Clydesdale STAG Part 1 Appraisal

South Lanarkshire Council

Project number: 60594370

24 September 2019

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Quality information

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Revision History

Revision	Revision date	Details	Authorized	Name	Position
Rev2	24th September 2019	Final comments from client and Transport Scotland	24th September 2019	Deborah Paton	Associate Director

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Executive Summary

Executive Summary

Overview

AECOM has been commissioned by South Lanarkshire Council (hereafter SLC) to undertake a Part 1 / Preliminary Options transport appraisal to define and assess the options for improving transport across the Clydesdale area of South Lanarkshire.

This work has been undertaken in line with published Scottish Transport Appraisal Guidance (STAG) Part 1 and builds upon the work undertaken as part of the 'Clydesdale Transport Study STAG Pre-Appraisal' undertaken by Peter Brett Associates (PBA) in 2017[1]. The Pre-Appraisal study generated and assessed a suite of options designed to address problems and opportunities identified within the Clydesdale study area.

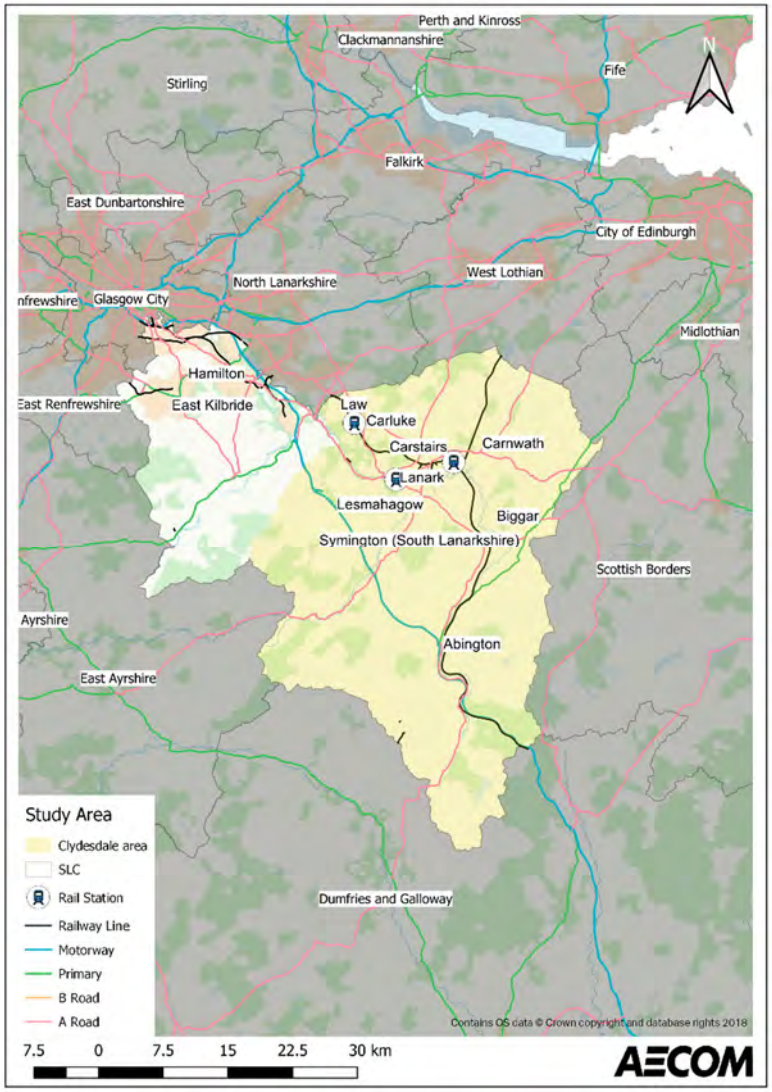
This study reaffirms the principal problems, issues, opportunities and constraints associated with the Clydesdale area identified at the Pre-Appraisal stage. These have been further validated through engagement with stakeholders and data analysis.

Building on the updated evidence base, the study considers a series of options and packages which have been appraised against the five STAG Criteria, Implementability Criteria and Transport Planning Objectives (TPOs) for the study. A shortlist of improvement options are presented for more detailed assessment as part of future STAG Part 2 / Detailed Options appraisal.

This study has been funded by external funding partners.

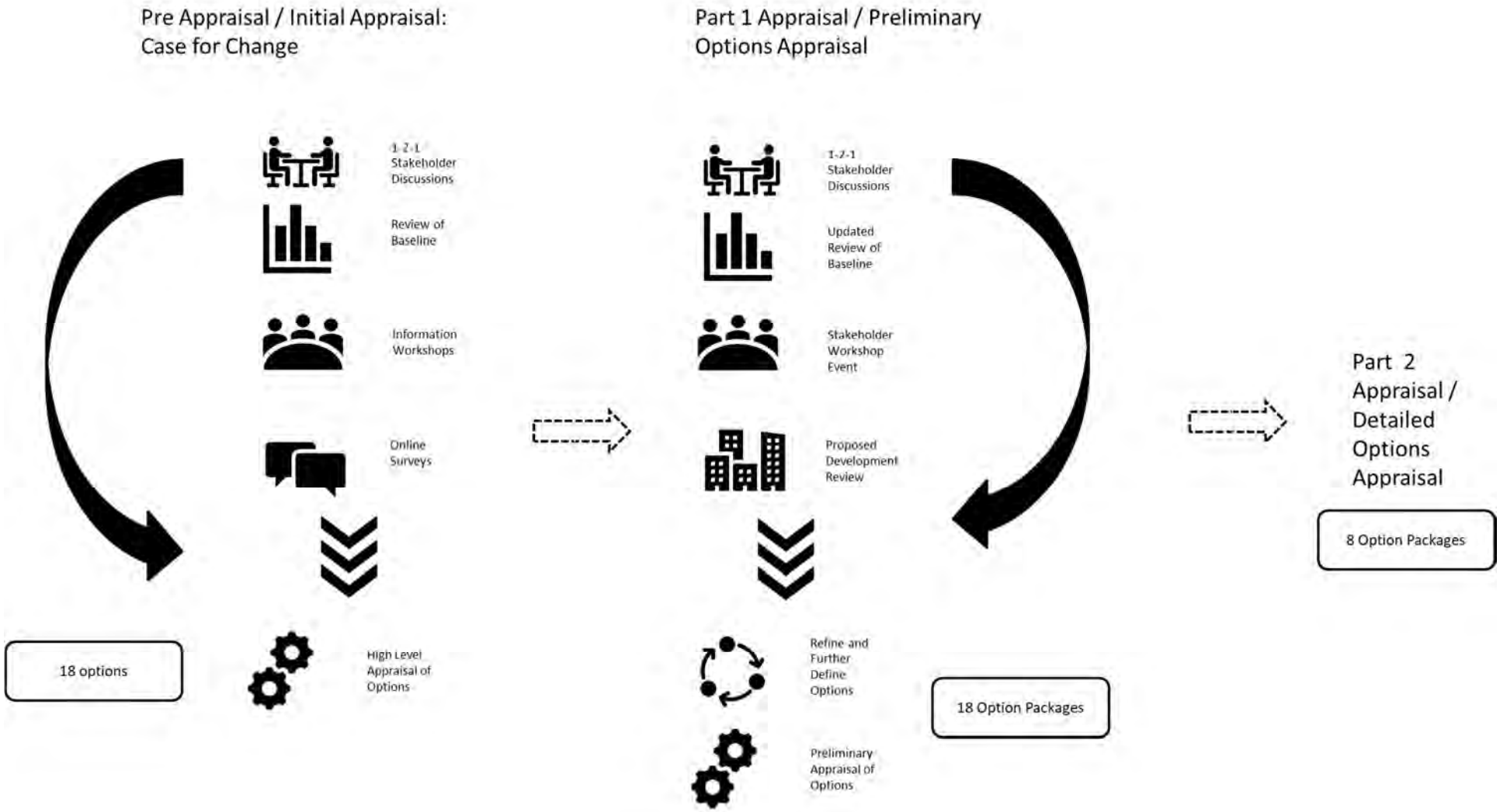
Clydesdale Study Area

Clydesdale is an historical county region which is wholly located within South Lanarkshire. It is comprised of the Clydesdale East, Clydesdale West, Clydesdale North and Clydesdale South wards of SLC. Though geographically large, the study area is predominantly rural in nature, with the largest population centres located in the north of the study area.



[1] STAG Guidance, January 2019, https://www.transport.gov.scot/our-approach/industry-guidance/scottish-transport-analysis-guide-scot-tag/#42948

Study Process



Option Appraisal

Options/Option Packages	Do-Minimum	1. Rail Services: Carluke-Carstairs-Edinburgh	2. Rail Services: Lanark-Edinburgh	3. Rail Services: Motherwell	4. Rail Stations: Law	5. Rail Stations: Symington	6. Bus Service Improvements: Law-Carluke shuttle	7. Bus Service Improvements: Carluke Cross route extension	8. Bus Service Improvements: Lanark Interchange	9. Bus Service Improvements: Biggar-Symington-Lanark	10. Bus Service Improvements: Law	11. Bus Service Improvements: Carstairs-Lanark-New Lanark	12. Bus Service Improvements: Vehicle Quality	13. Bus Service Improvements: M74 Bus Hubs	14. Bus Service Improvements: Demand Responsive Transport	15. Active Travel Infrastructure	16. Park & Ride: Lanark	17. Park & Ride: Carstairs	18. Behaviour Change
Appraisal Criteria																			
Transport Planning Objectives																			
1. Increase the mode share of sustainable transport in Clydesdale for all journey purposes particularly access to employment, education and healthcare	--	+2	+2	+1	+2	+3	+1	+1	+2	+1	+2	+1	+1	+1	+2	+1	+2	+2	+2
2. Increase transport integration between rail, bus, walking and cycling within Clydesdale	--	0	0	+2	+1	+1	+2	+1	+2	+1	0	+2	0	+2	0	+1	+2	+2	0
3. Increase public transport accessibility of Clydesdale for people within and outwith the area	--	+1	+2	+1	+2	+3	+2	+1	+2	+1	+2	+1	0	+2	+2	+1	+2	+2	0
4. Increase accessibility of Clydesdale's attractions for people within and outwith the area	--	+1	+2	+1	+1	+3	+1	0	+1	+1	+1	+2	0	+1	+1	+1	+1	+1	0
STAG Criteria																			
Environment	--	+2	+2	0	+1	+2	+2	+1	+2	+1	+2	+2	+2	+1	+2	+2	+2	+2	+1
Safety	--	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1
Economy	--	0	+1	0	-1	-1	+1	+1	+1	+1	0	+2	0	+1	+1	+1	+2	+2	+1
Integration	--	+1	+1	+1	+2	+2	+3	+2	+3	+3	+1	+2	+1	+3	+2	+1	+3	+2	+1
Accessibility & Social Inclusion	--	+1	+2	+1	+2	+2	+1	+1	+2	+2	+2	+2	+1	+2	+2	+2	+2	+2	+1
Affordability																			
Affordability	--	Medium to high cost	Medium to high cost	Low Cost	Medium to high cost	Medium to high cost	Medium Cost	Medium Cost	Medium Cost	Medium Cost	Medium Cost	Medium Cost	Medium to high cost	Low to Medium Cost	Low to High Cost	Medium Cost	Low to Medium Cost	Low Cost	Low Cost

Summary and Next Steps

STAG Part 2 / Detailed Options Appraisal will most likely be required should SLC wish to further assess any option as a result of this Part 1 Appraisal. Typically a Part 2 Appraisal provides a greater level of detail on selected options, to enable a more quantified assessment of their impacts to be undertaken. In particular, the operational impacts of options (e.g. on traffic flows, journeys times, rail demand and timetabling), and impacts on other users of transport networks would be explored, alongside a quantified assessment of the costs and benefits of options.

