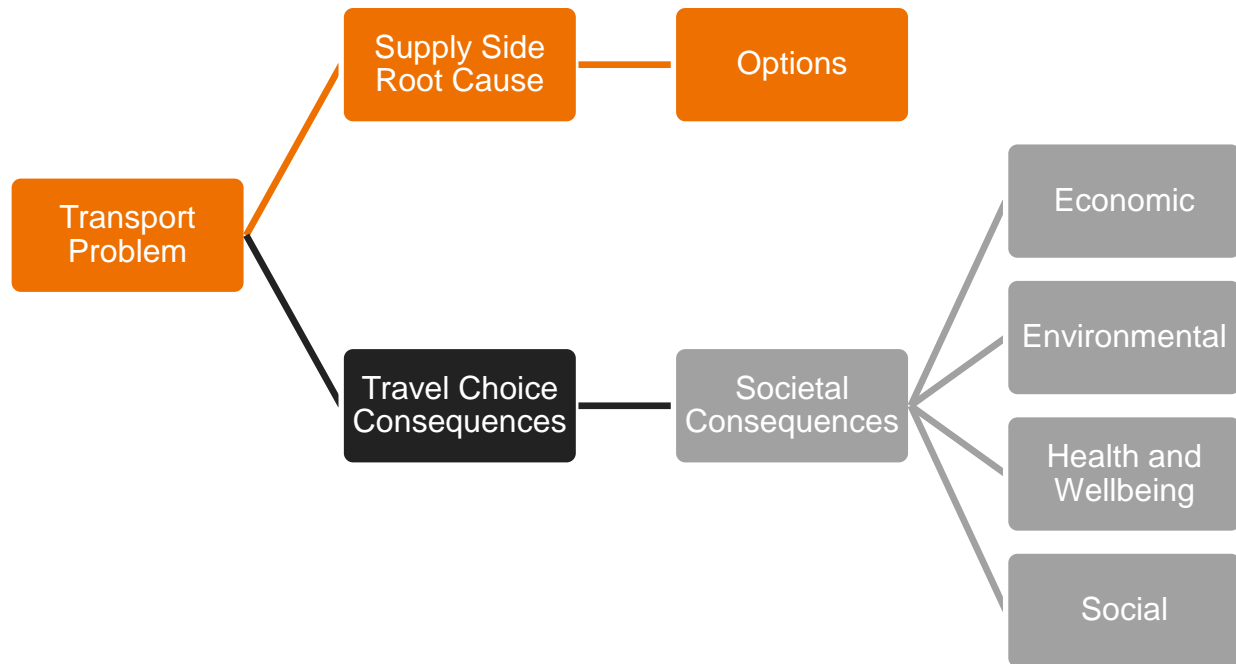
Figure 2-1: Transport Problems Framework

Scoping. These KPIs should then in turn form the basis of the subsequent Monitoring & Evaluation Framework thus providing a coherent end-to-end process for the RTS and its implementation.

2.2.3   From a user perspective, these transport problems will impact on individuals and groups including those with protected characteristics but are likely to be related to a relatively small number of parameters which define any travel such as:

- Cost of travel (especially relative to disposable income);

- Lack of public transport connectivity;

- Personal security / safety;

- Physical accessibility of services;

- Punctuality of travel (public transport punctuality / congestion making road-based journey times unreliable);

- Quality and comfort of journey;

- Reliability of travel (cancellation of public transport services);

- Requirement for excessive interchange; and

- Travel time (relative to other modes).

2.2.4   As shown in the Problems Framework, shown in Figure 2-1, these transport problems as experienced by the user:

- Can usually be traced back to a root cause, associated with the transport supply-side which in turn informs the identification of Transport Planning Objectives and options;

- Can have a travel choice consequence, e.g., use of less sustainable modes, journeys not being made; and

- Have a wider societal consequence, e.g., economic (e.g., wasted time), environmental (e.g., emissions), health & wellbeing (e.g., reduced levels of walking), social (e.g., exclusion from employment opportunities).

2.2.5   The problems were identified using an evidence-based methodology by utilising a range of sources including the SEStran Main Issues Report published in June 2020, a review of policy documentation, stakeholder engagement, public consultation, Strategic Environmental Assessment, and Equalities Impact Assessment. Analysis was also undertaken to identify the extent to which there is evidence to support the identified problems recognising that all robust STAG appraisals must be founded upon evidence-based problems.

2.3 Applying the Problems Framework

2.3.1 The framework was used as the basis for setting out the transport problems in the Case for Change. For each problem identified, its root causes were defined along with the travel choice implications and the societal consequences of these travel choices. The evidence that underpins the problem was also set out followed by an indication of the linked Transport Planning Objective (TPO) to resolve it, and options generated to help deliver the TPOs.

2.3.2 The transport problems were broken down into the categories which broadly align with the National Transport Strategy's sustainable travel hierarchy. These categories are: all modes, active travel, public transport, mixed mode, freight, and car.

2.4 Problems & Initial Option Generation

2.4.1 The initial option generation process drew upon the problems outlined in the Problems Framework and built upon through the development of the TPOs. Each TPO derived from associating an objective with each problem. This process was then extended to incorporate option generation, resulting in the development of Table 2-1 which shows the links between the transport problem, the TPOs and the initial options as informed by literature, stakeholder consultation and internal workshops.

Table 2-1: Problems Framework including TPOs and Options

Transport Problem (from a User's Perspective)	Supply Side Cause of Transport Problem	Travel Consequence	Societal Consequence	Evidence for This	Transport Planning Objective	Options
ALL MODES						
1 Those living in new developments or travelling to new developments can have long journeys and / or implied car use to undertake day to day activities	- Land use patterns - Location of new developments - All aspects of transport supply side	- Longer trips are made - Mode car trips are made	- Avoidable car km with associated impacts (energy usage, emissions, congestion, collisions, noise etc) - Negative health outcomes through lack of physical activity - Employment and other opportunities not taken up	- Literature review problems 1, 2, 4, 47, 51, 58, 72, 78, 95 - Edinburgh and South East Scotland City Region iRSS - NPF4 Housing Land Requirements	- Ensure sustainable connectivity and travel behaviour is embedded in all new development	- Land use planning measures around new development and urban form e.g., 20-minute neighbourhoods, Transit Oriented Development, public transport services and infrastructure
2 Use of the transport system brings the risk of accidents and personal injury	- Traffic speed and driver behaviour e.g., people breaking speed limits - Speed limits too high - Weather events - Human error - Technical failure	- Reduced levels of active travel - Trips not made at all	- Human cost of physical injury - Economic cost of physical injury - Negative health outcomes through lack of physical activity	- Literature review problems 23, 68, 72, 79, 80, 81, 82, 85 - Road Accident data	- Reduce injuries and fatalities for all users of the transport networks	- Road safety schemes - Reduced speed limits - Traffic engineering-based speed limiting solutions - Active travel schemes - Technical measures in relation to rail and air safety

Transport Problem (from a User's Perspective)	Supply Side Cause of Transport Problem	Travel Consequence	Societal Consequence	Evidence for This	Transport Planning Objective	Options
ACTIVE TRAVEL						
3 Many do not find cycling a realistic option	- Lack of appropriate facilities mean that many do not feel safe cycling (safety and personal security) - Lack of secure parking options - Gaps in cycling provision - Bicycle ownership is not practical for some - High vehicle speeds and intimidation - Freight deliveries	- People do not cycle - People drive instead - People use public transport instead	- Negative health outcomes through lack of physical activity - Avoidable car km with associated impacts (energy usage, emissions, congestion, collisions, noise etc)	- Literature review problems 1, 2, 4, 67, 68, 69, 70, 72, 78 - Main Mode of Travel data - Access to Bicycle data - SUSTRANS Hands Up Survey	- Create an environment which allows more people to cycle	- Cycling route / infrastructure improvements - Bike hire and access schemes - Reduced speed limits - Promotional campaigns - Measures to reduce car use – Congestion Charging, Road User Charging / parking policies (inc charging by energy / emissions) / WPL / LEZ, digital connectivity measures, land use planning measures
4 Walking or wheeling is not an attractive option for some short journeys	- Lack of appropriate facilities mean that many do not feel safe walking or wheeling (safety and personal security) - Traffic intimidation - Physical barriers particularly for those with disabilities and mobility impairments	- People do not walk or wheel - People drive instead - People use public transport instead	- Negative health outcomes through lack of physical activity - Avoidable car km with associated impacts (energy usage, emissions, congestion, collisions, noise etc)	- Literature review problems 1, 2, 4, 67, 68, 69, 70, 72, 78 - Main Mode of Travel data - SUSTRANS Hands Up Survey - Walking as a Means of Transport data	- Create an environment which allows more people to walk or wheel	- Walking route / infrastructure improvements - Traffic calming / pedestrianisation / walk to school initiatives - 20 mph zones - Promotional campaigns - Measures to reduce car use – Congestion Charging, Road User Charging / parking policies (inc charging by energy / emissions) / WPL / LEZ, digital connectivity measures, land use planning measures
PUBLIC TRANSPORT						
5 Peak period bus-based **journey times** can be much longer than off-peak	- Buses are slowed down by routine congestion caused by general road traffic (including other buses)	- Discourages bus use - Longer peak hour journeys - People travel by car instead - Peak spreading - earlier and later journeys are made - People do not make the journey	- Wasted time (commuting and leisure) - Constrains labour markets - Avoidable car km with associated impacts (energy usage, emissions, congestion, collisions, noise etc)	- Literature review problems 1, 2, 4, 19, 20, 21, 22, 47, 51, 78 - INRIX Road Journey Time data - TRACC Public Transport Journey Time data -	- Reduce peak-period delays for bus-based travel	- Bus priority measures - New public transport modes, including new railway lines, stations, and tram extensions - Measures to reduce car use – Congestion Charging, Road User Charging / parking policies (inc charging by energy / emissions) / WPL / LEZ, digital connectivity measures, land use planning measures

	Transport Problem (from a User's Perspective)	Supply Side Cause of Transport Problem	Travel Consequence	Societal Consequence	Evidence for This	Transport Planning Objective	Options
6	Peak period bus-based **journey times** can be much more variable than off-peak	- Buses are slowed down by congestion caused by variable congestion and congestion caused by incidents - Mis-use of bus lanes	- Discourages bus use - To be sure of making a given appointment, people have to catch an earlier bus, wasting more time - Peak spreading - earlier and later journeys are made - People do not make the journey - People travel by car instead – greater journey flexibility	- As above, plus: - People are late for appointments - Cost of missed appointments – e.g., work and health	- Literature review problems 1, 2, 4, 19, 20, 21, 22, 47, 51, 78 - INRIX Road Journey Time data - TRACC Public Transport Journey Time data -	- Improve the punctuality of peak-period bus-based travel	- Bus priority measures - Enforcement of bus lane use - Enforcement of parking regulations - New public transport modes, including new railway lines, stations, and tram extensions - Measures to reduce car use – Congestion Charging, Road User Charging / parking policies (inc charging by energy / emissions) / WPL / LEZ, digital connectivity measures, land use planning measures
7	Some direct public transport **journey speeds** are slow so journey times are long and not competitive with car	- Indirect service routing - In-vehicle speeds (including bus versus rail) - Frequency of stops increases journey times	- People drive instead - People car-share / lift-share - People do not make the trips - People who would prefer to use public transport cannot do so	- Wasted time (commuting and leisure) - Avoidable car km with associated impacts (energy usage, emissions, congestion, collisions, noise etc) - 'Forced' car ownership impacting disproportionately on some household budgets - Employment and other opportunities not taken up	- Literature review problems 1, 2, 4, 10, 12, 13, 19, 20, 21, 22, 41, 47, 51, 62, 78 - INRIX Road Journey Time data - TRACC Public Transport Journey Time data -	- Improve the competitiveness of public transport with car journey times	- Provide more direct bus routes, at least part-day - Reduce number of bus stops - New public transport modes, including new railway lines, stations, and tram extensions - High Speed Rail - Shared mobility – including to tackle forced car ownership - Electrification of rail lines can help increase rail journey speeds.

#	Transport Problem (from a User's Perspective)	Supply Side Cause of Transport Problem	Travel Consequence	Societal Consequence	Evidence for This	Transport Planning Objective	Options

8	Some travel by public transport requires **interchange**(s) – adding to journey times, access issues, inconvenience, and cost	- Most 'regional' public transport is focused on Edinburgh city centre and the relevant access corridor, including services which call at P&R sites
		- Integration between modes is inconvenient
		- Integrated ticketing options are limited meaning individual fares often have to be paid
		- Suburban and out of town employment / leisure / retail locations more difficult to competitively serve by public transport
		- Other regional travel generators such as Edinburgh Airport require interchange for many
		- Land use development patterns
			- People drive instead
			- People car-share / lift-share
			- People do not make the trips
			- People who would prefer to use public transport cannot do so
				- Avoidable car km with associated impacts (energy usage, emissions, congestion, collisions, noise etc.)
				- 'Forced' car ownership impacting disproportionately on some household budgets
				- Employment and other opportunities not taken up
					- Literature review problems 1, 2, 4, 5, 8, 9, 12, 16, 28, 30, 40, 41, 44, 47, 51, 55, 62, 69, 78, 95
					- TRACC Interchange Analysis
					-
						- Reduce the time and inconvenience of having to interchange	- Eliminate the need for interchange by providing more direct service to key regional travel generators
							- Reduce the impact of interchange
							  - cost: integrated ticketing to avoid double fare
							  - time: integrated timetabling to reduce wait times including intermodal
							  - comfort / access / hassle: improving shelter / facilities at key interchange points and integrated ticketing
							- MaaS
							- Shared mobility – including to tackle forced car ownership
							- New public transport modes, including new railway lines, stations and tram extensions
							- New or improved intermodal facilities e.g., Mobility hubs

9	People can't **get a seat** on some public transport services	- Mismatch of supply and demand, generally peak hour and more of a factor in rail - Situation exacerbated in summer due to tourists (mainly Edinburgh) - Land use development patterns	- Journey is uncomfortable for some and not possible for others - People drive instead - People car-share / lift-share - People do not make the trips - People travel by bus instead - Peak spreading - earlier and later journeys - People who would prefer to use public transport cannot do so	- Avoidable car km with associated impacts (energy usage, emissions, congestion, collisions, noise etc.) - Limits employment / training and other opportunities and constrains labour markets	- Literature review problems 1, 2, 4, 5, 6, 14, 16, 47, 51, 78, 95 - Transport Focus Passenger Satisfaction Surveys	- Provide appropriate seated capacity on public transport services	- Bigger buses / trains - Higher frequency services - New public transport modes, including new railway lines, stations, and tram extensions

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	Transport Problem (from a User's Perspective)	Supply Side Cause of Transport Problem	Travel Consequence	Societal Consequence	Evidence for This	Transport Planning Objective	Options
10	Travel by bus or rail is **unaffordable** for some particularly the unemployed or those on low incomes	- Fares levels do not reflect ability to pay - Lack of integrated fares and daily capping across operators - DRT acceptance of concessionary fares	- People have to rely on others' good will for lifts - People do not travel - People do travel but at disproportionate cost to them / their household - People who would prefer to use public transport cannot do so	- Contributes to poverty - Limits employment / training and other opportunities and constrains labour markets - Avoidable car km with associated impacts (energy usage, emissions, congestion, collisions, noise etc.)	- Literature review problems 1, 2, 4, 41, 44, 45, 47, 51, 62, 78 - Transport Focus Passenger Satisfaction Surveys	- Reduce the cost of travel by public transport - Equalities Impact Assessment Scoping evidence base	- Uniform low / fares - Discounted / free fares targeted at specific groups in need - Daily fare capping across operators - Integrated ticketing to reduce 2-fares trips - Taxicard for discounted taxi fares
11	Some journeys **cannot be made** by public transport	- There is no public transport service which allows the journey to be made at the time required - There is no public transport service at all - DRT provision is patchy and inconsistent - DRT services not available to all - Land use development patterns	- People drive instead - People car-share / lift-share - People use taxi - People do not make the trips - People drive / get a lift to a location where the journey can be made using public transport - People who would prefer to use public transport cannot do so - People have to rely on good will / lifts	- 'Forced' car ownership impacting disproportionately on some household budgets - Limits employment / training and other opportunities and constrains labour markets - Avoidable car km with associated impacts (energy usage, emissions, congestion, collisions, noise etc.) - Social isolation - People do not take up opportunities with social and economic consequences -	- Literature review problems 1, 2, 4, 7, 8, 12, 13, 39, 40, 41, 47, 51, 62, 78, 95 - TRACC Interchange Analysis - Connectivity to Education, Healthcare and Employment Analysis	- Widen access to public transport by geography and time of day	- Earlier and later services - Higher frequency services - Shared mobility – including to tackle forced car ownership - DRT / Community Transport - Semi-scheduled bus services - Taxicard for discounted taxi fares - New public transport modes, including new railway lines, stations, and tram extensions
12	**Physical access** to, and use of the public transport network is a problem or not possible for some users like the elderly, those with disabilities, parents with pushchairs and mobility impaired	- Vehicles - Stops / stations - Access to stops / stations	- People have to use cars instead, either their own or relying on lifts - People do not travel - People do use public transport but at significant inconvenience to them - People who would prefer to use public transport cannot do so	- Groups in society suffer significant inequality - Social isolation - 'Forced' car ownership - Limits employment / training and other opportunities and constrains labour markets - Avoidable car km with associated impacts (energy usage, emissions, congestion, collisions, noise etc)	- Literature review problems 1, 2, 4, 11, 17, 47, 51, 59, 60, 61, 62, 63, 64, 65, 78, 83 - Demographic data - Equalities Impact Assessment Scoping evidence base	- Widen access to public transport by user group	- Step free access to vehicles - Getting to / from bus / train / tram e.g., step free access at stations, stops, etc. - Journey planning e.g., Traveline, etc - Escorting / chaperoning for vulnerable users - Shared mobility – including to tackle forced car ownership - New public transport modes, including new railway lines, stations and tram extensions

	Transport Problem (from a User's Perspective)	Supply Side Cause of Transport Problem	Travel Consequence	Societal Consequence	Evidence for This	Transport Planning Objective	Options

13	Vulnerable groups (e.g. young, elderly, disabled, women, ethnic minorities, etc.) not feeling **safe** on public transport	- Environment feels unsafe
		- Lack of security (human, technological)
		- Intimidation by other passengers
			- Taxi use
			- Car use
			- Lift / share
			- People do not travel
			- People who would prefer to use public transport cannot do so
				- Groups in society suffer significant inequality
				- Social isolation
				- 'Forced' car ownership
				- Limits employment / training and other opportunities and constrains labour markets
				- Avoidable car km with associated impacts (energy usage, emissions, congestion, collisions, noise etc)
					- Literature review problems 1, 2, 4, 23, 47, 51, 59, 60, 61, 62, 63, 64, 65, 78, 83
					- Scottish Household Survey Views of Safety on Public Transport data
					- Equalities Impact Assessment Scoping evidence base
						- Improve actual and perceived personal security on the public transport networks	- Improved security / lighting etc.
							  - in vehicle
							  - at stop / station / interchange
							- Shared mobility – including to tackle forced car ownership

14	People do not have **full awareness** of their public transport options	- Information is not provided in a way which all can access - Public transport travel options are not publicised in a way which reaches key groups	- People do not use public transport - People use car instead - People do not make trips	- Avoidable car km with associated impacts (energy usage, emissions, congestion, collisions, noise etc) - People do not take up opportunities with social and economic consequences	- Literature review problems 1, 2, 4, 46, 47, 51, 59, 60, 61, 62, 63, 64, 65, 66, 78 - Scottish Household Survey Views on Public Transport Information	- Provide effective information about public transport services for all	- Improved information provision targeted at specific groups - Journey planning e.g., Traveline, etc - Promotion of information sources - MaaS
MIXED MODE							
15	Combining **cycling and public transport** use is not possible	- Few buses and trains have facilities to carry bikes – those that do have low capacity which creates a degree of uncertainty for users	- Low levels of this form of mixed mode travel - Likely to lead to higher car use	- Avoidable car km with associated impacts (energy usage, emissions, congestion, collisions, noise etc)	- Literature review problem 1, 2, 4, 18, 69, 78 - Stakeholder Feedback	- Improve bike / public transport mixed mode travel options	- Provision of bike-buses
16	Preferred **P&R** station cannot be used due to lack of parking during commuter (i) peak and (ii) inter peak	- Mismatch of supply and demand at station car parks - Differential train frequencies - Fare boundary effects - Spaces used by those who could use active travel instead - Car park is filled with all-day commuters	- People drive for their whole journey - People drive to an alternative station (could be closer or further) - People get a lift to the station (double journey) - People walk / cycle to the station instead - People change their destination – e.g., not going shopping in city centre	- Avoidable car km with associated impacts (energy usage, emissions, congestion, collisions, noise etc) - Could have a distributional impact if people e.g., drive to out/edge of town retail rather than take a train to the city centre	- Literature review problems 1, 2, 4, 26, 27, 29, 78 - ORR Station Usage data - Stakeholder Feedback	- Maximise the reduction in car-km travelled associated with car / rail travel	- Parking charges to discourage short car trips - Improved active travel links to discourage short car trips - Fares and frequency changes to balance demand - Provision of additional parking capacity on site or at new location

Transport Problem (from a User's Perspective)	Supply Side Cause of Transport Problem	Travel Consequence	Societal Consequence	Evidence for This	Transport Planning Objective	Options
FREIGHT						
17 In places, peak period **commercial vehicle-based journey times** can routinely be much longer than off-peak	- Mismatch of supply and demand, particularly at key regional bottlenecks including City Bypass, Newbridge, Forth Crossings - Increased LGV traffic - Land use development patterns	- Longer peak hour journeys - Peak spreading - earlier and later journeys are made - People do not make the journey	- Loss of productive time (business) - Increased energy usage - Increased emissions and pollution - Adds to the cost of distributing goods -	- Literature review problems 2, 4, 73, 75, 76, 78, 95 - INRIX Road Journey Time data -	- Reduce peak period delays for freight vehicles	- Measures to reduce car use – Congestion Charging, Road User Charging / parking policies (inc charging by energy / emissions) / WPL / LEZ, digital connectivity measures, land use planning measures - Measures to encourage mode shift from road to rail freight - Combined bus / commercial vehicle lanes - Provide additional road capacity - Freight consolidation centres
18 Peak period **commercial vehicle-based journey times** can be much more variable than off-peak	- Small variations in traffic volumes create volatile journey times when the network is operating near capacity - This is exacerbated by incidents – lack of alternative routes in places – these are thought to be increasing in frequency in part due to increased severe weather events - Increased LGV traffic	- Peak spreading - earlier and later journeys are made - Late arrival of goods - People re-route onto less appropriate routes	- As above, plus: - Supply chain scheduling and cost impacts of unscheduled delays - Noise / emissions / safety etc impacts of traffic re-routing	- Literature review problems 1, 2, 4, 73, 75, 76, 78, 79 - INRIX Road Journey Time data -	- Improve peak period journey time reliability for freight vehicles	- Measures to reduce car use – Congestion Charging, Road User Charging / parking policies (inc charging by energy / emissions) / WPL / LEZ, digital connectivity measures, land use planning measures - Measures to encourage mode shift from road to rail freight - Combined bus / commercial vehicle lanes - Provide additional road capacity - Freight consolidation centres
19 Cost and practicality of **rail freight** prevents widespread use	- Market forces - Rail freight intermodal facilities and connections to key nodes - Lack of capacity (paths) on the rail network for a significant increase in freight services - Pricing and regulatory regimes	- Virtually all freight is moved by road	- Negative impacts of CV traffic	- Literature review problem 1, 2, 4, 77 - Stakeholder Feedback - Rail Network Gauge Clearance	- Improve the competitiveness of the rail-freight 'offer'	- Public subsidy for rail freight - Innovative approaches to rail train forming - New or improved intermodal facilities - Additional freight paths on the network - Enabling infrastructure works e.g., gauge - Additional freight services to serve new origin-destination pairs
20 Commercial vehicle drivers have limited options for **secure parking** and rest	- There are few bespoke facilities in the region for drivers requiring to rest and overnight	- CVs park in less appropriate locations	- Thefts from vehicles add to costs - Nuisance parking leads to conflict	- Literature review problem 87 - Number of Lorry Rest Stops	- Improve security and safety for drivers of freight vehicles	- Provide new secure freight rest facilities at key locations on the network

	Transport Problem (from a User's Perspective)	Supply Side Cause of Transport Problem	Travel Consequence	Societal Consequence	Evidence for This	Transport Planning Objective	Options
21	Commercial vehicles are currently reliant on **fossil fuels** in the absence of viable / cost effective alternatives	- Alternative fuel solutions not suitably developed for widespread use	- ICE powered vehicles continue to be used	- Ongoing carbon emissions and impact on local air quality and associated health impacts	- Literature review problems 2, 4, 90, 91 - Fleet Composition data	- Decarbonise the freight sector	- Public investment or partnership in e.g., synthetic fuels and hydrogen - Working with the tech sector to fund pilots, etc.
22	Direct **sea-based international connectivity** is poor	- No ferry service to the EU	- CVs travel south to Channel and other ports - Freight travels by air rather than sea	- Emissions related to use of road and air freight	- Literature review problems 2, 77 - Sea Freight data	- Improve 'external' freight links	- Public subsidy for new ferry services e.g., from Rosyth
CAR							
23	In places, peak **period car-based journey times** can routinely be much longer than off-peak	- Mismatch of supply and demand, particularly at key regional bottlenecks including City Bypass, Newbridge, Forth Crossings - Increased LGV traffic - Land use development patterns	- Longer peak hour journeys - Peak spreading - earlier and later journeys are made - People do not make the journey	- Wasted time (commuting and leisure) - Loss of productive time (business) - Increased energy usage - Increased emissions and pollution - Constrains labour market efficiency	- Literature review problems 2, 4, 47, 51, 76, 78, 95 - INRIX Road Journey Time data -	- Reduce peak period delays for car-based travel	- Additional road capacity at congestion hotspots - Traffic management measures to improve network efficiency - Measures to reduce car use – Congestion Charging, Road User Charging / parking policies (inc charging by energy / emissions) / WPL / LEZ, digital connectivity measures, land use planning measures - Rationalise bus services in key corridors
24	Peak period **car-based journey times** can be much more variable than off-peak	- Small variations in traffic volumes create volatile journey times when the network is operating near capacity - This is exacerbated by incidents – lack of alternative routes in places – these are thought to be increasing in frequency in part due to increased severe weather events - Increased LGV traffic	- To be sure of making a given appointment, people have to allow more time, wasting more time - Peak spreading - earlier and later journeys are made - People do not make the journey - People re-route onto less appropriate routes	- As above, plus: - People are late for appointments - Cost of missed appointments – e.g., work and health - Noise / emissions / safety etc impacts of traffic re-routing	- Literature review problems 1, 2, 4, 47, 51, 76, 78, 79 - INRIX Road Journey Time data	- Improve peak period journey time reliability for car-based travel	- Additional road capacity at congestion hotspots - Traffic management measures to improve network efficiency and planning for resilience (alternative routes) - Measures to reduce car use – Congestion Charging, Road User Charging / parking policies (inc charging by energy / emissions) / WPL / LEZ, digital connectivity measures, land use planning measures - Rationalise bus services in key corridors
25	High cost of town / city centre **parking**	- Scale of parking charges and enforcement regime	- People use public transport or active travel instead - People's destination choice is affected favouring locations with plentiful free parking	- Positive impacts through lower car km - Price mechanisms disproportionately affect those who can least afford to pay - May impact on town / city centre vitality and recovery from Covid19	- Literature review problems 62, 66, 94 - Public Survey responses	- Ensure the level and scope of parking charges reflect the strategy objectives	- Reduce parking charges - Provide better alternatives to car-based access

Transport Problem (from a User's Perspective)	Supply Side Cause of Transport Problem	Travel Consequence	Societal Consequence	Evidence for This	Transport Planning Objective	Options
26 Lack of availability of **parking** is inconvenient	- Mismatch of supply of and demand for parking - Insufficient provision for those most in need, blue badge etc.	- Vehicles spend excessive time circulating looking for parking spaces - People use public transport or active travel instead - People's destination choice is affected favouring locations with plentiful free parking	- Some avoidable car km with associated impacts (energy usage, emissions, congestion, collisions, noise etc) - Positive impacts of reduced car trips to these areas - Distributional impact on economic activity in urban areas - May impact on town / city centre vitality and recovery from Covid19	- Literature review problems 1, 2, 4, 47, 66, 78, 84, 85, 94 - Stakeholder Feedback - Public Survey responses	- Ensure the availability of parking reflects the strategy objectives	- Increase parking capacity - Reduce parking regulation - Increase parking charges to price away some users - Provide better alternatives to car-based access
27 **Road-based travel** on the regional road network, including some external links (including ports and airports) can be **slow** even when traffic volumes are relatively low	- Road standard - Horizontal and vertical alignment - Lack of overtaking opportunities	- Journeys take longer - Can lead to accidents	- Wasted time - Loss of productive in-work time - Casualties	- Literature review problem 78 - INRIX Road Journey Time data	- Improve journey times on regional / external road network	- Route action plans targeting safety concerns and areas where the lack of overtaking opportunities is a problem - Upgrading the standard of strategic internal and external road links - Provide better alternatives to car-based access – rail / high speed rail
28 **Electric car** operation and ownership **not practical** for all	- Facilities for EV charging are patchy	- Continuing use of ICE powered cars - Some may ultimately be precluded from owning a vehicle	- Higher carbon emissions - Some groups may be disproportionately affected by regulatory change around ICE cars (e.g., those who live in flats)	- Literature review problem 2, 4, 90, 91 - Fleet Composition data - EV Charging Point data	- Widen access to electric vehicle ownership / use	- Provision of charging infrastructure (many options) - market led or public responsibility - Electrical grid capacity measures
29 **Cost of electric cars** is higher than equivalent ICE cars and too expensive for many at present	- Market forces – supply and demand - Government regulation and incentives	- Continuing use of ICE powered cars	- Higher carbon emissions - Lower income groups may be disproportionately affected by regulatory change around ICE cars - Impact should reduce over time as prices equalise	- Literature review problems 2, 4, 62, 90, 91 - Fleet Composition data - Lifetime Cost of Electric v Petrol Vehicles data	- Widen access to electric vehicle ownership / use	- Local grants and incentives – winding down from central government - Do nothing and wait for market to respond - Shared mobility access to EVs through car clubs

2.4.2   Table 2-1 clearly sets out each problem, evidencing, TPO and the initial option that is developed from considering the supply side cause and the consequences of each problem.

2.5 Initial Option Development

2.5.1 The list of options set out above were then consolidated and categorised. They were then developed further being assessed against the Sustainable Travel Hierarchy and Investment Hierarchy, as defined within the National Transport Strategy 2 (NTS2) and illustrated in Figure 2-2.

2.5.2 Furthermore, the options were classified into three categories, as below;

- **Policy Measures:** guiding legal and regulatory matters, and perhaps steering the types of capital and revenue measures which may be appropriate to specific policies;

- **Capital Measures:** for the construction of new infrastructure 'on the ground', either physical or technical. These tend to be one off investments; and

- **Revenue Measures:** spending to support services or initiatives, e.g., bus services, subsidies, promotional campaigns etc. which is often ongoing on an annual basis.
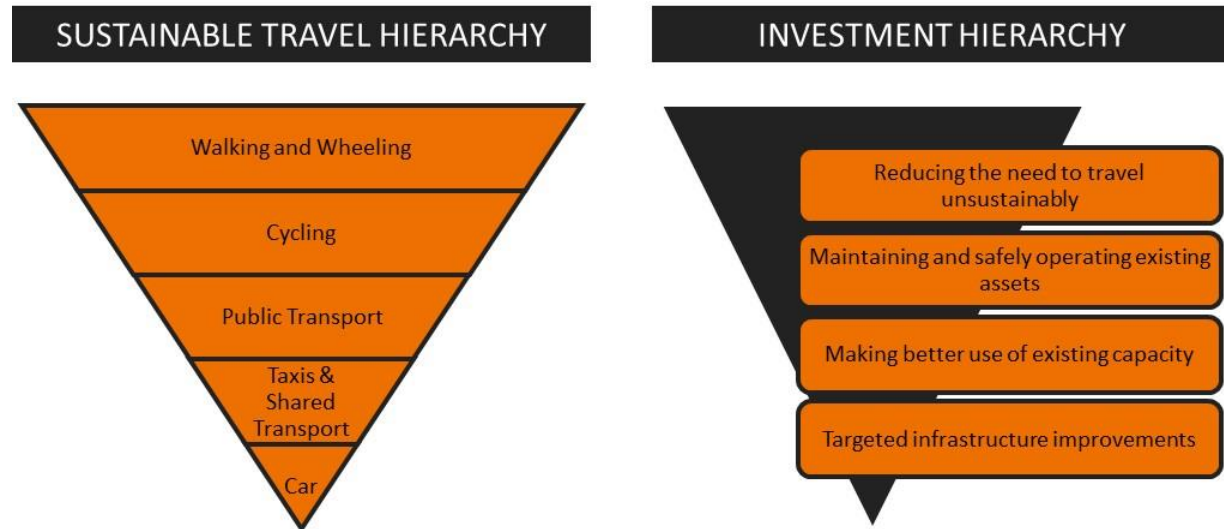
Figure 2-2: National Transport Strategy Hierarchies

2.5.3 This part of the process provided each option with further categorisation which is outlined in Table 2-2. To add, the options were refined further to reduce duplication and overlapping of options to ensure they are more manageable.

Table 2-2: Option Type and Assessment Against NTS 2 Hierarchies

No	Option Description	Type of Option	Sustainable Travel Hierarchy	Investment Hierarchy
Active Travel				
6	Cycling route / infrastructure implementation and improvements	Capital	2. Cycling	4. Targeted infrastructure improvements
7	Bike hire and access schemes	Revenue	2. Cycling	1. Reducing the need to travel unsustainably

No	Option Description	Type of Option	Sustainable Travel Hierarchy	Investment Hierarchy
8	Promotional campaigns	Revenue	1. Walking and wheeling	1. Reducing the need to travel unsustainably
9	Walking and wheeling route / infrastructure implementation and improvements	Capital	1. Walking and wheeling	4. Targeted infrastructure improvements
10	Traffic calming / pedestrianisation / walk to school initiatives	Policy	1. Walking and wheeling	2. Maintaining and safely operating existing assets
11	20 mph zones	Policy	1. Walking and wheeling	3. Making better use of existing capacity
Public Transport				
12	Bus priority measures	Capital	3. Public Transport	3. Making better use of existing capacity
13	New public transport links and modes, including new railway lines, stations, and tram extensions	Capital	3. Public Transport	4. Targeted infrastructure improvements
15	Enforcement of bus lane use	Capital	3. Public Transport	3. Making better use of existing capacity
17	Provide more direct bus routes, at least part-day	Revenue	3. Public Transport	3. Making better use of existing capacity
18	Reduce number of bus stops	Policy	3. Public Transport	3. Making better use of existing capacity
19	High Speed Rail	Policy	3. Public Transport	4. Targeted infrastructure improvements
21	Electrification of rail lines to help increase rail journey speeds.	Policy	3. Public Transport	3. Making better use of existing capacity
23	Reduce the impact of interchange (i) cost: integrated ticketing to avoid double fare (ii) time: integrated timetabling to reduce wait times including intermodal (iii) comfort / access / hassle: improving shelter / facilities at key interchange points and integrated ticketing	Capital	3. Public Transport	4. Targeted infrastructure improvements
25	Bigger buses / trains	Capital	3. Public Transport	1. Reducing the need to travel unsustainably
26	Uniform low / fares	Revenue	3. Public Transport	1. Reducing the need to travel unsustainably
27	Discounted / free fares targeted at specific groups in need	Revenue	3. Public Transport	1. Reducing the need to travel unsustainably
28	Daily fare capping across operators	Revenue	3. Public Transport	1. Reducing the need to travel unsustainably
29	Integrated ticketing to reduce 2-fares trips	Revenue	3. Public Transport	1. Reducing the need to travel unsustainably
31	Earlier and later services	Revenue	3. Public Transport	1. Reducing the need to travel unsustainably
32	Higher frequency services	Revenue	3. Public Transport	1. Reducing the need to travel unsustainably
33	DRT / Community Transport	Revenue	3. Public Transport	1. Reducing the need to travel unsustainably
34	Semi scheduled bus services	Revenue	3. Public Transport	1. Reducing the need to travel unsustainably

No	Option Description	Type of Option	Sustainable Travel Hierarchy	Investment Hierarchy
35	Step free access to vehicles	Capital	3. Public Transport	2. Maintaining and safely operating existing assets
36	Improved access to / from bus / train / tram e.g., step free access at stations, stops, etc.	Capital	3. Public Transport	2. Maintaining and safely operating existing assets
37	Journey planning e.g., Traveline, etc	Revenue	3. Public Transport	1. Reducing the need to travel unsustainably
38	Escorting / chaperoning for vulnerable users	Revenue	3. Public Transport	1. Reducing the need to travel unsustainably
39	Improved security / lighting etc. (i) in vehicle (ii) at stop / station / interchange	Capital	3. Public Transport	2. Maintaining and safely operating existing assets
40	Improved information provision targeted at specific groups	Revenue	3. Public Transport	1. Reducing the need to travel unsustainably
41	Provision of bike-buses	Policy	3. Public Transport	3. Making better use of existing capacity
43	Fares and frequency changes to balance demand	Revenue	3. Public Transport	3. Making better use of existing capacity
61	Rationalise bus services in key corridors	Policy	3. Public Transport	3. Making better use of existing capacity
Multi-Modal				
1	Land use planning measures around new development and urban form e.g., 20-minute neighbourhoods, Transit Oriented Development, public transport services and infrastructure	Policy	1. Walking and wheeling	1. Reducing the need to travel unsustainably
5	Technical measures in relation to rail and air safety	Policy	3. Public Transport	2. Maintaining and safely operating existing assets
20	Shared mobility – including to tackle forced car ownership	Revenue	4. Taxis & shared transport	1. Reducing the need to travel unsustainably
22	Eliminate the need for interchange by providing more direct services to key regional travel generators	Revenue	3. Public Transport	3. Making better use of existing capacity
24	MaaS	Revenue	3. Public Transport	1. Reducing the need to travel unsustainably
30	Taxi Card for discounted taxi fares	Revenue	4. Taxis & shared transport	1. Reducing the need to travel unsustainably
51	New or improved intermodal facilities (e.g., Mobility Hubs)	Capital	3. Public Transport	4. Targeted infrastructure improvements
Freight				
45	Measures to encourage mode shift from road to rail freight	Capital	3. Public Transport	1. Reducing the need to travel unsustainably
46	Combined bus / commercial vehicle lanes	Policy	3. Public Transport	3. Making better use of existing capacity
48	Freight consolidation centres	Capital	5. Private Car	3. Making better use of existing capacity
49	Public subsidy for rail freight	Revenue	3. Public Transport	1. Reducing the need to travel unsustainably

No	Option Description	Type of Option	Sustainable Travel Hierarchy	Investment Hierarchy
50	Innovative approaches to rail train forming	Policy	3. Public Transport	3. Making better use of existing capacity
52	Additional freight paths on the rail network	Capital	3. Public Transport	4. Targeted infrastructure improvements
53	Enabling rail infrastructure works e.g., gauge	Capital	3. Public Transport	4. Targeted infrastructure improvements
54	Additional rail freight services to serve new origin destination pairs	Capital	3. Public Transport	1. Reducing the need to travel unsustainably
55	Provide new secure freight rest facilities at key locations on the road network	Capital	5. Private Car	4. Targeted infrastructure improvements
57	Working with the tech sector to fund new fuel pilots, etc.	Capital	5. Private Car	1. Reducing the need to travel unsustainably
58	Public subsidy for new ferry services e.g., from Rosyth	Revenue	3. Public Transport	1. Reducing for need to travel unsustainably
Car - Fleet Transition				
56	Public investment or partnership in alternative fuels e.g., synthetic fuels and hydrogen	Capital	5. Private Car	1. Reducing the need to travel unsustainably
68	Provision of charging infrastructure (many options) e.g., market led or public responsibility	Policy	5. Private Car	4. Targeted infrastructure improvements
69	Electrical grid capacity measures	Policy	5. Private Car	3. Making better use of existing capacity
70	Local grants and incentives for purchasing EVs – winding down from central government	Revenue	5. Private Car	3. Making better use of existing capacity
71	Do nothing and wait for market to make EVs more affordable	Policy	5. Private Car	3. Making better use of existing capacity
Car – Parking & Demand Management				
14	Measures to reduce car use – Congestion Charging, Road User Charging / parking policies (inc charging by energy / emissions) / WPL / LEZ, digital connectivity measures, land use planning measures	Policy	5. Private Car	1. Reducing the need to travel unsustainably
16	Enforcement of parking regulations	Policy	5. Private Car	3. Making better use of existing capacity
42	Parking charges to discourage short car trips	Policy	5. Private Car	3. Making better use of existing capacity
44	Provision of additional parking capacity on site or at new location including Park & Ride	Policy	5. Private Car	4. Targeted infrastructure improvements
62	Reduce parking charges	Revenue	5. Private Car	3. Making better use of existing capacity
63	Increase general parking capacity (parking not associated with multi-modal travel and interchange, i.e., Park and Ride Sites)	Policy	5. Private Car	3. Making better use of existing capacity
64	Reduce parking regulation	Policy	5. Private Car	3. Making better use of existing capacity

No	Option Description	Type of Option	Sustainable Travel Hierarchy	Investment Hierarchy
65	Increase parking charges to price away some users	Policy	5. Private Car	3. Making better use of existing capacity
Car – Road Network				
2	Road safety schemes	Capital	5. Private Car	2. Maintaining and safely operating existing assets
3	Reduced speed limits	Policy	5. Private Car	2. Maintaining and safely operating existing assets
4	Traffic engineering-based speeding limiting solutions	Capital	5. Private Car	2. Maintaining and safely operating existing assets
47	Provide additional road capacity	Capital	5. Private Car	4. Targeted infrastructure improvements
59	Additional road capacity at congestion hotspots	Capital	5. Private Car	4. Targeted infrastructure improvements
60	Traffic management measures to improve network efficiency and planning for resilience (i.e., alternative routes)	Capital	5. Private Car	3. Making better use of existing capacity
66	Route action plans targeting safety concerns and areas where the lack of overtaking opportunities is a problem	Policy	5. Private Car	3. Making better use of existing capacity
67	Upgrading the standard of strategic internal and external road links	Capital	5. Private Car	3. Making better use of existing capacity

2.5.4   These options were subsequently taken forward to the Preliminary Options Appraisal. They undergo further development as part of this appraisal process which is outlined along with the findings of the appraisal in Chapter 4 of this report.

Methodology and Approach

SEStran Regional Transport Strategy

STAG Preliminary Options Appraisal

3   Methodology and Approach

3.1   Overview

3.1.1   Each option has been qualitatively appraised in line with the requirements of STAG to identify their impacts against both the Strategy Objectives and the STAG criteria. For transparency, each component of the STAG appraisal scoring has been accompanied by an explanatory narrative setting out the rationale for the appraisal scoring. In line with STAG, the options have been appraised against the:

- STAG criteria (Environment, Economy, Safety, Accessibility & Social Inclusion and Integration)
- Implementability Criteria (Feasibility, Affordability and Public Acceptability)
- Strategy Objectives

3.1.2   Further details about each of the appraisal criteria are provided in the following section.

3.1.3   In addition, the appraisal reflects two future transport scenarios to capture how potential impacts may vary if travel behaviour changes.

3.2   Appraisal Criteria

STAG Criteria

3.2.1   Table 3-1 sets out the five STAG criteria and their associated sub-criteria. These were utilised to guide the appraisal of each of the RTS options as appropriate.

Table 3-1: STAG Appraisal Criteria and Sub-Criteria

STAG Criteria	Sub-criteria
Environment	o Noise and Vibration o Global Air Quality – carbon dioxide (CO_2) o Local Air Quality – particulates (PM10) and nitrogen dioxide (NO_2) Water Quality, Drainage and Flood Defence o Geology o Biodiversity and Habitats o Landscape o Visual Amenity o Agriculture and Soils o Cultural Heritage

STAG Criteria	Sub-criteria
	o Physical Fitness
Safety	o Accidents - whether the option under consideration will have any impact on the number of transport related accidents and / or their severity o Security – the impact of an option on the personal security of users, including vulnerable sections of the community such as children, the elderly or women travelling alone.
Economy	o Transport Economy Efficiency – the benefits captured by standard cost-benefit analysis o Wider Economic Benefits – secondary impacts including productivity gains through agglomeration and labour supply benefits from people accessing the labour force or moving to more productive jobs.
Integration	o Transport Integration – the degree to which an option fits with other transport infrastructure and services o Transport and Land Use Integration – the fit between options and land use plans and land use and transport planning guidance o Policy integration – the fit of the option with wider local and national government policies particularly the 4 key priorities defined in the National Transport Strategy 2
Accessibility and Social Inclusion	Community Accessibility o Public transport network coverage – consideration of the impacts of an option on each group in society for a range of trip purposes o Local accessibility – severance issues arising from proposed changes Comparative Accessibility o The distribution of impacts by people group, with particular attention paid to socially excluded groups o The distribution of impacts by location, with particular attention paid to areas of disadvantage

Implementability Criteria

3.2.2   Table 3-2 outlines the Implementability criteria as defined by STAG and applied to the appraisal of options.

Table 3-2: Implementability Criteria

Criteria	Description
Feasibility	A preliminary assessment of the feasibility of construction and implementation and operation of an option, including any associated cost, timescale, or deliverability risks
Affordability	An assessment of the scale of financial burden on the promoting authority and other possible funding organisations together with associated risks
Public Acceptability	An assessment of the likely public response to an option. It should be noted that options have not be subject to an extensive public consultation exercise although the initial long list outlined in Chapter 2 was consulted on as part of the Case for Change consultation.

Strategy Objectives

3.2.3 In addition to defining the problems, TPOs and options the Case for Change also set out four Strategy Objectives which are closely linked to the defined TPOs. These seek to aggregate the themes from the TPOs, provide a more concise structure within which the RTS can begin to be developed and ultimately act as the overarching objectives for the RTS. Furthermore, 28 TPOs would clearly be excessive for the strategy itself but instead act as a foundation for these more high-level strategic objectives.

3.2.4 The defined Strategy Objectives are outlined below in Table 3-3 along with why each is relevant. Furthermore, the Case for Change outlined how each could be achieved and the metrics that could be used for monitoring and evaluation. The latter would enable the objectives to eventually be made SMART (Specific, Measurable, Attainable, Relevant, Timed) in line with the requirements of STAG.

Table 3-3: Strategy Objectives

Strategy Objective	Relevance
Transitioning to a sustainable, post-carbon transport system.	This can help reduce emissions and energy use, in turn improving local, regional, and national air quality.
Facilitating greater physical activity.	This objective aims to improve health and wellbeing in addition to helping to reduce emissions via the uptake of active modes.
Widening public transport connectivity and access across the region.	This could reduce inequality of opportunity and encourage more inclusive growth. It can also reduce car dependency and forced car ownership and encourage a modal shift.
Supporting safe, sustainable, and efficient movement of people and freight across the region.	This objective could help deliver inclusive and sustainable economic growth and increase productivity through the efficient movement of people and goods. Moreover, it may reduce personal injuries.

3.2.5 Within the Case for Change, the relationship between each TPO and Strategy Objective was also identified, as set out within Table 3-4.

Table 3-4: Links between Strategy Objectives and TPOs

TPO	1. Transitioning to a sustainable, post-carbon transport system	2. Facilitating greater physical activity	3. Widening public transport connectivity and access across the region	4. Supporting safe, sustainable, and efficient movement of people and freight across the region
All Modes				
Ensure sustainable connectivity and travel behaviour is embedded in all new development	✓			

TPO	1. **Transitioning to a sustainable, post-carbon transport system**	2. **Facilitating greater physical activity**	3. **Widening public transport connectivity and access across the region**	4. **Supporting safe, sustainable, and efficient movement of people and freight across the region**
Reduce injuries and fatalities for all users of the transport networks				✓
Active Travel				
Create an environment which allows more people to cycle	✓	✓		
Create an environment which allows more people to walk and wheel	✓	✓		
Public Transport				
Reduce peak-period delays for bus-based travel	✓		✓	✓
Improve the punctuality of peak-period bus-based travel	✓		✓	✓
Improve the competitiveness of public transport with car journey times	✓		✓	✓
Reduce the time and inconvenience of having to interchange	✓		✓	✓
Provide appropriate seated capacity on public transport services	✓		✓	
Reduce the cost of travel by public transport	✓			
Widen access to public transport by geography and time of day			✓	
Widen access to public transport by user group			✓	
Improve actual and perceived personal security on the public transport networks				✓

TPO	1. Transitioning to a sustainable, post-carbon transport system	2. Facilitating greater physical activity	3. Widening public transport connectivity and access across the region	4. Supporting safe, sustainable, and efficient movement of people and freight across the region
Provide effective information about public transport services for all			✓	
Mixed Mode				
Improve bike / public transport mixed mode travel options		✓		
Maximise the reduction in car-km travelled associated with car / rail travel	✓			
Freight				
Reduce peak period delays for freight vehicles				✓
Improve peak period journey time reliability for freight vehicles				✓
Improve the competitiveness of the rail-freight 'offer'	✓			✓
Improve security and safety for drivers of freight vehicles				✓
Decarbonise the freight sector	✓			
Improve 'external' freight links				✓
Car				
Reduce peak period delays for car-based travel				✓
Improve peak period journey time reliability for car-based travel				✓
Ensure the level and scope of parking charges reflect the strategy objectives				
Ensure the availability of parking reflects the strategy objectives	✓	✓	✓	✓

TPO	1. Transitioning to a sustainable, post-carbon transport system	2. Facilitating greater physical activity	3. Widening public transport connectivity and access across the region	4. Supporting safe, sustainable, and efficient movement of people and freight across the region
Improve journey times on regional / external road network	✓	✓	✓	✓
Widen access to electric vehicle ownership / use	✓			

3.2.6 Table 3-4 illustrates there is close integration between the identified TPOs and the Strategy Objectives. On this basis, it was identified that the Strategy Objectives would be taken forward and act as the foundation for the development of the new RTS. As such, the options have been appraised against the Strategy Objectives rather than the TPOs for the purposes of the Preliminary Options Appraisal.

Scoring

3.2.7 For each of the above criteria, the STAG seven-point scoring scale has been used to indicate the relevant scale of the impacts as illustrated in Table 3-5.

Table 3-5: STAG Seven-Point Scoring Scale

Impact	Description	Scoring
Major Positive	These are benefits or positive impacts which, depending on the scale of benefit or severity of impact, the practitioner feels should be a principal consideration when assessing an option's eligibility for funding.	✓✓✓
Moderate Positive	The option is anticipated to have only a moderate benefit or positive impact. Moderate benefits and impacts are those which taken in isolation may not determine an option's eligibility for funding but taken together do so.	✓✓
Minor Positive	The option is anticipated to have only a small benefit or positive impact. Small benefits or impacts are those which are worth noting, but the practitioner believes are not likely to contribute materially to determining whether an option is funded or otherwise.	✓
No benefit or impact	The option is anticipated to have no or negligible benefit or negative impact.	◯
Minor Negative	The option is anticipated to have only a small cost or negative impact. Small costs/negative impacts are those which are worth noting, but the practitioner believes are not likely to contribute materially to determining whether an option is funded or otherwise.	✕

Impact	Description	Scoring
Moderate Negative	The option is anticipated to have only a moderate cost or negative impact. Moderate costs/negative impacts are those which taken in isolation may not determine an option's eligibility for funding but taken together could do so.	XX
Major Negative	These are costs or negative impacts which, depending on the scale of cost or severity of impact, the practitioner should take into consideration when assessing an option's eligibility for funding.	XXX

3.3 Public and Stakeholder Engagement

3.3.1 The Case for Change was informed by a comprehensive and wide-ranging stakeholder and public engagement exercise. This included:

- **Stakeholder Engagement**: Over 130 stakeholders were invited to participate in consultation either through workshops, individual meetings or by responding to briefing notes. In total 9 workshops and 21 meetings took place, and 62 written responses were received.

- **Public Consultation**: A public survey was undertaken online over a six-week period between Monday 8th March 2021 and Monday 19th April 2021. This explored pre-pandemic travel patterns, anticipated post-pandemic travel behaviour along with the reasons for these travel choices. In total 998 responses were received.

3.3.2 The Case for Change report itself along with its supporting Strategic Environmental Assessment and Equalities Duties Assessment documentation was then subject to a 4-week consultation period between Tuesday 29th June and Monday 26th July 2021. Responses were submitted via an online survey which sought feedback on problems, options, strategy objectives and the statutory assessments.

3.3.3 To inform the Preliminary Options Appraisal, a further stage of stakeholder engagement was undertaken. Considering issues around stakeholder fatigue, it was agreed that this would be a more limited consultation with a select panel of key stakeholders. In order to do this, we established a Regional Transport Working Group to be used as a *'sounding board'* and directional check / external challenge to ensure the wider body of stakeholders should be broadly happy with the strategic direction of the RTS.

3.3.4 A workshop was undertaken with the RTWG on Wednesday 9th June 2021. The RTWG includes representatives from SEStran, the City of Edinburgh Council, East Lothian Council, Fife Council, Scottish Borders Council, West Lothian Council, Midlothian Council and Transport Scotland. They provided feedback to help inform the RTS draft and the Preliminary Options Appraisal.

3.4   Do Minimum & Sensitivity Scenario

3.4.1   STAG requires that all options are appraised against a 'Do Minimum' approach. This typically includes transport improvements, schemes and proposals which have been committed and / or under construction or for which statutory powers exist and funding is available. However, in the context of the RTS with its long-term horizon and the high-level options which are under consideration this definition needs to be reconsidered slightly to take into account wider travel behaviour patterns rather than specific interventions. This is particular important in the wake of the COVID-19 pandemic which has had wide-ranging impacts on travel behaviour and that has led to uncertainty regarding future travel patterns.

3.4.2   The COVID-19 pandemic has accelerated a number of long-term travel behaviour change trends including increased working from home, more online shopping, reduced trip making, decline in bus use and increased car use. In addition, it has also stimulated new travel behaviours including a decline in the previously growing train patronage and increases in walking and cycling as illustrated in Figure 3-1. It is unknown the extent to which these changes will become embedded long-term but, at the very least, it is likely to take time for travel patterns to stabilise and return to close to pre-pandemic levels. Peak period commuting could be particularly affected if there is a permanent shift to increased home and flexible working potentially leading to less strain on public transport services and less congestion on the road network at these times. It is also unclear how public transport demand will recover in the wake of the pandemic.

Figure 3-1: Overview of COVID-19 Impacts

Stantec

3.4.3 Given the uncertainty surrounding the long-term travel behaviour impacts of the pandemic it was determined that the Preliminary Options Appraisal should reflect a Do Minimum scenario based upon pre-pandemic conditions as it is currently impossible to determine the extent to which these changes may become entrenched. However, it was recognised that consideration needs to be given to how the options would be impacted if the travel behaviour changes generated by pandemic do become embedded in the longer term. On this basis each option was also appraised against a COVID-19 Sensitivity Scenario to identify how the impacts may vary from the Do Minimum.

3.4.4 The aim of applying two scenarios is to capture the ambiguity of the long-term implications COVID-19 may or may not have on the transport sector and in turn, how the different scenarios will impact the RTS. The appraisal scenarios are summarised in Table 3-6.

Table 3-6: Scenarios

Scenario	Description
Do Minimum	This scenario assumes that people's travel behaviours and pattens will largely revert to pre-pandemic model of living, i.e., people will commute to work regularly and use public transport services at a similar level to what they did previously. COVID-19 has seen a shift in demand in terms of an increase in car use, online shopping, and active travel, however this scenario implies that these changes will be flattened, and the long-term implications will be minimal.
Sensitivity Scenario	This alternative scenario considers that some of the travel behaviours and patterns will become more entrenched and long-term. Thus, there could be long-term implications for public transport with lower demand persisting whilst there is higher car use as a result. Furthermore, increased home working and agile working reduce commuting demand whilst an increase in online shopping reduces demand for retail related journeys whilst increasing last mile logistics requirements.

Option Development & Appraisal

SEStran Regional Transport Strategy

STAG Preliminary Options Appraisal

4 Option Development & Appraisal

4.1 Overview

4.1.1 This chapter appraises each option against the STAG criteria and Strategy Objectives with the results presented in an 'Option Appraisal Table'. This also includes an overall 'selection' or 'rejection' of the option based upon the findings of the appraisal. Note that the options are not in numerical order but instead grouped by mode. This is for consistence as the options were originally grouped by mode within the STAG Case for Change, as outlined in Table 2-2.

4.1.2 It has been agreed that a Detailed Options Appraisal stage will not be undertaken as the nature of the appraisal is suitably high level given the focus is upon developing a new RTS rather than on individual interventions. Therefore, the Preliminary Options Appraisal has been more rigorous than what would usually be undertaken at this stage which typically acts as a gateway to the Detailed Options Appraisal. The purpose of this stage is to '*develop a list of interventions that can be justifiably referenced as strategic interventions within the draft RTS'.* It has subsequently been agreed to approach this as a *'Preliminary +'* stage.

4.1.3 The Preliminary Options appraisal would not typically involve conventional modelling of options. Indeed, the identified options did not require strategic transport modelling since the RTS is a step removed from developing the details of projects, such as would be required to be coded into a model. The options did nonetheless require further development to define them in more detail prior to being submitted to Preliminary Options Appraisal. As such, each one includes a detailed summary which provides a more detailed description about the option.

4.1.4 In the context of the RTS options will not be limited to infrastructure measures and the process has also involved developing interventions that are predominantly policy based. In addition, there are some options that span a number of the transport problems as well as their associated societal consequences and are consequently overarching in nature. Through this option development and appraisal process, the core aspects of the RTS will subsequently begin to emerge.

4.1.5 As a Model 1 RTP SEStran sets the transport policy framework and the actions that local authorities and partners are required to consider, prioritise and incorporate within their strategy documents and delivery programmes. Therefore, under current governance arrangements local decisions on funding and policy priorities can affect delivery especially for cross boundary regional projects. For the purposes of the implementability appraisal of options the analysis has consequently focussed upon the key delivery partners and their role in effectively implementing the option.

4.2 Active Travel

4.2.1 Active travel, including walking, wheeling and cycling, rates differ considerably throughout the region due to many factors which include varying topographies, distances to amenities, quality and availability of infrastructure, awareness of routes, and safety concerns of other road-users. There is scope for an increase in active travel to have multifaceted benefits for health, carbon emissions, and the economy.

4.2.2   There are six options that directly involve active travel which are appraised in this section.

Option 6: Cycling route / infrastructure implementation and improvements

Option 6	Cycling route / infrastructure implementation and improvements					
Summary	Cycle infrastructure improvements may include increasing cycle parking and storage provision at transport hubs and interchanges, relocating cycle parking to be nearer the entrance of buildings to prioritise cycles over cars, developing segregated cycle lanes and cycle ways along key routes and roads. Cycle route development may involve the addition of cycle lanes or cycleways along existing routes, or the creation of segregated active travel routes, or 'active freeways', or converting disused railways for active travel use. Furthermore, there is scope to make the 'Spaces for People' active travel infrastructure permanent.					
Type of Option	Capital	✓	Revenue		Policy & Regulatory	
Focus	Region Wide		Network Measures	✓	Measures Targeted at Specific Groups	
Implementability	Implementability is largely dependent upon constituent Local Authorities and Sustrans to act in a coordinated manner to deliver cycle routes and infrastructure which facilitates cross-boundary movements. An uncoordinated approach within and between Local Authorities could be a potential barrier to the successful implementation of this option. The capital cost of new routes and / or infrastructure improvements is also a potential barrier and Sustrans is a major provider of funding. Note that the provision of new infrastructure is considered to be of greater priority as it has a greater impact for facilitating an uptake of active travel, however it is more likely to have greater capital cost.					
Public Acceptability	Reallocation of road space or parking provision to prioritise cycles over cars may be contentious.					
STAG Criteria	Environment	✓	Improving infrastructure and routes that facilitate cycling will encourage active travel leading to less emissions and noise from traffic.			
	Economy	✓	Better infrastructure and more routes can reduce the journey time for cyclists leading to benefits.			

Option 6	Cycling route / infrastructure implementation and improvements		
	Integration	✓✓✓	If planned coherently this option can deliver an integrated regional cycle network which provides links to key services and town centres and promotes policy aspirations to encourage active travel.
	Accessibility & Social Inclusion	✓✓	Cyclists may feel that they are able to access key services due to improved cycle infrastructure or appropriate routes. This would be particularly beneficial for those that live in areas of poor public transport provision or do not have access to a car.
	Safety & Security	✓✓	This option could increase the safety and security of all road users but particularly cyclists through improving infrastructure. It would lead to a potential reduction in the cost of accidents, i.e., fewer fatal and serious accidents.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✓

Improving infrastructure and routes that facilitate cycling will encourage active travel leading to less emissions.

Strategy Objective 2: Facilitating greater physical activity	✓✓✓

Improving infrastructure and routes that facilitate cycling will encourage active travel.

Strategy Objective 3: Widening public transport connectivity and access across the region	◯

Developing cycle routes and infrastructure does not directly widen public transport connectivity or access.

Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✓

Improving cycle routes and infrastructure aids safe, sustainable, and efficient movement of people via cycling. This option does not directly relate to freight, apart from in the case of last mile logistics which can include cyclists and cargo-bikes used for certain deliveries.

Impact of COVID Related Behaviour Change Scenario

Active travel has increased during COVID-19, alongside an increase in car use and deliveries meaning local roads will be busier increasing the potential risk of traffic collisions. Thus, improving cycle infrastructure and segregated cycle routes would benefit all road users, notably cyclists as they are more vulnerable. This option would consequently build upon the positive trend towards an increase in active travel instigated by the pandemic.

Rationale for Selection or Rejection

This option meets the majority of the STAG criteria and therefore should be considered within the RTS.

Option 7: Bike hire and access schemes

Option 7	Bike hire and access schemes						
Summary	This option involves the expansion and improved access to bike hire schemes across the region including electric and cargo bikes.						
Type of Option	Capital		Revenue	✓	Policy & Regulatory		
Focus	Region Wide	✓	Network Measures		Measures Targeted at Specific Groups		
Implementability	To implement this option, a coordinated approach by existing bike scheme organisers and regional stakeholders is required. This would ensure consistent provision across the SEStran area. Ongoing delivery, funding and maintenance of pilot schemes developed by SEStran such as GO E-bike need regional coordination for successful delivery.						
Public Acceptability	COVID-19 may cause the public to be cautious when using transport modes which involve sharing due to the unknown cleanliness and sanitisation of a cycle prior to use.						
STAG Criteria	Environment	✓	Bike hire schemes could encourage the uptake of cycling as they allow everyone to opt for active travel without having to own a personal bicycle which would help to reduce emissions.				
	Economy	✓	Provision of a regional bike hire scheme could have a minor economic benefit by enabling people to participate in the economy and reach new employment opportunities they would otherwise not be able to.				
	Integration	✓✓✓	If planned coherently this option can deliver an integrated regional bike hire network which provides links to key services and town centres and promotes policy aspirations to encourage active travel.				
	Accessibility & Social Inclusion	✓✓	People will be able to access key services via sustainable modes due to hiring a bicycle. This would be particularly beneficial for those that live in areas of poor public transport provision or do not have access to a car.				
	Safety & Security	✓✓	The location of bike hire points will determine the safety and security of the network. These must be well lit, overlooked, in public places and ideally monitored by CCTV.				
Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system							✓
Bike hire schemes could encourage the uptake of cycling as they allow everyone to opt for active travel without having to own a personal bicycle leading to reduced emissions.							

Option 7	Bike hire and access schemes	
Strategy Objective 2: Facilitating greater physical activity		✓✓
Bike hire schemes could encourage the uptake of cycling as they allow everyone to opt for active travel without having to own a personal bicycle.		
Strategy Objective 3: Widening public transport connectivity and access across the region		✓
Bike hire would complement public transport and expanding schemes would aid the connectivity and access across the region by enabling people to switch between bike and public transport for their journeys.		
Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region		✓
Expanding bike hire schemes assists the sustainable and efficient movement of people via cycling. This option foes not directly relate to freight, apart from in the case of last mile logistics which can include cyclists and cargo-bikes used for certain deliveries. In this case, expanding bike hire schemes to businesses as well as the general public and the provision of cargo bikes could help encourage a widespread uptake of cycling.		
Impact of COVID Related Behaviour Change Scenario		
Active travel has increased during COVID-19. This option would consequently build upon the positive trend towards an increase in active travel instigated by the pandemic.		
Rationale for Selection or Rejection		
This option meets the majority of the STAG criteria and therefore should be considered within the RTS.		

Option 8: Promotional campaigns

Option 8	Promotional Campaigns (Active Travel)					
Summary	Campaigns that promote active travel could help the uptake of walking and cycling. These campaigns may involve raising awareness of existing or new active travel routes, promoting the health and environmental benefits of active travel, or providing items which encourage safe active travel such as maps, bike lights, pedometers etc.					
Type of Option	Capital		Revenue	✓	Policy & Regulatory	

Option 8	Promotional Campaigns (Active Travel)				
Focus	Region Wide	✓	Network Measures		Measures Targeted at Specific Groups
Implementability	There are no significant barriers to the delivery of active travel promotional campaigns. Partnership working by all the key stakeholders responsible for delivering promotional active travel campaigns is essential and a clear national strategy and guidance from Transport Scotland on roles and responsibilities is vital for successful delivery.				
Public Acceptability	The public is unlikely to object to the promotion of active travel.				
STAG Criteria	Environment	✓	Promotional campaigns could encourage and facilitate the uptake of active travel which would help to reduce emissions.		
	Economy	○	The impact on the economy of an active travel promotional campaign is expected to be negligible.		
	Integration	✓	This option is consistent with policy aspirations to encourage active travel. It is unlikely to have any impact on transport integration or transport and land-use integration.		
	Accessibility & Social Inclusion	✓	People may have more information or items which allow them / make them feel like they are able to access key services via active modes as a result of a promotional campaign. This could be particularly beneficial for those that live in areas of poor public transport provision or do not have access to a car.		
	Safety & Security	✓	By providing information regarding active travel routes, people will be aware of areas which are safer for them whilst walking and cycling and feel more secure about using the network.		

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✓
Promotional campaigns could encourage and facilitate the uptake of active travel leading to reduced emissions.	
Strategy Objective 2: Facilitating greater physical activity	✓
Promotional campaigns could encourage and facilitate the uptake of active travel.	
Strategy Objective 3: Widening public transport connectivity and access across the region	○
Promotional campaigns regarding active travel do not directly impact public transport connectivity or access.	
Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	○ - ✓

Option 8	Promotional Campaigns (Active Travel)
This option does support the safe, sustainable, and efficient movement of people via active travel. However, it does not incorporate freight movement.	
Impact of COVID Related Behaviour Change Scenario	
Active travel has increased during COVID-19. This option would consequently build upon the positive trend towards an increase in active travel instigated by the pandemic.	
Rationale for Selection or Rejection	
This option meets the majority of the STAG criteria and therefore should be considered within the RTS.	

Option 9: Walking and wheeling route / infrastructure implementation and improvements

Option 9	Walking and wheeling route / infrastructure implementation and improvements				
Summary	Walking and wheeling route development may involve the segregated active travel routes, or 'active freeways', or converting disused railways for active travel use. Furthermore, there is scope to make the 'Spaces for People' active travel infrastructure permanent. Walking infrastructure improvements may include the implementation of tactile pavements, dropped kerbs, crossing points, improved sight lines and pedestrian prioritisation. There should also be increased active travel infrastructure at transport hubs such as Park and Ride sites so people can access services sustainably.				
Type of Option	Capital	✓	Revenue		Policy & Regulatory	
Focus	Region Wide		Network Measures	✓	Measures Targeted at Specific Groups	
Implementability	Implementability is largely dependent upon constituent Local Authorities and Sustrans to act in a coordinated manner to deliver appropriate walking and wheeling routes and infrastructure which facilitates inter, and cross-boundary movements. An uncoordinated approach within and between Local Authorities could be a potential barrier to the successful implementation of this option. The capital cost of implementing this option is also a potential barrier and Sustrans are a major funding provider. Note that the provision of				

Option 9	Walking and wheeling route / infrastructure implementation and improvements		
			new infrastructure is considered to be of greater priority as it has a greater impact for facilitating an uptake of active travel, however it is more likely to have greater capital cost.
Public Acceptability			Reallocation of road space or parking provision to prioritise walking over cars may be contentious.
STAG Criteria	Environment	✓	Improving infrastructure and routes that facilitate walking will encourage active travel leading to less emissions and noise from traffic.
	Economy	✓	Better infrastructure and more routes can reduce the journey time for people walking leading to potential economic benefits.
	Integration	✓✓✓	If planned coherently this option can deliver an integrated regional walking network which provides links to key services and town centres and promotes policy aspirations to encourage active travel.
	Accessibility & Social Inclusion	✓✓	People walking may feel that they are able to access key services due to improved infrastructure or appropriate routes. This would be particularly beneficial for those that live in areas of poor public transport provision or do not have access to a car.
	Safety & Security	✓✓	This option could increase the safety and security of all road users, but particularly people walking through improving infrastructure. It would lead to a potential reduction in the cost of accidents, i.e., fewer fatal and serious accidents.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✓
Improving infrastructure and routes that facilitate walking will encourage active travel leading to less emissions.	
Strategy Objective 2: Facilitating greater physical activity	✓✓✓
Improving infrastructure and routes that facilitate walking will encourage active travel.	
Strategy Objective 3: Widening public transport connectivity and access across the region	◯
Developing walking routes and infrastructure does not directly widen public transport connectivity or access.	
Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	◯ - ✓
Improving walking routes and infrastructure aids safe, sustainable, and efficient movement of people on foot. This option does not directly relate to freight.	

Option 9	Walking and wheeling route / infrastructure implementation and improvements
Impact of COVID Related Behaviour Change Scenario	
Active travel has increased during COVID-19, alongside an increase in car use and deliveries meaning local roads will be busier increasing the potential risk of traffic collisions. Thus, improving walking routes and infrastructure there would be benefits for all road users, notably those on foot as they are more vulnerable. This option would consequently build upon the positive trend towards an increase in active travel instigated by the pandemic.	
Rationale for Selection or Rejection	
This option meets the majority of the STAG criteria and therefore should be considered within the RTS.	

Option 10: Traffic calming / pedestrianisation / walk to school initiatives

Option 10	Traffic calming / pedestrianisation / walk to school initiatives				
Summary	Traffic calming measures may involve interventions such as speed restrictions, speed bumps or pedestrianisation of an area which can be for specific times, i.e., when children are going in and out of schools or during school hours. This is to enhance the safety of vulnerable road users. Walk to school initiatives involve children walking in groups to school instead of being driven by parents and guardians which would also improve the road safety in local areas.				
Type of Option	Capital		Revenue		Policy & Regulatory	✓
Focus	Region Wide		Network Measures	✓	Measures Targeted at Specific Groups	
Implementability	Successful implementability of this option is dependent upon constituent Local Authorities to install traffic calming measures.				
Public Acceptability	Potential opposition from the public to traffic calming measures particularly from parents, school visitors and those who live near schools as their travel options will be restricted.				
STAG Criteria	Environment	✓	Restricting speed can ease congestion, thus they can have a positive impact on emissions due to vehicles making fewer sharp accelerations and decelerations. Enhanced safety can encourage active travel which would also help reduce emissions. Lower speeds also help to reduce noise from traffic. However, the impacts are likely to be minimal overall.		

Option 10	Traffic calming / pedestrianisation / walk to school initiatives		
	Economy	✓	Reducing speeds and encouraging modal shift can help ease congestion leading to increased journey time efficiency which is economically beneficial for people as they spend less time travelling and more time productively engaging in other activities.
	Integration	✓	This option is in line with policy integration to improve road safety. It is unlikely to have any impact on transport integration or transport and land-use integration.
	Accessibility & Social Inclusion	✓✓	Traffic calming may make people feel that they are able to access key services, particularly education, safely which could be particularly beneficial for those that live in areas of poor public transport provision or do not have access to a car. In addition, this option would benefit schoolchildren.
	Safety & Security	✓✓✓	Traffic calming may make people feel that they are able to access key services safely. It would lead to a potential reduction in the cost of accidents, i.e., fewer fatal and serious accidents.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✓
Traffic calming measures would encourage active travel and lower speeds mean vehicles create less emissions.	

Strategy Objective 2: Facilitating greater physical activity	✓✓
Traffic calming, pedestrianisation and walk to school measures would encourage active travel.	

Strategy Objective 3: Widening public transport connectivity and access across the region	◯
Traffic calming measures do not directly widen public transport connectivity or access.	

Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✓
This option aids safe, sustainable, and efficient movement of people however it does not directly relate to freight.	

Impact of COVID Related Behaviour Change Scenario
Active travel has increased during COVID-19, alongside an increase in car use and deliveries meaning local roads will be busier increasing the potential risk of traffic collisions. Thus, improving walking routes and infrastructure there would be benefits for all road users, notably those on foot as they are more vulnerable. Therefore, this option could help to mitigate potential issues that have arisen from COVID-19.

Rationale for Selection or Rejection
This option meets the majority of the STAG criteria and therefore should be considered within the RTS.

Option 11: 20 mph zones

Option 11	20 mph zones						
Summary	Implementing 20 mph zones would reduce the speed of road vehicles enhancing road safety, notable for vulnerable road users such as cyclists and pedestrians.						
Type of Option	Capital		Revenue		Policy & Regulatory		✓
Focus	Region Wide		Network Measures	✓	Measures Targeted at Specific Groups		
Implementability	Local Authorities are responsible for the implementation of 20 mph zones in the appropriate areas within their constituencies.						
Public Acceptability	Implementing 20 mph zones could face opposition from local residents and businesses.						
STAG Criteria	Environment	✓	Restricting speed can ease congestion, thus they can have a positive impact on emissions due to vehicles making fewer sharp accelerations and decelerations. 20 mph zones can encourage active travel which would also help reduce emissions. Lower speeds also help to reduce noise from traffic. However, the impacts are likely to be minimal overall.				
	Economy	✓	Reducing speeds can help ease congestion leading to increased journey time efficiency which is economically beneficial for people as they spend less time travelling and more time productively engaging in other activities.				
	Integration	✓	This option involves is in line with policy integration to improve road safety. It is unlikely to have any impact on transport integration or transport and land-use integration.				
	Accessibility & Social Inclusion	✓	20 mph zones can make vulnerable road users feel safer and promote the uptake of active travel enabling people to access local services and amenities. It would not have a direct impact on public transport accessibility.				
	Safety & Security	✓✓✓	20 mph zones aim to enhance the safety of the road for all users, notably vulnerable road users.				

Option 11	20 mph zones	
Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system		✓
20 mph zones can encourage active travel in localised areas and lower speeds mean vehicles create less emissions.		
Strategy Objective 2: Facilitating greater physical activity		✓
20 mph zones can encourage active travel in localised areas.		
Strategy Objective 3: Widening public transport connectivity and access across the region		○
20 mph zones do not directly widen public transport connectivity or access.		
Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region		✓
20 mph zones would support safe and efficient movement of people via active travel or in vehicles, including freight.		
Impact of COVID Related Behaviour Change Scenario		
An increase in car use and online shopping, thus more last mile logistics, implies that local roads will be busier increasing the potential risk of traffic collisions particularly given the increase in active travel as well. Therefore, implementing 20 mph zones could help to mitigate potential issues that have arisen from COVID-19. In addition, this option would create a better environment for active travel, which has increased since the pandemic.		
Rationale for Selection or Rejection		
This option meets the majority of the STAG criteria and therefore should be considered within the RTS.		

4.3   Public Transport

4.3.1   This section sets out a diverse range of public transport options relating to the provision of services, access, priority measures, interchanges, fares, and ticketing etc. It covers all modes of public transport including bus, rail, community and demand responsive services as well as new modes and links. This provides a comprehensive range of options which could be incorporated within the RTS to help boost regional uptake and modal share of public transport.

Option 12: Bus priority measures

Option 12	Bus Priority Measures				
Summary	Public transport journey times can often be long and slow, resulting in people choosing to travel by car instead. However, bus priority can speed up public transport journey times and make it competitive with travelling by car. Bus priority measures include priority signalling, dedicated bus only routes, bus advance areas, bus lanes and gates, and bus only corridors. These enhancements would be prioritised on along existing routes that experience particularly slow journey times, at junctions or at P&R sites to increase the efficiency of bus services across the region as well as on new corridors where high quality bus services are required (e.g., as part of a new land-use development).				
Type of Option	Capital	✓	Revenue		Policy & Regulatory	
Focus	Region Wide		Network Measures	✓	Measures Targeted at Specific Groups	
Implementability	Potential barriers include the capital cost to implement various bus priority measures. Local Authorities should coordinate and consult with bus operators to deliver consistent bus priority measures within and between parts of the region. These could potentially be provided as part of a Bus Service Improvement Partnership or Local Franchising. However, BSIPs / Franchising require a lead local authority for implementation.				
Public Acceptability	There may be some opposition to implementing bus priority measures as they are likely to increase car journey times in some instances.				
STAG Criteria	Environment	✓✓	Bus priority measures may encourage more people to use bus services due to reduced journey times. There is scope for this to help reduce emissions produced from private cars whilst also minimising the emissions created by buses by ensuring their efficient movement. This would also have benefits for local air quality as well.			
	Economy	✓	Cost of implementation of measures is dependent on how extensive the measures are. However, this is likely to be mitigated by the increased efficiency opportunities, a result of decreased journey times.			

Option 12	Bus Priority Measures		
	Integration	✓✓	This option is in line with established policy as it seeks to enhance public transport provision. Additionally, it involves land-use planning integration as bus priority measures could be integrated into new developments.
	Accessibility & Social Inclusion	✓✓	People may opt to use the bus due to increased efficiency of the service. This could be particularly impactful for who do not have access to a car and vulnerable groups like the young, elderly, ethnic minorities, etc. who are most dependent upon public transport.
	Safety & Security	✓	Some bus priority measures could increase safety for all road users with fewer potential collisions due to being segregated from cars and more vulnerable road users like cyclists and pedestrians.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✓✓

Implementing bus priority measures encourages public transport use and the transition to a sustainable, post-carbon transport system.

Strategy Objective 2: Facilitating greater physical activity	◯

Bus priority measures are unlikely to facilitate greater physical activity.

Strategy Objective 3: Widening public transport connectivity and access across the region	◯ - ✓

Bus priority measures have the potential to widen public transport connectivity if they result in new services being offered however priority measures primarily concern improving the efficiency of current services and therefore are unlikely to have an impact on widening public transport connectivity

Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✓✓

Implementing bus priority measures significantly improves the efficiency of bus travel which supports sustainable movement across the region.

Impact of COVID Related Behaviour Change Scenario

This option could be impacted by the reduction in public transport use during COVID-19. Reduced patronage and services may undermine the justification for priority measures. However, increased car use will lead to increased congestion negatively impacting bus journey times. As a result, there may be even more justification for bus priority measures.

Rationale for Selection or Rejection

Option 12	Bus Priority Measures
Despite the impact of COVID-19 on public transport use, this option meets the majority of the STAG criteria and therefore should be considered within the RTS.	

Option 13: New public transport links and modes, including new railway lines, stations, and tram extensions

Option 13	New public transport links and modes				
Summary	New public transport links and modes includes opening new railway lines, stations, and tram extensions to increase public transport connectivity and convenience for passengers whilst reducing journey and interchange time. It can also help reduce capacity issues on public transport routes which can help minimise congestion on services within urban centres. Additionally, new modes can provide services in areas which have had limited public transport connectivity and link to major new land-use developments.				
Type of Option	Capital	✓	Revenue		Policy & Regulatory	
Focus	Region Wide		Network Measures	✓	Measures Targeted at Specific Groups	
Implementability	Local Authorities and Transport Scotland are the key delivery partners who can implement new public transport links and modes. There are also potential budgeting concerns surrounding who would fund these new services.				
Public Acceptability	New modes and public transport links are likely to be largely regarded positively by the public provided they are delivered effectively and efficiently.				
STAG Criteria	Environment	✓	Providing new public transport links and modes may encourage more people to use public transport due to increased convenience of the services. There is scope for this to help reduce emissions produced from private cars due to modal shift as well as improving local air quality as well.		

Option 13	New public transport links and modes		
	Economy	✓✓	The implementation cost of new links or modes of transport could be high but are also variable dependent on the link or mode choice. However, it is likely that once implemented they will improve the efficiency of the transport network in the region, including reduced journey times, whilst also stimulating economic activity along the route of the new public transport link and its stations.
	Integration	✓✓	This option aims to enhance transport infrastructure in the region and is therefore in line with policy to improve public transport. Additionally, new links or modes of transport could be implemented in conjunction with a new development encouraging land-use planning integration.
	Accessibility & Social Inclusion	✓✓	People may opt to use the public transport modes due to increased efficiency. This could be particularly impactful for those who have previously experienced limited public transport accessibility or connectivity and those do not have access to a car.
	Safety & Security	✓	Implementing new links or modes of public transport will encourage people to shift away from using their private car. This has the potential to make the road network safer for users. In addition, public transport tends to experience less accidents than private transport. However, concerns are often cited about the security of using public transport which would need to be taken into account in the development of any new link or mode.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✓✓✓
Implementing new public transport links or modes will encourage public transport and help to transition to a sustainable transport network. This is assuming that the public transport links are carbon net-zero, in line with national targets and guidance.	
Strategy Objective 2: Facilitating greater physical activity	✓
New public transport links and modes are unlikely to have a significant impact on facilitating greater physical activity although public transport journeys typically involve walking or cycling at either end of the journey so a minor benefit could be achieved.	
Strategy Objective 3: Widening public transport connectivity and access across the region	✓✓✓

Option 13	New public transport links and modes	
This option would provide new public transport links or modes which enhance connectivity and access for users across the region.		
Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region		✓✓
Implementing new public transport links or modes encourages shifting away from the private car. Public transport supports both safer and more efficient movement of people across the region.		
Impact of COVID Related Behaviour Change Scenario		
During the COVID-19 pandemic, public transport use has declined while car use has increased. These changes in travel patterns could result in there being reduced demand for new public transport links or modes. Additionally, many people are now working at home and online shopping. Therefore, the main transport generators in the region may have changed. Any new public transport links or modes would have to reflect changes in travel patterns and destinations.		
Rationale for Selection or Rejection		
Despite the impact of COVID-19 on public transport use, this option meets the majority of the STAG criteria and therefore should be considered within the RTS.		