In terms of the options which have emerged from this study, there are a number which could benefit from a detailed Part 2 Appraisal. Some of these options will carry a more significant cost than others, may have impacts on the operation of road and rail networks, and may not be compatible with each other due to the scale of the interventions and / or the markets they serve. The options set out in the table below represent those recommended for Part 2 Appraisal.

Recommended for Progression to Part 2	Name	Part 1 Options Included
1	Public Transport Links to Edinburgh from Clydesdale	1,2
2	Rail Stations: Law	4
3	Rail Stations: Symington	5
4	Bus Service Improvements	6,7,9,10,11,13
5	Lanark Interchange Improvements	8,16
6	Demand Responsive Transport	14
7	Active Travel Infrastructure	15
8	Carstairs Park & Ride	17

Introduction

01

1. Introduction

Overview

AECOM has been commissioned by South Lanarkshire Council (hereafter SLC) to undertake a transport appraisal to define and assess the options for improving transport across the Clydesdale area of South Lanarkshire.

This work has been undertaken in line with published Scottish Transport Appraisal Guidance (STAG) Part 1[2] and builds upon the work undertaken as part of the 'Clydesdale Transport Study STAG Pre-Appraisal' undertaken by Peter Brett Associates (PBA) in 2017. The Pre-Appraisal study generated and assessed a suite of options designed to address problems and opportunities identified within the Clydesdale study area.

This study reaffirms the principal problems, issues, opportunities and constraints associated with the Clydesdale area identified at the Pre-Appraisal stage. These have been further validated through engagement with stakeholders and additional data analysis and information gathering.

Building on the updated evidence base, the study considers a series of options and packages which have been appraised against the five STAG Criteria, Implementability Criteria and Transport Planning Objectives (TPOs) for the study and sets out a shortlist of improvement options for more detailed assessment as part of future STAG Part 2 appraisal.

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The Clydesdale Study Area

Clydesdale is a historical county region which is wholly located within South Lanarkshire. It is comprised of the Clydesdale East, Clydesdale West, Clydesdale North and Clydesdale South wards of SLC. Though geographically large, the study area is predominantly rural in nature, with the largest population centres located in the north of the study area.

[2] STAG Guidance, January 2019, https://www.transport.gov.scot/our-approach/industry-guidance/scottish-transport-analysis-guide-scot-tag/#42948. It should also be noted the terms for STAG stages used in the Local Rail Development Fund process from Transport Scotland are used throughout this document also: https://www.transport.gov.scot/public-transport/rail/rail-policy-and-strategy/local-rail-development-fund/

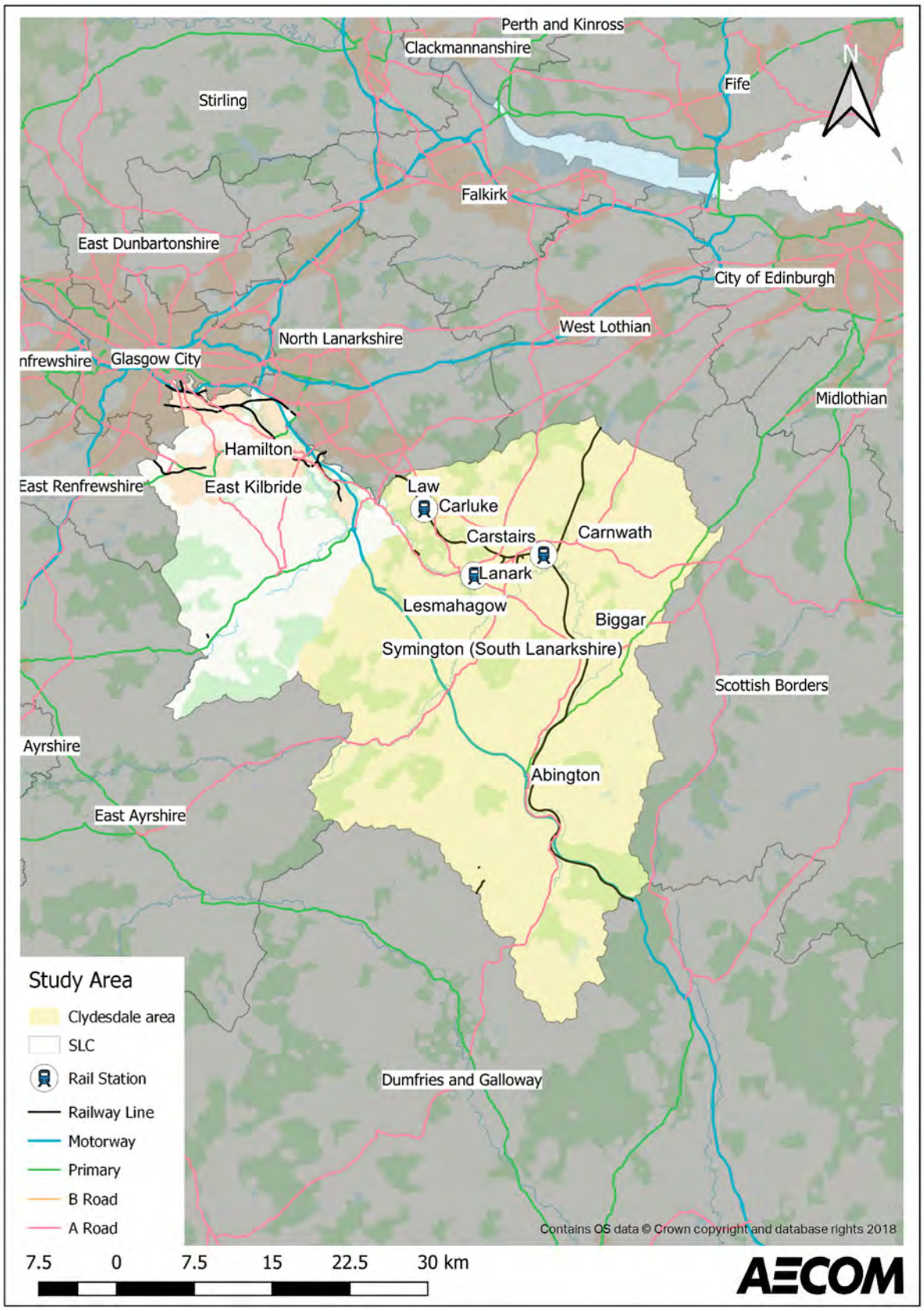

Figure 1-1: Study Area

Structure of Report

The remainder of this report is structured as follows:

- Chapter 2 – Background
- Chapter 3 – Problems & Opportunities Review
- Chapter 4 – Engagement
- Chapter 5 – Option Refinement and Packaging
- Chapter 6 – Option Appraisal against STAG criteria
- Chapter 7 – Options Deliverability Appraisal
- Chapter 8 – Summary and Next Steps

This report is also supported by a number of appendices:

- Appendix A.1 – Appraisal Summary Tables (ASTs)
- Appendix A.2 – Policy Assessment Diagrams
- Appendix A.3 – Pre-Appraisal Report
- Appendix A.4 – Review of Pre-Appraisal / Case for Change
- Appendix A.5 – Clydesdale Bus Services
- Appendix A.6 – Clydesdale Rail Services
- Appendix A.7 – Stakeholder Workshop Note
- Appendix A.8 – Annual Average Daily Flow (AADF)
- Appendix A.9 – Accident Data

Background

02

2. Background

Introduction

This chapter sets the context for the study by summarising information contained within the Pre-Appraisal report. Where available, updates utilising more recent data and information have been made. This section also outlines findings from the Pre-Appraisal report and how this information has been used to inform the development of this STAG Part 1 report.

Summary of the Pre-Appraisal Study

The Pre-Appraisal study completed in 2017, provides a large quantity of information which continues to be relevant in the context of this STAG Part 1 appraisal. A summary of findings from the Pre-Appraisal stage is outlined below:

- The area is performing well against local (and often national) comparators in terms of average incomes, educational attainment levels, claimant rates, house prices and deprivation, suggesting an overall reasonably affluent area, despite including large rural areas and pockets of deprivation;
- New Lanark is a World Heritage Site and major tourist location, the area could/should play an important role in the region and the local economy however transport links to the site are less than ideal;
- There are direct rail services from Clydesdales three rail hubs to Glasgow Central, and a small number of services each day from Carluke and Carstairs to Edinburgh;
- Direct bus services to Glasgow are available from the larger towns within Clydesdale but most of the remaining towns and villages require bus interchange to access Glasgow. From these areas, public transport access to key employment centres is relatively low due to longer travel times;
- Public perspectives gathered suggested the biggest transport problem faced was limited travel mode choice in the area with long bus journey times and low bus service frequencies, lack of rail options and a lack of bus/rail integration. These were all raised as issues restricting access to healthcare, employment opportunities, education services and retail/shopping opportunities; and
- There was a public desire for new rail stations at Law and Symington over other sustainable transport improvements, however, there were concerns from rail stakeholders regarding the potential reinstatement of the stations due to timetabling additional rail stops and in the case of Symington, how to service the station based upon current service patterns.

Drawing on the above issues, and a detailed analysis of problems, issues, opportunities and constraints on the study corridor, an initial set of Transport Planning Objectives (TPOs) were developed for the study at Pre-Appraisal stage.

A long list of multi-modal options to address the TPOs was developed and subjected to a high level assessment in line with STAG. The outcome from this exercise was that all options were considered suitable for more detailed appraisal as part of this STAG 1 Appraisal.

A copy of the Pre-Appraisal report is contained in Appendix A.3 with a review of the Case for Change contained in Appendix A.4.

Setting the Context - Baselines

To enhance understanding of the potential impacts of options, it is important to articulate a starting point – that is, the existing situation in the Clydesdale area in terms of:

- Socio-economic characteristics of the area
- Planned development which may influence travel demand
- Environmental context
- Transport networks

It should be noted that establishing the current situation and problems arising from it was one of the main functions of the Pre-Appraisal Study. This report has not sought to replicate that, but to add to it and fill any gaps where applicable. An initial review of the Pre-Appraisal work carried out as part of this study identified a number of areas where further information was required to provide a baseline for Part 1 Appraisal. These included an environmental baseline. This review (contained in Appendix A.4) also identified a number of sources of data and information that had been updated since the 2017 Pre-Appraisal and hence a need to revisit and update some indicators.

Socio-Economic Context

The Socio-Economic Baseline of the study area remains largely unchanged from the 2017 Pre-Appraisal baseline presented in the Pre-Appraisal report (contained in Appendix A.3). There have however been slight changes in the population of the study area since the 2017 baseline.