Option 15: Enforcement of bus lane use

Option 15	Bus lane enforcement				
Summary	Bus journey times in the region are often reported to be slow due to congestion, especially during peak hours. As a result, people often opt to travel by private car instead. Bus lanes are implemented to give buses priority over the private car, speeding up journey times and the improving the efficiency of the public transport network. However, bus lane misuse can cause hazard and minimise the intended benefits. Enforcement can help to reduce the misuse of bus lanes and the adverse impacts this has on bus journey time and punctuality. This enforcement could be via roadside cameras, cameras onboard buses or mobile operating units, capturing unpermitted vehicles.				
Type of Option	Capital	✓	Revenue		Policy & Regulatory	
Focus	Region Wide		Network Measures	✓	Measures Targeted at Specific Groups	

Option 15	Bus lane enforcement		
Implementability		Local Authorities are primarily responsible for the implementation of cameras or other bus lane enforcement measures. There may be operational issues coordinating with the bus operators and funding issues within the councils for implementing measures.	
Public Acceptability		Enforcement of bus lane use could likely add to congestion for cars and lead to increased journey times whilst also leading to Penalty Charge Notices for those that misuse bus lanes. There would likely be some resistance from the public regarding this as a result.	
STAG Criteria	Environment	◯ - ✓	Enforcing bus lane use may make buses more efficient and more attractive as a transport option. This has the potential to reduce emissions from buses and, in some instances, to improve local air quality but, overall, the impact on the environment will be minimal.
	Economy	✓	Enforcement of misuse can produce revenue via Penalty Charge Notices which can be reinvested into sustainable transport infrastructure. It would also increase the efficiency of bus travel meaning bus users would have a decreased journey time. There would not be expected to be any wider economic impacts.
	Integration	✓	Enforcing bus lane use will improve the efficiency of public transport services and enhance the integration of services by ensuring timetables can be maintained enabling passengers to interchange seamlessly. However, this impact will be minimal.
	Accessibility & Social Inclusion	✓✓	This option prioritises bus users over other road users which improves the efficiency of the services. This could be particularly impactful for those who do not have access to a car and in areas where congestion has the greatest impact on bus service efficiency.
	Safety & Security	✓✓	This option could help to increase safety by reducing potential conflicts in the bus lanes themselves as a result of misuse. There is unlikely to be any impact upon security.
Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system			✓✓
This option improves the efficiency of bus services and therefore supports the transition to a sustainable transport network.			
Strategy Objective 2: Facilitating greater physical activity			◯
Bus lane enforcement is unlikely to have an impact on facilitating greater physical activity.			
Strategy Objective 3: Widening public transport connectivity and access across the region			◯

Option 15	Bus lane enforcement

Although this option improves the efficiency of bus services and therefore quickens journey times it will only be applied to existing routes and will have little impact on widening public transport connectivity.

Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✓✓

Improving the efficiency of buses and encouraging public transport use supports the sustainable and efficient movement of people across the region.

Impact of COVID Related Behaviour Change Scenario

This option could be impacted by the reduction in public transport use during COVID-19. There could be potential opposition to bus lanes that states bus services are not used enough to make them a priority and thus funding should be focused on more widely used modes. Therefore, this would advocate the reallocation of road space away from buses rather than stricter enforcement of bus priority measures.

Rationale for Selection or Rejection

Despite the impact of COVID-19 on public transport use, this option meets the majority of the STAG criteria and therefore should be considered within the RTS.

Option 17: Provide more direct bus routes, at least part-day

Option 17	Provide more direct bus routes, at least part-day					
Summary	Some public transport journey speeds across the region are slow, with journey times not competitive with the car. One reason for this is indirect service routing often leading to unnecessarily slow journey times. Providing more direct buses, at least part of the day, would improve journey times and improve the competitiveness of public transport with the car. Direct services could also relieve some of the capacity issues on alternative services and reduce the need for people to interchange one or more times for their journey. These services would likely serve key travel generators.					
Type of Option	Capital		Revenue	✓	Policy & Regulatory	
Focus	Region Wide		Network Measures	✓	Measures Targeted at Specific Groups	

Option 17	Provide more direct bus routes, at least part-day	
Implementability	Bus operators and Local Authorities are fundamental to deliver this option as the latter would be responsible for subsidising any services which are not commercially viable. Additionally, there may be budgeting issues around funding these services, with operators viewing them as being commercially unviable and local authorities having limited funding for supported services. These problems are likely to be particularly acute due to reduced public transport patronage as a result of the pandemic. More services could also potentially be provided as part of a Bus Service Improvement Partnership or Local Franchising. However, BSIPs / Franchising require a lead local authority for implementation.	
Public Acceptability	The public would likely be supportive of new or expanded bus services.	
STAG Criteria	Environment	✗ - ✓	Providing more direct bus routes makes public transport more competitive with car travel. This could encourage modal shift to public transport. It would also decrease distance travelled meaning less fuel is used by buses to operate which is beneficial for emissions and air quality. However, providing more buses on the transport network could result in buses operating at low capacity, adding to congestion, and contributing to emissions.
	Economy	✓	Providing more direct routes will decrease journey times allowing people to actively engage in other activities leading to increased economic productivity. It will also improve the efficiency of public transport.
	Integration	◯	Providing more direct bus routes is unlikely to improve either transport or land-use integration. However, it is consistent with policy around modal shift.
	Accessibility & Social Inclusion	✓✓✓	More direct bus routes will improve the efficiency of the transport network and widen access to services and employment opportunities. This is likely to be of most benefit to those in areas poorly served by public transport and that require multiple interchanges to reach their destination as well as vulnerable groups who are frequently most dependent on public transport.
	Safety & Security	✓	Providing more direct bus services is likely to have a positive impact on security as public transport users would not be required to interchange to reach their destination. As security at stops and stations is frequently cited as concern this would at least lead to a perceived benefit.
Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system		✓
Providing more direct routes will encourage modal shift to public transport and decrease distance travelled meaning less fuel is used by buses. However, without modal shift, additional buses on the network could increase congestion and lead to more stalled traffic contributing to emissions		

Option 17	Provide more direct bus routes, at least part-day	
Strategy Objective 2: Facilitating greater physical activity		✕
Providing more direct bus routes is unlikely to have an impact on facilitating greater physical activity. Indeed, there may be a slight negative impact as public transport users that previously had to interchange and walk between connections would now be able to make their journey without having to change service.		
Strategy Objective 3: Widening public transport connectivity and access across the region		✓✓✓
Providing more direct bus services significantly improves public transport connectivity across the region, efficiently connecting people to where they want to travel to.		
Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region		✓✓
Providing more direct buses encourages more efficient public transport journeys. With the need for less interchange's, journeys will also be safer as well.		
Impact of COVID Related Behaviour Change Scenario		
This option could be impacted but the reduction in public transport use as result of COVID-19. Additionally, more people are now working at home, reducing the demand on key corridors during peak hours. Therefore, there may no longer be the demand for more direct services which would undermine the case for their introduction.		
Rationale for Selection or Rejection		
Despite the impact of COVID-19 on public transport use, this option meets the majority of the STAG criteria and therefore should be considered within the RTS.		

Option 18: Reduce number of bus stops

Option 18	Reduce the number of bus stops				
Summary	Some public transport journey speeds across the region are slow, with journey times not competitive with the car. One reason for this is a high frequency of stops increasing journey times. Reducing the number of bus stops would allow bus services to have shorter, more efficient journeys. This may also encourage modal shift to bus travel as the journey times would be more attractive and competitive with the car.				
Type of Option	Capital		Revenue		Policy & Regulatory	✓
Focus	Region Wide		Network Measures	✓	Measures Targeted at Specific Groups	
Implementability	In order to implement this option, SEStran, bus operators and the Local Authorities would need to coordinate to establish policy around removing stops then to decide what stops to remove in a given area although the primary responsibility would rest with Local Authorities. Additionally, it would require political will, as there could be some resistance from members of the public who have to travel further to their bus stop.				
Public Acceptability	Some members of the public may object to this option if their most convenient bus stop is to be taken away and they now have to travel further. For those with mobility issues, this may mean that they can no longer travel on the bus. Conversely, other people would likely to be pleased to have a stop removed from outside their property.				
STAG Criteria	Environment	✕ - ✓✓	Fewer bus stops result in more efficient journeys and therefore reduced emissions. This would also improve local air quality around the locations where stops have been removed and reduce noise as well. However, reducing bus stops may result in some people being no longer able to use the bus and forced to travel by car leading to a negative impact on emissions.		
	Economy	✓✓	More efficient journey times allow bus users to actively engage in other activities and spend less time travelling. Reduced journey times would reduce operating costs for the operators as well there being fewer stops to maintain and/or upgrade.		

Option 18	Reduce the number of bus stops		
	Integration	✗✗✗	Reducing the number of bus stops is likely to have a negative impact on transport integration as it will be more difficult to interchange between bus services. This option is also inconsistent with policy aspirations to facilitate inclusive economic growth and reduce inequalities set out in the National Transport Strategy 2.
	Accessibility & Social Inclusion	✗✗✗	Reducing the number of bus stops may disallow some people from accessing bus services inhibiting their ability to access essential amenities like education, employment, and healthcare. This could particularly impact the elderly and those who have mobility issues. As a result, these members of society may have to drive, rely on other to give them lifts or not travel at all leading to a negative impact on social inclusion.
	Safety & Security	✗	People may have to walk or cycle further to access their nearest bus stops which increases their chance of being involved in a collision.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✗ - ✓
Reducing the number of bus stops will make bus journeys more efficient with shorter journey times and reduced emissions. These factors will also encourage modal shift from the car to the bus. On the other hand, some people may no longer be able to access their nearest bus stop for a variety of reasons and may be forced to travel by car, which increases congestion and emissions.	

Strategy Objective 2: Facilitating greater physical activity	✓
Reducing the number of bus stops could facilitate greater physical activity as people need to travel further to access their bus stop but this is likely to be minimal.	

Strategy Objective 3: Widening public transport connectivity and access across the region	✗✗✗
Although reducing the number of bus stops will reduce journey times, some people may no longer be able to access services and therefore it has a negative impact on public transport connectivity and access across the region.	

Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✗ - ✓
Reducing the number of bus stops does support the efficient movement of people however, it may also result in some people opting to travel by car as they cannot access their nearest stop.	

Impact of COVID Related Behaviour Change Scenario
Fewer people have been using public transport during COVID-19, therefore reducing the number of bus stops may be a practical response to this trend. However, it is unlikely to contribute to re-establishing the demand for public transport and would more likely compound this trend of public transport patronage decline.

Option 18	Reduce the number of bus stops
Rationale for Selection or Rejection	
As this option makes a negative impact against a number of both STAG Criteria and Strategy Objectives it is recommended that it is not taken forward to the RTS for further consideration.	

Option 19: High speed rail

Option 19	High speed rail				
Summary	Some direct public transport journey speeds in the region are not competitive with car travel. Conversely, road-based travel on the regional road network can also be slow regardless of traffic volumes. Investing in high speed and / or semi-fast rail could offer more competitive journey time compared to car travel allowing people to travel efficiently across the region.				
Type of Option	Capital	✓	Revenue		Policy & Regulatory	
Focus	Region Wide		Network Measures	✓	Measures Targeted at Specific Groups	
Implementability	A coordinated approach between Transport Scotland and Network Rail would be required to deliver this option. Further, it would require political will from both the Scottish and Westminster Governments as well as rail operators. In addition to this, there may be funding issues for High-Speed Rail given the scale of investment required is likely to be substantial.				
Public Acceptability	Rail works would be required in order to implement High Speed Rail causing short term line disruption which would be inconvenient for passenger and freight travel. In addition, given a new alignment would likely be requirement, there may be land requirements which impact on private properties which could lead to public opposition.				
	Environment	✓✓	Reduced journey times decrease emissions produced. Additionally, High Speed Rail could encourage mode shift from car and air travel to rail.		

Option 19	High speed rail		
STAG Criteria	Economy	✓✓✓	Reduced journey times will increase the time people can spend actively engaging in other activities. Improved regional connectivity would contribute to agglomeration and wider economic benefits.
	Integration	✗✗ - ✓✓✓	The extent to which a HSR network was integrated with the region's existing transport system would be determined by whether it used existing track and stations or not. If new infrastructure is provided there could be a negative impact on integration but if existing terminal stations like Edinburgh Waverley are incorporated into the routes, there could be significant benefits from integration with local services. HSR is broadly consistent with policy aspirations to improve public transport services but could impact upon land-use integration depending on the nature of the route.
	Accessibility & Social Inclusion	✓	The implementation of HSR could open access to new employment opportunities for some although these are only likely to be accessible for more wealthy people. As such, the benefits are likely to be relatively minimal.
	Safety & Security	✓	Implementing high speed rail will have a minimal impact on the safety and security of the transport network. It may encourage people to shift from car travel to rail which reduce the volume of vehicles on the road and reduces potential accidents.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✓✓

High Speed Rail and resultant reduced journey times may encourage more people to travel by rail if travel times are competitive with the private car and air travel. This will help to transition to a sustainable transport system for inter-regional travel.

Strategy Objective 2: Facilitating greater physical activity	○

Implementing High Speed Rail is unlikely to have an impact on facilitating greater physical activity.

Strategy Objective 3: Widening public transport connectivity and access across the region	✓✓

Providing High Speed Rail significantly widens public transport connectivity between the region and the rest of the UK although the impact within the region itself is likely to be more limited. Nonetheless, this opens up new opportunities, including employment destinations.

Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✓✓✓

High Speed Rail supports sustainable and efficient movement of people across the region and beyond. It encourages people to travel by train rather than car and by air and ensures train journey times are competitive.

Option 19	High speed rail
Impact of COVID Related Behaviour Change Scenario	
This option could be impacted by the reduction in public transport use during COVID-19. The rail industry has experienced a significant decline in patronage and, therefore, provision of high capacity, inter-regional rail services may not be seen to be a priority especially given the high capital cost associated with HSR.	
Rationale for Selection or Rejection	
This option meets the majority of the STAG criteria and therefore should be considered within the RTS.	

Option 21: Electrification of rail lines to help increase rail journey speeds

Option 21	Electrification of rail lines

Summary	As of 2020, just over 40% of Scotland's track was electrified, although 76% of passenger journeys are made using electric traction[1] line. There are operational benefits compared with diesel powered trains both in terms of reduced journey times and operating costs.
	
	In comparison to the diesel engine, electric railways offer substantially better energy efficiency and lower emissions. This would assist the decarbonisation of the rail network by 2035.
	
	In 2020, the electrified within SEStran are[2];
	  - Edinburgh Waverley to Newcastle via Dunbar and Berwick upon Tweed
	  - Edinburgh Waverley to Carlisle
	  - Edinburgh Waverley to North Berwick
	  - All routes between Edinburgh and Glasgow
	  - Edinburgh Waverley to Falkirk High continuing west
	  - Alloa to Stirling
	  - Stirling to Grangemouth Freight Terminal
	Other rail lines within the SEStran region are undergoing electrification:
	  - Fife to Edinburgh Haymarket
	The existing missing links within the electrified rail network are as follows;
	  - Tweedbank to Edinburgh
	  - Forth Bridge, Rosyth, Inverkeithing, Dunfermline, Alloa
	  - Dunfermline via Glenrothes to Tay Bridge and further north
	  - Inverkeithing to Kirkcaldy
	Note that the gaps listed above are mainly located in Fife.

Type of Option	Capital	✓	Revenue		Policy & Regulatory	
Focus	Region Wide		Network Measures	✓	Measures Targeted at Specific Groups	

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[1] Modern Railways, Scotland sets out electrification ambitions, 2020

[2] Rail Services Decarbonisation Action Plan, Transport Scotland, 2020

Option 21	Electrification of rail lines		
Implementability	Potential barriers include high capital costs, political will, and funding commitments. Moreover, implementability would be dependent upon partners including Transport Scotland and Network Rail.		
Public Acceptability	Overhead Line Equipment (OLE) works would be required in order to implement electrification causing short term line disruption which would be inconvenient for passenger and freight travel. This may cause temporary public dissatisfaction although it is likely that the public would be supportive once upgrades were complete.		
STAG Criteria	Environment	✓✓	Reduced journey times decrease the amount of emissions produced. This could also encourage more people to travel by rail if travel times are competitive with the private car which would impart further environmental benefits. Furthermore, electric trains create less emissions than their diesel equivalents which would also create both global and local air quality improvements. Additionally, there would be a reduction in noise pollution as electric trains are quieter.
	Economy	✓	Reduced journey times will increase the time people can spend actively engaging in other activities leading to an increase in productivity.
	Integration	✓	This option would not directly impact upon the integration of transport networks or services. It is also not anticipated to have any implications for land-use integration. However, it would have a positive impact on policy integration to improve public transport services.
	Accessibility & Social Inclusion	◯	As this option would enhance existing rail lines there would be no net improvement in accessibility leading to a neutral impact.
	Safety & Security	◯	This does not directly relate to safety and security.
Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system			✓✓
Electrification is a more sustainable way of operating rail services in comparison to diesel trains. To add, reduced journey times may encourage more people to travel by rail, if travel times are competitive with the private car, leading to a more sustainable transport system.			
Strategy Objective 2: Facilitating greater physical activity			◯
Electrification of the rail network does not directly relate to facilitating greater physical activity.			
Strategy Objective 3: Widening public transport connectivity and access across the region			◯
Electrification of the rail network would enhance existing rail lines so would not directly impact on public transport connectivity across the region.			

Option 21	Electrification of rail lines	
Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region		✓✓
Electrification of the rail network does support the sustainable and efficient movement of people by offering competitive journey times and a greener option to current rail services. There is scope for it to be used for rail freight.		
Impact of COVID Related Behaviour Change Scenario		
This option could be impacted by the reduction in public transport use during COVID-19. Given the reduction in demand the justification for enhancing rail lines may be reduced.		
Rationale for Selection or Rejection		
This option meets the majority of the STAG criteria and therefore should be considered within the RTS.		

Option 23: Reduce the impact of interchange (i) cost: integrated ticketing to avoid double fare (ii) time: integrated timetabling to reduce wait times including intermodal (iii) comfort / access / hassle: improving shelter / facilities at key interchange points and integrated ticketing

Option 23	Reduce the impact of interchange (i) cost: integrated ticketing to avoid double fare (ii) time: integrated timetabling to reduce wait times including intermodal (iii) comfort / access / hassle: improving shelter / facilities at key interchange points and integrated ticketing					
Summary	Some journeys using public transport require interchanging which can be costly, time consuming, difficult to organise, and uncomfortable. This may discourage some people from using public transport and opting for their car which contributes to road traffic congestion and emissions. It can also prevent people with disabilities, the elderly, or people with young children from using these services as interchanging may be more difficult for them. Reducing the impact of interchange makes public transport services more attractive for the user. This could include investing in an integrated ticketing system across all modes of transport in the area, ensuring service timetables are integrated to reduce wait times and improving the interchange infrastructure itself. To add, improving shelters and access to interchange points can provide a more comfortable and inclusive environment for all user groups when interchanging.					
Type of Option	Capital	✓	Revenue		Policy & Regulatory	

Option 23	Reduce the impact of interchange (i) cost: integrated ticketing to avoid double fare (ii) time: integrated timetabling to reduce wait times including intermodal (iii) comfort / access / hassle: improving shelter / facilities at key interchange points and integrated ticketing				
Focus	Region Wide		Network Measures	✓	Measures Targeted at Specific Groups
Implementability	Successful implementation is dependent on public transport operators coordinating to implement measures such as integrated ticketing, timetabling and facilities to help reduce the impact of interchanging. However, there may be some potential barriers to implementing this option including potentially breaching anti-competition legislation. In the case of buses there may be scope to facilitate greater integration of services through a Bus Service Improvement Partnership or Local Franchising. However, BSIPs / Franchising require a lead local authority for implementation.				
Public Acceptability	Changing timetables and / or integrating ticketing could evoke some opposition from the public upon implementation. However, the aim of this option is to ease the experience of people using public transport services, thus extensive resistance should not be expected, and a positive response would be anticipated over the long-term.				
STAG Criteria	Environment	✓✓	Improving public transport service efficiency can encourage a modal shift towards sustainable modes over the private car which can contribute to the reduction of emissions.		
	Economy	✓	Reducing journey times will increase the time people can spend actively engaging in other activities. To add, integrated ticketing can offer cheaper fares to what they may be accustomed to which increases their disposable income to spend elsewhere in the economy.		
	Integration	✓✓✓	This option involves transport integration as it significantly reduces barriers to public transport use caused by the requirement to interchange and is consistent with policy to improve public transport services.		
	Accessibility & Social Inclusion	✓✓✓	Reducing the impact of interchange allows people to travel without the usual disbenefit of lengthy travel time. Those living in remote areas may be able to travel to places they may not have previously been able to access including essential services like employment, education, and healthcare. To add, improved journey quality can encourage vulnerable users to feel confident using public transport services and feel included and acknowledged within the transport network.		
	Safety & Security	✓	Improved interchange facilities reduce safety and security concerns surrounding interchange. This specifically relates to improved shelters and lighting for people,		

Option 23	Reduce the impact of interchange (i) cost: integrated ticketing to avoid double fare (ii) time: integrated timetabling to reduce wait times including intermodal (iii) comfort / access / hassle: improving shelter / facilities at key interchange points and integrated ticketing		
			notably vulnerable users, travelling during periods of poor weather conditions or at night.
Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system			✓
Reducing the impact of interchange may encourage more people to travel by public transport instead of the private car. This, in addition to public transport services operating more efficiently, can help to reduce the impact of emissions produced from the transport sector.			
Strategy Objective 2: Facilitating greater physical activity			○
Reducing interchange impact does not directly relate to facilitating greater physical activity.			
Strategy Objective 3: Widening public transport connectivity and access across the region			✓✓✓
This option aims to widen connectivity and access to public transport through improving travel time, reducing cost and discomfort whilst interchanging. This is particularly important for vulnerable users or those who cannot usually afford to use services due to high cost and double fares.			
Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region			✓✓
Reducing impact of interchange encourages the sustainable and efficient movement of people, yet it does not directly relate to freight movements.			
Impact of COVID Related Behaviour Change Scenario			
The COVID-19 pandemic has led to a significant reduction in the use of public transport services. This may impact this option as it could be argued that fewer people are impacted by the cost, time and discomfort caused by interchanging.			
Rationale for Selection or Rejection			
This option meets the majority of the STAG criteria and therefore should be considered within the RTS.			

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Option 25: Bigger buses / trains

Option 25	Bigger buses / trains					
Summary	Capacity issues that exist on the transport network could be resolved by substituting and / or extending some of the current fleet with larger buses and trains. It would allow more people to access / get a seat on public transport services, especially during peak times on main commuter routes. This could be specifically beneficial for bus services into Edinburgh on the main arterial routes during peak hours and the Borders, East Lothian, and Fife Circle rail lines which all experienced capacity issues					
Type of Option	Capital	✓	Revenue		Policy & Regulatory	
Focus	Region Wide		Network Measures	✓	Measures Targeted at Specific Groups	
Implementability	To implement this option, SEStran would need to liaise with bus and rail operators, in addition to Transport Scotland and Network Rail, to deliver this option as they do not have legislative control to either implement it or direct responsibility for the operation of public transport services. Thus, it would depend on commercial interest to adapt existing fleets. For buses there may be scope to deliver bigger buses as part of a Bus Service Improvement Partnership or Local Franchising. However, BSIPs / Franchising require a lead local authority for implementation.					
Public Acceptability	The public are likely to accept this option as they would gain more capacity on public transport services.					
STAG Criteria	Environment	✓	Increasing capacity allows more people to travel by public transport, facilitating the shift from relying on the private car. Thus, there is scope to contribute to reducing emissions as a result.			
	Economy	✗ - ✓	There is a cost of implementing bigger buses / trains which would need to be offset by increased patronage to make services commercially viable. If this didn't occur a public subsidy would be required leading to a cost for Government However, increased capacity may enable increased economic activity leading to a benefit.			
	Integration	○	This option does directly impact transport integration.			
	Accessibility & Social Inclusion	✓	Additional capacity makes public transport more accessible to all user groups although this would only be on existing routes and services.			

Option 25	Bigger buses / trains		
	Safety & Security	✕	There is a potential disbenefit of introducing bigger buses / trains as drivers may lack the spatial awareness of the size of the new fleet increasing the risk of incidents involving vulnerable road users.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✓
Increasing capacity may encourage people to shift from being dependent on private cars to using public transport as they may be able to rely on getting a seat or space on services which were previously unavailable to them.	
Strategy Objective 2: Facilitating greater physical activity	◯
Providing bigger buses / trains does not directly facilitate greater physical activity.	
Strategy Objective 3: Widening public transport connectivity and access across the region	✓
Bigger buses / trains may help to increase access by public transport as more people are able to use these services, but the impact would be limited to existing routes and services.	
Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✓
Implementing bigger buses / trains supports a shift to public transport which consequently supports the sustainable and efficient movement of people on existing routes and services. It does not relate to freight.	

Impact of COVID Related Behaviour Change Scenario
Fewer people have been using public transport during COVID-19 and as more people have been working from home there have been fewer commuting trips. These trips significantly contribute to public transport demand, especially during peak hours. As a result, capacity issues may have changed / no longer exist post COVID-19 and therefore there may not be demand for bigger buses / trains.

Rationale for Selection or Rejection
Due to the uncertainty of capacity issues in the future the requirement for this option is unknown at this time. Therefore, it is recommended that this option should be retained for consideration within the RTS but that this is undertaken within the context of the potentially changing demand in the post-pandemic environment.

Option 26: Uniform / low fares

Option 26	Uniform / low fares					
Summary	Public transport is unaffordable for some. This often results in people relying on others for lifts or being unable to travel at all. Fares can vary in different areas for public transport services which can contribute to transport poverty which disproportionately affects those least able to afford it. Introducing uniform or lowering fares in areas where they are disproportionately higher would make public transport more accessible and affordable to those on the lowest incomes whilst also encouraging modal shift by those who can afford to use a car.					
Type of Option	Capital		Revenue	✓	Policy & Regulatory	
Focus	Region Wide	✓	Network Measures		Measures Targeted at Specific Groups	
Implementability	SEStran is dependent on public transport operators to implement uniform and low fares for public transport services. Given they operate commercially they are unlikely to be willing to do this without public support. As such, delivery of this option would likely require political will and reliance on local authorities or Transport Scotland to subsidise public transport operators. Organisation between public transport operators to ensure fares are uniform could be an additional barrier as this may breach anti-competition legislation. For buses there may be scope to manage fares through a Bus Service Improvement Partnership or Local Franchising. However, BSIPs / Franchising require a lead local authority for implementation.					
Public Acceptability	It is likely that the implementation of this option would be supported by the public.					
STAG Criteria	Environment	✓	Offering low fares could encourage a modal shift towards public transport over the private car, therefore reducing emissions.			
	Economy	✕✕	Would likely require substantial subsidy to implement leading to a cost to Government.			
	Integration	✓	Introducing uniform / low fares is unlikely to have an impact on transport integration but is consistent with policy to reduce inequalities outlined in the NTS 2.			

Option 26	Uniform / low fares		
	Accessibility & Social Inclusion	✓✓✓	Lowering fares makes public transport more accessible, reducing transport poverty. This would be most beneficial for those on the lowest incomes and in areas where public transport fares are disproportionately high.
	Safety & Security	◯	Introducing uniform / low fares is unlikely to impact safety and security on the transport network.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✓

Implementing low and uniform public transport fares could encourage the uptake of public transport which is a more sustainable travel mode than the private car.

Strategy Objective 2: Facilitating greater physical activity	◯

This option is unlikely to have impact on facilitating greater physical activity.

Strategy Objective 3: Widening public transport connectivity and access across the region	✓✓

This option supports the widening of public transport to more people, so they are able to afford it and making it more consistent across the region. However, it would not alter the coverage of the network or frequency of services on offer.

Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✓

This option does support the sustainable and efficient movement of people by making public transport more affordable for them however it does not facilitate freight movements.

Impact of COVID Related Behaviour Change Scenario

This option may be impacted by the reduction in public transport use due to COVID-19. However, there has been an increase in job losses and the introduction of furlough as a result of the pandemic, meaning some people may have less money for travelling. Therefore, this option would provide a consistent and low-cost travel option that supports people back into employment.

Rationale for Selection or Rejection

This option meets the STAG criteria and therefore should be considered within the RTS.

Option 27: Discounted / free fares targeted at specific groups in need

Option 27	Discounted / free fares targeted at specific groups in need					
Summary	Public transport is unaffordable for some, specifically for certain groups including the young, elderly or people with a disability as they may not have a full-time occupation or may have specific transport requirements. This often results in people relying on others for lifts or being unable to travel at all. Offering discounted / free fares to targeted groups could facilitate connectivity to key services for those individuals.					
Type of Option	Capital		Revenue)	✓	Policy & Regulatory	
Focus	Region Wide		Network Measures		Measures Targeted at Specific Groups	✓
Implementability	Potential barriers include commercial issues for public transport operators and how discounted fares would be subsidised. This is coupled with a lack of legislative control as SEStran has to depend on local authorities and Transport Scotland to implement discounted / free fares for specific groups. For buses there may be scope to manage fares through a Bus Service Improvement Partnership or Local Franchising. However, BSIPs / Franchising require a lead local authority for implementation.					
Public Acceptability	It is highly likely that the implementation of this option would be supported by the public.					
STAG Criteria	Environment	✓	There is scope to reduce emissions by encouraging the use of public transport for certain people over the private car via offering discounted / free fares.			
	Economy	✕	Would likely require substantial subsidy to implement leading to a cost to Government.			
	Integration	✓	Discounted fares are unlikely to have a direct impact on the integration of the transport network. However, it is consistent with policy to reduce inequalities outlined in the NTS 2.			
	Accessibility & Social Inclusion	✓✓	Lowering fares makes public transport more accessible, reducing transport poverty. This would be most beneficial for those on the lowest incomes.			
	Safety & Security	◯	Discounted fares are unlikely to have an impact on the safety and security on the transport network.			

Option 27	Discounted / free fares targeted at specific groups in need	
Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system		✓✓
Offering discounted / free fares for public transport services could encourage an uptake of sustainable transport modes and reduce reliance on the private car.		
Strategy Objective 2: Facilitating greater physical activity		◯
This option is unlikely to have impact on facilitating greater physical activity.		
Strategy Objective 3: Widening public transport connectivity and access across the region		✓
This option facilitates the use of public transport by certain groups which supports the widening of access to public transport services across the region. However, it would not alter the coverage of the network or frequency of services on offer.		
Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region		✓
This option does support sustainable transport and efficient movements by making public transport more affordable for people however it does not facilitate freight movements.		
Impact of COVID Related Behaviour Change Scenario		
This option may be impacted by the reduction in public transport use due to COVID-19. This was due to people contracting COVID-19 on public transport services. Therefore, vulnerable user groups, such as those with medical conditions, may have long term concerns about using public transport services. However, some people have experienced job loses or have been dependent on furlough meaning they may have less money to be spent on travelling. Therefore, this option would provide a discounted or free travel option for those most in need which could help people get back into employment. These groups are also likely to be those most dependent on public transport and therefore the option could offer significant benefits despite the impacts of the pandemic on overall public transport demand.		
Rationale for Selection or Rejection		
This option meets the STAG criteria and therefore should be considered within the RTS.		

Option 28: Daily fare capping across operators

Option 28	Daily fare capping across operators				
Summary	Public transport is unaffordable for some, especially when undertaking multi-stage or multi-modal journeys. Implementing an integrated daily fare cap makes these journeys more affordable and accessible to different user groups. This could be combined with an integrated ticketing or MaaS solution to facilitate the fare capping (e.g., similarly to how London's Oyster Card caps fares).				
Type of Option	Capital		Revenue	✓	Policy & Regulatory	
Focus	Region Wide	✓	Network Measures		Measures Targeted at Specific Groups	
Implementability	Implementation of daily fare capping would require commercial buy-in from public transport operators and other relevant organisations including Local Authorities and Transport Scotland. Fare capping could also potentially be deemed to be contrary to anti-competition legislation and this would require detailed investigation prior to implementation. For buses there may be scope to manage fares through a Bus Service Improvement Partnership or Local Franchising. However, BSIPs / Franchising require a lead local authority for implementation.				
Public Acceptability	It is highly likely that the implementation of this option would be supported by the public.				
STAG Criteria	Environment	✓	Introducing a daily fare cap encourages the uptake of public transport and instigates a modal shift which can reduce emissions.		
	Economy	✓✓	Makes multi-stage transport journeys easier and at a cheaper cost, widening opportunities for people in the region. This could also encourage agglomeration within the economy.		
	Integration	✓✓✓	This option would deliver improved transport integration by providing fare caps across modes thereby reducing the barriers to making multiple public transport journeys by various modes and with differing operators.		
	Accessibility & Social Inclusion	✓✓	Introducing a daily fare cap makes public transport more accessible for people on lower incomes facilitating social inclusion. This may enable people to make multi-stage journeys more easily and to access a wider range of services such as retail, employment, healthcare, and education as a result.		

Option 28	Daily fare capping across operators		
	Safety & Security	○	Daily fare capping is unlikely to have an impact on the safety or security of the transport network.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✓
Daily fare capping makes it more affordable and easier to make public transport journeys, thereby aiding the transition to a sustainable transport system.	

Strategy Objective 2: Facilitating greater physical activity	○
This option is unlikely to have impact on facilitating grater physical activity.	

Strategy Objective 3: Widening public transport connectivity and access across the region	✓✓
This option widens public transport connectivity and access as people can travel further and more regularly at a lower cost. However, it would not alter the coverage of the network or frequency of services on offer.	

Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✓✓
This option does support the sustainable and efficient movement of people by enabling more multi-stage and multi-operator public transport journeys to be undertaken. However, it does not facilitate freight movements.	

Impact of COVID Related Behaviour Change Scenario

COVID-19 has prompted a reduction in public transport use which could impact this option. To add, more people are working from home and are less likely to use public transport to commute to work whilst an increase in online shopping has reduced the number of retail and leisure trips being undertaken. As such, there could be fewer people who could benefit from daily fare capping and a general reluctance to use public transport would undermine the benefits offered by the ability to undertake multiple or unlimited journeys for a fixed amount.

Rationale for Selection or Rejection

This option meets the majority of the STAG criteria and therefore should be considered within the RTS.

Option 29: Integrated ticketing to reduce 2-fares trips

Option 29	Integrated ticketing to reduce 2-fares trips					
Summary	Public transport is unaffordable for some, especially when undertaking multi-stage or multi-modal journeys that require the use of two different operators and 2 separate fares. There is scope to reduce 2-fare trips through implementing an integrated ticketing system which would make those undertaking multi-modal and multi-operator journeys by public transport across the region as they would be easier.					
Type of Option	Capital		Revenue	✓	Policy & Regulatory	
Focus	Region Wide	✓	Network Measures		Measures Targeted at Specific Groups	
Implementability	Legislative control to deliver this option lies with the Local Authorities, Transport Scotland, and commercial buy in from public transport operators is required to implement an integrated ticketing system. For buses integrated ticketing could be facilitated through a Bus Service Improvement Partnership or Local Franchising. However, BSIPs / Franchising require a lead local authority for implementation.					
Public Acceptability	It is likely that the implementation of this option would be supported by the public.					
STAG Criteria	Environment	✓	Introducing integrated ticketing may encourage an uptake of public transport which has environmental benefits like reducing emissions although the impact is likely to be fairly minor.			
	Economy	✓	Makes multi-stage transport journeys easier and at a cheaper cost, widening opportunities for people in the region. However, there would likely be a cost to Government for operating the scheme.			
	Integration	✓✓✓	This option would improve transport integration by reducing the barriers to making multi-operator and multi-modal public transport journeys. This is also consistent with policy to reduce inequalities, promote public transport usage, address climate change and facilitate seamless journeys.			
	Accessibility & Social Inclusion	✓✓	Integrated ticketing can enhance the accessibility to public transport services as journeys are easier to undertake for various user groups particularly those that might experience difficulties in making more complicated journeys and those that are on lower incomes.			

Option 29	Integrated ticketing to reduce 2-fares trips		
	Safety & Security	○	This option has no direct impact on safety and security.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✓
Integrated ticketing will make journeys via public transport easier which may encourage the use of these services.	

Strategy Objective 2: Facilitating greater physical activity	○
This option is unlikely to have impact on facilitating greater physical activity.	

Strategy Objective 3: Widening public transport connectivity and access across the region	✓✓
Integrated ticketing allows people to travel further and to access a wider range of services with ease thus aiding the connectivity and access across the region using public transport.	

Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✓✓
Integrated ticketing facilitates more efficient and sustainable movement of people across the region. However, it does not directly relate to freight movements.	

Impact of COVID Related Behaviour Change Scenario
Due to COVID-19, there has been a decline in public transport use across the region which could impact this option. The viability of an integrated ticketing scheme would be undermined by lower public transport demand although the benefits it offers would make a significant contribution to facilitating access for those least able to afford public transport which may mean the intervention is still worthwhile.

Rationale for Selection or Rejection
This option meets the majority of the STAG criteria and therefore should be considered within the RTS.

Option 31: Earlier and later services

Option 31	Earlier and later services					
Summary	In some areas of the region, public transport provision is limited early in the morning and in the evening. Limited timetables can result in more people being forced to travel to work by private car, especially shift workers. Additionally, people are limited in what they can do in the evenings, for example, attending events in Edinburgh. Extending public transport timetables to facilitate early morning and evening services can connect people to services like employment, education, and leisure activities.					
Type of Option	Capital		Revenue	✓	Policy & Regulatory	
Focus	Region Wide		Network Measures	✓	Measures Targeted at Specific Groups	
Implementability	Implementation of this option would be dependent upon SEStran working with operators, Local Authorities, and Transport Scotland. Another potential barrier could be a lack of commercial interest to implement this option potentially requiring a public subsidy to support any services which were not commercially viable. Earlier and later bus services could potentially be provided as part of a Bus Service Improvement Partnership or Local Franchising. However, BSIPs / Franchising require a lead local authority for implementation.					
Public Acceptability	It is likely that the public would support the implementation of this option.					
STAG Criteria	Environment	✕ - ✓	This option could encourage the use of public transport use instead of the private car and thus there is scope to reduce emissions. However, it may also lead to additional trips being made which previously were not taking place at all generating emissions which wouldn't have occurred otherwise.			
	Economy	✓	It provides longer operating hours for public transport services throughout the day which widens the labour market for potential workers.			
	Integration	◯	Providing earlier or later services does not directly impact transport integration.			
	Accessibility & Social Inclusion	✓✓	This option increases accessibility and inclusion as people have more options to travel via earlier and later services. This will be most beneficial for those that do not have access to a private car. Whilst the main benefit is likely to be for leisure trips it			

Option 31	Earlier and later services		
			could also help access employment, education, healthcare, retail and other essential services.
	Safety & Security	✕	Vulnerable public transport users typically feel less secure on public transport services in the evening. On this basis this option could have a negative impact on perceived security.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✓
Offering a higher frequency of public transport services throughout the day can encourage public transport use.	

Strategy Objective 2: Facilitating greater physical activity	○
Extending timetables does not directly facilitate greater physical activity.	

Strategy Objective 3: Widening public transport connectivity and access across the region	✓
This option widens public transport connectivity and access across the region earlier in the morning and later in the evening. However, the impact would be limited to existing routes and services.	

Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✓
Extending timetables can encourage the use of public transport and the efficient movement of people. However, it has no impact on freight.	

Impact of COVID Related Behaviour Change Scenario
This option may be impacted by the reduction in public transport use due to COVID-19. To add, more people are working from home due to the pandemic meaning less people are commuting. However, the majority of trips being made using late night and early morning services are likely to be for leisure purposes. On this basis, the impact of the pandemic on commuting may be less likely to affect this option although the long-term implications for public transport use are currently unknown.

Rationale for Selection or Rejection
This option meets the STAG criteria and therefore should be considered within the RTS.