A summary of the findings is presented below with the updated information highlighted in bold:

- **Over a 10 year basis 2002 – 2011, the population of Clydesdale increased at a quicker rate that that of both South Lanarkshire and Scotland. This was followed by a slight drop in population from 2011 – 2015, before increasing to 2011 levels in 2017. The overall population increase observed in the study area from 2002 – 2017 was 5%. This was equal to the population increase observed in South Lanarkshire, but lower than the national population increase of 7%.**
- **Carluke and Lanark are the largest population centres in Clydesdale and are situated in the north of the study area. Between 2006 – 2016, Law saw the largest population increase in the study area (12%) with a 10% increase observed in both Lanark and Carstairs. This compared to a 3% increase in South Lanarkshire and a 5% national increase. By contrast, population decreased by 8% in Carnwath.**
- Resident employment in Clydesdale is fairly mixed with large proportions in the professional, skilled trades and process, plant and machine operative occupational categories. However, there are comparatively lower numbers in associate professional and technical roles.
- Clydesdale performs comparably well in terms of the economic activity rate of its population. However, the area has a larger proportion of retired individuals than both South Lanarkshire and Scotland as a whole. Clydesdale has a lower proportion of people of working age and a higher proportion of people over 65 compared to South Lanarkshire and Scotland, with smaller proportions of people aged 16-35. It may be that current transport connectivity to employment and education is a factor in economically active young people moving from the area though there are likely to be many factors contributing to this including availability of jobs, services, education, housing and facilities attractive to young people.
- The claimant rate for Clydesdale is lower than the South Lanarkshire local authority average but above that of Scotland as a whole.
- Overall, a smaller proportion of residents in Clydesdale are employed in higher value sectors compared with the local authority and Scotland figures. It may be that current transport connectivity is constraining access to higher value employment opportunities though again there may be wider economic factors involved.
- Clydesdale performs less well than the national average in terms of educational attainment levels but is ahead of South Lanarkshire as a whole.
- Average income in Clydesdale is higher than the local and national averages, which is in keeping with the data on resident employment.
- **Average (mean) house prices in Clydesdale (£124,504) are lower than the local authority (£146,801) and national averages (£180,663). Transport accessibility is one of a number of factors which influence house prices, with improvements in transport access having the potential to lead to increases in the supply and demand for housing.**
- **There are pockets of deprivation within the Clydesdale area, with 13% of data zones in the region amongst the 20% most deprived in Scotland. Over time there has been a general reduction in deprivation across some areas and an increase in other locations. It may be that poor transport connectivity is contributing towards some of these trends although there are many economic and societal factors involved in deprivation.**

Implications of the Socio-Economic Baseline for the Transport Appraisal

An older than average population means there may be more demand for off-peak travel than for populations of a working age, and there may be more demand for transport for social and healthcare purposes. Use of buses may also be in higher demand by those holding concessionary passes.

Symington and areas to the south in particular have seen a decline in population, whilst Law has seen a significant increase in population (see next section on Development). Several options in the transport appraisal address transport accessibility issues in Law.

Development Context

A Local Development Plan (LDP) sets out the policies and proposals to guide development in a local authority area over a specific time period. The South Lanarkshire LDP contains policies and proposals for the 2015-20 period. Whilst there is a Proposed LDP in preparation, for the purposes of this study we have reviewed both the extant Development Plan and the Proposed LDP 2.[3] In addition to the LDP, planning authorities also undertake land audits to monitor and quantify the effective land supply. Audits are undertaken for Housing Land (HLA) and Industry Land (ILA) respectively.

Residential Development

HLAs include:

- all land with planning permission for residential development, including the remaining capacity of sites under construction;
- land allocated for residential development (including the residential component of any mixed-use development) in adopted development plans (LDPs); and
- other land with agreed residential potential, such as land identified for housing in proposed LDPs.

The base date for the audit is 31st March 2018. The 2018 South Lanarkshire HLA details 112 proposed residential development sites in Clydesdale. Existing travel demand will be impacted to varying degrees based on the location and scale of development. Table 2-1 illustrates the 23 residential developments of 50+ units detailed within the HLA.

[3] No significant changes were noted in the LDP2 since the Main Issues Report was published in 2017, which was reviewed in the Pre-Appraisal study. The associated Transport Appraisal published in 2018 has been reviewed as part of this Part 1 Appraisal update. The Transport Appraisal document refers to the Clydesdale STAG process and emphasises that the Pre-Appraisal is multi-modal (section 7). Developer contributions for active travel connections to Birkwood House (Lesmahagow) development are noted. The documented cites potential rail halts at Law and Symington resulting from this Pre-Appraisal study.

Table 2-1 Committed developments in Clydesdale

Location	Development Name	Dev Size	Development Status	Timescale	Comments	Likely travel demand Impact
Lesmahagow	CL5112C: Wellburn Farm Phase C	73 units	Consent	50 units to be completed by 2025 23 units to be completed post 2025	Planning application CL/13/0405	Minimal
Lesmahagow	CL5112A: Wellburn Farm Phase A	50 units	Proposal	50 units to be completed post 2025		Minimal
Coalburn	CL5211: Gunsgreen Middlemuir Road	100 units	Consent	100 units to be completed post 2025	Planning applications CL/16/0356 CL/13/0334 CL/08/0313	Moderate
Lesmahagow	CL5190: Milton Farm	100 units	Proposal	100 units to be completed post 2025	Programming delayed by a year	Moderate
Law	CL5189: Birks Farm	150 units	Proposal	150 units to be completed by 2025	Changed from 80 to 150 units	Moderate
Kirkmuirhill	CL5187: Carlisle Road	100 units	Proposal	100 units to be completed post 2025		Moderate
Lesmahagow	CL5136: Balgray Road	100 units	Proposal	100 units to be completed post 2025		Moderate
Lesmahagow	CL5112B: Wellburn Farm Phase B	70 units	Proposal	70 units to be completed post 2025		Moderate
Carluke	CL5126: Stonedyke Road/Moor Park CGA	370 units	Proposal	370 units to be completed post 2025		Significant

Location	Development Name	Dev Size	Development Status	Timescale	Comments	Likely travel demand Impact
Carluke	CL5123: Boghall Road	77 units	Under construction	12 units completed in 2017 65 units to be completed by 2022	CL/12/0557 granted 30/1/13 CL/16/0397 additional 6 units added	Minimal
Carluke	CL5128: Carluke (CGA South East) Phase 1	150 units	Proposal	150 units to be completed post 2025		Moderate
Law	CL5099: Law Hospital	500 units	Consent	500 units to be completed post 2025	Planning application CL/06/0786	Significant
Brocketsbrae	CL5026: Brocketsbrae Road	100 units	Proposal	100 units to be completed post 2025	CL/14/0371 granted March 2015 but subject to Section 75 agreement. Merged with CL5101.	Moderate
Kirkmuirhill	CL0197: Carlisle Road	53 units	Proposal	53 units to be completed post 2025	CL/12/0531 granted on 27 February 2013 - Variation of conditions 1 of CL/06/0208 to extend date of commencement for the removal of disused rail line/top soil from housing development site area and top soil bund.	Minimal
Lanark	CL5035B: Winston Barracks Phase B	264 units	Proposal	264 units to be completed post 2025		Moderate
Biggar	CL5114: Edinburgh Road	285 units	Under construction	93 units completed by 2017 192 units to be completed by 2023	CL/12/0358 Site granted 21st August 2014 so updated details will appear in 2015 audit. Site is now under construction.	Moderate

Location	Development Name	Dev Size	Development Status	Timescale	Comments	Likely travel demand Impact
Lesmahagow	CL5122: Birkwood Hospital	155 units	Consent	155 units to be completed post 2025	CL/14/0413 granted 10/3/15	Moderate
Lesmahagow	CL5138A: Balgray Road Phase 2	80 units	Proposal	80 units to be completed post 2025		Minimal
Ravenstruther	CL5166: Ayr Road	150 units	Consent	150 units to be completed post 2025	CL/13/0393 granted 26/08/14	Moderate
Forth	CL5163: Manse Road	60 units	Proposal	60 units to be completed post 2025		Minimal
Coalburn	CL5124: Bellfield	200 units	Proposal	200 units to be completed post 2025		Moderate
Rigside	CL0395: Ayr Road	112 units	Consent	112 units to be completed post 2025	Planning application CL/06/0739	Moderate
Symington	CL5143: Manse Road	60 units	Consent	60 units to be completed post 2025	CL/14/0008 granted 28/2/14	Minimal

In addition to the residential developments detailed in Table 2-1 there are a number of proposed residential developments in the study area contained within the LDP2. These are set out in Table 2-2:

Table 2-2 LDP2 Residential Developments in Clydesdale

LDP2 Map Ref	Town	Location	Proposal
31	Lesmahagow	Balgray Road	Settlement boundary amendment
41	Lesmahagow	Birkwood Estate	Development Framework Site
24	Devonburn	Devonburn	New Settlement
23	Blaircross	Blaircross	New Settlement

Non-Residential Development

The 2018 South Lanarkshire ILA details 17 proposed non-residential development sites in Clydesdale. Existing travel demand will be impacted to varying degrees based on the location and scale of development. Table 2-3 illustrates these non-residential developments.

Table 2-3 Industrial developments in Clydesdale

Location	Development Name	Dev Size	Category	Timescale
Lanark	Caldwellside Industrial Estate	0.55 ha	Confirmed marketable site	2020
Carluke	Castlehill	0.29 ha	Confirmed marketable site	2020
Lanark	Caldwellside Industrial Estate	0.6 ha	Remain in Industry Site	2020
Lesmahagow	Birkhill	28.8 ha	Potential marketable site	2020
Lesmahagow	Lesmahagow Industrial Estate	1.04 ha	Remain in industry site	2020
Douglas	Land south of Poniel	51.77 ha	Reserved site	2020
Biggar	Market road site 2	0.31 ha	Confirmed marketable site	2020
Douglas	Poniel east of M74	43	Site in rural area	2020
Biggar	Biggar Auction Market	1.13	Land in use for industrial/business purposes, including storage use, but where no physical development has taken place.	2020

Location	Development Name	Dev Size	Category	Timescale
Law	Station Road	0.37	Remain in industry site	2020
Forth	Climpy road	1.23	Remain in industry site	2020
Lesmahagow	Gateside	0.68	Remain in industry site	2020
Lanark	Caldwellside Industrial Estate	0.57	Confirmed marketable site	2020
Biggar	Market Road	0.43	Confirmed marketable site	2020
Lanark	Caldswellside Industrial Estate	0.36	Confirmed marketable site	2020
Biggar	Lindsaylands Road	0.35	Remain in industry site	2020
Lanark	Caldwell Industrial Estate	1.12	Confirmed marketable site	2020

In addition to the non-residential developments detailed in Table 2-3 there are a number of proposed non-residential developments in the study area contained within the LDP2. These are set out in Table 2-4:

Table 2-4 LDP2 Non-Residential Developments in Clydesdale

LDP2 Map Ref	Town	Location	Proposal
37	Law	Land at Law	Potential Rail Station
36	Symington	Land at Symington	Potential Rail Station
30	Douglas	Poneil	Extension to Strategic Economic Investment Location
12	Carluke	Jock's Burn	Proposed Local Nature Reserve
13	Carluke	Milton	Proposed Local Nature Reserve

Development Summary and Implications for Transport Appraisal

It can be seen from the map in Figure 2-1 that a high proportion of development in the study area is concentrated along the M74 corridor. There are also development sites proposed on the outer extents of Biggar, Carluke, Forth, Law and Symington. These developments will result in the creation of new trip generators and could result in additional trips on the existing transport network.

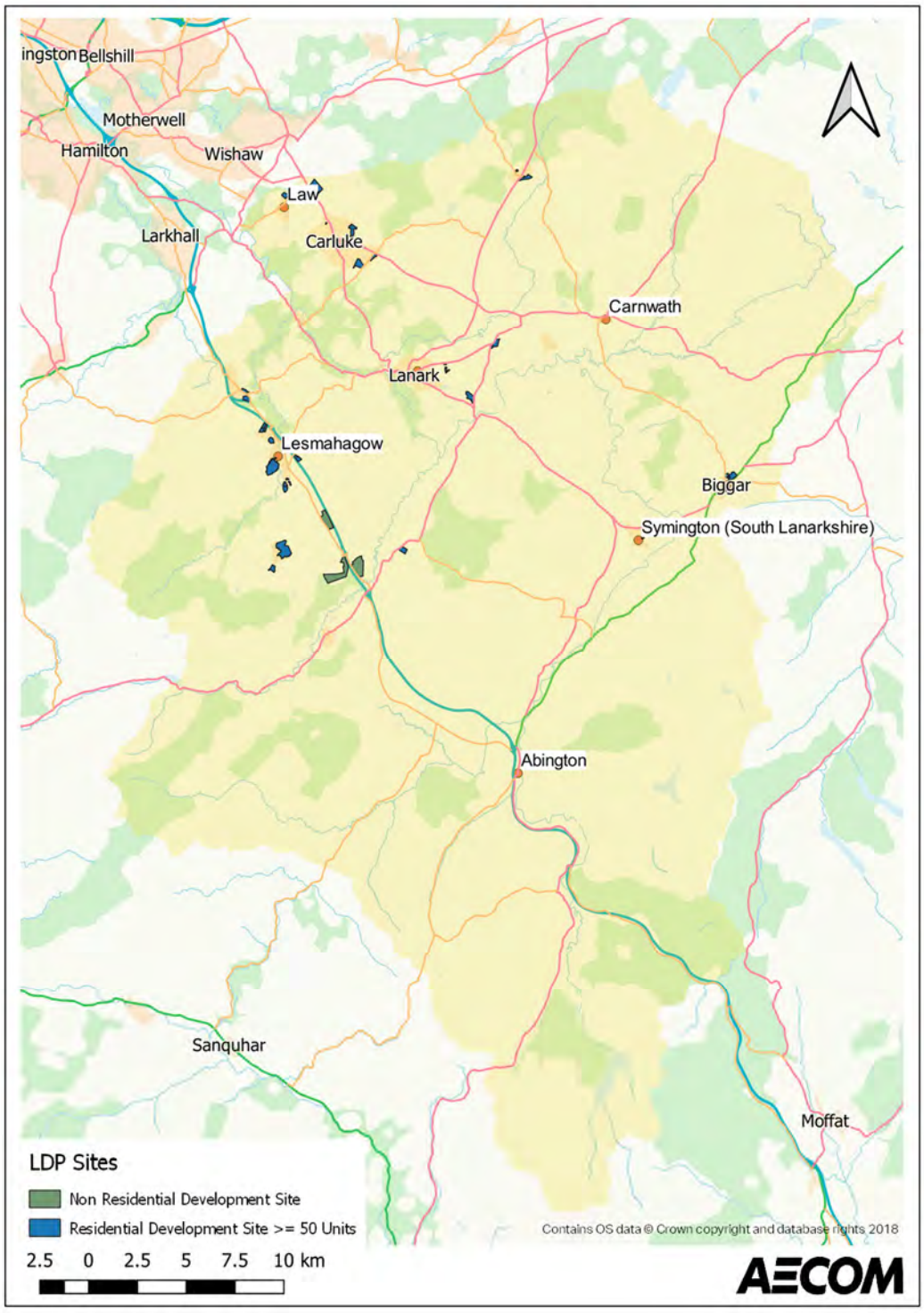

Figure 2-1 Summary of Development 2018

Environmental Context

This section presents the environmental baseline of the study area, outlining environmental issues which emerging solutions must take cognisance of. Transport can have environmental impacts in several key areas:

- Increased levels of traffic can have noise and air pollution impacts.
- Conversely measures to reduce the number of private vehicles, particularly Single Occupancy Vehicles on the road, and achieve modal shift to sustainable modes of travel like public transport and active travel, can have environmental benefits through reduced vehicle emissions. Active travel also has benefits for human health in terms of increased physical activity.
- New infrastructure (e.g. roads) can have an impact on flooding through increasing surface run-off, and can also reduce / disrupt space for animals and biodiversity.
- New roads and railway lines can increase severance between communities.

Flooding

The River Clyde is the main body of water going through the Clydesdale area. It flows into the Firth of Clyde and is the second longest river in Scotland. As such the area has seen a number of flooding and flash flooding events after heavy rainfall. The Scottish Environment Protection Agency (SEPA) provides flood maps, showing areas that may flood and potentially vulnerable areas. It can be seen from Figure 2-2 that the potentially vulnerable area in the study area stretches from west of Carluke to north of Douglas, which corresponds to a tributary of the Clyde, the river Nethan.

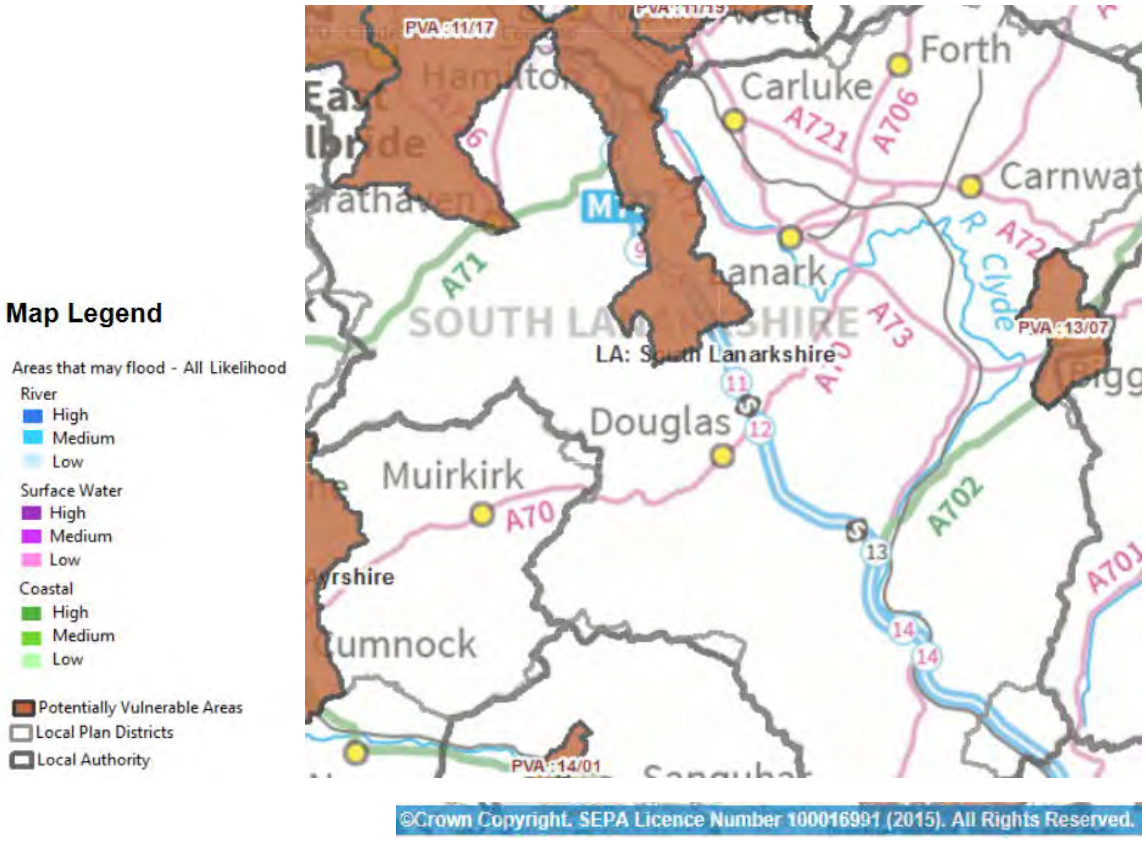

Figure 2-2 – Flood map of the Clydesdale area (Source: sepa.org.uk online floodmaps)

Environmental Designations

Environmental designations aim to protect and conserve significant species, habitats, geologies and landscapes and limit or prevent activities and development that may have a detrimental impact. The maps in Figure 2-3 – Figure 2-4 illustrate the environmental designations across a number of categories within the study area.

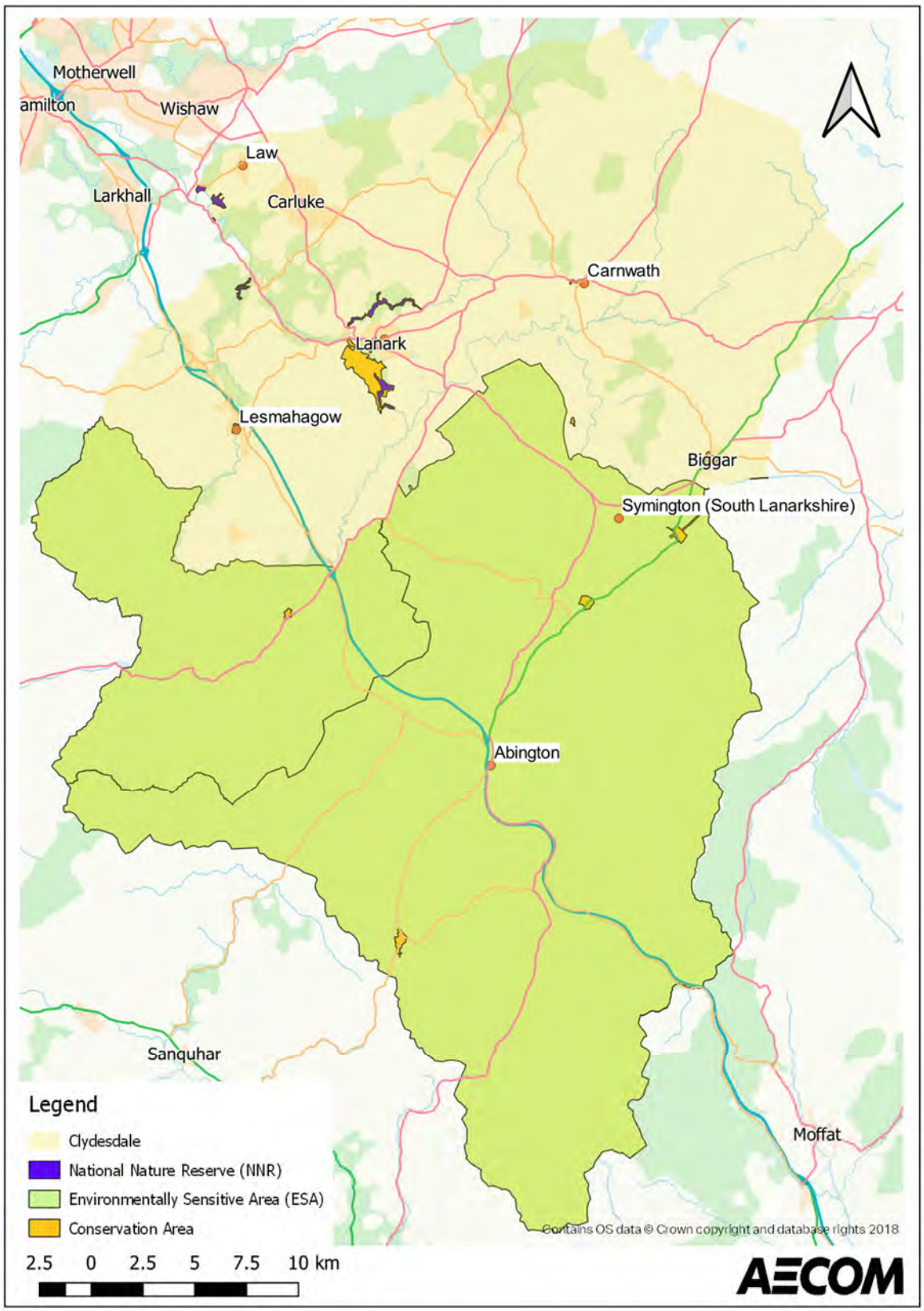

Figure 2-3 Environmental designations map A

Conservation areas have been given protected status to protect or enhance their appearance or character due to their special historical or architectural interest. There are thirty conservation areas in South Lanarkshire with nine in Clydesdale.