Option 32: Higher frequency services

Option 32	Higher frequency services					
Summary	In some areas of the region, public transport service frequency is poor. This leads to services being over capacity or people not being able to travel due to lack of space or the services only being available at inconvenient times. This can disproportionately impact certain places, notably those living in rural areas, causing people to depend on private cars as their main mode of transport.					
Type of Option	Capital		Revenue	✓	Policy & Regulatory	
Focus	Region Wide		Network Measures	✓	Measures Targeted at Specific Groups	
Implementability	The implementation of this option would require coordination with operators and for services to be commercially viable. In the event that they are not self-sustaining a public subsidy would be required. Local Authorities, Transport Scotland and public transport operators would be predominantly responsible for the delivery of this option. Higher frequency bus services could potentially be provided as part of a Bus Service Improvement Partnership or Local Franchising. However, BSIPs / Franchising require a lead local authority for implementation.					
Public Acceptability	It is likely that the public would support the implementation of this option.					
STAG Criteria	Environment	✓		Increasing capacity allows more people to travel by public transport, facilitating the shift from the private car and henceforth reducing emissions.		
	Economy	✕ - ✓		The cost of increasing the frequency of services could be high due to investing in a larger fleet, more staff and maintenance. If this is not offset by higher demand a subsidy would be required resulting in a cost to Government. The public would have more options for when they choose to travel which eases capacity issues on services allowing them to operate more productively.		
	Integration	◯		This option does not directly impact transport integration.		
	Accessibility & Social Inclusion	✓✓		Additional capacity makes public transport more accessible to different user groups. This is likely to be most beneficial to those who do not have access to a private car and vulnerable groups. There would be no impact on the public transport network coverage.		

Option 32	Higher frequency services		
	Safety & Security	◯	Increased frequency does not directly impact safety or security.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✓✓
Increasing capacity can encourage people to shift from using the private car as their main mode of transport to public transport.	

Strategy Objective 2: Facilitating greater physical activity	◯
Providing higher frequency services does not directly facilitate greater physical activity.	

Strategy Objective 3: Widening public transport connectivity and access across the region	✓
Increased frequency improves access by public transport as people have more options about when they travel. However, the impact would be limited to existing routes and services with no increase in the coverage of the public transport network.	

Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✓
Increased frequency supports the efficient movement of people and a shift to public transport; however, it does not affect freight movement.	

Impact of COVID Related Behaviour Change Scenario
Fewer people have been using public transport during COVID-19. To add, more home working has led to fewer commuting trips. These trips are a large driver of the demand on the public transport network, especially during peak hours. Capacity issues may be less prevalent post COVID-19 and therefore there may not be demand for more frequent services, particularly at peak times. On this basis, there may be less requirement for more frequent services as a result of the travel behaviour change implications of the pandemic.

Rationale for Selection or Rejection
Due to the uncertainty of capacity issues in the future the requirement for this option is currently unknown. Therefore, it is recommended that this option should be retained for consideration within the RTS but that this is undertaken within the context of the potentially changing demand in the post-pandemic environment.

Option 33: DRT / Community transport

Option 33	DRT / community transport					
Summary	In some locations it is not feasible to provide regular, scheduled public transport services so journeys cannot be made by public transport. One solution for operators to increase convenience and / or decrease cost is to introduce demand responsive transit (DRT) / community transport which offers a flexible public transport service to cater for local requirements. This is especially desirable in rural areas where there may not be enough funding or demand to justify regular public transport provision. In addition, it can also be beneficial in areas which experience a lack of public transport provision at specific times of the day or days of the week or where public transport services are not catering for people with specific requirements such as additional assistance for the disabled or elderly. Furthermore, DRT and community transport can help transport suppliers that are operating with spare capacity to maximise the utilisation of their services.					
Type of Option	Capital		Revenue	✓	Policy & Regulatory	
Focus	Region Wide		Network Measures		Measures Targeted at Specific Groups	✓
Implementability	Local Authorities and third sector parties are key to the implementability of DRT / community transport. It may also depend on commercial interests and how the services would be funded with a likely requirement for public subsidy. Some DRT / community transport schemes are already operational but may have faced a decline in funding due to COVID-19 which could be an issue for similar services starting up. A lack of cross boundary coordination can also affect successful delivery.					
Public Acceptability	It is highly likely that this option would be supported by the public unless it was in a situation where DRT / community transport was being introduced to replace traditional scheduled public transport where opposition could be expected.					
STAG Criteria	Environment	✓	DRT / community transport can provide public transport which is efficient as it meets local demand and limits unnecessary running of vehicles with spare capacity. It also encourages the use of public transport, thus there is scope to reduce private vehicle use and thereby emissions.			
	Economy	✕ - ✓	This option could support economic activity in remote and rural areas by providing on-demand access to public transport services benefiting local businesses. However, the cost of funding the services may require substantial subsidies from the public sector.			

Option 33	DRT / community transport		
	Integration	✓✓	This option would support the integration of transport services by utilising spare capacity in existing community transport services. It is also consistent with policy to reduce inequalities and deliver inclusive economic growth set out in the NTS 2.
	Accessibility & Social Inclusion	✓✓✓	DRT / community transport makes transport accessible and allows people to travel to access essential services like education, employment, healthcare, and retail by public transport when otherwise they might not be able to. This is particularly beneficial in rural and remote areas where traditional public transport services are often unsustainable. In addition, it benefits vulnerable groups including those who do not have access to car. Some services may be tailored to those with disabilities or the elderly which can enhance their social inclusion via improved access to local amenities.
	Safety & Security	✓	DRT / community transport services can provide safe and secure travel for people, especially vulnerable users such as people with disabilities or the elderly.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✓✓

Assuming DRT / community transport integrates electric vehicles, it will reduce carbon and overall car kilometres, transitioning to a sustainable transport system.

Strategy Objective 2: Facilitating greater physical activity	○

DRT / community transport does not directly relate to facilitating greater physical activity.

Strategy Objective 3: Widening public transport connectivity and access across the region	✓✓✓

DRT / community transport widens access across the region to transport services as it provides public transport in areas where traditional schedule public transport services are unsustainable.

Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✓✓

DRT / community transport encourages the safe, sustainable, and efficient movement of people across the region. It does not impact freight movements.

Impact of COVID Related Behaviour Change Scenario

With more home working and online shopping, it is likely that it will become even more difficult to sustain traditional scheduled public transport services in remote and rural areas. On this basis DRT and community transport may be required even more than under pre-pandemic circumstances despite the potential for an ongoing reluctance to use public transport.

Option 33	DRT / community transport
Rationale for Selection or Rejection	
This option meets the majority of the STAG criteria and therefore should be considered within the RTS.	

Option 34: Semi-scheduled bus services

Option 34	Semi-scheduled bus services					
Summary	Currently, some journeys cannot be made by public transport. This leads to people ether being reliant on lifts from others or drive instead, in turn increasing their dependency on the private car and contributing to emissions produced from road transport. However, the alternative of instating a typical public transport service may not always be an efficient or affordable option. For example, in rural areas, a bus service may operate at under capacity costing the operator and local authority money. Thus, introducing semi-scheduled bus services could improve efficiency and connectivity. This would combine some of the benefits offered by the on-demand nature of DRT and community transport services with the reliability of traditional scheduled bus services.					
Type of Option	Capital		Revenue	✓	Policy & Regulatory	
Focus	Region Wide		Network Measures	✓	Measures Targeted at Specific Groups	
Implementability	SEStran would be dependent upon working with bus operators and local authorities to implement semi-scheduled bus services. Approval from the Traffic Commissioner may also be necessary, and this would require more detailed investigation. These could potentially be provided as part of a Bus Service Improvement Partnership or Local Franchising. However, BSIPs / Franchising require a lead local authority for implementation.					
Public Acceptability	It is unlikely that the implementation of this option would be opposed by the public unless it was to replace traditional scheduled bus services.					
	Environment	✓	This option may encourage the use of public transport which can reduce emissions and car kilometres.			

Option 34	Semi-scheduled bus services		
STAG Criteria	Economy	○	Semi-scheduled services are unlikely to directly impact the economy. However, they may require a subsidy which would create a cost to Government.
	Integration	✓	This option would not directly impact upon transport integration but is consistent with policy to encourage modal shift and use of public transport.
	Accessibility & Social Inclusion	✓✓	Introducing semi-scheduled buses enhances public transport accessibility as it would provide greater flexibility for people to travel to where they need to get to including essential services like employment, education, retail, and healthcare. It is likely to be most beneficial to vulnerable groups and those that are dependent upon public transport.
	Safety & Security	○	Semi-scheduled services do not directly impact safety or security.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✓
Semi-scheduled bus services can encourage the transitioning to a sustainable transport system which could reduce carbon emissions and overall car kilometres.	
Strategy Objective 2: Facilitating greater physical activity	○
Semi-scheduled bus services do not directly relate to facilitating greater physical activity.	
Strategy Objective 3: Widening public transport connectivity and access across the region	✓✓✓
Semi-scheduled bus services can facilitate access and connectivity across the region via public transport as it would allow public transport to be provided in locations and ways that otherwise wouldn't be possible.	
Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✓
Semi-scheduled bus services can encourage the uptake of public transport and therefore the efficient and sustainable movement of people across the region. This option does not directly relate to freight.	
Impact of COVID Related Behaviour Change Scenario	
The reduction in public transport use due to COVID-19 may impact this option. The demand for public transport has further declined with more people working from home and relying on home deliveries for online shopping. As such, this may reduce the demand for semi-structured bus services.	
Rationale for Selection or Rejection	

Option 34	Semi-scheduled bus services
This option meets the majority of the STAG criteria and therefore should be considered within the RTS.	

Option 35: Step free access to vehicles

Option 35	Step free access to vehicles				
Summary	Physically accessing the public transport network can be an issue or not possible some users particularly those that are disabled or have other mobility impairments. Issues may be caused by large gaps or steps between the ground and a public transport vehicle which may not be manageable by vulnerable groups such as people in wheelchairs, with pushchairs, the disabled, the elderly or those with mobility issues. Ensuring there is step free access would allow people to transfer from a platform or pavement onto a public transport vehicle, enabling access to the network across the region.				
Type of Option	Capital	✓	Revenue		Policy & Regulatory	
Focus	Region Wide		Network Measures		Measures Targeted at Specific Groups	✓
Implementability	The implementation of this option would require coordination with and buy-in from public transport operators and Local Authorities. There may be additional funding requirements to make infrastructure alterations to the public transport fleet and / or at bus stops, rail stations and other transport hubs. Step free access to buses could potentially be provided as part of a Bus Service Improvement Partnership or Local Franchising. However, BSIPs / Franchising require a lead local authority for implementation.				
Public Acceptability	It is highly likely this option would be supported by the public and especially vulnerable groups with mobility impairments.				
STAG Criteria	Environment	✓	Improving access to public transport vehicles encourages public transport use which would help reduce the reliance on the private car and car kilometres leading to less emissions.		
	Economy	✗	This option would not result in journey time savings and would require investment from public transport operators and / or the public sector to deliver vehicle and infrastructure upgrades. However, this could potentially lead to increased revenue for operators if it results in more patronage.		

Option 35	Step free access to vehicles		
	Integration	✓✓	This option improves transport integration by ensuring everyone can access all modes of transport through the seamless connection between services and infrastructure. It is also consistent with policy to reduce inequalities set out in NTS 2.
	Accessibility & Social Inclusion	✓✓✓	Step free access improves accessibility and social inclusion, notably for vulnerable users such as the disabled, the elderly, people with other mobility issues or those with young children and pushchairs.
	Safety & Security	✓✓	Step free access ensure that everyone can access public transport safely.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✓

This option may allow certain users to access the public transport network which could decrease their reliance on the private car and contribute towards an overall reduction in car kilometres across the region.

Strategy Objective 2: Facilitating greater physical activity	○

This option has no direct impact on this objective.

Strategy Objective 3: Widening public transport connectivity and access across the region	✓✓

Implementing step free access to all vehicles widens access to public transport, especially for vulnerable users such as the disabled, the elderly, people with other mobility issues or those with young children and pushchairs. However, it would not impact on the coverage of routes or frequency of services.

Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✓✓

Implementing step free access supports the safe and efficient movement of people across the region, particularly the mobility impaired, though it does not relate to the movement of freight.

Impact of COVID Related Behaviour Change Scenario

This option may be impacted by the reduction in public transport use due to COVID-19. To add, more people have been working from home and relying on home delivery services for online shopping. Thus, the overall demand for public transport has declined. However, access to public transport services for all is a fundamental requirement and as such the delivery of this option is important for equalities and wider social reasons. Therefore, it is important to ensure that step free access is delivered even under the scenario where demand for public transport is suppressed.

Rationale for Selection or Rejection

This option meets the majority of the STAG criteria and therefore should be considered within the RTS.

Option 36: Improved access to / from bus / train / tram

Option 36	Improved access to / from bus / train				
Summary	Physically accessing public network is not possible or a problem for some users particularly those that are disabled or have other mobility impairments. This can dissuade them from using public transport and relying on the private car as their main mode of transport, or in some cases not making journeys at all. Improving access to / from stops and stations across the region makes public transport more accessible especially for the most vulnerable groups. This could be in the form of improved wayfinding, implementing ramps, lifts, step-free access, seating, and railing, removing physical barriers in the built environment, provision of tactile paving and safe crossing points, enhanced signage, etc.				
Type of Option	Capital	✓	Revenue		Policy & Regulatory	
Focus	Region Wide		Network Measures		Measures Targeted at Specific Groups	✓
Implementability	Implementation would require coordination between public transport operators, Local Authorities, Network Rail and Transport Scotland to resolve access constraints and successfully deliver this option. For buses this could potentially be provided as part of a Bus Service Improvement Partnership or Local Franchising. However, BSIPs / Franchising require a lead local authority for implementation.				
Public Acceptability	This option is likely to be supported by the public.				
STAG Criteria	Environment	✓	Improving access to public transport stops / stations encourages public transport use which could deter people from depending on their private cars as their main mode of transport. This would have a beneficial impact on emissions and climate change.		
	Economy	◯	This option is unlikely to have significant economic impacts. It is unlikely to lead to journey time savings and may generate a cost to Government for infrastructure measures required to improve access. There may be increased revenue for public transport operators though arising from increased demand.		
	Integration	✓✓	This option improves transport integration by ensuring everyone can access buses and trains by reducing the physical and mental barriers that exist to public transport usage. This is consistent with policy to reduce inequalities set out in NTS 2.		

Option 36	Improved access to / from bus / train		
	Accessibility & Social Inclusion	✓✓✓	Improving physical access to stops / station makes public transport more accessible to a wider range of people, and improves social inclusion for users, notably vulnerable users such as people with mobility issues, the disabled, the elderly, and those with pushchairs. This also widens the catchment of the existing public transport network and opens up access to essential services to people who previously may have had difficulty reaching them.
	Safety & Security	✓✓✓	This option can facilitate safe and secure access to public transport stops and stations. This is highly important for vulnerable users who might feel particularly unsafe or insecure when using public transport.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✓

This option could encourage some people to use public transport due to improved access to stops / stations. This could contribute to an uptake of sustainable transport modes and reduce the reliance on private cars thereby aiding the transition to a sustainable, post-carbon transport system.

Strategy Objective 2: Facilitating greater physical activity	✓

The option would remove some of the physical barriers to public transport use within the built environment and therefore encourage people to walk, wheel and cycle to access public transport. This will lead to an increase in physical activity at either end of the public transport journey.

Strategy Objective 3: Widening public transport connectivity and access across the region	✓✓

Improving access to stops / stations makes public transport more accessible which widens connectivity for users, especially vulnerable users such as people with mobility issues. However, there would be not impact on the coverage of routes or frequency of services.

Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✓✓

Improving access to stops / stations makes undertaking public transport journeys safer and more efficient whilst also encouraging the use of sustainable transport modes. This option does not impact freight movements.

Impact of COVID Related Behaviour Change Scenario

The reduction in public transport use during COVID-19 could impact this option. However, the importance of providing unimpeded access to public transport, particularly for vulnerable groups like the mobility impaired, disabled, elderly and parents with pushchairs, cannot be understated. These groups tend to be amongst those most reliant on public transport services and consequently ensuring they can access it is a priority even under circumstances where demand is reduced.

Rationale for Selection or Rejection

Option 36	Improved access to / from bus / train
This option meets the majority of the STAG criteria and therefore should be considered within the RTS.	

Option 37: Improved information provision and journey planning targeted at specific groups e.g., Traveline etc.

4.3.2   It should be noted that this option has adapted slightly from the Case for Change and Table 2-2 as it has been merged with option 40.

Option 37	Improved information provision and journey planning targeted at specific groups e.g., Traveline etc.					
Summary	People are often not fully aware of their all their transport options. This leads to people either choosing to take the car or not making journeys at all. Improving journey planning provision would make it easier for people to consider all their transport options encouraging the use of sustainable modes. This includes measures targeted at groups who may experience specific barriers when attempting to access transport information including people who are blind, deaf or have learning difficulties.					
Type of Option	Capital		Revenue	✓	Policy & Regulatory	
Focus	Region Wide	✓	Network Measures		Measures Targeted at Specific Groups	
Implementability	To implement this option, there would need to be coordination between relevant delivery partners including local authorities, Transport Scotland, and public transport operators. There is a potential role for SEStran as a coordinator in this respect.					
Public Acceptability	Journey planning must be accessible to everyone, including those who may not have access to app-based information. The delivery of the information needs to be inclusive of all groups to ensure widespread public support.					
STAG Criteria	Environment	✓	Improving journey planning information will provide information illustrating the various transport options for people to choose for. This could encourage a shift from car to public transport as people would see the benefits of opting for sustainable modes over the private car for some journeys leading to less emissions.			
	Economy	✓✓	The aim of journey planning is to choose a transport option which is best suited to the user in terms of time and money. If people are travelling more efficiently then they			

Option 37			Improved information provision and journey planning targeted at specific groups e.g., Traveline etc.
			have more time to actively engage in other activities leading to increased productivity and more money to spend elsewhere in the economy.
	Integration	✓✓✓	Improving journey planning information will help to make journeys easier and allow seamless travel leading to reduced journey times. Provision of more inclusive travel planning will also contribute to achieving policy to reduce inequalities set out in NTS 2.
	Accessibility & Social Inclusion	✓	Improving journey planning information will make public transport more accessible as people would be more aware of their options. However, it will not impact on the coverage or frequency of services. The delivery of journey planning information needs to be accessible for all user groups. For example, if this was via an app then people who do not own smart devices or are not technology literate may be excluded from the information and may not opt for sustainable transport options. Therefore, alternative forms need to be provided to ensure that vulnerable groups like these and the blind, deaf and people with learning disabilities have equal access to information.
	Safety & Security	◯	This option has no direct impact on safety and security.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✓✓

Improving journey planning information will encourage a shift to a sustainable transport system as people would be more aware of their transport options and less likely to travel by car as a result.

Strategy Objective 2: Facilitating greater physical activity	✓

This option could help to encourage physical activity by providing information about walking and cycling routes or bike share schemes which people were otherwise unaware of.

Strategy Objective 3: Widening public transport connectivity and access across the region	✓

Improving journey planning information will improve people's access to public transport across the region but will not impact on the coverage of services.

Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✓

This option supports the sustainable and efficient movement of people across the region, yet it does not directly relate to freight movements.

Impact of COVID Related Behaviour Change Scenario

The decline in use and demand for public transport instigated by COVID-19 may impact this option. More people are depending on home deliveries of online shopping and are working from home meaning there has been a reduction in the quantity of journeys being taken. However,

Option 37	Improved information provision and journey planning targeted at specific groups e.g., Traveline etc.
the provision of accessible journey planning information, particularly for vulnerable groups like people who are deaf, blind or have learning difficulties, is essential to ensure that they don't face social exclusion. On this basis the option is still highly relevant even under a scenario where public transport demand may be suppressed.	
Rationale for Selection or Rejection	
This option meets the majority of the STAG criteria and therefore should be considered within the RTS.	

Option 38: Escorting / chaperoning for vulnerable users

Option 38	Escorting / chaperoning for vulnerable users					
Summary	Physically accessing public transport services can be a problem for some users, specifically vulnerable users like the mobility impaired, elderly, disabled, etc. This results in people either choosing to travel by car or not making journeys at all which in turn can limit their access to facilities and amenities. Providing a chaperoning service for vulnerable users would provide them with additional assistance enabling them to make more journeys and benefit from the public transport network as well as being able to actively engage in society.					
Type of Option	Capital		Revenue	✓	Policy & Regulatory	
Focus	Region Wide		Network Measures		Measures Targeted at Specific Groups	✓
Implementability	The management of this option could be a potential barrier because successful implementation would require training of existing or additional staff at public transport hubs and on services. It is also likely that a public subsidy would be required to pay for escorts / chaperons.					
Public Acceptability	It is likely that people would support this.					
	Environment	✕ - ✓	Making public transport easier for vulnerable users may encourage them to use public transport instead of opting for the private car which could help reduce emissions caused by road transport. However, it could also lead to additional			

Option 38	Escorting / chaperoning for vulnerable users		
STAG Criteria			journeys being undertaken that otherwise wouldn't have occurred which would generate additional emissions.
	Economy	○	This option is unlikely to have an impact on the economy.
	Integration	✓	This option would make a positive contribution to policy aspirations to reduce inequalities set out in the NTS 2.
	Accessibility & Social Inclusion	✓✓✓	Improving access to public transport services for vulnerable users reduces social exclusion and will enhance the ability for these individuals to access essential services like employment, education, healthcare, and retail. There would be no direct impact on public transport network coverage.
	Safety & Security	✓✓✓	This option ensures that vulnerable users can access public transport services in a safe and secure way. This provides particular benefits given that these users are amongst those which tend to experience the highest security concerns when using public transport, particularly during the evenings.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	○
This option has no direct impact on this objective.	

Strategy Objective 2: Facilitating greater physical activity	○
This option has no direct impact on this objective.	

Strategy Objective 3: Widening public transport connectivity and access across the region	✓✓
Offering chaperoning services improves access to public transport for vulnerable users across the region. It would have no impact on public transport network coverage or service frequency though.	

Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✓✓
Offering chaperoning services makes public transport services easier and safer for vulnerable users to use and access. It does not relate to freight.	

Impact of COVID Related Behaviour Change Scenario
The decline in public transport use and demand due to COVID-19 may impact upon this option. To add, vulnerable users are more likely to be at high risk to the impacts of COVID-19 and are more likely to take extra precautions to avoid areas where they may contract the virus, such as on public transport. However, they are also likely to be amongst the groups most dependent on public transport for access to key services like

Option 38	Escorting / chaperoning for vulnerable users
education, employment, healthcare, and retail. Therefore, provision of escorting and chaperoning services would play a vital role in facilitating social inclusion even if public transport demand is suppressed in the longer term.	
Rationale for Selection or Rejection	
This option meets the majority of the STAG criteria and therefore should be considered within the RTS.	

Option 39: Improved security / lighting etc. (i) in vehicle (ii) at stop / station / interchange

Option 39	Improved security / lighting etc. (i) in vehicle (ii) at stop / station / interchange				
Summary	One barrier to travelling by public transport is feeling unsafe when travelling, especially for vulnerable users such as those with mobility issues, the disabled, the elderly and women. Improving infrastructure such as lighting improves journey quality and makes public transport more attractive to these vulnerable groups. This is especially important in rural or remote areas where stations and stops are not overlooked and people often do not want to travel by public transport, but by improving security and lighting they may be more inclined to utilise the services. In addition, security on board public transport services can be enhanced by CCTV and better supervision to prevent people feeling insecure and occurrences of events such as hate crimes.				
Type of Option	Capital		Revenue	✓	Policy & Regulatory	
Focus	Region Wide		Network Measures	✓	Measures Targeted at Specific Groups	
Implementability	Funding to improve security and lighting infrastructure could be a potential barrier to implementation. The responsibility for delivery is primarily on Local Authorities, Transport Scotland, Network Rail, and public transport operators. Coordination with these partners would also be required. For buses these measures could form part of a Bus Service Improvement Partnership or Local Franchising. However, BSIPs / Franchising require a lead local authority for implementation.				
Public Acceptability	This option would be greatly accepted by the public.				

Option 39	Improved security / lighting etc. (i) in vehicle (ii) at stop / station / interchange		
STAG Criteria	Environment	✓	Improving infrastructure to make public transport safer and more secure can help people feel more comfortable using public transport services. Thus, there is scope to facilitate the shift to more sustainable travel leading to less emissions.
	Economy	○	Improving security on services and at stops / stations is unlikely to have an impact on the economy.
	Integration	✓	Improved security on services and at stops / stations is unlikely to have an impact on integration of the transport network. However, it would contribute to policy aspirations to improve health and wellbeing set out in NTS 2.
	Accessibility & Social Inclusion	✓✓	Improving security on services and at stops / stations can make public transport services more accessible for vulnerable groups. This makes the transport network more inclusive for all users but particularly those that face the greatest barriers to using it. There would be no impact on public transport network coverage.
	Safety & Security	✓✓✓	Improved infrastructure such as lighting and CCTV contribute to making transport users feel safer and more secure when waiting at stops / stations and when on board public transport services. In addition, these measures could also potentially benefit some active travel routes as well creating a significant positive impact. However, there is unlikely to be any impact on accidents and therefore the impact on safety would be neutral.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✓✓
Making public transport journeys more secure can encourage an uptake in sustainable modes contributing to the shift away from the private car and a transition to a more sustainable transport system.	
Strategy Objective 2: Facilitating greater physical activity	✓
Improving security could have a minor impact upon physical activity if these measures are extended to the active travel routes which provide access to public transport stops and stations.	
Strategy Objective 3: Widening public transport connectivity and access across the region	✓
Improving security makes public transport a more attractive option and widens access for people across the region. However, there would be no impact on public transport network coverage or service frequency.	
Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✓✓
Improving security and lighting would make the transport system safer for individuals, especially for vulnerable groups. However, it does not impact freight.	

Option 39	Improved security / lighting etc. (i) in vehicle (ii) at stop / station / interchange
Impact of COVID Related Behaviour Change Scenario	
It is unlikely that any behaviour changes from COVID-19 will impact this option as whilst public transport demand may be suppressed in the wake of the pandemic there will still be a requirement to ensure that travel on the public transport network is as secure as possible.	
Rationale for Selection or Rejection	
This option meets the majority of the STAG criteria and therefore should be considered within the RTS.	

Option 40: Improved information provision targeted at specific groups

4.3.3   This option table has not been included as this option has been combined with option 37 due to their similarities. The option has still been included here to retain the numbering to ensure consistence with the Case for Change and Table 2-2.

Option 41: Provision of bike-buses

Option 41	Provision of bike-buses					
Summary	Many buses do not allow / have small capacities to carry bicycles on board. This can deter some users from using the bus / cycling, or both meaning they may opt for unsustainable modes such as driving. This can in turn contribute to road traffic congestion and emissions instead of people using sustainable modes. The provision of bike-buses refers to developing the existing bus fleet so they can carry more bicycles via provision of racks which helps to integrate these modes of travel allowing people to use sustainable modes for the entirety of their journey and to seamlessly interchange between bike and bus.					
Type of Option	Capital		Revenue		Policy & Regulatory	✓
Focus	Region Wide	✓	Network Measures		Measures Targeted at Specific Groups	
Implementability		Upgrading buses with bicycle storage requires funding and coordination with bus operators. The public sector would likely be expected to fund the bike storage and SEStran may need to work with local authority				

Option 41	Provision of bike-buses		
	partners, perhaps through a Bus Service Improvement Partnership or Local Franchising, to achieve this. However, BSIPs / Franchising require a lead local authority for implementation.		
Public Acceptability	People are likely to support this option as it provides them with more options for sustainable travel.		
STAG Criteria	Environment	✓	There is scope for this option to have positive environmental impacts as people are supplied with the option of travelling via sustainable modes for their entire journeys leading to less emissions.
	Economy	✗ - ✓	The initial cost of implementation is likely to incur a cost to Government, however in the long term it may encourage more people to use bus services leading to an increase in revenue for bus operators.
	Integration	✓✓✓	This option would deliver transport integration as it would facilitate seamless journeys by bus and bike. This is also consistent with policy aspirations to improve health and wellbeing set out in NTS 2.
	Accessibility & Social Inclusion	✓✓	Bike-buses would improve access to public transport for people who like to cycle and require to travel certain distances that are too far to travel by bike alone. This may benefit people on lower incomes who might not have access to a private car and could improve access to essential services like employment, education, healthcare and retail. There would be no impact on public transport network coverage.
	Safety & Security	✓	People may feel more confident using their bicycles if they are able to carry them along their journey rather than leaving them on a bicycle rack which would put it at risk of being stolen or damaged. This would lead to a positive impact upon security but there is unlikely to any impact upon safety.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✓✓
This option does support the transition towards a post-carbon transport system as it encourages the use and integration of sustainable modes.	
Strategy Objective 2: Facilitating greater physical activity	✓✓
Implementing bike-buses facilitates cycling as part of people's journeys as they have the option of taking them with them on the bus. Therefore, it will contribute to an increase in physical activity.	
Strategy Objective 3: Widening public transport connectivity and access across the region	✓
This option aims to integrate different modes of transport by encouraging cyclists to also be able to use the bus so public transport will become more accessible to a wider range of users. However, there would be no impact on public transport network coverage or service frequency.	

Option 41	Provision of bike-buses	
Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region		✓
This option does support the safe, sustainable and efficient movement of people; however, it does not directly impact freight.		
Impact of COVID Related Behaviour Change Scenario		
There has been an increase in active travel during COVID-19 therefore there could be a greater demand for cycling facilities. However, there has been a simultaneous decline in public transport use and demand which may be a potential issue for this option. The combined impact may be that demand for combined bike and public transport use remains broadly similar to that prior to the pandemic. On this basis the option would perform similarly to how it does under the core scenario.		
Rationale for Selection or Rejection		
This option should be considered further within the RTS as it meets the majority of the strategy objectives and STAG criteria.		

Option 43: Fares and frequency changes to balance demand

Option 43	Fares and frequency changes to balance demand				
Summary	Some public transport services operate at near capacity, at capacity or over capacity. Also, fare structures have typically been set to make peak time travel more expensive and off-peak travel cheaper so more attractive to people that re not time constrained. There is scope to adjust fare structures and service frequencies to more evenly balance demand for public transport throughout the day and reduce pressure on services at peak times. This could help to alleviate numerous issues such as people not getting a seat on a service, not being able to use services or not taking the journey at all. In addition, this could increase access and connectivity to public transport and enhance social inclusion by allowing a wider range of people to travel via these modes.				
Type of Option	Capital		Revenue	✓	Policy & Regulatory	
Focus	Region Wide		Network Measures	✓	Measures Targeted at Specific Groups	

Option 43	Fares and frequency changes to balance demand		
Implementability	This option would require partnership working between public transport operators, local authorities, Transport Scotland and SEStran to determine what changes would be required in order to balance demand. These changes may require public sector funding, i.e., to increase the frequency of services at peak hours and / or subsidise a change in fares.		
Public Acceptability	Depending on the nature of the changes to fares and frequencies, it is unlikely that this option would be opposed by the public and may be supported if it improves the overall provision whilst making it more affordable as well.		
STAG Criteria	Environment	✓	There is scope to improve the efficiency of public transport by adjusting the frequency of services. To add, reducing fares could encourage more people to use sustainable modes over the private car. These changes would lead to reductions in emissions which would have a beneficial environmental impact.
	Economy	✕ - ✓	This option could make public transport services operate more efficiently which could save them money. To add, more people may use the services if they suited their demands. However, public subsidies may be required to instigate these changes leading to a cost to Government. Amendments to fares could have a positive or negative impact upon public transport operators' revenues as lower fares may encourage more demand but may not be enough to offset the lost revenue gained from charging higher fares. Overall, the economic impacts could consequently be negative or positive.
	Integration	✓	This option would not directly impact upon transport integration but is consistent with policy goals to reduce inequalities set out in the NTS 2.
	Accessibility & Social Inclusion	✓✓✓	By adjusting fares and frequency to balance user demand, access to public transport services would be improved which also enhances social inclusion as more people can access essential services like education, healthcare, employment, and retail. This could have particular benefits for lower income groups who may be able to afford public transport if prices are adjusted to reflect periods of low demand. There may also be some benefits in terms of enhanced public transport network coverage as well.
	Safety & Security	◯	This option does not directly relate to safety and security.
Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system			✓✓

Option 43	Fares and frequency changes to balance demand	
This option could improve the efficiency of public transport services as well as meeting the demands of users, encouraging the uptake of sustainable modes.		
Strategy Objective 2: Facilitating greater physical activity		○
This option does not directly relate to facilitating greater physical activity.		
Strategy Objective 3: Widening public transport connectivity and access across the region		✓✓ - ✓✓✓
This option aims to enhance access to public transport services and could also improve the frequency and coverage of the network.		
Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region		✓✓
This option does support the efficient movement of people by maximising utilization of public transport network capacity. However, it does not directly relate to freight movement across the region.		
Impact of COVID Related Behaviour Change Scenario		
Fewer people have been travelling via public transport due to COVID-19 meaning the demand has shifted. In addition, more people working from home has seen commuting demand decrease with subsequently less pressure on peak public transport services. As such, if these patterns become entrenched in the long-term there may be less requirement for fares and frequency changes to balance peak and off peak demand.		
Rationale for Selection or Rejection		
This option meets the majority of STAG criteria and thus should be considered further within the context of the RTS.		

Option 61: Rationalise bus services in key corridors

Option 61	Rationalise bus services in key corridors					
Summary	Peak-period travel times are routinely much longer that off-peak across the region. On some of the corridors there are several bus services operating under capacity and contributing to overall congestion. Rationalising bus services on corridors where supply is greater than demand would reduce the number of vehicles on the road and improve journey time reliability and speed.					
Type of Option	Capital		Revenue		Policy & Regulatory	✓

Option 61	Rationalise bus services in key corridors				
Focus	Region Wide		Network Measures	✓	Measures Targeted at Specific Groups
Implementability		Rationalising the bus services would rely on coordination with bus operators. It is possible that on some of the affected arterial routes several operators have services and therefore there may be commercial conflicts. There would also need to be close partnership working with local authorities to ensure their needs are being met and to coordinate the role of any subsidised services which may need to be rationalised. However, given the lack of control that the public sector has over the bus industry in general this option is likely to be difficult to deliver through voluntary arrangements alone and would likely require some form of statutory arrangement with operators such as a Bus Services Improvement Partnership or Local Franchising. However, BSIPs / Franchising require a lead local authority for implementation.			
Public Acceptability		Some services that people rely on could be removed from the network as part of the rationalisation process which would lead to public opposition. Overall, people are likely to be opposed to the removal of any bus services.			
STAG Criteria	Environment	✕✕ - ✓	Rationalising bus services will reduce the number of vehicles on the road network, reducing emissions and improving local air quality. There could also be reductions in noise and vibrations in some areas. However, improved journey speeds and fewer bus services may encourage more car travel. In addition, less buses mean people are more likely to choose to travel by car instead.		
	Economy	✓✓	Rationalising bus services will improve efficiency on the network resulting in journey time savings for both the remaining buses and general traffic. The time saved could consequently be spent more productively on other activities leading to an economic benefit.		
	Integration	✕✕✕	Rationalising bus services is likely to have a negative impact on transport integration by reducing the opportunities to interchange between public transport services. This will make seamless journeys more difficult. It is also inconsistent with policy goals in NTS 2 to take climate action and reduce inequalities creating a major negative impact on integration overall.		
	Accessibility & Social Inclusion	✕✕✕	Rationalising services has the potential to reduce public transport connectivity for some people. This is likely to impact upon vulnerable groups like the elderly, young, ethnic minorities, women and disabled who are usually most dependent upon public transport the greatest. It could also lead to reduced access to essential services like employment, education, healthcare and retail. Overall, this would have a significant negative impact on accessibility and social inclusion.		

Option 61	Rationalise bus services in key corridors		
	Safety & Security	✓	Rationalising bus services will reduce the number of vehicles on the road network, making the road network safer by reducing the likelihood accidents.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✕✕ - ✓
Rationalising bus services on key corridors will reduce the number of vehicles on the road network, however, it will also speed up journey times and could encourage people to travel by car instead.	

Strategy Objective 2: Facilitating greater physical activity	◯
This option is unlikely to have an impact on facilitating greater physical activity	

Strategy Objective 3: Widening public transport connectivity and access across the region	✕✕✕
Rationalising bus services on key corridors will improve the efficiency of the remaining buses across the network. However, it would lead to a reduction in the frequency and potentially the coverage of the public transport network creating a overall negative contribution towards this objective.	

Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✕ - ✓
This option would improve journey times and support the efficient movement of people. However, with reduced services and less congestion, people may be encouraged to travel by car instead.	

Impact of COVID Related Behaviour Change Scenario
As a result of more people working from home along with more flexible working patterns, peak-period travel has spread out through the day. It is likely that the key travel corridors will experience less congestion than they did previously, and rationalising bus services may not be necessary to make the network more efficient. However, public transport use has declined during the pandemic so rationalising services according to demand may be necessary regardless.

Rationale for Selection or Rejection
This option makes a significant negative contribution against a number of the STAG criteria and Strategy Objectives. Therefore, it is recommended that it is not taken forward for consideration in the RTS.

4.4 Multi-Modal

4.4.1   Many journeys are multi-modal for example it could be that someone walks or cycles to a public transport stop where they then use that service. Ensuring that journeys can be multi-modal and facilitating seamless interchange is key to encouraging people to opt for more sustainable modes.

4.4.2   This section details multi-modal related options which refer to the integration of different modes including public transport, active travel, and shared mobility solutions.

Option 1: Land use planning measures around new development and urban form e.g., 20-minute neighbourhoods, Transit Oriented Development, public transport services and infrastructure

Option 1	Land use planning measures around new developments and urban form				
Summary	The population of the SEStran region is projected to grow by 4.4% between 2018 and 2028. In particular, the population of Midlothian is expected to see considerable growth, largely driven my new developments. The largest upcoming developments within SEStran are Blindwells (East Lothian), Shawfair (Midlothian), Granton (Edinburgh), Winchburgh (West Lothian), West Edinburgh, Dunfermline (Fife), and Longannet (Fife). Planning applications for new developments should demonstrate that its location is sustainable in terms of the walking, cycling and public transport facilities so that people are not dependent on private cars to access and use the development. Mitigation measures should also be implemented to negate the impact on transport networks. This could be in the form of developing 20-minute neighbourhoods which facilitates and encourages people to walk, cycle and use public transport to access local amenities. Adopting attractive urban environments which are favourable to walking and cycling can encourage active travel over dependency on the private car, this is similar to the 'Creating Places' initiative. By reducing the demand for private car parking in local centres, space can be prioritized for those in need, e.g., blue badge holders. More people working from home can reduce the dependency on the private car for people commuting to work. This would be facilitated by increasing the number of households which have super-fast broadband which is part of the Governmental scheme 'Digital Scotland Superfast Broadband' Programme, and the aim to construct 5G masts.				
Type of Option	Capital		Revenue		Policy & Regulatory	✓
Focus	Region Wide	✓	Network Measures		Measures Targeted at Specific Groups	
Implementability	Constituent Local Authorities have the power to implement and / or insist on the implementation of land-use planning policies which facilitate active travel and use of public transport over the private car.				

Option 1	Land use planning measures around new developments and urban form		
	It may not be in the commercial interests of developers to discourage private car use thus there may be additional organisational barriers.		
Public Acceptability	Some people may dislike measures which encourage a shift away from depending on the private car as it is a convenient option.		
STAG Criteria	Environment	✓✓	This option supports the use of sustainable transport modes for new developments over the use of private cars and reduces the need to travel by encouraging people to live and work locally. Thus, it positively affects the extent of emissions generated by new developments. The extent of this impact will be relatively local to new developments although given the scale of development proposed in the SEStran region will lead to moderate impact.
	Economy	✓	People are more likely to reinvest in local areas and small businesses rather than driving to larger urban hubs for amenities. However, less parking in public spaces could mean less revenue due to smaller purchases. Also cost of implementing additional services and measures.
	Integration	✓✓✓	This option will deliver transport integration as it enhances links between infrastructure and services, transport and land use integration, and policy integration as the aim to make new developments more sustainable corresponds with national, regional and local policy aspirations.
	Accessibility & Social Inclusion	✓✓	This option would aid public transport connectivity of new developments as well as their local centres and amenities. Good active travel and public transport links would also ensure vulnerable groups have access to essential services.
	Safety & Security	✓✓	Designing new developments to be people and place focused with good active travel infrastructure will ensure good safety and security for all users.
Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system			✓✓
This option supports the use of sustainable transport modes for new developments over the use of private cars, thus positively affecting the extent of emissions generated by new developments.			
Strategy Objective 2: Facilitating greater physical activity			✓✓✓
This option supports the use of sustainable transport modes for new developments including the provision of active travel infrastructure and reducing the need to travel by living and working locally.			
Strategy Objective 3: Widening public transport connectivity and access across the region			✓✓

Option 1	Land use planning measures around new developments and urban form	
This option supports the enhancement of public transport services and connectivity to new developments.		
Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region		✓
This option does support this objective however the sustainable movement is more internal than regional and would have a limited impact upon freight movements.		
Impact of COVID Related Behaviour Change Scenario		
Behaviours which have emerged due to COVID-19, such as emphasising local travel to amenities, less commuting and more working from home, in addition to a rise in active travel, would complement this option. However, a reduction in public transport use and an increase in private car use would negate the positive impacts of this option. An increase in online shopping implies that people could shift away from depending on private cars to access shopping facilities, however there would be more freight and last mile logistics due to an increase in deliveries which could counteract the reduction in private car use.		
Rationale for Selection or Rejection		
This option meets the STAG criteria and therefore should be considered within the RTS.		