An **Environmentally Sensitive Area (ESA)** designates an area containing landscapes or wildlife that would be threatened by unrestricted development. This covers approximately the bottom half of the Clydesdale area.

National Nature Reserves (NNRs) are areas of land set aside for nature. They contain some of the most important natural and semi-natural ecosystems in Great Britain. There is one NNR in Clydesdale, the Clyde Valley Woodlands.

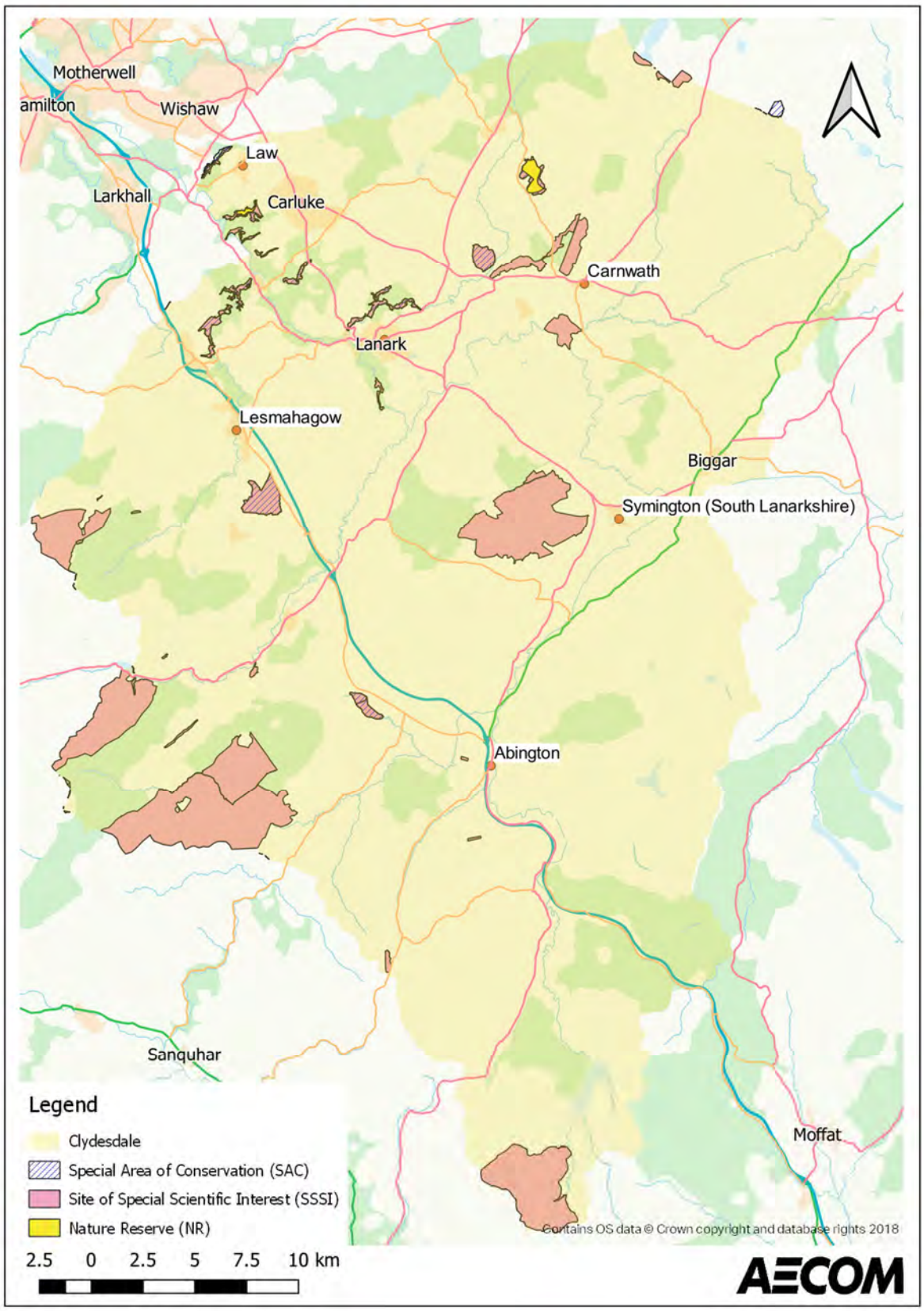

Figure 2-4 Environmental designations map B

Sites of Special Scientific Interests (SSSI) are highlighted by the Scottish Natural Heritage as representing or containing the best examples of particular species, habitats, geology or geomorphology. There are 36 SSSIs located in Clydesdale.

A **Special Area of Conservation (SAC)** is a site designated under the Habitats Directive. Together with Special Protection Areas (SPAs), they are categorised as Natura Sites and are essential for threatened habitats and species. There are nine SACs in South Lanarkshire with six in Clydesdale.

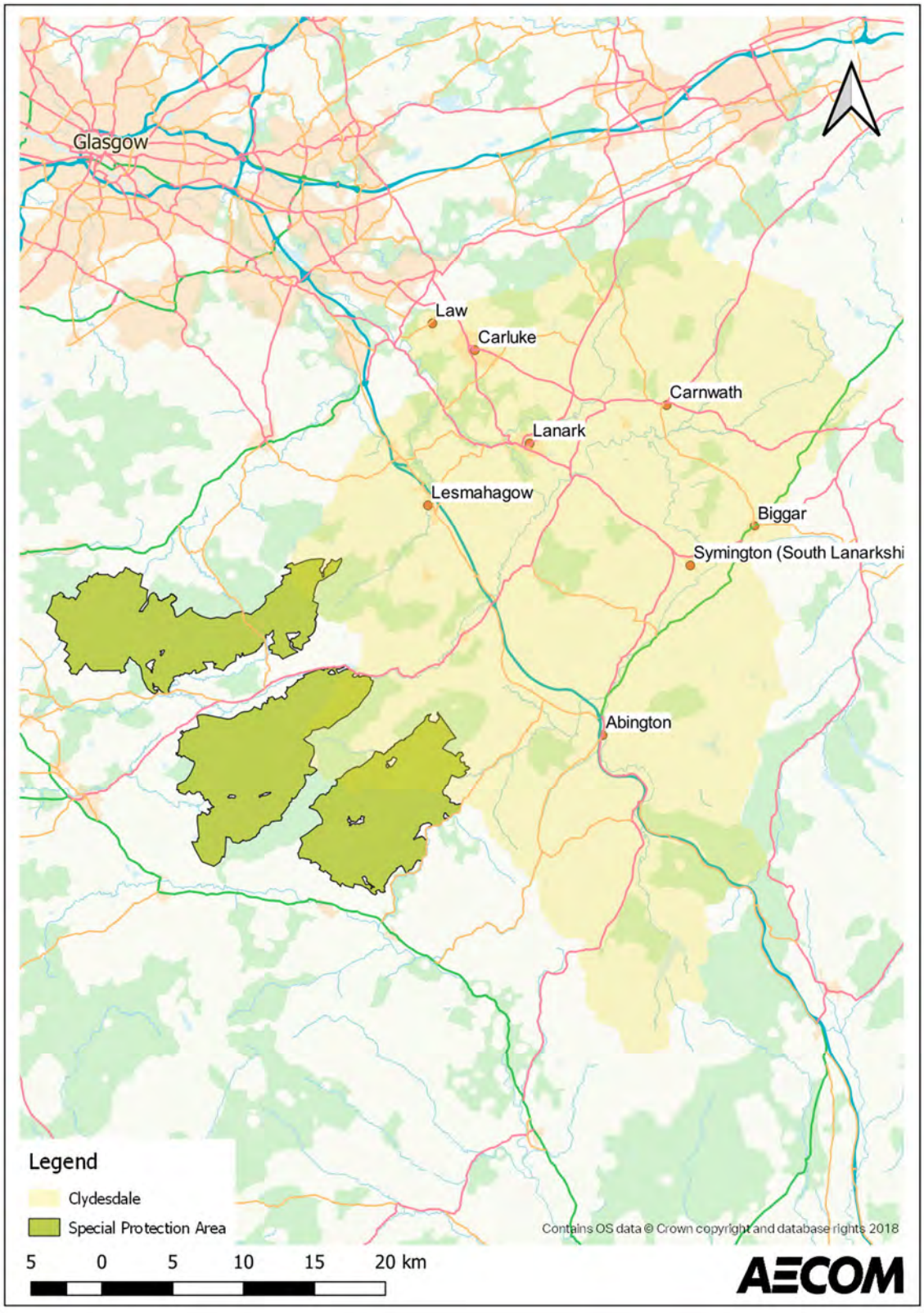

Figure 2-5 Environmental designations map C

Special Protection Areas (SPAs) designate areas that aim to safeguard the habitats of migratory birds and certain particularly threatened birds. There is one SPA in Clydesdale; Muirkirk and North Lowther Uplands.

The United Nations Educational, Scientific and Cultural Organisation (UNESCO) identifies sites of outstanding universal value for inscription on the World Heritage List. In addition to the support for the management and preservation of sites inscribed on the World Heritage List, such sites also benefit from a raised public awareness which greatly increases their tourist value. New Lanark, located in the study area, is one of only five **World Heritage Sites** in Scotland.

Air Quality Management Areas (AQMAs)

Since December 1997, each local authority in the UK has been carrying out a review and assessment of air quality in their area. Air pollution is measured to try and predict how it will change in the next few years. If a local authority finds any places where the objectives are not likely to be achieved, it must declare an Air Quality Management Area (AQMA) there. This area could be just one or two streets, or it could be area-wide.

Once a place is declared AQMA, a Local Air Quality Action Plan is put together by the local authority, describing steps to be taken to improve air quality[4].

A detailed assessment of the air quality in the town centre of Lanark was undertaken in 2012. It revealed that there were exceedances of the nitrogen dioxide (NO_2) annual mean objective of 40µg.m^{-3} at locations with relevant exposure. The exceedance area encompasses stretches of Bannatyne Street. To ensure a more holistic approach to action planning, the boundary of the AQMA extends to the wider town of Lanark, as shown in Figure 2-6..

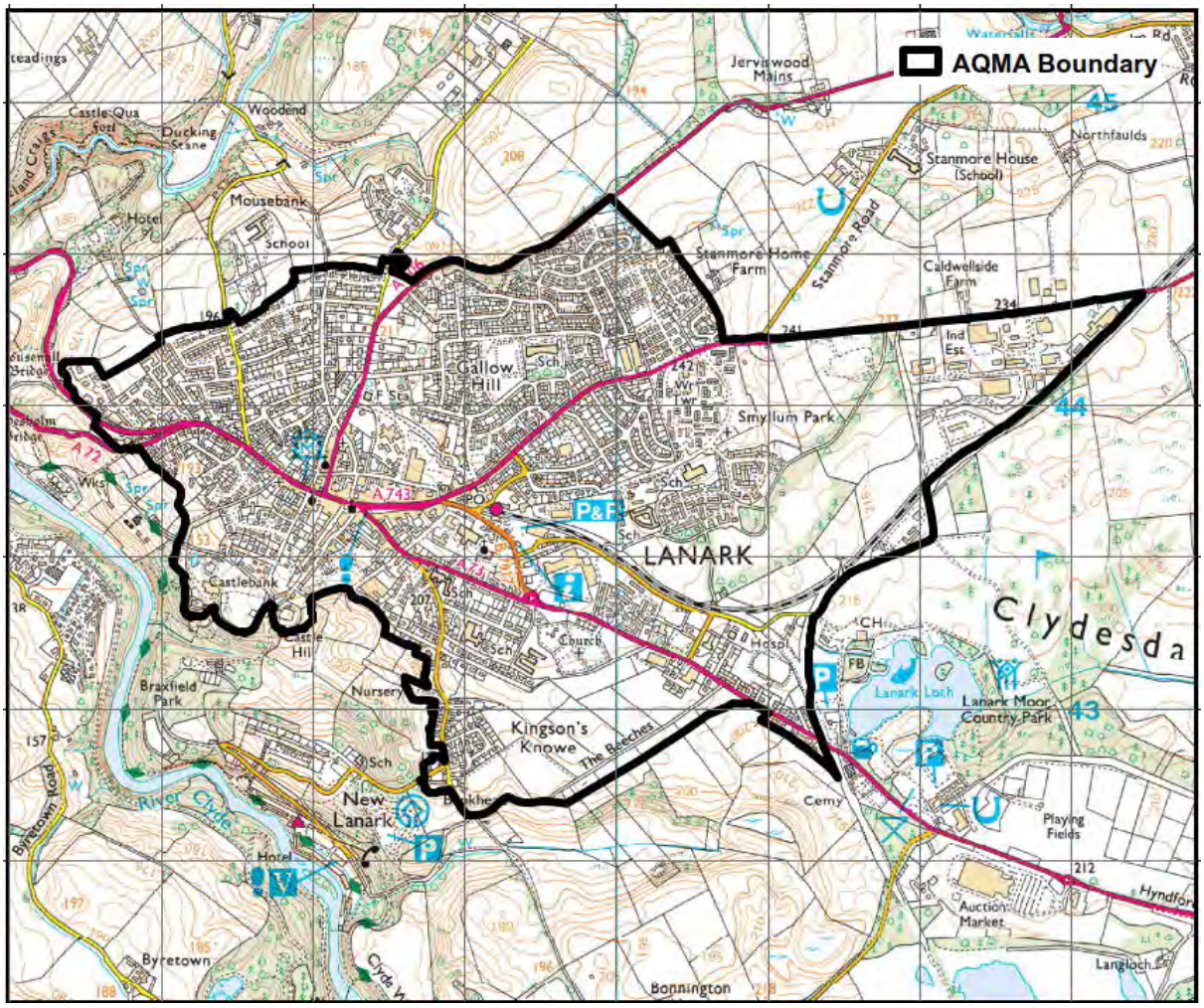

Figure 2-6 AQMA in Lanark

A draft Air Quality Strategy for South Lanarkshire[5] identified road traffic emissions as being predominantly responsible for NO_2 sources. Cars and LGVs are the main road source particularly along High Street, Bannatyne Street and Wellgate where the traffic is often slow moving.

[4] https://uk-air.defra.gov.uk/aqma/
[5] Draft Air Quality Strategy South Lanarkshire – Issue Number 3, 20/06/2018

Reviews and assessments have been carried out from 2012 to 2017 to assess whether exceedances in pollutants have been identified or predicted for future years. The results show that there have been no annual mean NO_2 concentrations in excess of 40µg.m^{-3}.

Summary of Environmental Baseline and Implications for Transport Appraisal

Clydesdale has several environmental designations across the area, such as SACs, SPAs, SSSIs, NNRs and Environmentally Sensitive Areas. There are also potentially vulnerable areas to flooding, along the river Nethan.

This may impact the options that are put forward, particularly any options that involve new infrastructure and associated land take. Generally options that increase the frequency of rail or bus services on existing roads and rail lines may have limited environmental impact on certain environmental issues such as flooding. Lanark, being an AQMA, is more sensitive to potential options that could result in an increase in air pollutants across the town, though options to achieve modal shift away from private vehicles will have a positive impact on air quality objectives.

Existing Transport Network

The Transport Baseline of the study area remains largely unchanged from the 2017 Pre-Appraisal baseline contained in Appendix A.3. There have however been a few material changes worth noting including the withdrawal of the Glasgow bus service from Law.

This section provides an overview of the key transport characteristics of the study area. A summary of the findings is presented in each sub-section, with the updated information highlighted in bold:

Pedestrian and Cycle Network

Covering an area which encompasses large swathes of countryside and woodland, the study area benefits from close proximity to off-road recreational walking and cycling trails.

The Clyde Walkway is a 40 mile long route from Glasgow City Centre to New Lanark[6]. Of the five sections of the route, the Cardies Bridge to Crossford and Crossford to Falls of Clyde sections lie within the study area.

National Cycle Network (NCN) Route 74 which connects NCN Route 7 in Gretna to NCN Route 75 in Uddingston largely follows the alignment of the M74 road corridor through the study area. The route which is mainly on-road with some traffic free sections is a total of 70 miles long from end-to-end[7].

The Tweed Cycle Route[8] which runs from Biggar to Berwick upon Tweed is 95 miles long from end-to-end. It avoids busy roads for almost its entirety. It is connected to Carstairs Rail Station by a further section of off-road cycle path.

In addition to longer distance walk / cycle routes, SLC promote six 'routes around roots', of which the Rigside to Louden Pond route is within the study area.

Walking provision within settlement centres is generally accommodated by a network of footways adjacent to the road carriageway network, with cycling generally accommodated on road.

Figure 2-7 provides an overview of the active travel network in the study area.

[6] https://www.visitlanarkshire.com/things-to-see-and-do/walk-or-cycle-clyde-walkway/
[7] https://www.sustrans.org.uk/ncn/map/route/route-74
[8] https://cyclescottishborders.com/route/tweed-cycle-route/

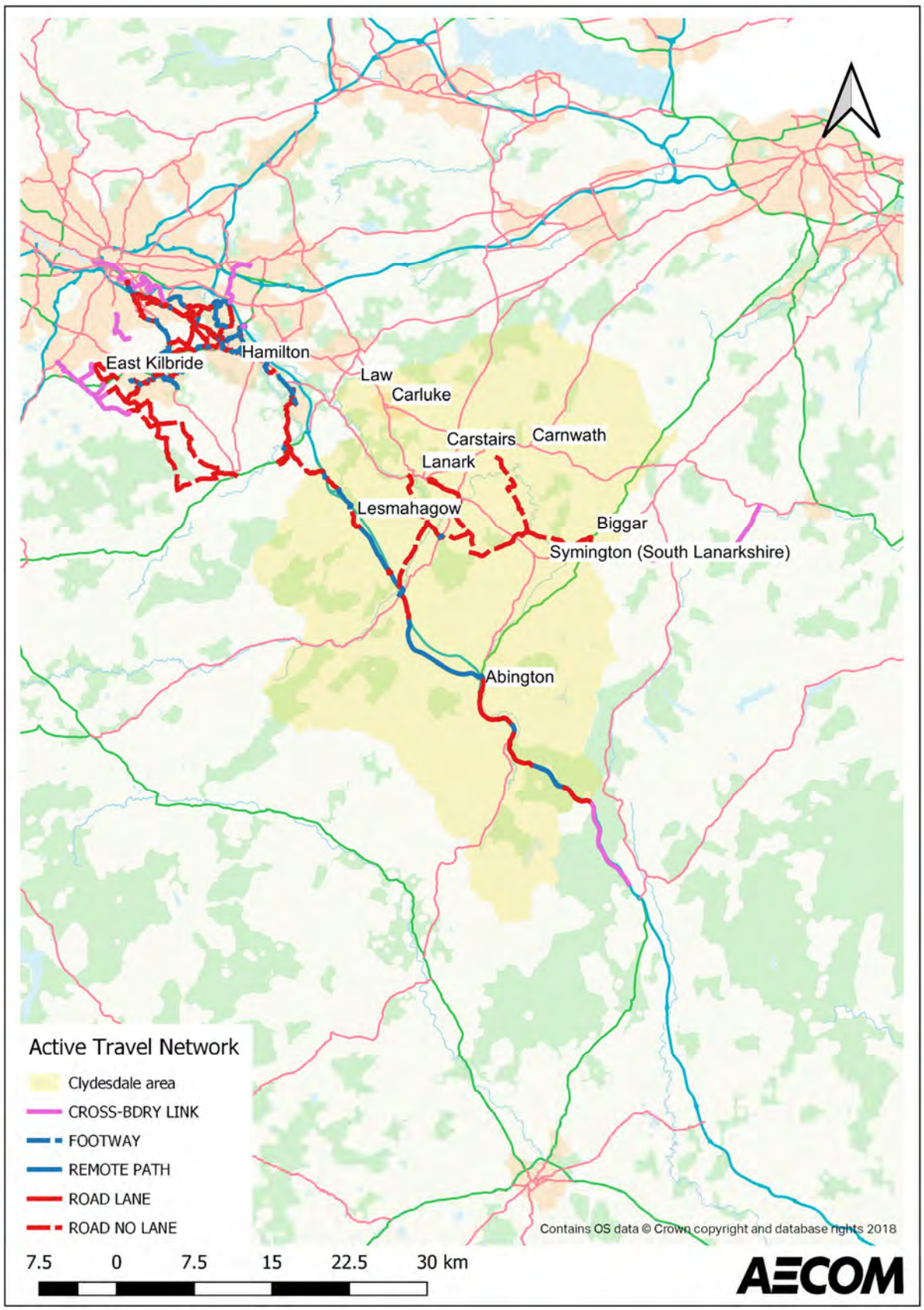

Figure 2-7: Active Travel Network

Public Transport Overview

Public Transport Accessibility

Public Transport Accessibility is a measure of how long it takes to travel between a start and end-point by public transport. For the purpose of this study, analysis was undertaken using TRACC software to establish the level of public transport accessibility on a typical Tuesday morning between 7am and 9am from the population weighted centre-point of nine settlements within the study area. It assumes a maximum walk catchment to the first stop of 1km and a maximum distance of 800m between any subsequent public transport connections[9].

The maps from Figure 2-8 to Figure 2-17 illustrate the 60minute accessibility thresholds for each of the 9 settlements analysed, from a central point in each settlement. They are presented alongside the existing travel-to-work (TTW) flow from the Census 2011.