Option 5: Technical measures in relation to rail and air safety

Option 5	Technical measures in relation to rail and air safety					
Summary	These are engineering measures which generally aim to improve the safety of travelling via rail and air. Enhancing safety can be achieved via technological innovations within aircraft and rail technology. Both trains and aircraft can benefit from vehicle technology improvements and infrastructure measures that can improve the safety of routes or take-off and landing.					
Type of Option	Capital		Revenue		Policy & Regulatory	✓
Focus	Region Wide		Network Measures		Measures Targeted at Specific Groups	✓

Option 5	Technical measures in relation to rail and air safety
Implementability	Rail and aviation operators and stakeholders within each industry would need to implement this option as they have legislative control and awareness of the safety standards they are required to adhere to. It therefore has no ability to control the design and / or construction of rail and aircraft making it impossible to deliver this option.
Rationale for Selection or Rejection	
This option has been rejected from further consideration within the RTS based on Implementability grounds. SEStran have no legislative control over design and / or construction within the rail and aircraft sectors. This measure would also require significant technical knowledge and investment in which SEStran would have no influence over. Overall, this measure would be impractical to consider further.	

Option 20: Shared mobility – including to tackle forced car ownership

Option 20	Shared Mobility – including tackling forced car ownership					
Summary	Shared mobility involves transport modes where people share a journey or vehicle which can help decrease the number of single occupancy vehicles being used and offers transport for people who do not own or have access to a car. This can take the form of car clubs, car sharing, peer-to-peer car lending, in addition to car and bike hire. This can help to break the traditional ownership model and move towards an 'on demand' system of transport provision. Other schemes include Demand Responsive Transport (DRT) or community transport which caters for shifting demands of public transport. Existing schemes include Dial-a-Bus, Dial-a-Ride, Go-Flexi and are mostly used by the elderly, disabled people, or others who are mobility impaired as their needs may not be met by existing public transport services with rigid timetables.					
Type of Option	Capital		Revenue	✓	Policy & Regulatory	
Focus	Region Wide	✓	Network Measures		Measures Targeted at Specific Groups	

Option 20	Shared Mobility – including tackling forced car ownership			
Implementability	SEStran would need to work in partnership with constituent local authorities and operators to implement this option. Additionally, existing shared mobility services would have to be considered.			
Public Acceptability	The uptake of shared mobility may not be rapid as many people own private cars and may not wish to share. There is also a certain level of uncertainty surrounding the future demand for shared mobility due to COVID-19 and an unwillingness to share services with people due to the risk of infection.			
STAG Criteria	Environment	✓✓	Shared mobility reduces the number of single occupancy vehicles on the road and encourages the use of active travel which significantly reduces emissions and improves local air quality. This can also help to reduce noise from traffic.	
	Economy	✓✓	There is a revenue associated with shared mobility schemes that could be reinvested into the transport network. Mobility Hubs can also act as a focal point for economic activity with the provision of services such as bike repairs and parcel pick up and drop off being integrated alongside the transport offer.	
	Integration	✓✓✓	Introducing shared mobility schemes aims to integrate various transport modes and encourage car share. Therefore, it facilitates integration.	
	Accessibility & Social Inclusion	✓✓✓	Shared mobility can offer flexible and tailored transport solutions for people, notably those who are elderly, disabled, mobility impaired, live in areas where there is limited public transport provision, and do not have access to a private car. Shared mobility services can also enable people to access essential services like education, employment and healthcare who otherwise may not have been able to.	
	Safety & Security	✓	Shared mobility aims to reduce the number of single occupancy vehicles on the road, reducing the likelihood of collisions.	
Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system				✓✓
Shared mobility supports the transition towards sustainable transport system and a shift away from the private vehicles; however, to some extent it still depends on cars and therefore could potentially contribute to emissions. Nonetheless, the benefits are likely to outweigh any disbenefits this creates.				
Strategy Objective 2: Facilitating greater physical activity				✓✓
Shared mobility includes implementing bike hire schemes. These schemes help to facilitate greater physical activity in the region.				
Strategy Objective 3: Widening public transport connectivity and access across the region				✓
Shared mobility could include offering transport which is not confined to designated routes and / or timetables (e.g., DRT) which widens public transport connectivity and access across the region.				

Option 20	Shared Mobility – including tackling forced car ownership	
Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region		✓✓✓
Shared mobility does support a safe transport system by reducing the number of vehicles on the road network. Additionally, shared transport is a far more efficient way to move people across the region.		
Impact of COVID Related Behaviour Change Scenario		
This option would be impacted as fewer people have been using public transport and more have been using private cars due to the pandemic and concerns regarding the possibility of infection whilst travelling by public transport. This could result in people being reluctant to adopt shared mobility, especially if social distancing of any form continues to be in place. The long-term impacts of shared mobility services are currently unknown.		
Rationale for Selection or Rejection		
This option meets the majority of the STAG criteria and therefore should be considered within the RTS.		

Option 22: Eliminate the need for interchange by providing more direct services to key regional travel generators

Option 22	Eliminate the need for interchange by providing more direct services to key regional travel generators				
Summary	Some people may find that interchanging at various stages along a journey can be time consuming meaning they have less time to engage in other activities or may not make certain journeys. Interchange is therefore often perceived as a barrier to using public transport. This can specifically impact people who live in remote areas. Through providing more direct public transport services to key travel generators there is scope to improve connectivity to employment, education, and healthcare. Direct services remove the need to interchange and makes the journey easier for passengers to undertake. This option can also encourage a modal shift from the private car to public transport as direct services may offer more competitive journey times.				
Type of Option	Capital		Revenue	✓	Policy & Regulatory	
Focus	Region Wide		Network Measures	✓	Measures Targeted at Specific Groups	

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Option 22	Eliminate the need for interchange by providing more direct services to key regional travel generators		
Implementability	The constituent Local Authorities are responsible for subsidising bus services and therefore key to implementing this option. Furthermore, there may be organisational issues requiring coordination between SEStran, local authorities, and operators to make the option a reality.		
Public Acceptability	There may be some resistance from the public shifting from their private car to public transport.		
STAG Criteria	Environment	✕ - ✓	Improving existing public transport services could encourage a modal shift towards sustainable modes which can reduce emissions and the reliance on the private car. However, additional buses could have negative localised impacts on air quality and noise in some areas.
	Economy	✓	Reducing journey times will increase the time people can spend actively engaging in other activities.
	Integration	✓✓	This option would have no direct impact on transport integration but would improve land-use integration by directly linking up origins and destinations by public transport. It is also consistent with policy to improve public transport services.
	Accessibility & Social Inclusion	✓✓✓	Providing direct services may allow people to travel longer distances without the usual disbenefit of lengthy travel time. Therefore, people living in remote areas would be able to access a wider variety of services which they may not have been able to directly previously. This option would also improve access to public transport by increasing the range of services available which would particularly benefit those most dependent on it including vulnerable groups like the young, elderly, ethnic minorities, and women.
	Safety & Security	✓	This option would have a minor benefit for security by removing the requirement to wait at stops and stations for connecting services.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✓✓
This option aims to provide more efficient public transport services through reducing interchange, improving journey times and access to services. Offering direct services would encourage people to consider shifting to public transport as their main mode of choice which supports the transition towards a more sustainable transport system.	
Strategy Objective 2: Facilitating greater physical activity	◯
Providing more direct public transport services does not directly facilitate greater physical activity.	

Option 22	Eliminate the need for interchange by providing more direct services to key regional travel generators	
Strategy Objective 3: Widening public transport connectivity and access across the region		✓✓✓
Offering more direct public transport services to key travel generators widens connectivity across the region. It enhances access, notably for those living in remote areas and are restricted due to lengthy journey times.		
Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region		✓
This option supports the sustainable and efficient movement of people as it aims to improve journey time and reduce interchanging. It does not relate to freight movement.		
Impact of COVID Related Behaviour Change Scenario		
Fewer people have been using public transport during COVID-19, therefore there has been a dip in demand. If this trend continues in the long-term the introduction of more direct services might not be a practical at this time. Additionally, with more people working at home and shopping online, key travel generators may no longer exist in the same way in comparison to pre-COVID-19.		
Rationale for Selection or Rejection		
This option meets the majority of the STAG criteria and therefore should be considered within the RTS.		

Option 24: MaaS

Option 24	MaaS					
Summary	Mobility-as-a-Service allows people to plan, book and pay for multiple types of transport services under one platform with limited interchange between modes. This concept moves away from relying on personally owned modes of transportation towards being able to access various transport modes within one on-demand service. This can be beneficial for plugging gaps in current public transport provision which may be caused by a lack of service provision, ridged and / or limited timetables, or services not catering for various user needs.					
Type of Option	Capital		Revenue	✓	Policy & Regulatory	

Option 24	MaaS					
Focus	Region Wide	✓	Network Measures		Measures Targeted at Specific Groups	
Implementability		There are various potential barriers to implementing this option. Maas would require investment into technology for booking systems. It should also be deployed with caution as some people may not have access to app-based technology and / or be computer literate. Ensuring that the MaaS booking platform does not isolate some potential users will require organisation between SEStran and other associated groups. SEStran could play a facilitating role in the delivery of MaaS by bringing together operators and data providers but the provision of an effective platform would depend upon sufficient commercial interest.				
Public Acceptability		There may be some resistance from the public if the deployment of MaaS is unclear, uncoordinated, or completely dependent on app-based technology.				
STAG Criteria	Environment	✓	Shifting away from owning private vehicles will reduce emissions and is likely to encourage sustainable transport modes, especially for short journeys which would lead to a reduction in emissions.			
	Economy	○	MaaS is unlikely to have direct impacts upon the economy.			
	Integration	✓✓✓	This option involves transport integration as it seeks to coordinate the provision of transport planning information, fares, and payment mechanisms as well as multi-modal and operator ticketing within one platform. It is also consistent with policy to encourage active travel and modal shift.			
	Accessibility & Social Inclusion	✕ - ✓✓	MaaS does not rely on people owning their own vehicle and therefore offers accessibility by a variety of transport modes for people to suit their journey. A potential disbenefit could be if booking systems are primarily operated via app-based technology which would be less accessible by people who do not own smart devices or cannot easily use them e.g., the elderly. However, this is dependent on how MaaS is deployed.			
	Safety & Security	✓	MaaS has the potential to offer more flexible transport services. Notably, this can include providing services for people who require additional transport requirements such as the disabled and the elderly. Therefore, MaaS may provide			

Option 24	MaaS		
			a safer and reliable transport option for them as it is more able to adapt to their needs.
Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system			✓✓
Assuming MaaS integrates electric vehicles and is designed to encourage the use of sustainable modes wherever appropriate, it will reduce carbon emissions and overall car kilometres, transitioning to a sustainable transport system.			
Strategy Objective 2: Facilitating greater physical activity			✓
MaaS could encourage greater physical activity by incentivising the use of walking and cycling by the provision of rewards for these modes.			
Strategy Objective 3: Widening public transport connectivity and access across the region			✓✓
MaaS widens access across the region to transport services as it does not rely on owning a private vehicle. It can also provide a more flexible service for vulnerable users and fill gaps in current public transport provision.			
Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region			✓✓
Providing MaaS encourages the efficient movement of people across the region but it does not directly relate to freight.			
Impact of COVID Related Behaviour Change Scenario			
With more home working and online shopping, it is possible that households may reconsider whether they need a private vehicle. This could leave a gap for implementing MaaS for remaining journeys and encourage its uptake if a scheme is implemented.			
Rationale for Selection or Rejection			
This option meets the majority of the STAG criteria and therefore should be considered within the RTS.			

Option 30: Taxi-card for discounted taxi fares

Option 30	Taxi-card for discounted fares					
Summary	Public transport is unaffordable or unavailable for some people meaning they may have to rely on others for lifts or may not be able to travel at all. Additionally, some journeys cannot be made via public transport making people dependent on private cars or taxi services which are not always economical. It is not always feasible to provide public transport services to meet the needs of all users, whether these are in the form of traditional scheduled services or demand responsive transport services. Implementing a taxi-card providing discounted fares may offer an alternative as an affordable transport solution for those who need it and have no alternative due to a lack of transport options.					
Type of Option	Capital		Revenue	✓	Policy & Regulatory	
Focus	Region Wide		Network Measures		Measures Targeted at Specific Groups	✓
Implementability	Taxi-cards would require a public sector subsidy to implement. SEStran would also need to work in partnership with local authorities to deliver it.					
Public Acceptability	It is likely that the implementation of this option would be supported by the public.					
STAG Criteria	Environment	✕	Encourages car travel, yet this is by shared mobility, rather than individuals owning a private car. Nonetheless, there would still be a minor negative impact on emissions. This would be reduced with an electric taxi fleet.			
	Economy	✕ - ✓	Would require a subsidy to implement creating a cost to Government. However, there could be economic benefits by enabling people to actively participate in the labour market that previously were unable to due to a lack of transport options.			
	Integration	✓	This option has no direct impact of the integration of the transport network. However, it is consistent with transport policy to reduce inequalities set out in the NTS 2.			
	Accessibility & Social Inclusion	✓✓✓	This option would provide accessibility to essential services like education, employment, retail, and healthcare for people who have no other transport options available to them. It would be particularly beneficial in remote and rural areas with			

Option 30	Taxi-card for discounted fares		
			low population densities where traditional scheduled public transport services are typically unsustainable and demand responsive services have also been unable to operate successfully. This would benefit vulnerable groups and those that do not have access to a car.
	Safety & Security	✓	Taxi services may be more secure than relying on lifts, especially for vulnerable users.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✕
This option encourages car-use however this is by taxi services and not via owning and using private cars. To add, if the taxi fleet was electric then the impact on the environment would not be as detrimental as there would not be a significant increase in emissions. Overall, a minor negative impact could be anticipated.	

Strategy Objective 2: Facilitating greater physical activity	◯
This option is unlikely to have impact on facilitating grater physical activity.	

Strategy Objective 3: Widening public transport connectivity and access across the region	✓✓✓
Provides transport connections which either did not exist or were unaffordable for some user groups as well as substituting for public transport where services are unsustainable.	

Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✓
This option supports safe and efficient movement of people across the region. However, it does not account for freight movement.	

Impact of COVID Related Behaviour Change Scenario
This option might be impacted by the reluctance of people to use public transport due to COVID-19. However, it is anticipated that the impact is likely to be small given that users would only be exposed to one other person at a time. In addition, this option would be providing transport links for people that have few or no other alternatives and, on this basis, the impact of reduced demand from the pandemic is likely to be offset by the benefit provided the significantly enhanced accessibility the option would provide for these isolated individuals.

Rationale for Selection or Rejection
This option meets the majority of the STAG criteria and therefore should be considered within the RTS.

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Option 51: New or improved intermodal facilities (e.g., Mobility Hubs)

Option 51	New or improved intermodal facilities (e.g., mobility hubs)				
Summary	Many of the public transport journeys that people wish to undertake across the region require interchange, adding time and inconvenience to the journey. As a result, many people opt to travel by car instead. Introducing new or improved intermodal facilities allows people to seamlessly move across the region using a variety of transport modes. These facilities – namely mobility hubs – bring together public transport stops for buses, trams and trains with a range of other modes and facilities such as bike share schemes, car clubs, e-scooters, electric vehicle charging points, bike racks and taxi rides. Mobility hubs contribute to the "20-minute neighbourhood model" allowing people to live, work and learn within a 20 minute walk of their home. Additionally, the mobility hub model has been identified as a strategic priority of the Scottish Government.				
Type of Option	Capital	✓	Revenue		Policy & Regulatory	
Focus	Region Wide		Network Measures	✓	Measures Targeted at Specific Groups	
Implementability	Partnership working with constituent Local Authorities, public transport operators and associated facilities providers would be required to implement mobility hubs. There are potential funding issues relating to how new or improved intermodal facilities would be delivered and maintained. It would also rely on various operators serving the site. For a mobility hub to operate well it requires high-quality active travel links and public transport priority measures in place.				
Public Acceptability	Mobility hubs are likely to be generally supported by the public although there may be some local opposition around the sites of the mobility hubs themselves.				
STAG Criteria	Environment	✓✓	Intermodal facilities provide far more sustainable travel options making it easier for passengers to make sustainable travel choices, thereby reducing emissions and improving local air quality.			
	Economy	✓	Mobility hubs improve the efficiency of journeys across the region, facilitating quicker journey times by making it easier to switch between different modes. This would create an economic benefit as the time saved could be used more			

Option 51	New or improved intermodal facilities (e.g., mobility hubs)		
			productively. However, the savings are likely to be fairly small as the majority of the time will be incurred during the journey itself rather than at the interchange.
	Integration	✓✓✓	Mobility hubs significantly improve transport integration across all modes of transport. They also contribute to 20-minute neighbourhoods and land-use planning integration whilst being consistent with policy in NTS 2 to take climate action, deliver inclusive economic growth, reduce inequalities and improve health and wellbeing.
	Accessibility & Social Inclusion	✓✓✓	Improving, or completely removing, the interchange element of journeys makes cross region travel more accessible to a wider range of people. This will be particularly beneficial to those that don't have access to a private car and that are most dependent upon public transport including the young, elderly, ethnic minorities, disabled, mobility impaired and women. Also, mobility hubs offer a range of different transport modes, giving people access to a wider choice of transport options. They would also improve access to essential services such as education, employment, healthcare and retail.
	Safety & Security	✓✓	Implementing new or improved intermodal facilities improves the security of passengers when waiting for or interchanging between services on the transport network as they have a secure place undertake this which includes appropriate measures such as lighting, CCTV, oversight from neighbouring buildings, etc.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✓✓✓

New or improved intermodal facilities encourages modal shift and transition to a sustainable transport system.

Strategy Objective 2: Facilitating greater physical activity	✓✓

Intermodal facilities would involve active travel links and the provision of bike and e-bike hire schemes where appropriate. This encourages and facilitates greater physical activity for all.

Strategy Objective 3: Widening public transport connectivity and access across the region	✓✓

Intermodal facilities make journeys easier to undertake, providing a range of transport options therefore improving public transport connectivity and access by enabling easier interchange between services. However, they would have no impact on the coverage or frequency of existing public transport services.

Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✓✓

Option 51	New or improved intermodal facilities (e.g., mobility hubs)
Intermodal transport hubs improve the efficiency of the transport network, making it easier for people to undertake multi-modal journeys across the region by sustainable modes. There would be no direct impact on freight journeys although some mobility hubs could incorporate parcel lockers to enable people to pick up and drop off parcels.	
Impact of COVID Related Behaviour Change Scenario	
Public transport use has declined as a result of COVID-19 and people may remain hesitant to return to public transport and shared mobility solutions in the longer-term. This is compounded by an increase in car use. On this basis demand for mobility hubs may be reduced if the behaviour change impacts of the pandemic are maintained in the long-term.	
Rationale for Selection or Rejection	
This option makes a positive contribution towards all of the STAG criteria and therefore should be taken forward to the RTS.	

4.5   Freight

4.5.1   At present, the freight fleet is heavily dependent on fossil fuels meaning that it is a significant contributor to carbon emissions. To add, road freight frequently gets stuck in and contributes to road traffic contributing to local air quality problems, in addition to having knock on implications for driver's health and wellbeing and economic impacts on supply chains. There is a need to ensure that freight can operate efficiently whether that is via road, rail, or sea to its destination. This is especially paramount in light of the emerging impacts of the COVID-19 pandemic with more people likely to be relying on delivery services for goods due to the closure of conventional shops and centres.

4.5.2   The options identified seek to identify how freight can be moved safely, efficiently and sustainably to, from and within the region. They consider road, rail and sea-based freight.

Option 45: Measures to encourage mode shift form road to rail freight

Option 45	Measures to encourage mode shift from road to rail freight				
Summary	Road traffic is the main contributor to emissions thus there is a requirement to transition to more sustainable modes for private and freight journeys wherever possible. Freight vehicles contribute to emissions and road congestion in addition to road traffic accidents. Rail freight is considered as a suitable alternative as it can carry a large amount of cargo, access major freight generating locations via existing and new rail lines and hubs, travel quickly, efficiently, and more sustainably than road freight. However, in some instances there needs to be infrastructure improvements to ease existing capacity issues which could encourage a shift. In addition, there is scope to electrify rail lines or integrate dual-fuel locomotive trains to enhance the sustainability of this option. Furthermore, associated measures like grants and subsidies could also be used to encourage modal shift to rail (see Option 49). This would also have to take into consideration a shift in consumption patterns as more people use home delivery services for online shopping which could change freight demand.				
Type of Option	Capital	✓	Revenue		Policy & Regulatory	
Focus	Region Wide		Network Measures	✓	Measures Targeted at Specific Groups	
Implementability	To implement this option, SEStran would need to work in partnership with rail industry bodies it is dependent on rail freight operators, Network Rail, Transport Scotland, local authorities, and freight generators all acting in a coordinated manner. An additional potential barrier is the commercial viability of rail freight as many businesses may not be able to logistically provide reliable enough shipments to enable regular rail freight services between set origins and destinations on the rail network. On this basis road freight and the inherent flexibility, it offers could remain most attractive for the majority of businesses which have a fleet and staff in place. To change their method for delivering goods may require funding and incentives. Developing technology to ensure rail freight is more sustainable may also be a barrier to implementation.				
Public Acceptability	It is unlikely the public would oppose this modal shift to rail unless it adversely affected the ability to operate passenger rail services. The only other issues that could potentially arise is if delivery companies altered the products available or the usual delivery time was extended.				

Option 45	Measures to encourage mode shift from road to rail freight		
STAG Criteria	Environment	✓✓	This modal shift would benefit the environment as there would be fewer freight vehicles on the road which produce emissions and contribute to congestion that causes local air quality problems. Shifting to rail freight would therefore help to reduce global emissions and improve local air quality.
	Economy	✕ - ✓	Modal shift from road to rail could result in journey time savings for some long-distance freight movements compared to travelling by road which would generate an economic benefit. However, in some instances there may be a need to provide public subsidy to facilitate the modal shift if it is not commercially viable which would result in a cost to Government.
	Integration	✓✓✓	This option would facilitate transport integration by enabling a modal shift to rail which would require the linking up of major freight generating locations with the rail network. This is consistent with land-use planning policy and would also help to deliver policy within NTS 2 around inclusive economic growth and taking climate action.
	Accessibility & Social Inclusion	◯	This option does not directly relate to accessibility and social inclusion.
	Safety & Security	✓	A reduction in road freight would reduce congestion and the risk of road traffic accidents caused by freight vehicles. This improves road safety for other road users.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✓✓✓
This option aims to facilitate a mode shift from road freight to rail freight which is more sustainable and is likely to improve even further in the future due to improving technology.	
Strategy Objective 2: Facilitating greater physical activity	◯
This option does not directly relate to facilitating greater physical activity.	
Strategy Objective 3: Widening public transport connectivity and access across the region	◯
This option would aid rail connectivity; however, this is for freight movement and not of benefit to public transport, therefore it does not directly impact upon this objective.	
Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✓✓
This option supports the safe, sustainable, and efficient movement of freight across the region. It does not relate to the movement of people.	

Option 45	Measures to encourage mode shift from road to rail freight
Impact of COVID Related Behaviour Change Scenario	
More people have been opting for online shopping during COVID-19 meaning here has been an increase in freight movements to people's homes. Rail freight is not suited to last mile logistics but can potentially form part of a sustainable supply chain by providing the trunk movement. This increase in freight traffic generated by the pandemic would therefore potentially support further investment in rail freight as a rise in road freight is unsustainable. However, rail freight needs to be flexible and cater for shifts in consumer demands which can be difficult to accommodate within the constraints of the network where paths are limited, and regular movements are required to justify scheduled freight services.	
Rationale for Selection or Rejection	
This option meets most of the STAG criteria and therefore should be considered further within the RTS.	

Option 46: Combined bus / commercial vehicle lanes

Option 46	Combined bus / commercial vehicle lanes					
Summary	Road congestion exacerbates emissions that are produced by road traffic. Introducing measures that allow commercial (freight) vehicles access to bus priority lanes could help reduce congestion and allow roads to function more efficiently.					
Type of Option	Capital		Revenue		Policy & Regulatory	✓
Focus	Region Wide		Network Measures	✓	Measures Targeted at Specific Groups	
Implementability	A potential barrier to implementation of this option is whether consensus could be found between public transport operators, cyclists, commercial vehicle operators, local authorities and, potentially, taxis around safe and appropriate use of bus lanes. There may be opposition from a range of existing bus lane users that may resist goods vehicles from accessing them.					

Option 46	Combined bus / commercial vehicle lanes		
Public Acceptability	People using bus services may contest this if they feel the journey time has been extended due to additional vehicles using bus lanes. Cyclists are also likely to be opposed to allowing commercial vehicles, particularly HGVs, access to bus lanes on safety grounds.		
STAG Criteria	Environment	✕ - ✓	This option has the potential to improve the road network efficiency which could reduce the level of emissions generated via road traffic. However, in increased efficiency can also induce more road traffic as driving is viewed as a good transport option.
	Economy	✓✓	This option prioritises freight vehicles over people driving private cars meaning goods could be delivered in less time making supply chains more efficient.
	Integration	✓	This option would enable transport integration by enabling multiple modes of transport to utilise bus priority infrastructure making journeys more efficient. This would also help to deliver the policy aspiration set out in NTS 2 in relation to delivering inclusive economic growth.
	Accessibility & Social Inclusion	○	This option does not directly relate to accessibility and social inclusion.
	Safety & Security	✕	There could be a negative impact upon the safety of some road users, particularly cyclists, if large goods vehicles are allowed access to bus lanes along with them. There would be no impact upon security.
Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system			✕
This option aids the efficiency of the road network which could encourage more people to travel via car.			
Strategy Objective 2: Facilitating greater physical activity			○
This option does not directly relate to the facilitation of greater physical activity.			
Strategy Objective 3: Widening public transport connectivity and access across the region			✕
Implementing combined bus and commercial vehicle lanes would not directly impact upon the coverage or access to public transport. However, there could be a minor negative impact upon the performance of public transport services.			
Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region			✓✓
This option supports the safe and efficient movement of people and freight across the region. It may encourage an increase in road traffic.			

Option 46	Combined bus / commercial vehicle lanes
Impact of COVID Related Behaviour Change Scenario	
The pandemic has led to an increase in online shopping with an associated increase in home deliveries. As a result, there has been more last mile logistics and the number of LGVs in urban areas has increased. This option could help to alleviate some of these impacts in the most congested areas and, given an associated impact of the pandemic has been a decline in public transport usage, the impact on bus services may be less substantial than it would be under pre-pandemic conditions.	
Rationale for Selection or Rejection	
This option generally meets the STAG criteria and thus it should be considered further within the RTS.	

Option 48: Freight consolidation centres

Option 48	Freight consolidation centres				
Summary	Freight movements may benefit from the implementation of consolidation centres which act as hubs for freight deliveries. Goods are delivered to consolidation centres where they are securely stored before being transported to their destination, typically an urban centre, combined with other freight rather than being delivered individually in numerous separate deliveries. These centres can help to reduce congestion of freight traffic and reduce the impact on air quality, notably within urban areas. Reducing the number of freight vehicles can lessen disruption on roads, in urban areas, and pressure on loading bays. Thus, there is scope to improve the safety for vulnerable road-users indirectly by implementing more centres at strategic locations. Further, consolidation centres which serve large freight vehicles such as HGVs which are not always appropriate for the context, i.e., within a city. In addition, micro-consolidation centres which can be served by smaller electric vans and / or cyclists and cargo bikes can also be implemented and have a lesser impact on the environment.				
Type of Option	Capital	✓	Revenue		Policy & Regulatory	

Option 48	Freight consolidation centres					
Focus	Region Wide		Network Measures		Measures Targeted at Specific Groups	✓

Implementability	Implementation of this option would require funding to either build or convert buildings to act as consolidation centres. There would have to be buy-in from hauliers and the logistics industry as well as coordination between them, local authorities and SEStran to ensure strategic implementation along existing freight routes. To add, the functioning of these centres may require technology to organize effective distribution of freight.
Public Acceptability	This option would not be opposed by the majority of the public as it aims to reduce freight traffic and enhance the efficiency of delivery services. The only likely source of opposition would be residents located near the Freight Consolidation Centre who are unlikely to want large numbers of HGVs and LGVs passing by their homes on a regular basis.

STAG Criteria	Environment	✓	This option aims to reduce the number of freight vehicles on the road to reduce noise and emissions as well as improving local air quality, mainly in urban areas. Micro-consolidation centres facilitate deliveries via more sustainable freight modes.
	Economy	✓	Organising freight deliveries to make them more efficient can save companies time and money. Less money would be spent on numerous vehicles and drivers if deliveries are consolidated into a more fully stocked vehicle.
	Integration	✓✓✓	This option would facilitate transport integration by enabling seamless consolidation of multiple freight loads into less shipments. It would also contribute to delivering policy aspirations in the NTS 2 related to delivering inclusive economic growth and taking climate action.
	Accessibility & Social Inclusion	○	This option does not directly relate to accessibility and social inclusion.
	Safety & Security	✓	By reducing the number of freight vehicles on the road there is less risk of road accidents which could involve other road users, notably vulnerable road users.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✓
This option aims to reduce the number of freight vehicles on the road which could reduce emission levels. The implementation of micro-consolidation centres could cater for sustainable freight modes.	

Option 48	Freight consolidation centres	
Strategy Objective 2: Facilitating greater physical activity		○
This option does not directly instigate the facilitation of physical activity.		
Strategy Objective 3: Widening public transport connectivity and access across the region		○
This option does not directly relate to public transport connectivity and access.		
Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region		✓✓
This option does support the safe, sustainable, and efficient movement of freight, but not people.		
Impact of COVID Related Behaviour Change Scenario		
There has been a significant increase in freight movements during COVID-19 due to people relying more on home delivery services. This means there has been a rise in demand of freight movement and last mile logistics. If this shift in behaviour continues post-COVID 19 then strategically placed consolidation centres would be beneficial. However, the uncertainty surrounding COVID-19 cannot determine if this increase will remain.		
Rationale for Selection or Rejection		
This option meets the majority of the STAG requirements and therefore should be taken further within the RTS.		

Option 49: Public subsidy for rail freight

Option	Public subsidy for rail freight					
Summary	There is scope for a modal shift within the freight sector from road to rail (see Option 45). However, in some instances it may not be commercially viable to switch freight from road to rail or there may be additional costs arising. In this case it may be necessary for the public sector to provide subsidies that incentivise companies to use rail rather than road for their freight transport.					
Type of Option	Capital		Revenue	✓	Policy & Regulatory	

Option	Public subsidy for rail freight					
Focus	Region Wide		Network Measures		Measures Targeted at Specific Groups	✓
Implementability	Potential barriers to the implementation of this measure include a lack of direct control over funding by SEStran and a subsequent need for partnership working with local and central Government to provide public subsidies for rail freight. Investment would also require political will to prioritise this modal shift. There would also need to be cooperation with industry partners including freight generators and logistics companies as well as Network Rail.					
Public Acceptability	Some members of the public may not view this investment as being a priority over other issues which may require funding from local or central Government.					
STAG Criteria	Environment	✓✓	Investment to aid the shift from road to rail freight would have environmental benefits in terms of reducing the impact of emissions, noise, and vibration which road freight contributes to.			
	Economy	✕ - ✓	A decline in road freight may allow other road users to travel more efficiently, reducing their journey times, whilst longer freight journeys may benefit from reduced journey times on their trunk route by travelling by rail rather than road. This would lead to an economic benefit. However, the fact that public subsidies would be used to facilitate modal shift would mean there would be an ongoing cost to Government.			
	Integration	✓ - ✓✓	This option relates to policy integration as it aims to deliver policy within NTS 2 around inclusive economic growth and taking climate action. It is unlikely to have a direct impact on transport integration although public funding could be used to build freight interchanges which would facilitate transport integration.			
	Accessibility & Social Inclusion	◯	This option does not directly relate to accessibility and social inclusion.			
	Safety & Security	✓	A reduction in road freight would reduce congestion and the risk of road traffic accidents caused by freight vehicles. This improves road safety for other road users.			
Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system						✓✓
This option aims to enhance rail freight which is a more sustainable option than via road. Therefore, it does contribute towards delivering this objective.						

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Option	Public subsidy for rail freight	
Strategy Objective 2: Facilitating greater physical activity		○
This option does not relate to facilitating greater physical activity.		
Strategy Objective 3: Widening public transport connectivity and access across the region		○
This option does not relate to public transport.		
Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region		✓✓
This option does support the sustainable and efficient movement of freight although it would not impact upon the movement of people.		
Impact of COVID Related Behaviour Change Scenario		
An increase in freight movements due to a rise in home deliveries as a result of the COVID-19 pandemic instigates a need to consider how to cater for freight movement and logistics sustainably. Thus, this option would help to accommodate for this behavioural shift through investment in more sustainable freight modes for long-distance trunk movements. It would not be an effective solution for last mile logistics. Overall, the trend towards increased online shopping stimulated by the pandemic would therefore only be partially beneficial for this option.		
Rationale for Selection or Rejection		
This option should be considered further within the RTS as it meets the majority of the STAG criteria and the strategy objectives.		

Option 50: Innovative approaches to rail train forming

Option 50	Innovative approaches to rail train forming
Summary	It is important to support rail freight as part of transitioning to a sustainable transport network. Often the cost and practicality of rail freight prevents widespread use and freight continues to be transported on the road network. In particular, it can be difficult to accommodate additional freight trains on the rail network where paths are constrained. Furthermore, in some instances it may be difficult to guarantee regular freight traffic which is sufficient to support an ongoing service. As such, exploring and implementing innovative approaches to rail train forming will help the transition of freight off the road network to rail. This could take the form of combined passenger and freight services e.g., a parcel carriage on long-distance passenger routes.

Option 50	Innovative approaches to rail train forming				
Type of Option	Capital		Revenue		Policy & Regulatory	✓
Focus	Region Wide		Network Measures	✓	Measures Targeted at Specific Groups	
Implementability	Potential barriers include the need for partnership working between the logistics sector and rail industry along with public sector bodies to deliver new approaches to train forming which incorporate freight. There may also be regulatory and legislative barriers which would need to be overcome to allow combined passenger and freight services to operate. There may also be funding issues around how it would be delivered.				
Public Acceptability	There is unlikely to be any public opposition to the scheme providing there are no negative impacts upon the provision of passenger rail services.				
STAG Criteria	Environment	✓✓	Helping facilitate the shift from road to rail freight will reduce emissions and improve local air quality across the network. There could also be benefits arising from less noise due to less road freight vehicles.		
	Economy	✓	Utilising existing passenger rail services to deliver freight could offer increased flexibility and reduce journey times compared to road transport in some instances.		
	Integration	✓✓✓	Transport integration is fundamental to this option as it would integrate passenger and freight rail services. This is consistent with NTS 2 policy to deliver inclusive economic growth and take climate action.		
	Accessibility & Social Inclusion	○	This option is unlikely to have an impact on the accessibility and social inclusion of the transport network		
	Safety & Security	✓	A reduction in road freight would reduce congestion and the risk of road traffic accidents caused by freight vehicles. This improves road safety for other road users		

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✓✓✓
Investigating and investing in innovative approaches to rail train forming facilitates the transition to a sustainable, post carbon transport system with more freight being able to be transported by rail	
Strategy Objective 2: Facilitating greater physical activity	○

Option 50	Innovative approaches to rail train forming	
Facilitating the transition to rail freight is unlikely to facilitate greater physical activity		
Strategy Objective 3: Widening public transport connectivity and access across the region		○
Facilitating transition to rail freight is unlikely to have an impact on widening public transport connectivity across the region		
Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region		✓✓
Facilitating the transition to rail freight improves the efficiency for freight movement across the region and beyond		
Impact of COVID Related Behaviour Change Scenario		
The decline in public transport demand arising as a result of the COVID-19 pandemic could lead to a reduction in the number of passenger train services operating if this is sustained over the long-term. If this is the case, then the ability to implement innovative train forms which include freight would be more limited as a result.		
Rationale for Selection or Rejection		
This option should be considered further within the RTS as it meets the majority of the STAG criteria and the strategy objectives although it could face barriers to implementation which could be insurmountable.		

Option 52: Additional freight paths on the rail network

Option 52	Additional freight paths on the network
Summary	As part of supporting sustainable and efficient movement of freight it is important to shift freight off the road network onto the rail network. However, the rail network is constrained in many places with competing demands for the available capacity between local and long-distance passenger services as well as rail freight. The number of paths available on the rail network is therefore limited and with freight trains typically being slow it can be difficult to accommodate them in some instances.

Introducing additional freight paths on the network would provide greater capacity for rail freight across the region, facilitating the efficient movement of goods. In some instances, this may require additional infrastructure such as passing loops to enable faster passenger services to overtake slower freight trains. This would also reduce the impact freight has on the road network. |

Option 52	Additional freight paths on the network					
Type of Option	Capital	✓	Revenue		Policy & Regulatory	
Focus	Region Wide		Network Measures	✓	Measures Targeted at Specific Groups	
Implementability	SEStran would need to work in partnership with Network Rail and Transport Scotland to introduce additional freight paths onto the network or to provide additional capacity that would facilitate additional rail paths. Any new infrastructure would also require funding along with political will supporting its implementation.					
Public Acceptability	Any infrastructure work carried out on the rail network is likely to impact passenger services which would be inconvenient for the public. Additional freight paths could also have implications for passenger services which may lead to some public opposition.					
STAG Criteria	Environment	✓ - ✓✓	Transitioning from road freight to rail freight will reduce the emissions of the transport network as well as improving local air quality where large concentrations of traffic are removed. However, if road freight becomes net-zero, it is likely only to have a minor to moderate impact on emissions.			
	Economy	✓	Additional freight paths will allow goods to be transported more efficiently across the region and beyond. In particular, there could be journey time savings for some long-distance freight travel which rail is most suited to serving.			
	Integration	✓	Additional freight paths would have no direct impact on transport integration. However, it is consistent with policy aspirations set out in NTS 2 to take climate action and deliver inclusive economic growth.			
	Accessibility & Social Inclusion	◯	Additional freight paths are unlikely to have an impact on the accessibility and social inclusion of the transport network.			
	Safety & Security	✓	Additional freight paths will reduce the amount of goods being transported on the road network. This will make the transport network as a whole safer by reducing the number of accidents that occur.			
Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system						✓ - ✓✓
Facilitating the transition from road freight to rail freight encourages sustainable movements. However, assuming road freight becomes net-zero in the long-term, it is likely only to have a minor to moderate impact on emissions.						

Option 52	Additional freight paths on the network	
Strategy Objective 2: Facilitating greater physical activity		○
Additional freight paths on the network are unlikely to have an impact on facilitating greater physical activity		
Strategy Objective 3: Widening public transport connectivity and access across the region		✕ - ○
Additional freight paths could potentially have a negative impact upon the ability to widen public transport connectivity across the region by allocating capacity on the rail network which could have been used for additional passenger services to freight instead. This could be mitigated by the provision of additional infrastructure that enables more freight paths to be provided whilst also minimising the impact on passenger services and the ability to expand them.		
Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region		✕ - ✓✓
Additional freight paths on the network supports the safe, sustainable and efficient movement of goods across the region and beyond. It would not have a direct impact upon the movement of people unless the provision of additional freight paths was at the expense of paths for passenger trains and therefore would consequently be a minor negative impact as a result.		
Impact of COVID Related Behaviour Change Scenario		
This option may be impacted by the increase in home deliveries as a result of COVID-19. With more deliveries, more goods are being transported across the region on the road network. Additional freight paths may allow some of these goods to be transported by rail instead although this would only be appropriate for the trunk leg of the journey and not the last mile logistics. Furthermore, the decline in public transport usage which has occurred as a result of the pandemic may lead to less passenger train services in the future. In this scenario there may be additional paths available which could be used by freight services instead.		
Rationale for Selection or Rejection		
The option meets the majority of the STAG criteria and therefore is recommended to be taken forward to the RTS.		

Option 53: Enabling rail infrastructure works e.g., gauge

Option 53	Enabling rail infrastructure works e.g., gauge					
Summary	Shifting from road freight to rail freight is an important part of transitioning to a sustainable transport network. Rail network clearance is mixed across the SEStran region, with the East Coast Main Line accommodating the largest freight movements whilst other parts of the network are more restricted. Enabling rail infrastructure works to improve gauge clearance across parts of the network would therefore increase the capacity for rail freight and potentially open up new routes or enable larger trucks to operate on existing routes. As a result, fewer goods would be transported on the road network, which would reduce the number of vehicles on the road and reduce congestion.					
Type of Option	Capital	✓	Revenue		Policy & Regulatory	
Focus	Region Wide		Network Measures	✓	Measures Targeted at Specific Groups	
Implementability	Technically there may be constraints to enabling infrastructure work across the network such as existing structures, properties, and land ownership. There would also be a need for partnership working with Network Rail and Transport Scotland to deliver infrastructure works. Funding may also be an issue.					
Public Acceptability	Any infrastructure work carried out on the rail network is likely to impact passenger services which would be inconvenient for the public although this would only be temporary. Infrastructure works may also benefit passenger services which is likely to be supported by the public.					
STAG Criteria	Environment	✓ - ✓✓	Increasing the capacity of rail freight will shift goods off the road and reduce emissions as well as improving local air quality where large concentrations of traffic are removed. However, assuming road freight is going to transition to net-zero, the impact is likely to be minor to moderate.			
	Economy	✓	Enabling rail infrastructure will allow more goods to be transported by rail freight which is a quicker and more efficient way to transport goods across the region and beyond. This could lead to journey time savings for some long-distance freight travel which rail is most suited to serving.			