[9] This analysis uses timetable information showing both arrival and departure times at stops from public transport services in conjunction with road network data. The journey time produced includes all walking elements of the journey i.e. the walk from the origin of the journey to the road, from the road to the public transport stops, any interchange of public transport using the road and then from the final stop to the destination via the road, and finally from the nearest point on the road network to the destination. The journey assumes arrival at the first stop one minute before the initial departure, with any subsequent interchange waiting times included as part of the final journey time https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/754706/notes-and-definitions.pdf

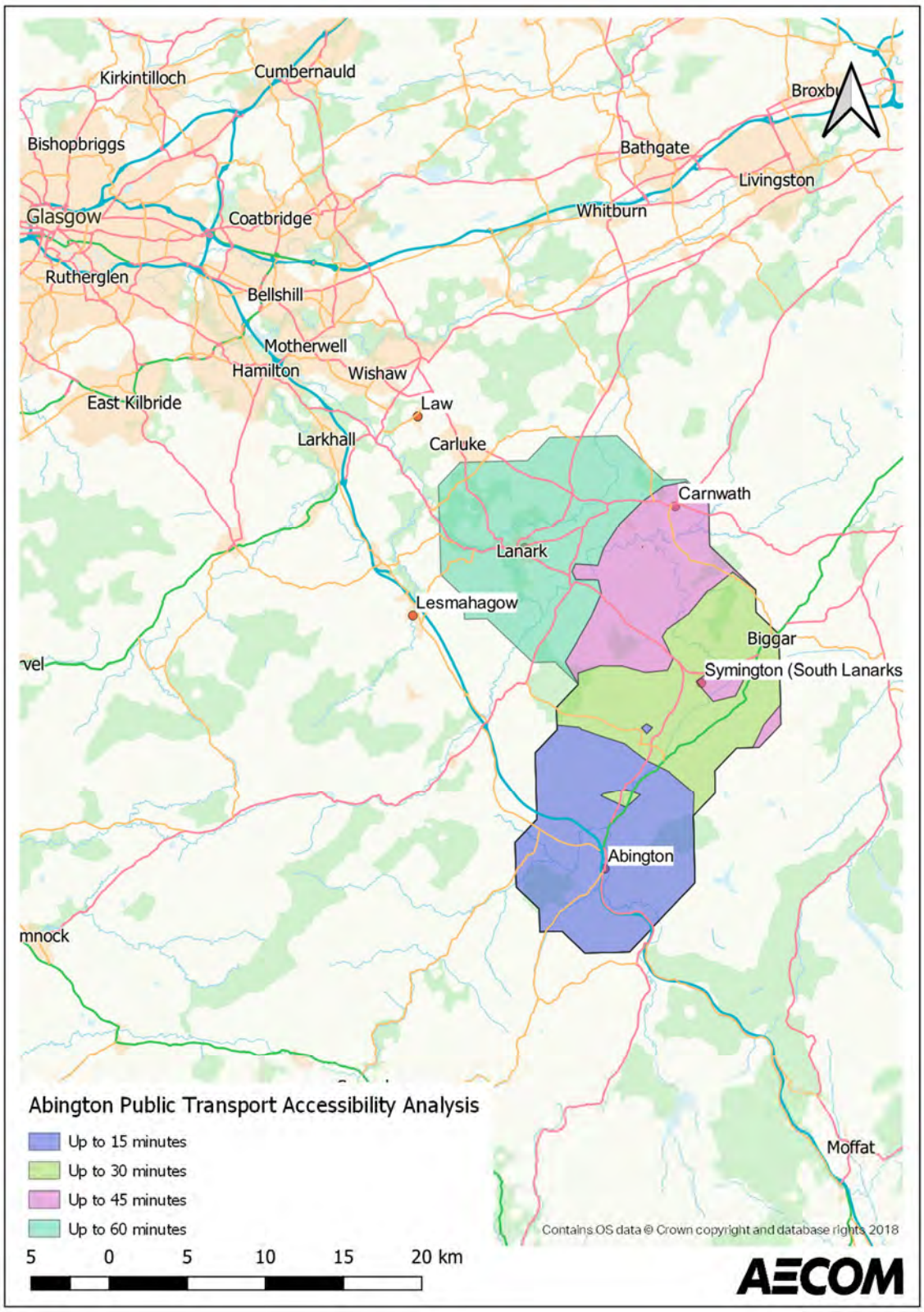

Figure 2-8 Abington Public Transport Accessibility Analysis

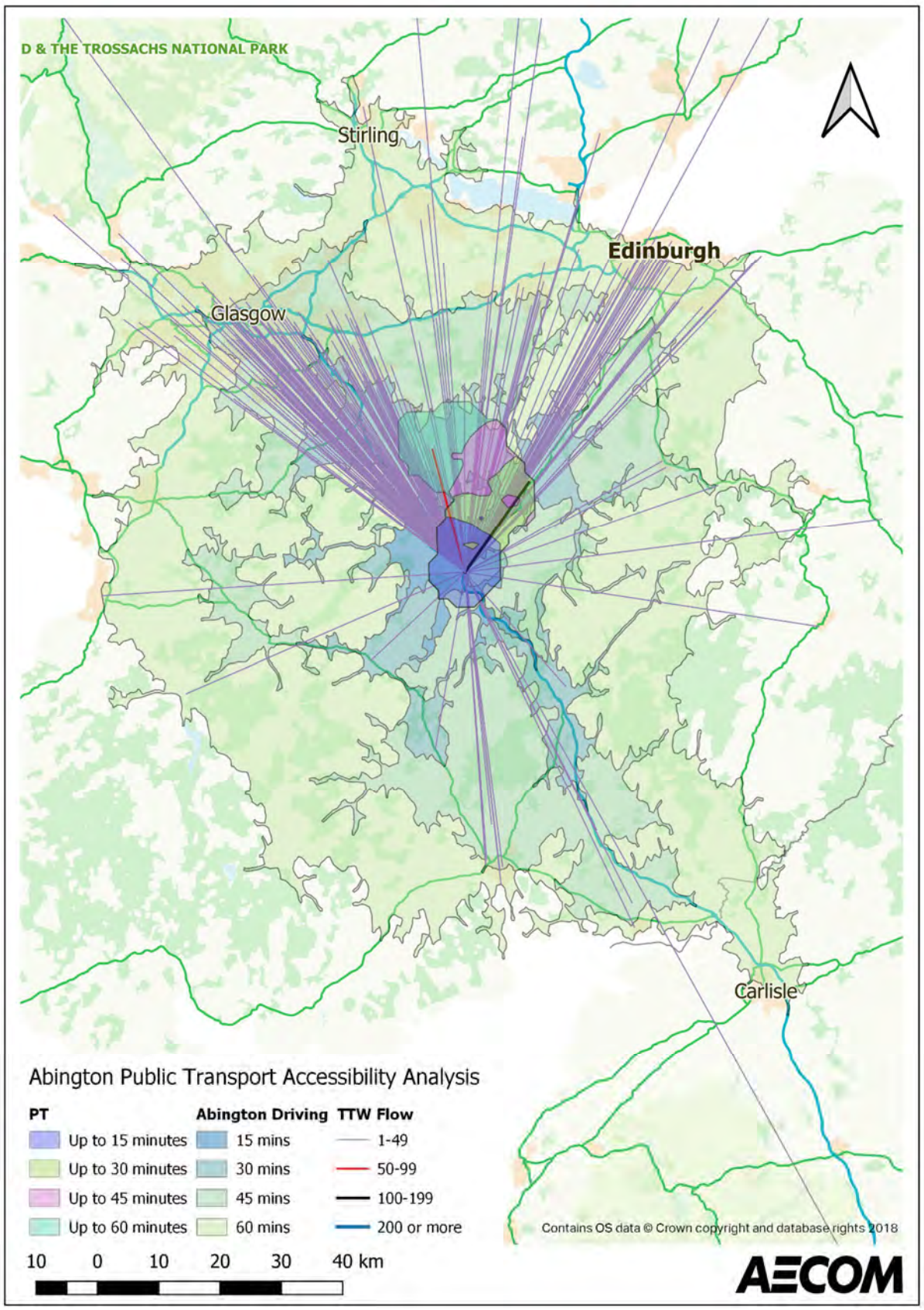

Figure 2-9 Abington Public Transport Accessibility Analysis – car v public transport

The map in Figure 2-9 illustrates that current public transport options for Abington enable only northbound journeys to be undertaken within a 60 minute catchment. Considered alongside the Urban/Rural classification of Abington as an 'Accessible Rural Area' which is defined as an area with a population of less than 3,000 people and within a drive time of 30 minutes to a Settlement of 10,000 or more, it can be seen that the level of public

transport accessibility is significantly lower than the equivalent accessibility by private car. It can further be seen that Edinburgh, Glasgow and Carlisle are accessible within a 60 minute drive time, compared to the public transport extent of Carluke.

It can be seen that the existing TTW journeys with the largest flows can be undertaken within the 60 minute public transport threshold. It can further be seen that there are numerous TTW journeys to locations within Edinburgh and Glasgow however which cannot be reached within the 60 minute public transport threshold.

This public transport catchment translates to 11,465 households.

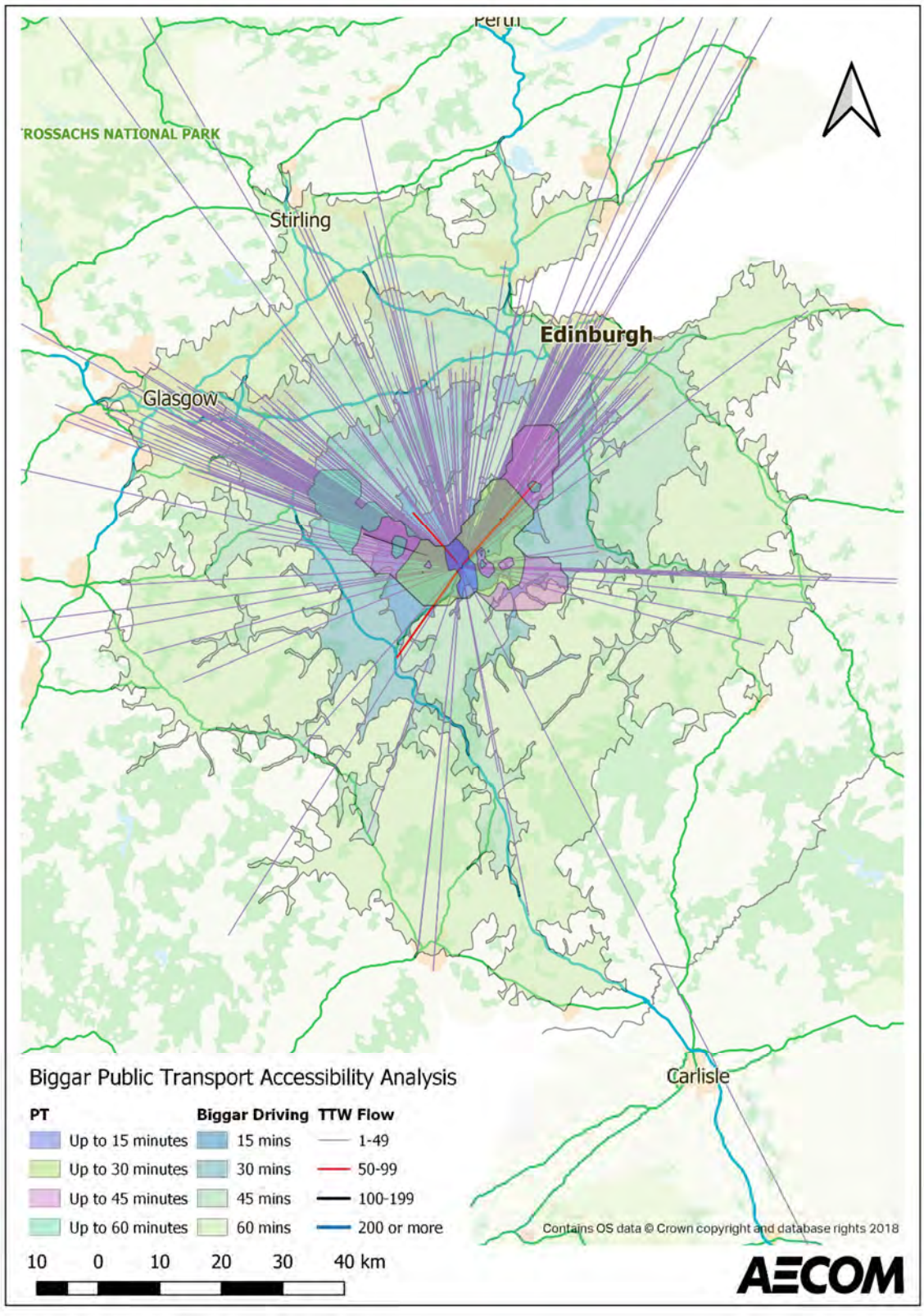

Figure 2-10 Biggar Public Transport Accessibility Analysis – car v public transport