Option 53	Enabling rail infrastructure works e.g., gauge		
	Integration	✓	This option would have no direct impact on transport integration. However, it does support policy aspirations set out in NTS 2 to take climate action and deliver inclusive economic growth.
	Accessibility & Social Inclusion	○	Enabling rail infrastructure works are unlikely to have an impact on accessibility and social inclusion.
	Safety & Security	✓	Enabling rail infrastructure will improve the capacity for rail freight in the region. Therefore, more goods can be transported by rail instead of on the road network. This will reduce the number of vehicles on the road, improving safety as there will be less accidents.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✓ - ✓✓

Enabling rail infrastructure works on the network will encourage the shift from road freight to rail freight and therefore the transition to a sustainable transport system. However, assuming road freight will become net-zero, the reduction in emissions will be minor to moderate.

Strategy Objective 2: Facilitating greater physical activity	○

Enabling rail infrastructure works to increase capacity for rail freight is unlikely to have an impact on facilitating greater physical activity.

Strategy Objective 3: Widening public transport connectivity and access across the region	✓

Enabling rail infrastructure works to increase capacity for rail freight could have an indirect benefit for widening public transport connectivity by making more routes suitable for a wider range of passenger trains. However, the frequency of services would be unaffected.

Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✓✓

Enabling rail infrastructure works to increase capacity for rail freight on the network supports a quicker and more efficient way of transporting goods across the region and beyond.

Impact of COVID Related Behaviour Change Scenario

This option may be impacted by the increase in home deliveries as a result of COVID-19. With more deliveries, more goods are being transported across the region on the road network. There is an opportunity to shift some of these goods onto the rail network although this would only be for the trunk leg of the journey as rail is not suitable for last mile logistics. As a result, this option could be bolstered by the travel behaviour changes driven by the pandemic.

Rationale for Selection or Rejection

This option meets the majority of the STAG criteria and therefore is recommended to be taken forward to the RTS.

Option 54: Additional rail freight services to serve new origin destination pairs

Option 54	Additional freight services to serve new origin destination pairs					
Summary	Currently, the cost and practicality of rail freight prevents widespread use which results in virtually all freight being moved by road. Rail freight is restricted by the infrastructure in place and the services operated as well as demand from major freight generating land-use which is largely market driven. Implementing additional freight services to serve new origin destination pairs would encourage shifting from road freight to rail freight. New services can serve new suppliers, opening up opportunities for the sustainable and efficient movement of their goods. This might require investment in new rail freight hubs and connections into the rail network in some locations.					
Type of Option	Capital	✓	Revenue		Policy & Regulatory	
Focus	Region Wide		Network Measures	✓	Measures Targeted at Specific Groups	
Implementability	SEStran would need to work in partnership with Transport Scotland, Network Rail, local authorities, logistics companies and freight generators to introduce additional freight service onto the network. Rail freight is largely driven by the market and therefore there would have to be commercial interest to move freight onto rail or the provision of a public subsidy to encourage this where it doesn't appear to be commercially viable.					
Public Acceptability	If additional freight services impact the current passenger rail timetables this option may be opposed by the public. However, generally no significant public opposition is anticipated.					
STAG Criteria	Environment	✓ - ✓✓	Additional freight services would encourage more freight onto the rail network. Serving new origin destination pairs also opens up new opportunities for rail freight. This reduces the number of vehicles on the road and subsequent emissions as well as improving local air quality in locations where previously there were high concentrations of goods vehicles. However, if road freight transitions to net-zero, the emissions reduction will be minor to moderate.			

Option 54	Additional freight services to serve new origin destination pairs		
	Economy	✓✓	Freight services to new origin destination pairs allows goods to be transported across the region and beyond by rail that previously could not. This could offer journey time savings particularly for long-distance freight movements which would create an economic benefit. Furthermore, connecting sites to the rail network may allow them to increase production or for additional industries to locate in the vicinity of the new rail link. However, if public subsidies are required to open up new origin and destination pairs there would be a cost to Government.
	Integration	✓✓	Serving new origin destination pairs improves the integration of the rail freight network by linking up new locations with services where previously none existed. This is also consistent with policy aspirations in the NTS 2 to deliver inclusive economic growth.
	Accessibility & Social Inclusion	○	Implementing additional freight services is unlikely to have an impact on accessibility and social inclusion.
	Safety & Security	✓	Additional freight services will support the transition from transporting freight by road to rail. This will reduce the number of vehicles on the road and make the transport network safer as a whole.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✓ - ✓✓

Additional freight services serving new origin destination pairs supports the transition to a sustainable transport network. It directly facilitates the shift of goods from the road network onto the rail network and therefore reduces the number of vehicles on the road and subsequently emissions. It should be noted that if road freight becomes net-zero the emissions benefit will be minor to moderate.

Strategy Objective 2: Facilitating greater physical activity	○

Additional freight services are unlikely to have an impact on facilitating greater physical activity.

Strategy Objective 3: Widening public transport connectivity and access across the region	✕ - ○

Additional freight services to new origins and destinations could potentially have a negative impact upon the ability to widen public transport connectivity across the region by allocating capacity on the rail network which could have been used for additional passenger services to freight instead. This could be mitigated by the provision of additional infrastructure that enables more freight services to be provided whilst also minimising the impact on passenger services and the ability to expand them.

Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✕ - ✓✓

Option 54	Additional freight services to serve new origin destination pairs
Additional freight services on the network supports the safe, sustainable and efficient movement of goods across the region and beyond. It would not have a direct impact upon the movement of people unless the provision of additional freight services was at the expense of passenger trains and therefore there would consequently be a minor negative impact as a result.	
Impact of COVID Related Behaviour Change Scenario	
With more online shopping during the pandemic there has been an increase in home deliveries and goods being transported across the region and beyond. Additional freight services to serve new origin destination pairs could transport some of these goods and reduce freight on the road network although this would only be appropriate for the trunk leg of the journey and not the last mile logistics. Furthermore, the decline in public transport usage which has occurred as a result of the pandemic may lead to less passenger train services in the future. In this scenario there may be additional paths available which could be used by freight services instead.	
Rationale for Selection or Rejection	
This option meets the majority of the STAG criteria and therefore it is recommended that it should be taken froward to the RTS.	

Option 55: Provide new secure freight rest facilities at key locations on the road network

Option 55	Provide new secure freight rest facilities at key locations on the network					
Summary	Freight is predominantly road-based meaning drivers have to regularly travel long distances. Without sufficient rest, drivers can experience fatigue which can be dangerous for themselves and other road users, especially vulnerable road users like pedestrians and cyclists. There are currently eight designated rest areas within SEStran, however there is a demand to provide new secure freight rest facilities at key points on the strategic road network. This would increase the range of rest facilities available to drivers which could help make the roads safer.					
Type of Option	Capital	✓	Revenue		Policy & Regulatory	
Focus	Region Wide		Network Measures	✓	Measures Targeted at Specific Groups	

Option 55	Provide new secure freight rest facilities at key locations on the network		
Implementability	There are some potential issues which may restrict implementation of this option. This includes the need for partnership working with local authorities and Transport Scotland as the roads authorities to provide new rest areas. In addition, close liaison would be required with the haulage industry to ensure these were situated in locations which were going to beneficial and well used. Creating new facilities will also require funding which may rely on investment of public capital.		
Public Acceptability	There may be local opposition to specific sites if they are located in close proximity to residential areas or other community amenities as people are likely to be reluctant to have large numbers of HGVs on the local road network.		
STAG Criteria	Environment	✕✕✕	Depending on the location of the sites there could be a negative impact on landscape and visual amenity as well as additional noise being generated by HGVs accessing and egressing the rest areas. There may also be a negative impact on local air quality as well.
	Economy	✓	Increasing the number of rest facilities is unlike to elongate drivers' journeys as rest breaks are required by law and therefore need to be incorporated into the total travel time anyway. Therefore, there should not be a negative economic impact on delivery companies. Indeed, there may be an opportunity to facilitate agglomeration of economic activities around rest areas e.g., through combining it with a distribution or Freight Consolidation Centre.
	Integration	✓✓	There may be an opportunity to facilitate greater transport integration by combining rest areas with other logistics services. This option is also consistent with policy outlined in NTS 2 to improve our health and wellbeing by ensuring the road network is safer for everyone.
	Accessibility & Social Inclusion	✓	This option would increase freight drivers access to rest facilities by providing more location options. There would be no impact on access to services or public transport.
	Safety & Security	✓✓✓	This option aims to allow freight drivers to rest properly in a secure location during their journey which is beneficial for the driver's health and the safety of other road users.
Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system			◯
This option facilitates the movement of freight via road vehicles which contribute to emissions although it is unlikely to generate any additional journeys so the overall impact would be neutral.			

Option 55	Provide new secure freight rest facilities at key locations on the network	
Strategy Objective 2: Facilitating greater physical activity		○
This option does not relate to the facilitation of greater physical activity.		
Strategy Objective 3: Widening public transport connectivity and access across the region		○
This option does not relate to public transport.		
Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region		✓✓
This option does contribute to delivering this objective as it focuses on driver's welfare to carry out their job in a safe manner and the efficient movement of freight around the region.		
Impact of COVID Related Behaviour Change Scenario		
There has been an increase in freight as a result of the COVID-19 pandemic due to more people using home delivery services to access goods via online shopping. Therefore, if this trend continues in the medium to long term this option would help cater for an influx of drivers which are now using the road network. Given that there has also been an increase in car usage which could lead to more traffic on the roads this option could also deliver even greater safety benefits under these circumstances than it would have under pre-pandemic conditions.		
Rationale for Selection or Rejection		
This option contributes positively towards some of the STAG criteria and therefore should be taken further within the RTS.		

Option 57: Working with the tech sector to fund new fuel pilots, etc.

Option 57	Working with the tech sector to fund pilots				
Summary	Technological advances need to be made in order to transition towards more sustainable fuel options for the movement of people and freight. Some advances have been made in the delivery of alternative fuels, but challenges remain, particularly in relation to viable alternative fuels for freight as battery technology has not advanced sufficiently to enable electric goods vehicles. As such, pilot studies need to be undertaken to advance the implementation of new fuel technologies into the sector for mainstream use. This could be in the form of hydrogen or synthetic fuels. In addition, there may be opportunities to explore combining this with wider freight consolidation (Option 48) where smaller vans and / or cargo bikes, which could be electric or run on other alternative fuels, could cater for last-mile logistics of the goods.				
Type of Option	Capital	✓	Revenue		Policy & Regulatory	
Focus	Region Wide		Network Measures		Measures Targeted at Specific Groups	✓
Implementability	Funding these pilots could be a potential barrier to implementation and would require public sector investment as well as partnership working with the private sector. Technical knowledge and experience would be required to develop successful pilot schemes and there would need to be a willingness to share the findings for the benefit of everyone and not just the commercial gain of private sector partners.				
Public Acceptability	It is unlikely the public would oppose this option. The only source of opposition may be if the private sector is seen to be gaining a commercial advantage through public sector funding which may be regarded as a poor use of taxpayer's money by some.				
STAG Criteria	Environment	✓✓✓	Ultimately, this option aims to develop technology to create a more sustainable transport system by facilitating a shift to alternative fuel sources for freight vehicles leading to less emissions. This could also have benefits for local air quality by removing heavily polluting freight vehicles from urban areas and replacing them with cleaner alternatives.		
	Economy	✗ - ✓✓	Pilot studies can mutually enhance the freight and technology sectors which could facilitate the growth of each through increased collaboration and innovation.		

Option 57	Working with the tech sector to fund pilots		
			Funding the pilot could also help to draw in future private sector investment leading to long-term economic benefits. However, this option could lead to an uptake in alternative fuel sources which has implications for tax revenues leading to a cost to Government.
	Integration	✓	This option would not have a direct impact upon transport integration. However, it is highly consistent with policy set out in NTS 2 to take climate action.
	Accessibility & Social Inclusion	○	This option does not directly relate to accessibility and social inclusion.
	Safety & Security	○	Funding pilots of alternative fuels for freight does not directly relate to safety and security.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✓✓✓
This option supports the implementation of a more sustainable transport system with the aim to develop technology to facilitate a post-carbon network through alternative fuel sources for freight vehicles.	

Strategy Objective 2: Facilitating greater physical activity	○
It does not relate to physical activity.	

Strategy Objective 3: Widening public transport connectivity and access across the region	○
This option does not directly relate to public transport connectivity and access. However, it could have long term implications in public transport fleets in terms of implementing alternative fuels if the technology is found to be transferable from freight vehicles.	

Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✓
This option supports the sustainable movement of freight across the region. However, there would be no impact on safety or efficiency.	

Impact of COVID Related Behaviour Change Scenario
The increase in home shopping generated by the COVID-19 pandemic has led to more freight vehicles on the road. If this trend continues in the medium to long term then this would lead to an increase in emissions from goods vehicles. As such, this option could offer even greater benefits under this scenario than it would under pre-pandemic conditions.

Rationale for Selection or Rejection
This option should be taken further within the RTS as it makes a positive contribution to a number of the STAG criteria and strategy objectives.

Option 58: Public subsidy for new ferry services e.g., from Rosyth

Option 58	Public subsidy for new ferry services e.g., from Rosyth					
Summary	There is no direct ferry service between Scotland and the EU with the Rosyth to Zeebrugge freight only service ceasing to operate in April 2018 after passenger services ended in December 2010. Commercial vehicles are therefore required to travel south to ports in England to connect with ferry routes to the continent. Alternatively, freight is transported by air instead. This option would seek to reinstate direct links to the EU by the provision of a public subsidy for new ferry services. This would improve the region's external connections and access to markets.					
Type of Option	Capital		Revenue	✓	Policy & Regulatory	
Focus	Region Wide		Network Measures		Measures Targeted at Specific Groups	✓
Implementability	Providing public subsidy to implement external ferry services could be challenging to organise as it would require commitment from Transport Scotland as well as commercial interest from suitable ferry operators. In addition, the provision of state aid for ferry services is a complex legal area and there may be issues around State Aid legislation that would need to be overcome. SEStran would also have a very limited role and ability to influence the majority of these issues. Overall, this option is likely to be very complex and challenging to deliver.					
Public Acceptability	Ferry services may provide local jobs which would be supported. Potential opposition could arise from ferry services being operational solely for freight and not for passenger use. In addition, some people may oppose the use of public funds to provide a subsidy for new ferry services.					
STAG Criteria	Environment	✗ - ✓	Reducing freight road traffic would be beneficial for global emissions and local air quality. There would also be a reduction in noise and vibrations on some road routes. However, ferries would also produce emissions in addition to creating local noise pollution particularly in the vicinity of the ports. There is also scope for bottlenecks to develop at either end of the ferry journey when freight vehicles re-			

Option 58	Public subsidy for new ferry services e.g., from Rosyth		
			join the road network to complete their journeys leading to local air quality and noise problems in these areas.
	Economy	✓✓✓	Providing a ferry service could create local jobs. To add, there is scope to make the road network more efficient meaning freight and people movements could have a reduction in journey time whilst freight travelling to the continent from the region would benefit from a more direct route. Furthermore, provision of direct links to the EU would open up new external markets and the scope for economic growth. However, there would be a cost to Government for provision of the public subsidy.
	Integration	✓✓	This option aims to integrate water with road transportation to enhance the efficiency of the external freight links to and from the region. This is consistent with the NTS 2 policy to deliver inclusive economic growth.
	Accessibility & Social Inclusion	○	There would be no impact on accessibility or social inclusion.
	Safety & Security	✓	Reducing the number of freight vehicles on the road network could provide safer driving conditions for other, particularly vulnerable, road users.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✕✕ - ✓
This option would help to reduce vehicle kilometres travelled by freight vehicles but could also help to stimulate new journeys generating additional emissions. Ferries would also generate emissions which would have a negative impact as well.	
Strategy Objective 2: Facilitating greater physical activity	○
This option does not relate to physical activity.	
Strategy Objective 3: Widening public transport connectivity and access across the region	○
It does not directly relate to public transport.	
Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✓✓
This option does support the safe and efficient movement of freight by providing alternative routes for freight vehicles as well as opening up links to new external markets.	

Option 58	Public subsidy for new ferry services e.g., from Rosyth
Impact of COVID Related Behaviour Change Scenario	
The pandemic has led to an increase in freight arising from growth in online shopping. If this trend continues it may help to support to provision of additional freight services between the region and the EU. However, there has also been a simultaneous impact arising as a result of Brexit with a subsequent reduction in imports and exports to the continent.	
Rationale for Selection or Rejection	
This option should be considered within the RTS as it meets some of the STAG criteria and strategy objectives although could be challenging to deliver.	

4.6   Car – Fleet Transition

4.6.1   The SEStran region is currently heavily reliant on private cars for many journeys. The current fleet is largely made up of cars with internal combustion engines running on fossil fuels which contribute to the global climate emergency. To add, the majority of carbon emissions produced by the transport sector are from road transport (over 97% of transport CO_2 emissions in the region in 2018). As such, there is a need to transition the current fleet to one which is more sustainable by moving towards more sustainable fuel sources. These options explore how the region can begin to transition the vehicle fleet towards alternative fuels for both private and commercial vehicles.

Option 56: Public investment or partnership in alternative fuels e.g., synthetic fuels and hydrogen

Option 56	Public investment or partnership in alternative fuels e.g., synthetic fuels and hydrogen
Summary	The transport sector is a key contributor to carbon emissions meaning alternative fuel sources need to be considered to shift away from our dependency on fossil fuels. Whilst electric vehicles appear likely to emerge as the alternative for private cars this technology is less well suited to large goods vehicles which would require sizeable batteries which are likely to be impractical unless this technology can be improved upon. Therefore, there is a need to consider alternative fuel sources which could enable the decarbonisation of the freight sector.

One solution is to explore developing technologies around synthetic fuels and / or hydrogen which could be invested in via public subsidy or partnerships to test their application and suitability as an alternative fuel source for the freight industry. This option would consequently use investment as a stimulus to implementing alternative fuels into the freight sector. |

Option 56	Public investment or partnership in alternative fuels e.g., synthetic fuels and hydrogen					
Type of Option	Capital	✓	Revenue		Policy & Regulatory	
Focus	Region Wide		Network Measures		Measures Targeted at Specific Groups	✓
Implementability	This option requires public sector investment, potentially in partnership with the private sector, to progress technology and stimulate a shift towards alternative fuel uptake for freight vehicles. This would require technical knowledge and research.					
Public Acceptability	The public is likely to support a shift to alternative fuel sources for freight sources. The only source of opposition may be if the private sector is seen to be gaining a commercial advantage through public sector funding which may be regarded as a poor use of taxpayer's money by some.					
STAG Criteria	Environment	✓✓✓	Investing in alternative fuels would enhance their technological development and implementation into the freight sector. This would help to reduce emissions as alternative fuels are less harmful to the environment in comparison to petrol and diesel vehicles. Thus, there is scope to improve both local and global air quality.			
	Economy	✗ - ✓✓	This option could stimulate an uptake in alternative fuels which could have implications for tax revenue and the associated cost to Government. In addition, whilst public subsidy would be required to stimulate the use of alternative fuels for freight there could be long term benefits to investing in new technologies as large uptake would stimulate market demand and may enable the region to position itself as a location for these types of industry.			
	Integration	✓	This option would not have a direct impact upon transport integration. However, it is highly consistent with policy set out in NTS 2 to take climate action.			
	Accessibility & Social Inclusion	◯	This option does not directly relate to accessibility and social inclusion.			
	Safety & Security	◯	This option does not directly relate to safety and security.			

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Option 56	Public investment or partnership in alternative fuels e.g., synthetic fuels and hydrogen	
Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system		✓✓✓
This option aims to invest in technologies which would evoke a transition to a sustainable post carbon transport system away from reliance on petrol and diesel for freight vehicles.		
Strategy Objective 2: Facilitating greater physical activity		○
This option does not involve facilitating physical activity.		
Strategy Objective 3: Widening public transport connectivity and access across the region		○
Public transport connectivity and access does not directly relate to this option.		
Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region		✓
Investment in alternative fuels supports the sustainable movement of freight. However, it would only make a minor positive contribution to delivering this objective as there would be no impact on safety or efficiency resulting from this option.		
Impact of COVID Related Behaviour Change Scenario		
The COVID-19 pandemic has led to increase in online shopping with an associated increase in the number of freight vehicles and, in particular, LGVs on the road network. On this basis stimulating a shift to alternative fuel sources is likely to deliver even greater benefits under a scenario where these trends continue on a medium to long term basis.		
Rationale for Selection or Rejection		
This option should be considered within the RTS as it is greatly beneficial for the environment despite making minimal contribution against some objectives and STAG criteria.		

Option 68: Provision of charging infrastructure (many options) e.g., market led or public responsibility

Option 68	Provision of charging infrastructure (many options) – market led or public responsibility					
Summary	Electric Vehicle charging facilities are limited and disjointed across the region. This makes owning an electric vehicle unpractical for many people and could inhibit the uptake of electric vehicles. To widen access to electric vehicle ownership and use there needs to be increased provision of charging infrastructure and a widespread network to support this transition. Another issue with charging infrastructure is that to charge a car at home people have to have a driveway to facilitate a charger. This could exclude those who living in flats or that do not have a conventional driveway or garage space from owning and electric vehicle. On this basis an innovative solution would need to be found to enable electric vehicle charging in dense urban areas. Currently it is unclear who will take responsibility for the provision for the widespread rollout of electric vehicle infrastructure. It may be that it falls to the market to provide it. In this case it is possible that petrol stations will be replaced by charging bays. Otherwise, it may be the responsibility of constituent local authorities to implement charging provision which has largely been the case to date.					
Type of Option	Capital		Revenue		Policy & Regulatory	✓
Focus	Region Wide	✓	Network Measures		Measures Targeted at Specific Groups	
Implementability	In order to implement charging infrastructure, SEStran would be dependent on working with partners including local authorities and the private sector. With a lack of national guidance on charging provision, there could be issues around who is responsible for implementing charging infrastructure and how these parties work together to create a cohesive network. Furthermore, the responsibility for funding the provision of the infrastructure and also who pays for the electricity could also be an impediment to implementation as well.					
Public Acceptability	The public are likely to support this option as it is for their benefit and allows more charging options enabling more people to choose to adopt an EV.					
	Environment	✓✓	Increasing the provision of charging infrastructure will support the transition to electric vehicles. This will reduce emissions significantly by reducing reliance on			

Option 68	Provision of charging infrastructure (many options) – market led or public responsibility		
STAG Criteria			fossil fuel dependent vehicles. However, it could lead to negative environmental impacts being 'offshored' as electric vehicles require batteries which will necessitate mineral mining whilst there are also likely to be emissions generated during the manufacturing process.
	Economy	○ - ✓	The provision of charging infrastructure could have a positive impact on the economy if the electricity used generates revenue although this would be at the expense of fossil fuel revenue which could lead to net neutral impact. There would also be implications for tax revenues as fossil fuel use decreased.
	Integration	○ - ✓	The provision of charging infrastructure is unlikely to have an impact on transport integration. However, it could help make a positive contribution to the policy aspiration set out in NTS 2 to take climate action.
	Accessibility & Social Inclusion	✓	Increasing the provision of charging infrastructure will make owning and using electric vehicles more accessible across the region. This will mainly benefit more wealthy individuals who can afford to own a car and is unlikely to be of significant benefit to vulnerable groups like women, the elderly, the young, disabled and ethnic minorities who tend to be more reliant on public transport.
	Safety & Security	○	The provision of charging infrastructure is unlikely to have an impact on safety and security.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✓✓✓
Increasing the provision of electric vehicle charging infrastructure to develop a complete and coordinated network supports the shift to alternative fuel sources. Therefore, it helps to transition to a sustainable, post-carbon transport system.	
Strategy Objective 2: Facilitating greater physical activity	○
The provision of charging infrastructure is unlikely to have an impact on facilitating greater physical activity.	
Strategy Objective 3: Widening public transport connectivity and access across the region	○
The provision of charging infrastructure is unlikely to have an impact on widening public transport connectivity and access.	
Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✓
Improving the provision of charging infrastructure supports the sustainable movement of people by enabling more people to switch their private car to an electric vehicle. It is unlikely to any impact on the safety or efficiency of the region's network.	

Option 68	Provision of charging infrastructure (many options) – market led or public responsibility
Impact of COVID Related Behaviour Change Scenario	
The pandemic has stimulated an increase in car usage which, if this trend continues, will contribute to increased emissions and an adverse effect on the global climate emergency. On this basis, stimulating a switch to electric vehicles would be even more important than under pre-pandemic circumstances making this option more attractive.	
Rationale for Selection or Rejection	
This option makes a positive contribution to a number of the STAG criteria and Strategy Objectives. Therefore, it is recommended that it is taken forward to the RTS.	

Option 69: Electrical grid capacity measures

Option 69	Electric grid capacity measures					
Summary	Electric vehicle ownership and use is currently not practical for all. There are concerns that the electrical grid, across the region, does not have the capacity to support the widespread transition of the transport network to electric vehicles and the associated power requirements that this will generate. Thus, there needs to be development of this capacity to enable fleet transition towards EVs.					
Type of Option	Capital		Revenue		Policy & Regulatory	✓
Focus	Region Wide	✓	Network Measures		Measures Targeted at Specific Groups	
Implementability	This option faces significant barriers to delivery as the electrical grid capacity falls out with the realms of the transport industry and therefore SEStran not only has no statutory powers in this area but very limited opportunities to engage in partnership working as well. The upgrade of the electrical grid would also require coordinated regional and potentially national action to deliver the necessary infrastructure. On this basis the ability to deliver this option is severely limited.					
Public Acceptability	Infrastructure improvements could cause disruption to the electrical supply whilst they are being implemented which may be unpopular with the public.					

Option 69	Electric grid capacity measures		
STAG Criteria	Environment	✓✓	Improving the electrical grid capacity will help the transition to electric vehicles across the network. This will reduce emissions produced by the transport network.
	Economy	○	Electric grid capacity measures are unlikely to impact the economy in TEE or transport related wider economic benefits terms.
	Integration	○	This option would not impact on the integration of the transport network.
	Accessibility & Social Inclusion	✓	Electric grid capacity improvements may lead to some people being able to access an electric vehicle that otherwise wouldn't be able to leading to a minor positive impact. There would be no direct impact on accessibility of public transport or of local services and amenities.
	Safety & Security	○	Electric grid capacity measures would not impact the safety and security of the transport network.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✓✓

Electric grid capacity measures will encourage electric vehicle use and therefore support the transition to a sustainable, post-carbon transport system.

Strategy Objective 2: Facilitating greater physical activity	○

This option would not facilitate greater physical activity across the region.

Strategy Objective 3: Widening public transport connectivity and access across the region	○

Electric grid capacity measures would not have an impact on widening public transport connectivity and access across the region.

Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✓

Improving the electric grid capacity will encourage the shift to electric vehicles and support the sustainable movement of both people and freight across the region.

Impact of COVID Related Behaviour Change Scenario

The pandemic has stimulated an increase in car usage which, if this trend continues, will contribute to increased emissions and an adverse effect on the global climate emergency. On this basis, stimulating a switch to electric vehicles would be even more important than under pre-pandemic circumstances making this option more attractive.

Rationale for Selection or Rejection

Option 69	Electric grid capacity measures
Due to the implementability issues outlined and the fact that this option has a minimal impact against the STAG criteria and Strategy Objectives due to it being a non-transport option, it is recommended that this option is not taken forward to the RTS.	

Option 70: Local grants and incentives for purchasing EVs – winding down from central government

Option 70	Local grants and incentives – winding down from central government					
Summary	The up-front cost of purchasing an electric car is currently prohibitive for some people in the region. This disproportionately impacts those from low-income households. Grants and incentives have previously been offered by central government to encourage people to buy an electric vehicle, but these schemes are now winding down. There is an opportunity for local and regional government to facilitate the EV uptake in their areas by the provision of their own grants and incentives to make it easier for people and support the transition to electric vehicles.					
Type of Option	Capital		Revenue	✓	Policy & Regulatory	
Focus	Region Wide	✓	Network Measures		Measures Targeted at Specific Groups	
Implementability	SEStran would have to work in partnership with Transport Scotland or constituent Local Authorities to implement and fund the initiative.					
Public Acceptability	The people receiving grants and incentives are likely to be supportive of this option. However, there may be opposition from people that see this as a waste of taxpayer's money by subsidising people to buy a car.					
STAG Criteria	Environment	✗ - ✓✓	Introducing local grants or incentives encouraging the purchase of electric vehicles will help the transition away from ICE vehicles. This will reduce emissions produced by the transport network leading to a positive environmental impact. However, it is possible that the option would encourage people to buy a car that otherwise wouldn't have and that would have used public transport or active travel instead which would lead to a net negative impact.			

Option 70	Local grants and incentives – winding down from central government		
	Economy	○	Introducing local grants and incentives will present a significant cost to Government without generating any typical transport benefits e.g. reduced journey times, increased revenue / patronage, etc. There may be a reduction in vehicle operating costs but overall, the impact is expected to be neutral.
	Integration	✓	Introducing local grants and incentives is unlikely to have an impact on the integration of the transport network in the region. However, it could help make a positive contribution to the policy aspiration set out in NTS 2 to take climate action.
	Accessibility & Social Inclusion	✓✓	Local incentives and grants will make it much more affordable for people across the region to purchase an electric vehicle. This will mainly benefit vulnerable groups on lower incomes like women, the elderly, the young, disabled and ethnic minorities who tend to be more reliant on public transport.
	Safety & Security	○	Introducing local grants and incentives for electric vehicles would not have an impact on the safety and security of the transport network in the region.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✓✓✓

Introducing local grants and incentives to make electric vehicles more affordable supports the transition to a sustainable, post-carbon transport system.

Strategy Objective 2: Facilitating greater physical activity	○

This option would not facilitate greater physical activity.

Strategy Objective 3: Widening public transport connectivity and access across the region	○

Introducing local grants and incentives for electric vehicles would not widen public transport connectivity and access across the region.

Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✓

The provision of local grants and incentives for electric vehicles will help the transition away from ICE vehicles. It will therefore support the sustainable movement of people and freight across the region.

Impact of COVID Related Behaviour Change Scenario

The pandemic has stimulated an increase in car usage which, if this trend continues, will contribute to increased emissions and an adverse effect on the global climate emergency. On this basis, stimulating a switch to electric vehicles would be even more important than under pre-pandemic circumstances making this option more attractive.

Rationale for Selection or Rejection

Option 70	Local grants and incentives – winding down from central government
This option makes a positive contribution to a number of the STAG criteria and Strategy Objectives. Therefore, it is recommended that it is taken forward to the RTS.	

Option 71: Do nothing and wait for market to make EVs more affordable

Option 71	Do nothing and wait for market to respond					
Summary	The cost of an electric car is currently prohibitive to people in the region. As manufacturing supply increases it is likely that price will decrease. One option is to wait for the market to respond and electric vehicles to become more affordable which will make their widespread adoption more likely.					
Type of Option	Capital		Revenue		Policy & Regulatory	✓
Focus	Region Wide	✓	Network Measures		Measures Targeted at Specific Groups	
Implementability	There are no regulatory or funding challenges to delivery as this is a market led option and requires no direct intervention on the part of SEStran.					
Public Acceptability	It isn't certain that doing nothing and waiting for the market to respond will make electric vehicles more affordable. On that basis the majority of the public may still regard them as being too expensive.					
STAG Criteria	Environment	✓	The result on the environment of waiting on the market to respond could be varied. It is likely that ultimately market pressures would drive costs down leading to electric cars becoming more widely adopted with people shifting away from ICE vehicles. This would lead to a reduction in emissions and positive environmental impacts. However, this may happen more slowly than if the market was stimulated.			
	Economy	○	Waiting for the electric vehicle market to respond is unlikely to have an impact on the economy in TEE terms e.g. reduced journey times, increased revenue / patronage, etc. There may be a reduction in vehicle operating costs but overall the impact is expected to be neutral.			
	Integration	○	Waiting for the electric vehicle market to respond is unlikely to have an impact on the integration of the transport network. It is also unlikely to make a direct			

Option 71	Do nothing and wait for market to respond		
			contribution to delivering policy aspirations as the market would be operating free of any Government objectives.
	Accessibility & Social Inclusion	◯ - ✓	Electric cars could become more affordable as the market responds to increasing demand and downward price pressures. This will mainly benefit vulnerable groups on lower incomes like women, the elderly, the young, disabled and ethnic minorities who tend to be more reliant on public transport. However, it is also possible that prices will remain high which would disadvantage these lower income groups.
	Safety & Security	◯	Waiting for the electric vehicle market to respond would not impact the safety and security of the transport network.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	◯ - ✓✓

This option could support the transition to a sustainable, post-carbon transport system with more affordable electric vehicles. However, the impact is largely unknown as the exact nature of the market response is unknown.

Strategy Objective 2: Facilitating greater physical activity	◯

Waiting on the electric vehicle market to respond is unlikely would not have an impact on facilitating greater physical activity.

Strategy Objective 3: Widening public transport connectivity and access across the region	◯

Waiting on the electric vehicle market to respond would not have an impact on widening public transport connectivity and access across the region.

Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	◯ - ✓

This option could support sustainable travel for people and freight across the region by encouraging increased uptake of electric vehicles but the impacts are largely unknown due to the uncertainty around how the market will respond at this time.

Impact of COVID Related Behaviour Change Scenario

The pandemic has stimulated an increase in car usage which, if this trend continues, will contribute to increased emissions and an adverse effect on the global climate emergency. On this basis, stimulating a switch to electric vehicles would be even more important than under pre-pandemic circumstances.

Rationale for Selection or Rejection

Option 71	Do nothing and wait for market to respond
This option requires no direct intervention and therefore the consequences, impacts against the STAG criteria and Strategy Objectives are largely unknown. However, despite these uncertainties it is recommended that this option is taken forward to the RTS as the only alternative would be for the public sector to seek to stimulate the market (Option 70) and challenges have been identified in the delivery of this option.	

4.7 Car – Parking and Demand Management

4.7.1 To help reduce the amount of people opting for private cars as their main mode of transport and to encourage the use of more sustainable alternatives it is likely that a combination of both better public transport and active travel plus measures to discourage car usage will be required in the region. This can be achieved through appropriate parking and demand management measures. A range of options have therefore been developed aimed at managing car usage.

4.7.2 In addition, in some instances there may also be pressure on parking provision. In these areas there may be merit in considering options which would increase parking provision or reduce the restrictions around its usage. These options have also been considered.

Option 14: Measures to reduce car use

Option 14	Measures to reduce car use
Summary	Measures to reduce car use include congestion charging, road user charging, parking policies (including charging by energy / emissions), work-place levy (WPL), low emission zones (LEZ), digital connectivity measures, and land-use planning measures. These measures aim to reduce car use by making it more difficult and expensive to travel by car. Many of the measures listed are more lenient for less polluting vehicles to help facilitate a fleet shift for passenger and freight travel. Some measures, i.e., the WPL, would encourage people to find alternative transportation to a particular area, facilitating a mode shift whilst generating revenue to spend on sustainable transport infrastructure. Improving digital connectivity can also help reduce the need for travelling, for example, with more people working from home there will be fewer people commuting via car into urban centres.

Option 14	Measures to reduce car use					
Type of Option	Capital		Revenue		Policy & Regulatory	✓
Focus	Region Wide		Network Measures		Measures Targeted at Specific Groups	✓
Implementability	Potential barriers include a lack of legislative control as SEStran will predominantly depend on constituent local authorities to implement these measures. There would need to be political will to implement these measures as they are likely to face local opposition from the public. There is a level of uncertainty regarding the revenue generated via these measures in terms of what the money would be used for. However, it provides an opportunity to support enhanced investment in sustainable modes of transport which acts as the 'carrot' to accompany the 'stick' imposed by the measures to restrict car use. Additionally, these measures are likely to be more successful when implemented alongside improved public transport and active travel options. Certain measures may require technology to operate and therefore could face technical barriers to implementation although much of the technology is tried and tested.					
Public Acceptability	Some measures may be opposed by the public as in many cases it will price them out of driving their car. These are likely to be road user charging, WPL, and LEZ. Providing alternative competitive transport options will make the measures more acceptable.					
STAG Criteria	Environment	✓ ✓ ✓	This option would significantly help to reduce the level of emissions produced by road vehicles, specifically in urban areas. Additionally, certain measures may generate revenue which can be used to reinvest in sustainable transport infrastructure which could also help to reduce emissions and improve local air quality.			
	Economy	✓	Cost of implementation of the measures will be outweighed by the revenue generated by some of the measures. Fewer cars and more money spent improving public transport would make journey times more efficient across different transport modes. Evidence from cities like Nottingham which have introduced these types of measures also suggests no detriment to the economy.			

Option 14	Measures to reduce car use		
	Integration	✓	This option is in line with policy integration to reduce car use and encourage public transport use. It is unlikely to have an impact of transport integration or land use integration
	Accessibility & Social Inclusion	✕ - ✓	People may opt to use the public transport modes if funds are directed towards improving the services. This could be particularly impactful for those who have previously experienced limited public transport accessibility or connectivity and those who do not have access to a car. However, some people depend on car travel for reasons such as limited mobility. These measures may make travel more difficult for these users leading to negative impact upon them.
	Safety & Security	✓✓	This option encourages the use of public transport services over the private car. This is a far safer way to travel, with fewer cars on the road to cause accidents.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✓✓✓
Measures to reduce car use will encourage people to use either public transport or active travel. This will help to transition to a sustainable, post carbon transport system.	

Strategy Objective 2: Facilitating greater physical activity	✓
Some of the journeys previously made by private car may be made by active travel, facilitating greater physical activity.	

Strategy Objective 3: Widening public transport connectivity and access across the region	○ - ✓
Measures to reduce car use could help widen public transport connectivity and access however this would be dependent on how funds are reinvested.	

Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✓✓
Measures to reduce car use will reduce the volume of vehicles on the road, leading to greater efficiency on the transport network. Additionally, it supports the use of sustainable modes of transport.	

Impact of COVID Related Behaviour Change Scenario
Some measures within this option are likely to be impacted more than others due to behaviour changes. For example, home working has increased and therefore fewer people are commuting which could reduce the need for measures to reduce car use. However, public transport use has declined and those traveling to work are perhaps more likely to drive. Therefore, whilst overall travel demand may be less it would be undertaken in less sustainable ways meaning the measure is needed even more than pre-COVID-19. In general, car movements may increase, and public transport patronages decreases and therefore measures need to be implemented to discourage this.

Option 14	Measures to reduce car use
Online shopping has increased over the course of the pandemic, with fewer people travelling to urban areas to shop in person. Therefore, there may be less need for measures reducing car use in urban centres.	
Rationale for Selection or Rejection	
This option meets most of the STAG criteria and therefore should be considered within the RTS.	

Option 16: Enforcement of parking regulations

Option 16	Enforcement of parking regulations					
Summary	Enforcing parking regulations can help to reduce illegal parking, antisocial parking on pavements and / or double parking as well as encouraging turnover of spaces in places with high parking demand. Antisocial parking can lead to several issues including blocking pedestrian walkways, causing vehicles to slow down to pass and causing issues for deliveries. Most Local Authorities in the region already operate Decriminalised Parking Enforcement.					
Type of Option	Capital		Revenue		Policy & Regulatory	✓
Focus	Region Wide	✓	Network Measures		Measures Targeted at Specific Groups	
Implementability	Constituent Local Authorities would need to enforce parking regulations through the adoption of Decriminalised Parking Enforcement (DPE) powers. Local authorities may have budget issues being able to fund increased enforcement given not all DPE schemes cover their costs and there would need to be political backing as there would likely be complaints from the public.					
Public Acceptability	There may be local opposition from the public due to the perceived restrictions imposed by the option.					
	Environment	✓	Greater enforcement would ensure pathways are not restricted by parked cars, providing more space for people to walk and cycle			

Option 16	Enforcement of parking regulations		
STAG Criteria	Economy	○	Revenue could be gained from car parking charges and Penalty Charge Notices from enforcement however the operating costs to provide increased enforcement could negate any revenue. Whilst the objective would be to make town centres more vibrant by encouraging more turnover of parking some people may stay away due to perceived restrictions on car access.
	Integration	✓	Enforcing parking regulations is consistent with policy but not likely to have an impact on transport or land-use integration.
	Accessibility & Social Inclusion	✓	Enforcing regulations, notably for those who frequently park anti-socially on pavements, could help to create better environments for other road users and pavement users, especially from vulnerable groups who require more space. Preventing illegal parking can also improve access for public transport.
	Safety & Security	✓	Reducing pavement parking allows safe use of pavements for everyone

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	○
Enforcing parking regulations does not directly relate to transitioning to a sustainable, post carbon transport system.	
Strategy Objective 2: Facilitating greater physical activity	✓
Enforcing parking regulations clears pavements and pathways, creating a better environment to walk and facilitates greater physical activity	
Strategy Objective 3: Widening public transport connectivity and access across the region	✓
Enforcing parking regulations does not directly widening public transport connectivity and access across the region but can help to improve journey times on routes where illegal parking causes an impediment.	
Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✓✓
Enforcing parking regulations reduces antisocial parking, making both the pavements and the roads safer, and encourages the efficient use of parking provision.	
Impact of COVID Related Behaviour Change Scenario	
During COVID-19 there has been an increase in active travel meaning more vulnerable road users are accessing the roads and pavements. Thus, enforcing parking regulations to limit anti-social and potentially dangerous parking could compliment this increase in active travel by providing a safer environment. In addition, if the COVID-19 behaviour change towards increased car usage is maintained then efficient management of parking will be essential to ensure that town centres can operate in an effective manner.	

Option 16	Enforcement of parking regulations
Rationale for Selection or Rejection	
This option meets the majority of the STAG criteria and therefore should be considered for the RTS.	

Option 42: Parking charges to discourage short car trips

Option 42	Parking charges to discourage short car trips				
Summary	The main contributor of emissions produced from the transport sector in Scotland is road traffic. Therefore, reducing unnecessary car trips, particularly those that could be done by walking or cycling, could help combat emissions and contribute to the aim of meeting climate targets. Through implementing car parking charges in local centres, some people may be discouraged to use their car for short trips. There is scope for this to increase walking, cycling and public transport use at a local scale. To add, fewer cars driving to town centres could make areas more attractive which can enhance localisation. The revenue from parking charges can also be reinvested by the local authority to enhance sustainable transport facilities and services.				
Type of Option	Capital		Revenue		Policy & Regulatory	✓
Focus	Region Wide		Network Measures		Measures Targeted at Specific Groups	✓
Implementability	A lack of political will to implement parking charges could be a potential barrier for this option. This is due to potential backlash from constituents over having to pay for parking which was previously free. To add, Local Authorities will be responsible for implementation.				
Public Acceptability	Some members of the public may oppose the implementation of this option within their local areas. However, some may agree that they will be beneficial to local centres, help to reduce car use and provide some revenue for local authorities to reinvest to sustainable transport options. To be deliverable it is likely that this option would be to be part of a wider package of measures which would also include enhancements to sustainable transport alongside the introduction of parking charges.				

Option 42	Parking charges to discourage short car trips		
STAG Criteria	Environment	✓✓	Implementing parking charges could help to reduce emissions whilst also improving local air quality as fewer people would drive into town centres to avoid being charged. In turn, there is scope that this would increase walking, cycling and public transport use.
	Economy	✕ - ✓✓	There is scope to generate revenue from parking charges meaning local authorities can use the money to spend on sustainable transport. More people may opt for public transport over the car to travel to town centres which benefits public transport operators by increasing their revenue. To add, fewer cars in local centres could make them more attractive for people to go to and enhance localisation although local businesses may argue that parking charges are detrimental to the attractiveness of town centres and harm their business.
	Integration	✓	This option would not have a direct impact upon transport integration. However, it would support the NTS 2 policy goal to take climate action.
	Accessibility & Social Inclusion	✕✕	The rates of parking charges may be unaffordable for some meaning they cannot drive to their local town centre. This would disproportionately affect those on the lowest incomes and least able to afford charges. In addition, the impacts would be greater in locations with poor or no public transport services leading to a negative impact on access to services. However, parking charges would not apply to blue badge holders ensuing people with a disability can access and are socially included within local centres.
	Safety & Security	✓	This option would reduce the number of cars which are entering and parking in town centres. This means there are fewer motorised vehicles which could be involved or cause accidents, making it safer for vulnerable road users, in addition to the elderly and disabled.
Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system			✓✓
This option encourages the use of walking, cycling and public transport use for short journeys to local centres over the private car.			
Strategy Objective 2: Facilitating greater physical activity			○ - ✓

Option 42	Parking charges to discourage short car trips

This option does not directly relate to facilitating greater physical activity, however some people may consider walking and cycling instead of using the private car to travel short distances to access local amenities. Therefore, it could indirectly lead to an increase in physical activity.

Strategy Objective 3: Widening public transport connectivity and access across the region	○

This option does not directly relate to widening public transport connectivity. Some people may opt for public transport over using their private cars, however this would be as an indirect impact of the option and there would be no direct impact on the public transport network coverage or service frequency arising so the impact is neutral.

Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✓

Implementing parking charges would aid the sustainable and efficient movement of people and, to a lesser extent, freight within the region. Primarily this would be as a result of less congested town centres.

Impact of COVID Related Behaviour Change Scenario

This option involves targeting short car trips, specifically to town centres. During COVID-19 more people have been travelling locally to access amenities in addition to higher levels of active travel. Thus, this option could encourage the continuation of this behaviour whilst seeking to ensure that it is undertaken by sustainable modes wherever possible.

Conversely, the decline in public transport use and rise car use may evoke resistance from people who do not wish to use public transport services and / or have become accustomed to using their car for short trips during the pandemic. Overall, this may bolster the need for this option as increased car dependency would strengthen the need to discourage the use of the car where this isn't necessary.

Rationale for Selection or Rejection

This option meets the majority of the STAG criteria and some objectives; thus, it should be considered further within the RTS.

Option 44: Provision of additional parking capacity on site or at new location including Park and Ride

Option 44	Provision of additional parking capacity on site or at new locations including at Park and Ride				
Summary	Some people may struggle to find a parking space at Park and Ride sites, particularly at railway stations. This may dissuade them from using sustainable modes for part of their journey and use the private car for the entire journey. Moreover, overspill parking can occur in neighbouring residential areas which could be illegal or disruptive to residents. To combat this, additional parking and / or new Park and Ride sites could be provided, specifically at locations which are already operating at capacity, near capacity or over capacity.				
Type of Option	Capital		Revenue		Policy & Regulatory	✓
Focus	Region Wide		Network Measures	✓	Measures Targeted at Specific Groups	
Implementability	Funding additional parking or new Park and Ride sites could be a potential barrier to implementation and there would be a requirement to work in partnership with ScotRail, Transport Scotland and local authorities to deliver them. In addition, sufficient capacity needs to be available on the public transport services to support the additional passengers, particularly at peak times, that Park and Ride provision would generate.				
Public Acceptability	It is likely that the public would support additional parking at highly used locations.				
STAG Criteria	Environment	✕ - ✓	Providing additional parking capacity could increase the use of sustainable modes for part-journeys. This would help to reduce emissions caused by road traffic and improve local air quality. However, there is also a risk that it encourages journeys to be made by car to Park and Ride sites which could be undertaken by active travel leading to a negative environmental impact. A range of impacts is consequently possible.		
	Economy	✕ - ✓	There would be a cost to Government for implementation, but this could lead to an economic benefit through increased revenue for public transport operators. However, this may be partially or, in some instances, fully offset by a loss of tax revenue from fuel duty as people switch from driving to public transport for their journey.		

Option 44	Provision of additional parking capacity on site or at new locations including at Park and Ride		
	Integration	✓✓ - ✓✓✓	This option delivers transport integration as it enables people to switch between car and public transport seamlessly. This could also help to deliver the policy aspiration in the NTS 2 to take climate action but only if these car journeys are not being substituted for ones that could be undertaken by active travel.
	Accessibility & Social Inclusion	✓	This option aims to increase the number of people who can access public transport services which enhances social inclusion as more people would be able to get to a wider range of essential services like education, employment, retail and healthcare. However, this is only going to be of benefit to people who have access to a car and therefore the most vulnerable groups who often do not have car access would not benefit.
	Safety & Security	◯	This option does not directly relate to safety and security.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✕ - ✓

This option does encourage driving to certain areas as it provides additional parking. However, the aim of the option is to allow more people to access public transport services and therefore it does in-part encourage a transition towards sustainable modes. It would offer the greatest benefits where people that used to drive for the whole journey switch to public transport for part of it and the least benefit where people who used to walk or cycle to the public transport service now drive instead.

Strategy Objective 2: Facilitating greater physical activity	✕ - ◯

This option does not directly relate to the facilitation of greater physical activity. Indeed it could lead to a reduction in physical activity where people who used to walk or cycle to the public transport service now drive instead.

Strategy Objective 3: Widening public transport connectivity and access across the region	✓✓

Providing additional Park and Ride capacity at key points to encourage public transport use does widen public transport connectivity as more people can access the network. However, there would be no impact on service coverage or frequency.

Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✓

This option does support the sustainable and efficient movement of people across the region where it encourages people to switch from car to public transport for part of their journey, yet it does not directly relate to freight.

Option 44	Provision of additional parking capacity on site or at new locations including at Park and Ride
Impact of COVID Related Behaviour Change Scenario	
This option could be impacted by various shifts in travel behaviour instigated by COVID-19. Fewer people are using public transport meaning there may be a reduction in people using Park and Ride facilities. Given Park and Ride is frequently used for peak time commuting journeys an increase in home working could also exacerbate this trend. This is coupled with a rise in people using private cars, henceforth more people could be using cars for the entirety of their journey. Overall, this may reduce the requirement for increased Park and Ride capacity in the future.	
Rationale for Selection or Rejection	
This option should be incorporated within the RTS as it meets the majority of the STAG requirements.	

Option 62: Reduce parking charges

Option 62	Reduce parking charges					
Summary	Expensive town / city centre parking can disproportionately affect those who can least afford to pay and can impact people's destination choice, favouring locations with plentiful free parking which are typically out of town. This can impact upon the viability of town centres as well as local businesses in them and the vitality of the surrounding area. This option would reduce parking charges in town and city centres to encourage more people to travel there instead of out-of-town locations.					
Type of Option	Capital		Revenue	✓	Policy & Regulatory	
Focus	Region Wide	✓	Network Measures		Measures Targeted at Specific Groups	
Implementability	Potential barriers include a need for partnership working with local authorities who are responsible for setting parking charges in their area. In addition, some car parks are privately owned and a reduction in charges would be dependent on their owners agreeing to this which may require a public subsidy to make up for any loss of income. Overall, it is likely to be much easier to reduce parking charges for on-street parking and publicly controlled off-street car parks than it is for privately owned ones.					

Option 62	Reduce parking charges		
Public Acceptability	The public is likely to be highly supportive of reduced parking charges.		
STAG Criteria	Environment	✕✕ - ✕✕✕	Reduced parking charges encourages people to drive instead of using public transport. This increases congestion and emissions as well as impacting local air quality in town and city centres. However, this impact will be partially mitigated if these trips are simply being transferred from alternative destinations although it is likely that cheaper parking would generate new car trips as well.
	Economy	✕ - ✓	Reducing parking charges reduces the resulting revenue accruing to both the public and private sector. For the former this reduces the sum of money that can be invested back into improving the transport network and for the latter this reduces surplus wealth which can be reinvested into economic growth in other areas. However, there would also be economic benefits if reduced parking charges attracted more people to make use of businesses and services available in local town and city centres although this would likely be at the expense of businesses in out-of-town developments.
	Integration	✕	Reducing car parking charges is unlikely to have an impact on transport or land-use planning integration. However, it goes against policy integration, by encouraging more car travel which is inconsistent with NTS 2 policy to take climate action.
	Accessibility & Social Inclusion	✓	Reducing parking charges would improve access to town and city centres across the region. This would be especially beneficial for those who have mobility issues and have to travel by car or those who are from a lower income household and would have previously been priced out from visiting some destinations due to parking charges. However, given many vulnerable groups like the young, elderly, disabled, ethnic minorities and women often do not have access to car this option would provide limited benefits to them. It would also have no impact on public transport access.
	Safety & Security	◯	Reducing car parking charges is unlikely to have an impact on the safety and security of the transport network
Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system			✕✕✕
Reducing parking charges encourages car use instead of either public transport or active travel. Therefore, it does not support a transition to a sustainable, post-carbon transport system.			
Strategy Objective 2: Facilitating greater physical activity			✕

Option 62	Reduce parking charges
Reducing parking charges could encourage people to travel by car for short, local journeys where they may have previously walked, wheeled, or cycled. The reduced financial implication and quicker journey time makes the journey easier for them leading to a reduction in physical activity.	
Strategy Objective 3: Widening public transport connectivity and access across the region	○
Reducing parking charges is unlikely to have any impact on widening public transport connectivity and access across the region.	
Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✕✕
Reducing parking charges ensures that people can get to where they want to go to across the region by car however, car travel is not the most efficient or sustainable way to move people. This option will encourage car travel which will increase congestion and likely slow journey times further. The increased number of vehicles on the road could also increase the likelihood of a collision.	
Impact of COVID Related Behaviour Change Scenario	
As a result of COVID-19, public transport use could potentially decline and car use increase. Reducing parking charges will encourage even more people to drive instead of opting for an alternative which may result in increased congestion, emissions and a decline air quality in the region's town and city centres.	
Rationale for Selection or Rejection	
This option generally makes a negative contribution towards the STAG criteria and Strategy Objectives and therefore it is recommended that it is not taken forward to the RTS on this basis.	

Option 63: Increase general parking capacity (parking not associated with multi-modal travel and interchange, i.e., Park and Ride Sites)

Option 63	Increase general parking capacity (parking not associated with multi-modal travel and interchange, i.e., Park and Ride Sites)
Summary	Across the region, there are areas with a lack of available parking. This leads to vehicles spending excessive time circulating looking for parking spaces as well as dangerous or illegal parking in inappropriate locations. Where parking availability is a significant problem, it can deter people from visiting or create a blight for the local community. Increasing parking capacity in areas where there is a mismatch of supply and demand, will encourage people to travel to these areas and make their journeys easier. In addition, in some locations it can help to prevent the negative impacts of overspill parking in residential and other inappropriate areas.

Option 63	Increase general parking capacity (parking not associated with multi-modal travel and interchange, i.e., Park and Ride Sites)					
Type of Option	Capital		Revenue		Policy & Regulatory	✓
Focus	Region Wide	✓	Network Measures		Measures Targeted at Specific Groups	
Implementability	To implement this option, SEStran would have to work in partnership with local authorities for successful delivery of increased car parking capacity in appropriate locations. In some cases, increasing car parking capacity may involve land ownership issues which would be an additional barrier to delivery.					
Public Acceptability	Depending on the nature of the increase parking capacity and where it was situated there could be some opposition from the public. However, generally increased parking capacity is likely to be supported.					
STAG Criteria	Environment	✗✗✗	Increased parking capacity is likely to stimulate additional car trips and encourages car use over other more sustainable modes of transport. This increases congestion and subsequently emissions as well as contributing to local air quality problems. There may also be a detrimental impact on noise and vibrations in some locations.			
	Economy	✓ - ✓✓	If parking capacity is increased in a charged car park there is potential to increase the revenue generated. This money could be invested back into the transport network. Additional parking capacity could also attract people to key economic locations such as town and city centres which would stimulate additional spending and economic activity.			
	Integration	✗ - ◯	Increasing parking capacity is unlikely to have an impact on transport integration, however, it is not in line with policy integration to reduce car kms or the NTS 2 policy aspiration to take climate action.			
	Accessibility & Social Inclusion	✓ - ✓✓	Increasing parking capacity improves accessibility to areas with a previous lack of parking availability. This opens up new opportunities and destinations as well as improving access to essential services like employment, education, healthcare and retail for people that have access to a private car. However, given many vulnerable groups like the young, elderly, disabled, ethnic minorities and women often do not have access to car this option would provide limited benefits to them.			
	Safety & Security	✓	Increased parking capacity could have a minor benefit on safety where the parking provision stops illegal and inappropriate parking from occurring.			

Option 63	Increase general parking capacity (parking not associated with multi-modal travel and interchange, i.e., Park and Ride Sites)	
Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system		✕✕✕
Increasing parking capacity would encourage car use instead of either public transport or active travel. This would increase the number of vehicles on the road and subsequently emissions. It would therefore make a negative contribution towards this objective.		
Strategy Objective 2: Facilitating greater physical activity		✕
Increased parking capacity may encourage people to travel by car for journeys that they previously walked, wheeled or cycled. They know that they will have less difficulty finding a parking space and therefore their journey time is reduced.		
Strategy Objective 3: Widening public transport connectivity and access across the region		◯
Increasing parking capacity is unlikely to impact widening public transport connectivity and access.		
Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region		✕ - ✓
Increase parking capacity ensures that people can efficiently get to where they want to go to across the region. However, it encourages car travel which is not sustainable and could lead to additional road accidents on the network.		
Impact of COVID Related Behaviour Change Scenario		
As a result of the long-term behaviour change impacts of the COVID-19 pandemic there will potentially be an increase in car use across the region. This might increase parking demand and result in more circulating traffic looking for a space as well as inappropriate and illegal parking in locations where demand outstrips supply. As such, there may be increased justification for increased parking capacity than there was previously although this brings with it a range of negative implications that need to be taken into consideration.		
Rationale for Selection or Rejection		
This option makes a negative impact against a number of the STAG criteria and Strategy Objectives. It is therefore recommended that it is not taken forward to the RTS on that basis.		

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Option 64: Reduce parking regulation

Option 64	Reduce parking regulation				
Summary	Across the region, there are areas with a lack of available parking. Residential permit parking and pay-and-display bays are common, especially in town and city centres making it more difficult to park. This may deter people from visiting a certain location and have an impact on town / city centre vitality. Reducing parking regulation will make it easier to park and encourage people to visit destinations that they previously would have not by eliminating restrictions and enabling more widespread usage of the available parking supply.				
Type of Option	Capital		Revenue		Policy & Regulatory	✓
Focus	Region Wide	✓	Network Measures		Measures Targeted at Specific Groups	
Implementability	Constituent local authorities would be key to the implementation of this option.				
Public Acceptability	Reducing parking regulation may result in an increase of anti-social parking which is likely to be opposed by the public. However, less restrictions on parking are generally likely to widely supported by the majority of people.				
STAG Criteria	Environment	✕✕	Reducing parking regulation makes it easier to park and encourages car journeys. People may decide, because it is easier to park, that they will drive instead of taking public transport or using active travel. This increases the number of vehicles on the road and subsequently leads to both more emissions and a decline in local air quality. There could also be an increase in noise and vibrations in some areas.		
	Economy	✕ - ✓	Reducing parking regulation will likely lead to a reduction in revenue from parking charges which would have negative implications. However, there could be benefits for town and city centres with more people choosing to visit them and make use of the services and local businesses they provide. This would provide an economic benefit.		
	Integration	✕	Reducing parking regulation is unlikely to impact transport or land-use planning integration. However, as it encourages car use, it does not integrate with the policy to reduce car km across Scotland or the NTS 2 priority to take climate action.		

Option 64	Reduce parking regulation		
	Accessibility & Social Inclusion	✕ - ✓	Reduced parking regulation could make it easier to park at destinations although in some locations where demand outstrips supply the opposite may be the case. Where demand and supply are balanced this will improve the accessibility of some areas and of essential services like employment, education, healthcare, and retail by car. However, given many vulnerable groups like the young, elderly, disabled, ethnic minorities and women often do not have access to a car this option would provide limited benefits to them.
	Safety & Security	✕	Reducing parking regulation could lead to an increase in anti-social parking. For example, cars may be parked on pavements, blocking the path for pedestrians. This increases the chance of conflicts occurring leading to a negative impact on safety

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✕✕✕

Reducing parking regulations encourages car use over public transport or active travel. Therefore, it does not support the transition to a sustainable transport system.

Strategy Objective 2: Facilitating greater physical activity	✕

Reducing parking regulation makes it easier for people to make car journeys. Without the concern of parking, people may opt to drive short journeys that they may have previously walked, wheeled or cycled leading to a reduction in physical activity.

Strategy Objective 3: Widening public transport connectivity and access across the region	◯

Reducing parking regulation is unlikely to have an impact on widening public transport connectivity and access.

Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✕✕

Reducing parking regulations could open up new destination opportunities to people and make journeys more efficient by reducing time spent looking for a parking space. However, in some locations the opposite may be true where high demand for parking and unregulated supply makes parking more difficult. Furthermore, encouraging people to undertake journeys by car is not efficient as it will increase congestion and journey times, negating any benefit from finding parking quicker. It will also increase the number of vehicles on the road and increase the likelihood of a collision. Overall, this option would make a negative contribution towards this objective.

Option 64	Reduce parking regulation
Impact of COVID Related Behaviour Change Scenario	
As a result of the COVID-19 pandemic, there may be potentially higher car use in the medium to long-term. With increased demand for parking, reducing parking regulation may reduce the time spent trying to find a parking space. On the other hand, reducing parking regulations while parking demand increases could result in additional anti-social parking and more pressure on a limited parking supply. This has wider implications on the surrounding communities and transport network. Overall, less parking regulation combined with higher demand for car usage is likely to lead to more occurrences of inappropriate and illegal parking along with greater pressure on the available parking supply in the busiest locations. This scenario would subsequently exacerbate the worst elements of this option.	
Rationale for Selection or Rejection	
This option has a negative impact on a number of the STAG criteria and Strategy Objectives. Therefore, it is recommended that it is not taken forward to the RTS.	

Option 65: Increase parking charges to price away some users

4.7.3   This option table has not been included as this option has been combined with option 42 due to their similarities. The option has still been included here to retain the numbering to ensure consistence with the Case for Change and Table 2-2.

4.8   Car – Road Network

4.8.1   Options which seek to improve the road network have scope to help improve network efficiency and road safety for all road-users. In some instances, targeted capacity and connectivity improvements may also be justified to support the region's strategic linkages both internally as well as to the rest of Scotland and beyond.

Option 2: Road safety schemes

Option 2	Road safety schemes
Summary	Road safety schemes aim to provide safer roads for all road users, notably to reduce the conflict between HGVs and vulnerable road users like pedestrians and cyclists through targeted investments at accident clusters.

Option 2	Road safety schemes					
Type of Option	Capital	✓	Revenue		Policy & Regulatory	
Focus	Region Wide		Network Measures	✓	Measures Targeted at Specific Groups	
Implementability	Potential barriers include the availability of funding to deliver road safety schemes and a reliance upon local authorities and Transport Scotland to implement schemes.					
Public Acceptability	Road safety measures such as speed bumps could face local opposition. However, targeted interventions on the strategic road network such as climbing lanes and grade separated junctions are likely to regarded positively.					
STAG Criteria	Environment	◯	Road safety schemes are unlikely to have a direct impact on the environment.			
	Economy	✓	Cost of implementing road safety schemes. Accidents lead to delays on the road network causing inefficiency, thus reducing the number of accidents taking place will reduce delays and save people time. Cost benefits due to journey time saving.			
	Integration	✓	This option is in line with policy integration to improve road safety. It is unlikely to have any impact on transport integration or transport and land-use integration.			
	Accessibility & Social Inclusion	✓	Vulnerable road users may feel that they are able to access key services due to a road safety scheme.			
	Safety & Security	✓✓✓	This option aims to increase the safety and security of all road users, particularly vulnerable road users. It would lead to a potential reduction in the cost of accidents, i.e., fewer fatal and serious accidents.			
Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system						✕ - ✓
More people may be encouraged to opt for active travel over the private car if they feel that roads are safe and accommodating for them. However, improvements in road safety are also likely to lead to a potential increase in car use.						
Strategy Objective 2: Facilitating greater physical activity						✓
More people may be encouraged to opt for active travel over the private car if they feel that roads are safe and accommodate for them.						

Option 2	Road safety schemes	
Strategy Objective 3: Widening public transport connectivity and access across the region		○
Road safety schemes do not directly widen public transport connectivity or access.		
Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region		✓✓✓
This option supports the safe and efficient movement of people via roads whether that is for people or for freight.		
Impact of COVID Related Behaviour Change Scenario		
As more people have been online shopping due to COVID-19, there is an increase in the number of LGVs on the roads. This coupled with a rise in active travel, increases the risk of potential road conflicts between these groups. Thus, this option would help to mitigate the impacts instigated by COVID-19.		
Rationale for Selection or Rejection		
This option meets the majority of the STAG criteria and therefore should be considered within the RTS.		

Option 3: Reduced speed limits

Option 3	Reducing speed limits					
Summary	Reducing speed limits can involve implementing 20 mph restrictions or zones and lowering speed limits on other roads. This can improve the safety of all road users, notably vulnerable road users such as cyclists and pedestrians.					
Type of Option	Capital		Revenue		Policy & Regulatory	✓
Focus	Region Wide		Network Measures	✓	Measures Targeted at Specific Groups	
Implementability	The implementability of this option would be the responsibility of the relevant roads authorities which is Transport Scotland for Trunk Roads and Local Authorities for local roads.					

Option 3	Reducing speed limits		
Public Acceptability	Implementing speed restrictions could face local opposition.		
STAG Criteria	Environment	✓	Restricting speed can ease congestion, thus they can have a positive impact on emissions due to vehicles making fewer sharp accelerations and decelerations. 20 mph zones can encourage active travel which would also help reduce emissions. Lower speeds also help to reduce noise from traffic. However, the impacts are likely to be minimal overall.
	Economy	✓	Reducing speeds can help ease congestion leading to increased journey time efficiency which is economically beneficial for people as they spend less time travelling and more time productively engaging in other activities.
	Integration	✓	This option involves is in line with policy integration to improve road safety. It is unlikely to have any impact on transport integration or transport and land-use integration.
	Accessibility & Social Inclusion	✓	This option can make vulnerable road users feel safer and 20 mph zones promote the uptake of active travel enabling people to access local services and amenities. It would not have a direct impact on public transport accessibility.
	Safety & Security	✓✓✓	Speed restrictions aim to enhance the safety of the road for all users, notably vulnerable road users.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✓
20 mph zones can encourage active travel in localised areas and lower speeds mean vehicles create less emissions.	
Strategy Objective 2: Facilitating greater physical activity	✓
20 mph zones can encourage active travel in localised areas.	
Strategy Objective 3: Widening public transport connectivity and access across the region	○
Speed restrictions do not directly widen public transport connectivity or access.	
Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✓
Reducing speed limits does support safe and efficient movement of people via active travel or in vehicles, including freight.	

Option 3	Reducing speed limits
Impact of COVID Related Behaviour Change Scenario	
An increase in car use and online shopping, thus more last mile logistics, implies that local roads will be busier increasing the potential risk of traffic collisions particularly given the increase in active travel as well. Therefore, this option could help to mitigate potential issues that have arisen from COVID-19. In addition, 20 mph zones would create a better environment for active travel, which has increased since the pandemic.	
Rationale for Selection or Rejection	
This option meets the majority of the STAG criteria and therefore should be considered within the RTS.	

Option 4: Traffic engineering-based speeding limiting solutions

Option 4	Traffic engineering-based speed limiting solutions					
Summary	Traffic engineering-based speed limiting solutions include the implementation of traffic calming measures, tactile pavements, dropped kerbs, increasing crossing point sight lines, prioritising pedestrianisation, and countdown indicators.					
Type of Option	Capital	✓	Revenue		Policy & Regulatory	
Focus	Region Wide		Network Measures	✓	Measures Targeted at Specific Groups	
Implementability	Constituent local authorities would be responsible for implementing engineering-based speed restrictions on the local road network.					
Public Acceptability	Implementing speed restrictions could face local opposition.					
STAG Criteria	Environment	✓	Restricting speed can ease congestion, thus they can have a positive impact on emissions due to vehicles making fewer sharp accelerations and decelerations. Enhanced safety can encourage active travel which would also help reduce emissions. Lower speeds also help to reduce noise from traffic. However, the impacts are likely to be minimal overall.			
	Economy	✓				

Option 4	Traffic engineering-based speed limiting solutions		
			Reducing speeds can help easing congestion leading to increased journey time efficiency which is economically beneficial for people as they spend less time travelling and more time productively engaging in other activities.
	Integration	✓	This option is in line with policy integration to improve road safety. It is unlikely to have any impact on transport integration or transport and land-use integration.
	Accessibility & Social Inclusion	✓	This option can make vulnerable road users feel safer and promotes the uptake of active travel enabling people to access local services and amenities. It would not have a direct impact on public transport accessibility.
	Safety & Security	✓✓✓	Speed restrictions aim to enhance the safety of the road for all users, notably vulnerable road users.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✓

Prioritising pedestrianisation and safety for vulnerable road users could encourage active travel in localised areas and lower speeds mean vehicles create less emissions.

Strategy Objective 2: Facilitating greater physical activity	✓

Prioritising pedestrianisation and safety for vulnerable road users could encourage active travel in localised areas.

Strategy Objective 3: Widening public transport connectivity and access across the region	○

Engineering-based speed restrictions do not directly widen public transport connectivity or access.

Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✓

Reducing speed limits via engineering-based interventions does support safe and efficient movement of people via active travel or in vehicles, including freight.

Impact of COVID Related Behaviour Change Scenario

An increase in car use and online shopping, thus more last mile logistics, implies that local roads will be busier increasing the potential risk of traffic collisions particularly given the increase in active travel as well. Therefore, this option could help to mitigate potential issues that have arisen from COVID-19. In addition, enhancing pedestrianisation and prioritising the safety of vulnerable road users would create a better environment for active travel, which has increased since the pandemic.

Rationale for Selection or Rejection

This option meets the majority of the STAG criteria and therefore should be considered within the RTS.

Option 47: Provide additional road capacity

Option 47	Provide additional road capacity				
Summary	Inefficient road networks can cause high levels of congestion leading to long queues and delays which can contribute to emissions and negatively impact on the environment as well as affecting the reliability and variability of journey times. By providing additional road capacity at usual congestion hotspots or new links to reduce journey distance and time, the road network may operate more efficiently. Additional measures may include junction upgrades or implementation of new or upgraded links.				
Type of Option	Capital	✓	Revenue		Policy & Regulatory	
Focus	Region Wide		Network Measures	✓	Measures Targeted at Specific Groups	
Implementability	Potential barriers include funding infrastructure improvements and a need to work in partnership with Transport Scotland local authorities to facilitate delivery as SEStran are not a roads authority and therefore do not have the legislative powers to implement such measures.					
Public Acceptability	This option could reduce journey time and stress when travelling via car, so it is likely to be supported by the public.					
STAG Criteria	Environment	✗✗✗	This option would facilitate people travelling via private car which may induce more road traffic further contributing to emissions at local and national scales, in addition to intensifying noise and vibrations from new and existing roads. There could also be visual amenity and landscape impacts from new infrastructure along with possible implications for biodiversity.		
	Economy	✓✓	By improving capacity issues on existing roads, people would experience reduced journey times allowing them more time to actively engage in other activities and to contribute productivity to the economy.		
	Integration	✗ - ✓	This option would have no direct impact on transport integration of infrastructure or services. It would have a positive impact on delivering NTS 2 policy related to inclusive economic growth but would have a negative impact on the policy goal of taking climate action.		

Option 47	Provide additional road capacity		
	Accessibility & Social Inclusion	✓	This option would have no impact on public transport accessibility and would primarily benefit people that have access to a private car. There would be little benefit to vulnerable groups that are typically more reliant on active travel or public transport.
	Safety & Security	✕ - ✓	By providing additional road capacity measures cars can travel on roads in a safer manner. However, these measures can also increase the amount of road traffic which has potential to cause more road incidents.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✕ ✕ ✕

This option facilitates more car travel; therefore, it would make a negative contribution to this objective.

Strategy Objective 2: Facilitating greater physical activity	◯

This option does not relate to the facilitation of greater physical activity.

Strategy Objective 3: Widening public transport connectivity and access across the region	◯

This option does not directly relate to public transport connectivity or access although additional road capacity may indirectly benefit public transport in some instances.

Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✕ - ✓

Providing additional road capacity does support the safe and efficient movement of people and freight across the region. However, this is not likely to be via sustainable transport modes as the majority is likely to be undertaken by private car.

Impact of COVID Related Behaviour Change Scenario

More people have been travelling via car as a result of the COVID-19 pandemic. If this behaviour trend continues in the longer-term this would support the implementation of additional road capacity.

Rationale for Selection or Rejection

Whilst this option does not meet some of the STAG criteria, particularly around the Environment, it is still recommended to be taken forward as targeted investment in additional road capacity is likely to be appropriate in some instances.

Option 59: Additional road capacity at congestion hotspots

Option 59	Additional road capacity at congestion hotspots					
Summary	Congestion on the road network contributes to emissions as vehicles are either moving slowly and / or leaving their engines running whilst they wait in queues. Also, constant accelerations and decelerations produce more emissions than if vehicles travelled at a slower but consistent speed. Congestion hotspots are typically identified at bottlenecks around main junctions which provide access to key urban centres such as Edinburgh. To combat this issue, there needs to be additional road capacity provided at some critical congestion hotspots to alleviate pressure on the network with the aim of reducing the negative impact of road traffic on the environment and improving journey times. Road capacity measures may include corridor improvements or junction upgrades i.e., more lanes, smart motorways, speed controls, enlarged or grade separated junctions, etc.					
Type of Option	Capital	✓	Revenue		Policy & Regulatory	
Focus	Region Wide		Network Measures	✓	Measures Targeted at Specific Groups	
Implementability	SEStran would need to work in partnership with local authorities and Transport Scotland as the roads authorities to implement road capacity measures. To add, road infrastructure and capacity upgrading works can be costly requiring funding to be allocated and prioritising of which hotspots would benefit most from upgrades.					
Public Acceptability	Implementing additional road capacity measures requires road works which could cause short-term disruption to people's journey time which may be the source of opposition. However, in general people are likely to be supportive of measures to improve the road network. There may be some opposition from people that believe investment in roads is unsustainable and that the funding would be better spent on more sustainable modes though.					
STAG Criteria	Environment	✕✕ - ✓	This option has polar environmental consequences. By making the road network more efficient there could be a reduction in emissions produced by road traffic. However, this increased efficiency can make road transport more attractive which can increase the number of road users and lead to more journeys being undertaken by car, having a negative impact on emissions, local air quality, noise, and vibration.			

Option 59	Additional road capacity at congestion hotspots		
			Overall, the negative environmental impacts of providing additional road capacity are likely to outweigh the positive ones.
	Economy	✓✓	This option would make the road network more efficient enabling people to experience reduced journey times leading to an economic benefit as this time can be used more productively.
	Integration	✕ - ✓	This option would have no direct impact on transport integration. It would make a positive contribution to the NTS 2 policy to deliver inclusive economic growth particularly the outcome related to being reliable, efficient and high quality. However, it would have a negative impact on the policy goal of taking climate action.
	Accessibility & Social Inclusion	✓	This option would improve access to essential services like education, employment, healthcare and retail for people that have access to a private vehicle. It would have no impact on public transport accessibility and is likely to be of limited benefit to vulnerable groups who often do not have access to a car.
	Safety & Security	✓	Existing congestion hotspots are caused by high numbers of vehicles on a specific part of the road network meaning there are more chances for road accidents to occur. By implementing measures to decrease congestion, there is scope that the risk of collisions is simultaneously reduced leading to an improvement in safety.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✕✕✕

This option facilitates road transport which is not sustainable and thus would make a negative contribution towards the achievement of this objective.

Strategy Objective 2: Facilitating greater physical activity	◯

Road capacity measures do not directly relate to physical activity although active travel measures should be incorporated into any designs.

Strategy Objective 3: Widening public transport connectivity and access across the region	✓

Public transport modes that use the road, i.e., buses, may benefit from this option as it aims to ease congestion which would improve access and journey times. However, the frequency and coverage of public transport services would be unaffected.

Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✕ - ✓

This option partially contributes towards delivering this objective as it does support the safe and efficient movement of people and freight. However, this is not via a sustainable mode of transport.

Option 59	Additional road capacity at congestion hotspots
Impact of COVID Related Behaviour Change Scenario	
More people have been using their cars as a result of the COVID-19 pandemic instead of public transport. To add, there has been a rise in the reliance on home delivery services for online shopping to access goods, hence a rise in freight movement. If these trends continue this implies that providing additional road capacity measures may be beneficial to cope with the increased demand being placed upon the road network. However, even taking into account a likely transition to electric vehicles and decarbonisation of the vehicle fleet it would still likely be inappropriate to return to a 'predict and provide' style of road building. A measured approach to provision of additional capacity would subsequently still be required despite potentially increased demand on the network.	
Rationale for Selection or Rejection	
Whilst this option has a number of negative impacts against the STAG criteria and Strategy Objectives it also makes some positive contributions as well. On this basis it should be taken forward for further consideration within the RTS.	

Option 60: Traffic management measures to improve network efficiency and planning for resilience (i.e., alternative routes)

Option 60	Traffic management measures to improve network efficiency and planning for resilience (alternative routes)					
Summary	In parts of the region, peak period car-based journey times can be variable and significantly slower than off peak travel. Improving the efficiency of the network is crucial to reduce journey times across the region. Implementing traffic management measures will ease the flow of traffic, reduce journey times and make them more reliable. Additionally, it is important that the transport network is resilient to the impacts of climate change and alternative routes are available in the event of adverse weather or accidents. In some instances, this may require provision of improved alternative routes to avoid excessively long diversions in the event of incidents.					
Type of Option	Capital	✓	Revenue		Policy & Regulatory	
Focus	Region Wide		Network Measures	✓	Measures Targeted at Specific Groups	

Option 60	Traffic management measures to improve network efficiency and planning for resilience (alternative routes)	
Implementability		SEStran would need to work in partnership with local authorities and Transport Scotland as the roads authorities to implement traffic management measures and to improve network resilience. There would also be a requirement for capital funding which would require coordination across delivery partners.
Public Acceptability		Measures to improve road network efficiency along with resilience to extreme weather events and incidents are likely to be widely supported by the public.
STAG Criteria	Environment	✕✕ - ✓	Improving the efficiency of the transport network will reduce congestion and stalled traffic, especially during the peak-hours. This will reduce emissions for car-based travel on the network. However, improving network efficiency and reducing journey times will encourage more people to travel by car which will have a negative impact on the environment. Overall, the negative environmental impacts are likely to outweigh the positive ones.
	Economy	✓✓✓	A more efficient transport network leads to more reliable and reduced journey times for both people and freight. This will deliver economic benefits by providing more time which can be spent more productively on other activities.
	Integration	✕ - ✓	Implementing traffic management measures to improve network efficiency is unlikely to have an impact on transport integration. The option would make a positive contribution to delivering the policy aspiration of NTS 2 to deliver inclusive economic growth but is largely inconsistent with the goal of taking climate action except for helping to achieve the outcome of adapting to the effects of climate change.
	Accessibility & Social Inclusion	✓ - ✓✓	Improved network efficiency increases access across the region, particularly for those that have access to a private car. Additionally, improved resilience means that people can travel even in events of adverse weather or when there has been an accident enabling them to continue to access essential services like healthcare, retail, education, and employment. However, this option would have minimal benefits for vulnerable groups such as the elderly, young, ethnic minorities, women and disabled who are less likely to have access to a private vehicle and are more likely to be dependent on public transport and active travel.
	Safety & Security	✕ - ✓✓	Enhanced network efficiency and resilience improves safety on the road network by reducing the likelihood of accidents occurring. Providing appropriate alternative routes during incidents, makes the network safer by ensuring traffic is not being diverted onto roads not suited to it and by reducing driver frustration which can lead to accidents. However, improved efficiency will encourage people to travel by car, increasing the number of vehicles on the road which in turn could lead to a greater

Option 60	Traffic management measures to improve network efficiency and planning for resilience (alternative routes)		
			number of accidents. Overall, the safety benefits are likely to outweigh the disbenefits though.
Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system			✕✕ - ✓
Traffic management measures to improve the efficiency of the road network will encourage more car travel which does not contribute to transitioning to a sustainable transport system. On the other hand, improved efficiency could reduce congestion and reduce emissions coming from vehicles sitting in traffic. Overall, the negative impacts are likely to outweigh the positive ones though.			
Strategy Objective 2: Facilitating greater physical activity			✕ - ◯
Traffic management measures will make it easier and quicker to travel by car. This may encourage more car travel for short, local journeys and discourage people from active travel trips.			
Strategy Objective 3: Widening public transport connectivity and access across the region			◯
Traffic management measures are unlikely to have an impact on widening public transport connectivity and access across the region.			
Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region			✕ - ✓✓
Traffic management measures will make the movement of people across the region more efficient. Additionally, improved resilience should improve the safety of those on the road network. However, reduced journey times as a result of improved efficiency will encourage people to travel by car. Increase car use does not support the sustainable movement of people across the region. However, this option would generally make a positive contribution towards delivering this objective.			
Impact of COVID Related Behaviour Change Scenario			
The COVID-19 pandemic has led to more people travelling by car at the expense of public transport. If this trend continues in the medium to long-term this could lead to more vehicles on the road network further increasing journey times. As such, there could be an even greater need for traffic management measures. However, with increased working from home, more flexible working and less commuting, peak hour travel has spread and will possibly not be as focused as previously. If car-based travel is more spread out across the day, there may be less of a need to improve network efficiency to cater for peak-time travel. Although the counterbalance to this is that with more car use and less demand for public transport the impact of reduced commuter demand may be offset by modal shift for those journeys which are taking place. Overall, this option is still likely to be required in a scenario where the travel behaviour change impacts of the pandemic become normalised.			
Rationale for Selection or Rejection			
Whilst this option has a number of negative impacts against the STAG criteria and Strategy Objectives it also makes some positive contributions as well. On this basis it should be taken forward for further consideration within the RTS.			

Option 66: Route action plans targeting safety concerns and areas where the lack of overtaking opportunities is a problem

Option 66	Route action plans targeting safety concerns and areas where the lack of overtaking opportunities is a problem				
Summary	Some roads may require a route action plan which focuses on improving safety if they are hotspots for road traffic incidents and / or collisions. These may be particularly appropriate on single carriageway rural roads which have limited opportunities for vehicles to overtake each other. The purpose of route action plans would be to identify measures required to improve safety rather than to increase capacity or reduce congestion. It is likely that they would focus upon the routes and locations where the majority of incidents are taking place to identify why they are occurring with the aim to set out actions along the route. These could be diverting some road traffic, putting measures in place to reduce speed, road widening, provision of passing places or climbing lanes, etc.				
Type of Option	Capital		Revenue		Policy & Regulatory	✓
Focus	Region Wide		Network Measures	✓	Measures Targeted at Specific Groups	
Implementability	The action plan development would require considerable collation and organisation of information whilst their implementation would be the responsibility of the relevant roads authority which would be Transport Scotland in the case of Trunk Roads and local authorities for the local road network. As such, partnership working would be required for the delivery of route action plans. Furthermore, there could be some issues in terms of the uncertainty of road transport due to the impacts of COVID-19 as it may be that demand has changed on some roads which may impact on the need for or priorities of route action plans.				
Public Acceptability	It is likely that the public would support this option although there may be some local opposition to particular interventions and also to disruption while upgrades are being implemented.				
STAG Criteria	Environment	◯	This option could make roads more efficient leading to less emissions. However, this could also induce more traffic onto the network negating the benefit and leading to net neutral impact.		
	Economy	✓ - ✓✓	The implementation of route action plans and provision of more overtaking opportunities would improve journey times on rural and single carriageway routes leading to positive economic impact.		

Option 66	Route action plans targeting safety concerns and areas where the lack of overtaking opportunities is a problem		
	Integration	✓ - ✓✓	This option would have no direct impact on transport integration. However, it would help to deliver the policy priorities set out in NTS 2 to deliver inclusive economic growth and improve our health and wellbeing.
	Accessibility & Social Inclusion	✓	There would be a minor benefit to the accessibility of services and amenities as well as inter and intra-regional connectivity arising from this option.
	Safety & Security	✓✓✓	This option aims to provide action plans specifically for routes with safety concerns to target any issues that are causing traffic incidents and / or collisions. As such, there would be a major positive impact upon safety.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	○
This option would not directly impact upon this objective.	

Strategy Objective 2: Facilitating greater physical activity	○
Route action plans do not relate to physical activity.	

Strategy Objective 3: Widening public transport connectivity and access across the region	○
This option does not directly relate to public transport access or connectivity.	

Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✓✓
Route action plans focus on roads with safety concerns and would therefore help to ensure the safe movement of people and freight across the region.	

Impact of COVID Related Behaviour Change Scenario
As a result of the impacts of the COVID-19 pandemic, there has been higher car use and freight movement thus there are more vehicles using the road network. This means there is potentially a higher risk of road incidents and / or collisions particularly on rural routes and single carriageways with limited overtaking opportunities. As such, this option may be even more pressing to implement due to the travel behaviour changes prompted by COVID-19.

Rationale for Selection or Rejection
This option makes a positive contribution to a number of the STAG criteria and strategy objectives. On this basis and given its potential to improve the safety for all road-users along certain routes, it should be considered within the RTS.

Option 67: Upgrading the standard of strategic internal and external road links

Option 67	Upgrading the standard of strategic internal and external road links				
Summary	Road-based travel on the regional road network can be slow, even when traffic volumes ae relatively low. Single carriageway strategic links, with limited overtaking opportunities, lead to increased journey times when travelling across the region and beyond. Elsewhere congestion at key junctions and across the strategic road network can lead to delays and unreliable journey times. Targeted upgrading of the standard of roads to resolve these key bottlenecks will lead to greater capacity, more reliable journey times and better linkages both within the region itself as well as to external markets as well.				
Type of Option	Capital	✓	Revenue		Policy & Regulatory
Focus	Region Wide		Network Measures	✓	Measures Targeted at Specific Groups
Implementability	Potential barriers include lack of legislative control as SEStran do not have the ability to make strategic road improvements and would rely on constituent local authorities and Transport Scotland as the relevant roads authorities to do so. Additionally, some of these strategic links cross boundaries and therefore would require coordination across bodies to deliver. Any large-scale road infrastructure projects will have a high capital cost and therefore there may be funding issues to overcome as well. Any projects of this scale would also require significant political will.				
Public Acceptability	Road infrastructure improvements are likely to cause diversions and delays on the road network which will increase journey times for the public during construction. However, overall people are likely to be supportive of schemes that increase capacity and reduce journey times on the road network. There may be some opposition from groups who view increased road capacity as incompatible with environmental concerns though.				
STAG Criteria	Environment	✗✗✗	Upgrading the standard of road links, encourages road-based travel, and could increase the number of vehicles on the road with a resultant increase in emissions. There will be additional environmental consequences of increasing number or vehicles, including noise pollution and increased vibrations, impacts on local air quality as well as possible biodiversity, visual amenity and landscape impacts in the locations where improvements are implemented.		
	Economy	✓✓✓	Any infrastructure improvement will improve the efficiency of the road network leading to reduced journey times and a positive economic impact.		

Option 67	Upgrading the standard of strategic internal and external road links		
	Integration	✕ - ✓	Upgrading the standard of road links is unlikely to have an impact on transport integration across the region. It could make a positive contribution to the NTS 2 priority to deliver inclusive economic growth but is likely to offset this by a negative impact against the priority to take climate action.
	Accessibility & Social Inclusion	○ - ✓	Improving strategic internal and external road links improves access across the region for car users. However, it is unlikely to have an impact on public transport network coverage unless new services are introduced due to increased capacity. There would also be little benefit to vulnerable groups on lower incomes like women, the elderly, the young, disabled and ethnic minorities who tend to be more reliant on public transport.
	Safety & Security	✓✓	Infrastructure improvements would improve the safety of the road network across the region and beyond. Providing more overtaking opportunities will reduce dangerous driving manoeuvres and resultant accidents.

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	✕✕✕

Upgrading the standard of strategic road links encourages car use and makes it easier and quicker to undertake car-based journeys. This does not help transition to a sustainable, post-carbon transport system leading to a negative impact against this objective.

Strategy Objective 2: Facilitating greater physical activity	○

Upgrading strategic road links is unlikely to have an impact on facilitating greater physical activity unless there are active travel measures implemented as part of the scheme.

Strategy Objective 3: Widening public transport connectivity and access across the region	○

Upgrading strategic road links is unlikely to have an impact on widening public transport connectivity and access unless new services are introduced as part of the upgrades.

Strategy Objective 4: Supporting safe, sustainable, and efficient movement of people and freight across the region	✕ - ✓

Upgrading the strategic road links will support the efficient movement of people and freight across the region, however, encouraging car-based travel is not sustainable movement of people.

Impact of COVID Related Behaviour Change Scenario

As a result of the COVID-19 pandemic, there may potentially be higher car use leading to more congestion and delays on the strategic road network. This increased demand could justify the need for upgrading the standard of strategic links at key locations. However, there has more local travel across the region and less commuting which could mean less pressure on the network at peak times leading to less requirement to invest in capacity to accommodate peak travel demand.

Option 67	Upgrading the standard of strategic internal and external road links
Rationale for Selection or Rejection	
Whilst this option makes a negative impact against a number of the STAG criteria and Strategy Objectives it can also be seen to make some positive contributions as well, particularly in relation to the economy and safety. On this basis it is recommended that it is taken forward to the RTS.	

5 Appraisal Summary and Option Selection / Rejection

5.1 Appraisal Summary

5.1.1 Table 5-1 summarises the scores of each option against the STAG criteria and the Strategy Objectives. Note that the other elements that have been appraised are not included as they are qualitative and are not in line with the format of the table. However, the overall selection or rejection decision of the option has also been set out.

Table 5-1: Summary of the Options Appraisal

Option Number	Environment	Economy	Integration	Accessibility and Social Inclusion	Safety and Security	ST1	ST2	ST3	ST4	Selection / Rejection
Active Travel										
6	✓	✓	✓✓✓	✓✓	✓✓	✓	✓✓✓	○	✓	✓
7	✓	✓	✓✓✓	✓✓	✓✓	✓	✓✓	✓	✓	✓
8	✓	○	✓	✓	✓	✓	✓	○	○ - ✓	✓
9	✓	✓	✓✓✓	✓✓	✓✓	✓	✓✓✓	○	○ - ✓	✓
10	✓	✓	✓	✓✓	✓✓✓	✓	✓✓	○	✓	✓
11	✓	✓	✓	✓	✓✓✓	✓	✓	○	✓	✓
Public Transport										
12	✓✓	✓	✓✓	✓✓	✓	✓✓	○	○ - ✓	✓✓	✓
13	✓	✓✓	✓✓	✓✓	✓	✓✓✓	✓	✓✓✓	✓✓	✓
15	○ - ✓	✓	✓	✓✓	✓✓	✓✓	○	○	✓✓	✓

Option Number	Environment	Economy	Integration	Accessibility and Social Inclusion	Safety and Security	ST1	ST2	ST3	ST4	Selection / Rejection
17	✗ - ✓	✓	○	✓✓✓	✓	✓	✗	✓✓✓	✓✓	✓
18	✗ - ✓✓	✓✓	✗✗✗	✗✗✗	✗	✗ - ✓	✓	✗✗✗	✗ - ✓	✗
19	✓✓	✓✓✓	✗✗ - ✓✓✓	✓	✓	✓✓	○	✓✓	✓✓✓	✓
21	✓✓	✓	✓	○	○	✓✓	○	○	✓✓	✓
23	✓✓	✓	✓✓✓	✓✓✓	✓	✓	○	✓✓✓	✓✓	✓
25	✓	✗ - ✓	○	✓	✗	✓	○	✓	✓	✓
26	✓	✗✗	✓	✓✓✓	○	✓	○	✓✓	✓	✓
27	✓	✗	✓	✓✓	○	✓✓	○	✓	✓	✓
28	✓	✓✓	✓✓✓	✓✓	○	✓	○	✓✓	✓✓	✓
29	✓	✓	✓✓✓	✓✓	○	✓	○	✓✓	✓✓	✓
31	✗ - ✓	✓	○	✓✓	✗	✓	○	✓	✓	✓
32	✓	✗ - ✓	○	✓✓	○	✓✓	○	✓	✓	✓
33	✓	✗ - ✓	✓✓	✓✓✓	✓	✓✓	○	✓✓✓	✓✓	✓
34	✓	○	✓	✓✓	○	✓	○	✓✓✓	✓	✓
35	✓	✗	✓✓	✓✓✓	✓✓	✓	○	✓✓	✓✓	✓
36	✓	○	✓✓	✓✓✓	✓✓✓	✓	✓	✓✓	✓✓	✓
37	✓	✓✓	✓✓✓	✓	○	✓✓	✓	✓	✓	✓

Option Number	Environment	Economy	Integration	Accessibility and Social Inclusion	Safety and Security	ST1	ST2	ST3	ST4	Selection / Rejection
38	✗ - ✓	◯	✓	✓✓✓	✓✓✓	◯	◯	✓✓	✓✓	✓
39	✓	◯	✓	✓✓	✓✓✓	✓✓	✓	✓	✓✓	✓
40	-	-	-	-	-	-	-	-	-	-
41	✓	✗ - ✓	✓✓✓	✓✓	✓	✓✓	✓✓	✓	✓	✓
43	✓	✗ - ✓	✓	✓✓✓	◯	✓✓	◯	✓✓ - ✓✓✓	✓✓	✓
61	✗✗ - ✓	✓✓	✗✗✗	✗✗✗	✓	✗✗ - ✓	◯	✗✗✗	✗ - ✓	✗
Multi-Modal										
1	✓✓	✓	✓✓✓	✓✓	✓✓	✓✓	✓✓✓	✓✓	✓	✓
5	-	-	-	-	-	-	-	-	-	✗
20	✓✓	✓✓	✓✓✓	✓✓✓	✓	✓✓	✓✓	✓	✓✓✓	✓
22	✗ - ✓	✓	✓✓	✓✓✓	✓	✓✓	◯	✓✓✓	✓	✓
24	✓	◯	✓✓✓	✗ - ✓✓	✓	✓✓	✓	✓✓	✓✓	✓
30	✗	✗ - ✓	✓	✓✓✓	✓	✗	◯	✓✓✓	✓	✓
51	✓✓	✓	✓✓✓	✓✓✓	✓✓	✓✓✓	✓✓	✓✓	✓✓	✓
Freight										
45	✓✓	✗ - ✓	✓✓✓	◯	✓	✓✓✓	◯	◯	✓✓	✓
46	✗ - ✓	✓✓	✓	◯	✗	✗	◯	✗	✓✓	✓

Option Number	Environment	Economy	Integration	Accessibility and Social Inclusion	Safety and Security	ST1	ST2	ST3	ST4	Selection / Rejection
48	✓	✓	✓✓✓	◯	✓	✓	◯	◯	✓✓	✓
49	✓✓	✗ - ✓	✓ - ✓✓	◯	✓	✓✓	◯	◯	✓✓	✓
50	✓✓	✓	✓✓✓	◯	✓	✓✓✓	◯	◯	✓✓	✓
52	✓ - ✓✓	✓	✓	◯	✓	✓ - ✓✓	◯	✗ - ◯	✗ - ✓✓	✓
53	✓ - ✓✓	✓	✓	◯	✓	✓ - ✓✓	◯	✓	✓✓	✓
54	✓ - ✓✓	✓✓	✓✓	◯	✓	✓ - ✓✓	◯	✗ - ◯	✗ - ✓✓	✓
55	✗✗✗	✓	✓✓	✓	✓✓✓	◯	◯	◯	✓✓	✓
57	✓✓✓	✗ - ✓✓	✓	◯	◯	✓✓✓	◯	◯	✓	✓
58	✗ - ✓	✓✓✓	✓✓	◯	✓	✗✗ - ✓	◯	◯	✓✓	✓
Car – Fleet Transition										
56	✓✓✓	✗ - ✓✓	✓	◯	◯	✓✓✓	◯	◯	✓	✓
68	✓✓	◯ - ✓	◯ - ✓	✓	◯	✓✓✓	◯	◯	✓	✓
69	✓✓	◯	◯	✓	◯	✓✓	◯	◯	✓	✗
70	✗ - ✓✓	◯	✓	✓✓	◯	✓✓✓	◯	◯	✓	✓
71	✓	◯	◯	◯ - ✓	◯	◯ - ✓✓	◯	◯	◯ - ✓	✓
Car – Parking and Demand Management										
14	✓✓✓	✓	✓	✗ - ✓	✓✓	✓✓✓	✓	◯ - ✓	✓✓	✓

Option Number	Environment	Economy	Integration	Accessibility and Social Inclusion	Safety and Security	ST1	ST2	ST3	ST4	Selection / Rejection
16	✓	◯	✓	✓	✓	◯	✓	✓	✓✓	✓
42	✓✓	✗ - ✓✓	✓	✗✗	✓	✓✓	◯ - ✓	◯	✓	✓
44	✗ - ✓	✗ - ✓	✓✓ - ✓✓✓	✓	◯	✗ - ✓	✗ - ◯	✓✓	✓	✓
62	✗✗ - ✗✗✗	✗ - ✓	✗	✓	◯	✗✗✗	✗	◯	✗✗	✗
63	✗✗✗	✓ - ✓✓	✗ - ◯	✓ - ✓✓	✓	✗✗✗	✗	◯	✗ - ✓	✗
64	✗✗	✗ - ✓	✗	✗ - ✓	✗	✗✗✗	✗	◯	✗✗	✗
65	-	-	-	-	-	-	-	-	-	-
Car – Road Network										
2	◯	✓	✓	✓	✓✓✓	✗ - ✓	✓	◯	✓✓✓	✓
3	✓	✓	✓	✓	✓✓✓	✓	✓	◯	✓	✓
4	✓	✓	✓	✓	✓✓✓	✓	✓	◯	✓	✓
47	✗✗✗	✓✓	✗ - ✓	✓	✗ - ✓	✗✗✗	◯	◯	✗ - ✓	✓
59	✗✗ - ✓	✓✓	✗ - ✓	✓	✓	✗✗✗	◯	✓	✗ - ✓	✓
60	✗✗ - ✓	✓✓✓	✗ - ✓	✓ - ✓✓	✗ - ✓✓	✗✗ - ✓	✗ - ◯	◯	✗ - ✓✓	✓
66	◯	✓ - ✓✓	✓ - ✓✓	✓	✓✓✓	◯	◯	◯	✓✓	✓
67	✗✗✗	✓✓✓	✗ - ✓	◯ - ✓	✓✓	✗✗✗	◯	◯	✗ - ✓	✓

5.2 Option Rejection

5.2.1 Following the completion of the appraisal process as set out in Chapter 4 and the associated option selection / rejection process it was determined that several options should be rejected from further consideration within the RTS at this stage. Table 5-2 sets out in detail the options that have been rejected and provides further justification for these decisions.

Table 5-2: Justification for Rejected Options

Option		Justification for Rejection
Public Transport		
18	Reduce the number of bus stops	In comparison to both the STAG and Strategy Objectives, this option performs negatively particularly in terms of integration and aiding social inclusion via widening the accessibility of public transport services. Reducing the number of places where people can access the bus network is highly counterproductive in terms of accessibility. Thus, it is recommended that it is not taken forward to the RTS for further consideration.
61	Rationalise bus services in key corridors	This option makes a significant negative contribution against several STAG criteria and Strategy Objectives, notably in relation to access to public transport services and integration. The impacts of this option are more likely to negatively impact minority groups and vulnerable users of the transport sector. Therefore, it is recommended that it is not taken forward for consideration in the RTS.
Multi-Modal		
5	Technical measures in relation to rail and air safety	Though instating technical measures to help improve the safety of rail and air transport, it is not feasible for this to be implemented by SEStran due to a lack of legislative and regulatory control over design and / or construction within the rail and aircraft sectors. This measure would also require significant technical knowledge and investment in which SEStran would have no influence over. Overall, this option should be rejected from further consideration within the RTS based on implementability grounds as it would be impractical to consider further.
Car – Fleet transition		
69	Electrical grid capacity measures	This option did not score negatively against the STAG criteria or the Strategy Objectives. However, many of them did not apply to this option given it is not directly transport related, and it has been deemed to be impractical to consider it further due to issues with implementability as a result. Potential barriers to implementability include a lack of legislative control as SEStran does not have any control over electrical grid capacity measures and would rely on national and regional policy.
Car – Parking and Demand Management		
62	Reducing parking charges	This option generally makes a negative contribution towards the STAG criteria and Strategy Objectives and therefore it is recommended that it is not taken forward to the RTS on this basis. The main issue is the potential negative impact it may have on the environment as reducing parking charges actively encourages people to drive instead of opting for active travel or public transport. In turn, this can increase congestion and emissions which may degrade the local air quality in town and city centres.

Option		Justification for Rejection
63	Increase general parking capacity (parking not associated with multi-modal travel and interchange, i.e., Park and Ride Sites)	Similarly to option 62, this option makes a negative impact against a number of the STAG criteria and Strategy Objectives particularly for the environment. Increasing parking capacity is likely to stimulate additional car trips and encourages car use over other more sustainable modes of transport. This increases congestion and subsequently emissions as well as contributing to local air quality problems. There may also be a detrimental impact on noise and vibrations in some locations. It is therefore recommended that it is not taken forward to the RTS on that basis.
64	Reduce parking regulation	This option has a negative impact on a number of the STAG criteria and Strategy Objectives. Justification for rejecting this option is similar to that outlined for options 62 and 63 whilst it could also lead to less efficient use of the parking capacity. Therefore, it is recommended that it is not taken forward to the RTS.

5.2.2   In addition, there are a number of options that are affected by uncertainty created by the travel behaviour changes since the onset of the COVID-19 pandemic. For many the impacts could be beneficial. This is particularly the case in relation to the active travel, freight and car-based options which have all seen demand increase due to the pandemic. However, the options which face the greatest potential negative impact from the travel behaviour changes generated by the pandemic are those related to public transport where there has been a substantial decline in demand. The long-term trends are currently unknown and, on this basis, whilst also considering the crucial social inclusion role that public transport plays, none of the public transport options have been rejected on these grounds. Nonetheless, the following options are retained for consideration within the RTS on the understanding that they will be impacted by the context of the potentially changing demand in the post-pandemic environment:

- Option 12: Bus priority measures

- Option 13: New public transport links and modes, including new railway lines, stations, and tram extensions

- Option 17: Provide more direct bus routes, at least part-day

- Option 19: High speed rail

- Option 25: Bigger buses / trains

- Option 31: Earlier and later services

- Option 32: Higher frequency services

- Option 33: DRT / Community transport

- Option 34: Semi-scheduled bus services

5.2.3 All of these options are predominantly demand led whilst the remaining public transport options can still be undertaken regardless of the scale of demand.

5.3 Option Selection and Recommended Options

5.3.1 By rejecting a total of 7 options through this Preliminary Options Appraisal process and combining 2 with other options a total of 62 options will be considered further within the RTS. A list of these options is set out below in Table 5-3.

Table 5-3: Selected Options from Preliminary Options Appraisal

Option	
Active Travel	
6	Cycling route / infrastructure implementation and improvements
7	Bike hire and access schemes
8	Promotional campaigns
9	Walking and wheeling route / infrastructure implementation and improvements
10	Traffic calming / pedestrianisation / walk to school initiatives
11	20 mph zones
Public Transport	
12	Bus priority measures
13	New public transport links and modes, including new railway lines, stations, and tram extensions
15	Enforcement of bus lane use
17	Provide more direct bus routes, at least part-day
19	High Speed Rail
21	Electrification of rail lines to help increase rail journey speeds.
23	Reduce the impact of interchange (i) cost: integrated ticketing to avoid double fare (ii) time: integrated timetabling to reduce wait times including intermodal (iii) comfort / access / hassle: improving shelter / facilities at key interchange points and integrated ticketing
25	Bigger buses / trains

Option		
26	Uniform low / fares	
27	Discounted / free fares targeted at specific groups in need	
28	Daily fare capping across operators	
29	Integrated ticketing to reduce 2-fares trips	
31	Earlier and later services	
32	Higher frequency services	
33	DRT / Community Transport	
34	Semi scheduled bus services	
35	Step free access to vehicles	
36	Improved access to / from bus / train / tram e.g., step free access at stations, stops, etc.	
37	Journey planning e.g., Traveline, etc	
38	Escorting / chaperoning for vulnerable users	
39	Improved security / lighting etc. (i) in vehicle (ii) at stop / station / interchange	
41	Provision of bike-buses	
43	Fares and frequency changes to balance demand	
Multi-Modal		
1	Land use planning measures around new development and urban form e.g., 20-minute neighbourhoods, Transit Oriented Development, public transport services and infrastructure	
20	Shared mobility – including to tackle forced car ownership	
22	Eliminate the need for interchange by providing more direct services to key regional travel generators	
24	MaaS	
30	Taxi Card for discounted taxi fares	
51	New or improved intermodal facilities (e.g., Mobility Hubs)	

Option	
Freight	
45	Measures to encourage mode shift from road to rail freight
46	Combined bus / commercial vehicle lanes
48	Freight consolidation centres
49	Public subsidy for rail freight
50	Innovative approaches to rail train forming
52	Additional freight paths on the rail network
53	Enabling rail infrastructure works e.g., gauge
54	Additional rail freight services to serve new origin destination pairs
55	Provide new secure freight rest facilities at key locations on the road network
57	Working with the tech sector to fund new fuel pilots, etc.
58	Public subsidy for new ferry services e.g., from Rosyth
Car – Fleet Transition	
56	Public investment or partnership in alternative fuels e.g., synthetic fuels and hydrogen
68	Provision of charging infrastructure (many options) e.g., market led or public responsibility
70	Local grants and incentives for purchasing EVs – winding down from central government
71	Do nothing and wait for market to make EVs more affordable
Car – Parking and Demand Management	
14	Measures to reduce car use – Congestion Charging, Road User Charging / parking policies (inc charging by energy / emissions) / WPL / LEZ, digital connectivity measures, land use planning measures
16	Enforcement of parking regulations
42	Parking charges to discourage short car trips
44	Provision of additional parking capacity on site or at new location including Park & Ride

Option	
Car – Road Network	
2	Road safety schemes
3	Reduced speed limits
4	Traffic engineering-based speeding limiting solutions
47	Provide additional road capacity
59	Additional road capacity at congestion hotspots
60	Traffic management measures to improve network efficiency and planning for resilience (i.e., alternative routes)
66	Route action plans targeting safety concerns and areas where the lack of overtaking opportunities is a problem
67	Upgrading the standard of strategic internal and external road links

Next Steps

SEStran Regional Transport Strategy

STAG Preliminary Options Appraisal

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6 Next Steps

6.1 Developing a Draft RTS

6.1.1 The next stage of the RTS development involves taking the options that have been selected through the Preliminary Options Appraisal process and using them as the foundation for the creation of a draft RTS. This has been done by defining a set of 'Regional Mobility Themes'.

6.2 Regional Mobility Themes

6.2.1 The options which have been demonstrated to contribute to the strategy objectives and the STAG criteria have therefore been collated into a number of 'Regional Mobility Themes' which are proposed to form the basis for the RTS. The proposed regional mobility themes are as follows:

- 1. Shaping development and place

- 2. Delivering safe active travel

- 3. Enhancing access to public transport

- 4. Enhancing and extending the bus service

- 5. Enhancing and extending the train service

- 6. Reallocation of road-space on the regional network

- 7. Improving integration between modes

- 8. Decarbonising the fleet

- 9. Facilitating efficient passenger travel and freight movement

- 10. Working towards zero road deaths and serious injuries

- 11. Reducing car kilometres

- 12. Responding to the post-Covid world

6.2.2   Table 6.1 below maps out the main relationships between the options taken forward from the appraisal and the proposed regional mobility themes. 'Responding to the post Covid world' has been ticked against all options as relevance of these options to the post Covid world will have to be assessed as post-Covid travel patterns reach a new equilibrium.

Table 6.1: Mapping of Options to Regional Mobility Themes

Option		Shaping develop-ment and place	Delivering safe active travel	Enhancing access to public transport	Enhancing and extending the bus service	Enhancing and extending the train service	Re-allocation of roadspace on the regional network	Improving integration between modes	Decarbonising the fleet	Facilitating efficient passenger travel and freight movement	Working towards zero road deaths and serious injuries	Reducing car-km	*Respond-ing to the post Covid world*
Active Travel													
6	Cycling route / infrastructure implementation and improvements	✔	✔				✔						✔
7	Bike hire and access schemes		✔										✔
8	Promotional campaigns		✔										✔
9	Walking and wheeling route / infrastructure implementation and improvements		✔										✔
10	Traffic calming / pedestrianisation / walk to school initiatives		✔										✔
11	20 mph zones		✔										✔
Public Transport													
12	Bus priority measures				✔		✔						✔
13	New public transport links and modes, including new railway lines, stations, and tram extensions			✔		✔							✔
15	Enforcement of bus lane use				✔								✔

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	Option		Regional Mobility Themes											
			Shaping develop-ment and place	Delivering safe active travel	Enhancing access to public transport	Enhancing and extending the bus service	Enhancing and extending the train service	Re-allocation of roadspace on the regional network	Improving integration between modes	Decarbonising the fleet	Facilitating efficient passenger travel and freight movement	Working towards zero road deaths and serious injuries	Reducing car-km	*Respond-ing to the post Covid world*
17	Provide more direct bus routes, at least part-day				✓	✓								✓
19	High Speed Rail						✓							✓
21	Electrification of rail lines to help increase rail journey speeds.						✓							✓
23	Reduce the impact of interchange: cost, time, comfort / access / hassle								✓					✓
25	Bigger buses / trains						✓	✓						✓
26	Uniform low / fares					✓								✓
27	Discounted / free fares targeted at specific groups in need					✓								✓
28	Daily fare capping across operators					✓								✓
29	Integrated ticketing to reduce 2-fares trips					✓								✓
31	Earlier and later services					✓	✓	✓						✓
32	Higher frequency services						✓	✓						✓
33	DRT / Community Transport					✓	✓							✓
34	Semi scheduled bus services					✓	✓							✓
35	Step free access to vehicles					✓								✓

	Option	Regional Mobility Themes											
		Shaping develop-ment and place	Delivering safe active travel	Enhancing access to public transport	Enhancing and extending the bus service	Enhancing and extending the train service	Re-allocation of roadspace on the regional network	Improving integration between modes	Decarbonising the fleet	Facilitating efficient passenger travel and freight movement	Working towards zero road deaths and serious injuries	Reducing car-km	*Respond-ing to the post Covid world*
36	Improved access to / from bus / train / tram e.g., step free access at stations, stops, etc.			✓									✓
37	Journey planning e.g., Traveline, etc			✓									✓
38	Escorting / chaperoning for vulnerable users			✓									✓
39	Improved security / lighting etc. (i) in vehicle (ii) at stop / station / interchange			✓									✓
41	Provision of bike-buses			✓				✓					✓
43	Fares and frequency changes to balance demand			✓	✓	✓							✓
Multi-Modal													
1	Land use planning measures around new development and urban form e.g., 20-minute neighbourhoods, Transit Oriented Development, public transport services and infrastructure						✓						✓
20	Shared mobility – including to tackle forced car ownership			✓		✓							✓
22	Eliminate the need for interchange by providing				✓								✓

Option		Shaping develop-ment and place	Delivering safe active travel	Enhancing access to public transport	Enhancing and extending the bus service	Enhancing and extending the train service	Re-allocation of roadspace on the regional network	Improving integration between modes	Decarbonising the fleet	Facilitating efficient passenger travel and freight movement	Working towards zero road deaths and serious injuries	Reducing car-km	*Responding to the post Covid world*
	more direct services to key regional travel generators												
24	MaaS			✓	✓								✓
30	Taxi Card for discounted taxi fares					✓							✓
51	New or improved intermodal facilities (e.g., Mobility Hubs)					✓							✓
Freight													
45	Measures to encourage mode shift from road to rail freight									✓			✓
46	Combined bus / commercial vehicle lanes						✓			✓			✓
48	Freight consolidation centres									✓			✓
49	Public subsidy for rail freight									✓			✓
50	Innovative approaches to rail train forming					✓							✓
52	Additional freight paths on the rail network					✓				✓			✓
53	Enabling rail infrastructure works e.g., gauge												✓
54	Additional rail freight services to serve new origin destination pairs					✓				✓			✓

Option		Shaping develop-ment and place	Delivering safe active travel	Enhancing access to public transport	Enhancing and extending the bus service	Enhancing and extending the train service	Re-allocation of roadspace on the regional network	Improving integration between modes	Decarbonising the fleet	Facilitating efficient passenger travel and freight movement	Working towards zero road deaths and serious injuries	Reducing car-km	*Respond-ing to the post Covid world*
							Regional Mobility Themes						
55	Provide new secure freight rest facilities at key locations on the road network									✓			✓
57	Working with the tech sector to fund new fuel pilots, etc.												✓
58	Public subsidy for new ferry services e.g., from Rosyth												✓
Car – Fleet Transition													
56	Public investment or partnership in alternative fuels e.g., synthetic fuels and hydrogen								✓				✓
68	Provision of charging infrastructure (many options) e.g., market led or public responsibility								✓				✓
70	Local grants and incentives for purchasing EVs – winding down from central government								✓				✓
71	Do nothing and wait for market to make EVs more affordable								✓				✓
Car – Parking and Demand Management													
14	Measures to reduce car use – Congestion Charging, Road User Charging / parking policies (inc											✓	✓

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	Option	Regional Mobility Themes											
		Shaping develop-ment and place	Delivering safe active travel	Enhancing access to public transport	Enhancing and extending the bus service	Enhancing and extending the train service	Re-allocation of roadspace on the regional network	Improving integration between modes	Decarbonising the fleet	Facilitating efficient passenger travel and freight movement	Working towards zero road deaths and serious injuries	Reducing car-km	*Respond-ing to the post Covid world*
	charging by energy / emissions) / WPL / LEZ, digital connectivity measures, land use planning measures												
16	Enforcement of parking regulations											✓	✓
42	Parking charges to discourage short car trips											✓	✓
44	Provision of additional parking capacity on site or at new location including Park & Ride											✓	✓
Car – Road Network													
2	Road safety schemes												✓
3	Reduced speed limits										✓		✓
4	Traffic engineering-based speeding limiting solutions										✓		✓
47	Provide additional road capacity										✓		✓
59	Additional road capacity at congestion hotspots									✓			✓
60	Traffic management measures to improve network efficiency and planning for resilience (i.e., alternative routes)									✓			✓

		Regional Mobility Themes											
	Option	Shaping develop-ment and place	Delivering safe active travel	Enhancing access to public transport	Enhancing and extending the bus service	Enhancing and extending the train service	Re-allocation of roadspace on the regional network	Improving integration between modes	Decarbonising the fleet	Facilitating efficient passenger travel and freight movement	Working towards zero road deaths and serious injuries	Reducing car-km	*Respond-ing to the post Covid world*
66	Route action plans targeting safety concerns and areas where the lack of overtaking opportunities is a problem									✓			✓
67	Upgrading the standard of strategic internal and external road links									✓			✓

6.2.3   Finally, and as cross-check, each of these regional mobility themes are mapped back to the Strategy Objectives in the table below.

Table 6.2: Mapping of Regional Mobility Themes to Strategy Objectives

Regional Mobility Themes	Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system	Strategy Objective 2: Facilitating greater physical activity	Strategy Objective 3: Widening public transport connectivity and access across the region	Strategy Objective 4: Supporting safe, sustainable and efficient movement of people and freight across the region
Shaping development and place	✓	✓		✓
Delivering safe active travel	✓	✓		
Enhancing access to public transport	✓		✓	✓
Enhancing and extending the bus service	✓		✓	✓
Enhancing and extending the train service	✓		✓	✓
Re-allocation of road-space on the regional network	✓	✓	✓	
Improving integration between modes	✓		✓	✓
Decarbonising the fleet	✓			
Facilitating efficient passenger travel and freight movement			✓	✓
Working towards zero roads deaths and serious injuries				✓
Reducing car-km	✓			✓
Responding to the post Covid world	✓	✓	✓	✓

6.2.4   The substantial content of the RTS will be based around these Regional Mobility Themes and narrative, policies and actions will be developed in each case.

6.2.5   In addition, the Strategy Objectives have also been developed to incorporate a set of outcomes that are closely linked to those identified through the National Transport Strategy 2. These are shown in Table 6.3.

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Table 6.3: Strategy Objectives and Outcomes

Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system
• Climate Change and Net Zero • Air Quality Transformed • Equitable Access to Transport
Strategy Objective 2: Facilitating greater physical activity
• Increased Wellbeing • Improved Health • Transformed Neighbourhoods
Strategy Objective 3: Widening public transport connectivity and access across the region
• Greater Equality of Opportunity • Travel Barriers Removed • Reduced Social Isolation
Strategy Objective 4: Supporting safe, sustainable and efficient movement of people and freight across the region
• Reduced Road Casualties • Inclusive Economic Growth • Improved Regional Competitiveness

6.3   Spatial Context

6.3.1   A purpose of the RTS is to establish the need for regional interventions based on the range of problems and issues identified. Whilst a transport strategy does not tend to set out detailed interventions (subject as they would be to individual STAG-based appraisals), it is helpful to set the Regional

Mobility Themes where appropriate within a broad spatial context. To this end, a set of regional 'corridors' has been established based on an analysis of regional travel patterns.

6.3.2   The 2011 Census's travel to work data still provides the most detailed data set with respect to travel patterns in the SEStran region. This data has been used as follows.

- To provide a regional focus, only cross-local authority boundary flows have been incorporated including to / from local authorities outside SEStran

- Each local authority had been divided into a number of sectors (shown in Figure 6.1 below).

- Travel volumes by mode for each resulting origin-destination movement have been identified – e.g., Midlothian West to Fife Mid. There are:

  o   374 internal SEStran OD pairs

  o   630 external Local Authority - SEStran and SEStran – external Local Authority Origin-Destination pairs (only meaningful external local authorities have been included)

- For each origin-destination, a defined sequence of broad 'corridors' which would be used to make this movement has been specified – these corridors are as follows:

  o   A1 - Edinburgh to Scotland / England Border

  o   A7 Local linking east Midlothian to the A720 and Edinburgh

  o   Midlothian west linking west Midlothian (and Borders west) to Edinburgh and the A720

  o   A703 connecting Borders west

  o   A72 west (external)

  o   Edinburgh Orbital

  o   A7-A68

  o   West Lothian north-south

- o A91 (external)

- o East Fife

- o Fife central

- o West Fife / Clacks

- o M8

- o M80 (external)

- o M876

- o M9

- o Queensferry

- o Tay Bridge (external)

- o Kincardine

- All of the multi-modal origin-destination movements which would use each corridor are summed to provide a total travel volume plus travel volume by mode and hence mode share by corridor. The corridor names are indicative and do not imply that all demand is road based.

6.3.3   This analysis has been repeated using internal-SEStran mobile phone data provided by Transport Scotland. Whilst not comprehensive, this data does provide an indication of the relative travel volumes by mode and the data also distinguishes non-work from commuting trips

6.3.4   The corridors defined here can be used as the basis for providing an early indication of spatial priorities associated with the RTS Regional Mobility Themes.
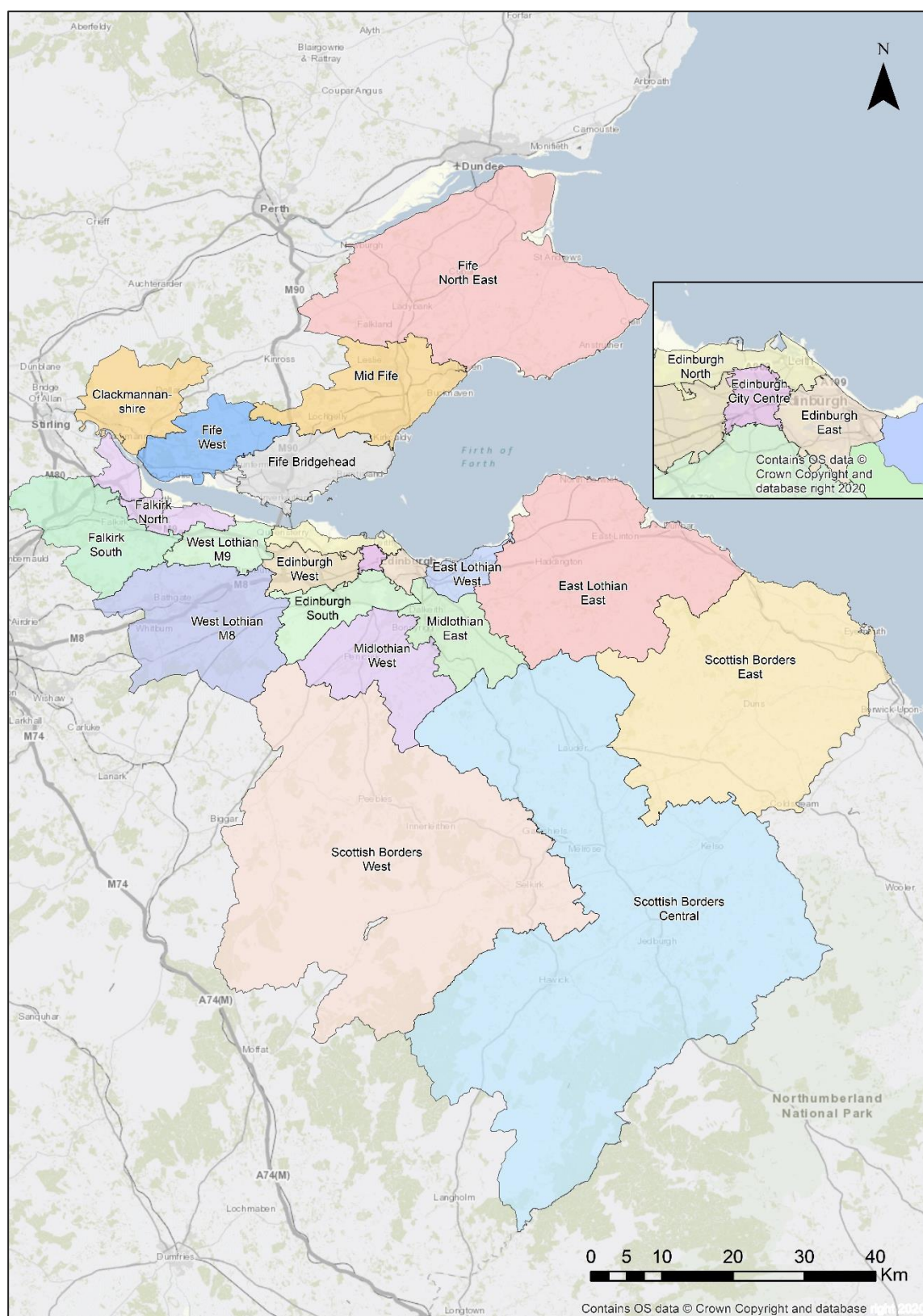
Figure 6-1: SEStran Area Geographical Sectors