The map in Figure 2-10 illustrates that current public transport options for Biggar primarily enable journeys to the north of the settlement to be undertaken within a 60 minute travel time. Considered alongside the Urban/Rural classification of Biggar as an 'Remote Rural Area' which is defined as an area with a population of less than 3,000 people and with a drive time of between 30 and 60 minutes to a Settlement of 10,000 or more, it can be seen that the level of public transport accessibility is significantly lower than the equivalent accessibility by private car. It can further be seen that Edinburgh and Glasgow are accessible within a 60 minute drive time. In comparison, Law represents the outer extent of the public transport catchment in a north-westerly direction, with Quarrel Burn in Midlothian representing the outer extent of the public transport catchment in a north-easterly direction.

It can be seen that whilst the existing TTW journeys with the largest flows (Lanark) can be undertaken within the 60 minute public transport threshold, there are large TTW flows to Abington that cannot be undertaken within the same threshold. It can further be seen that there are numerous TTW journeys to locations within Edinburgh and Glasgow which cannot be reached within the 60 minute public transport threshold.

This public transport catchment translates to 19,069 households.

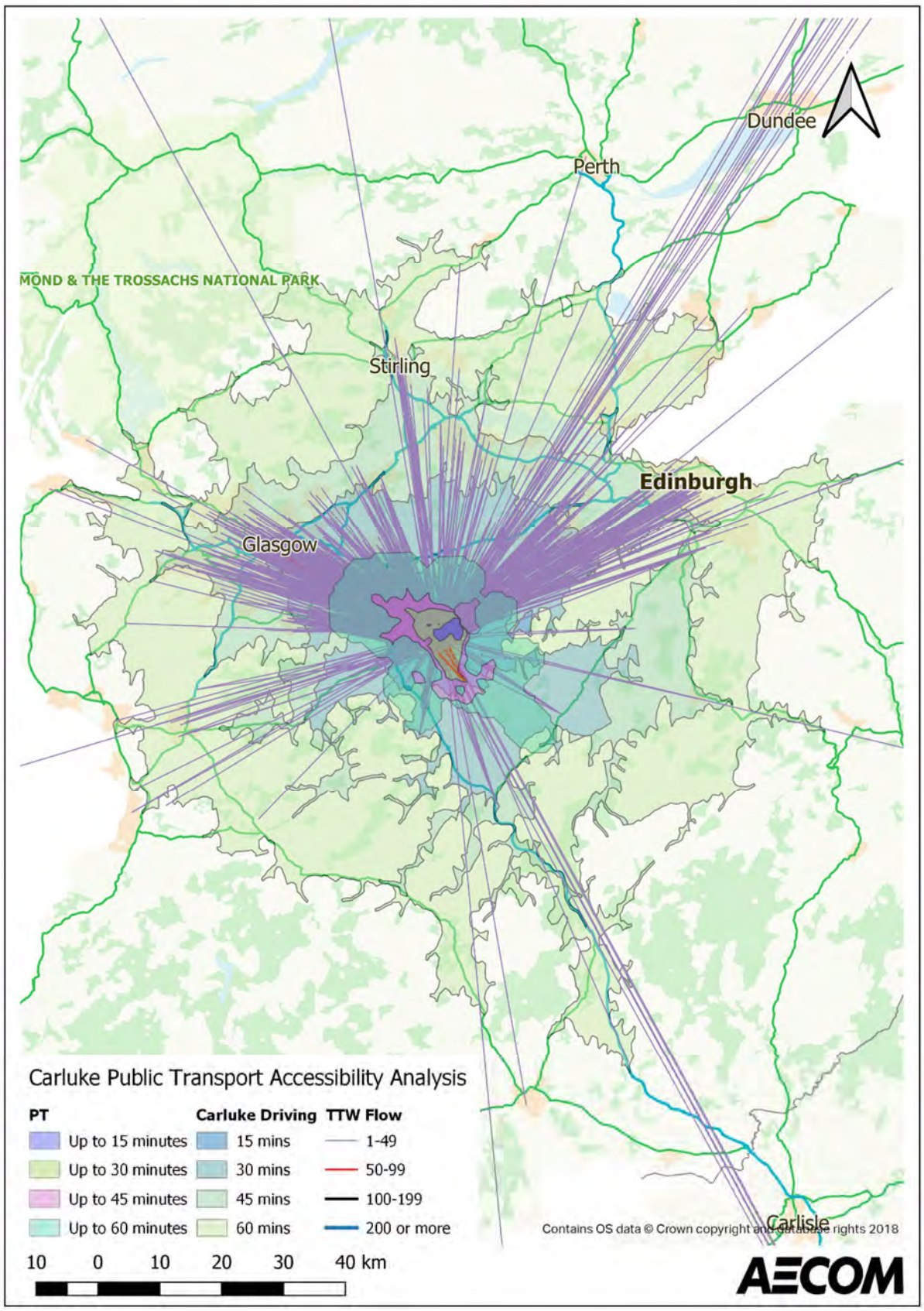

Figure 2-11 Carluke Public Transport Accessibility Analysis – car v public transport

The map in Figure 2-11 illustrates that current public transport options for Carluke enable journeys of roughly the same distance to be undertaken in a north-west/south-east direction within a 60 minute catchment. It can further be seen that Edinburgh and Glasgow are accessible within a 60 minute and 45 minute drive time respectively, compared to the maximum public transport reach of Uddingston in the north-west and Coulter in the south-east.

It can be seen that whilst the existing TTW journeys with the largest flows to other SLC locations can be undertaken within the 60 minute public transport threshold, there are large TTW flows to Glasgow City Centre that cannot be undertaken within the same threshold. It can further be seen that there are numerous TTW journeys to locations within Edinburgh and other locations in Glasgow which cannot be reached within the 60 minute public transport threshold.

This public transport catchment translates to 132,457 households

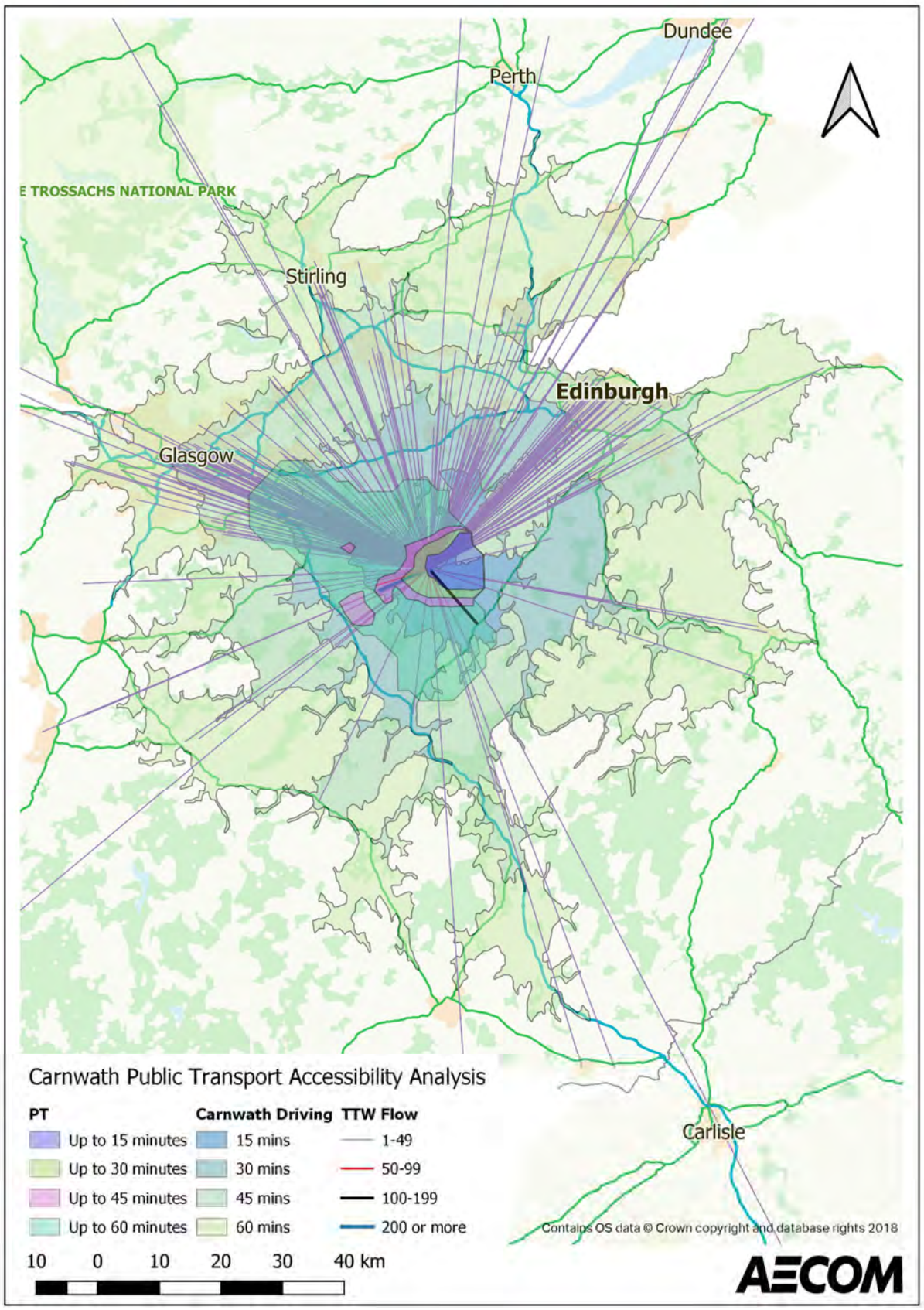

Figure 2-12 Carnwath Public Transport Accessibility Analysis – car v public transport

The map in Figure 2-12 illustrates that current public transport options for Carnwath primarily enable journeys to locations to the west of the settlement within a 60 minute catchment. It can further be seen that Edinburgh and Glasgow are accessible within a 60 minute drive time with Dumfries just outside of this threshold. In comparison,

Uddingston represents the outer extent of the public transport catchment in a north-westerly direction, with Roberton representing the outer extent of the public transport catchment in a southernly direction.

It can be seen that whilst the existing TTW journeys with the largest flows (Lanark) can be undertaken within the 60 minute public transport threshold, there are numerous TTW journeys to locations within Edinburgh and Glasgow which cannot be reached within the same threshold.

This public transport catchment translates to 135,971 households

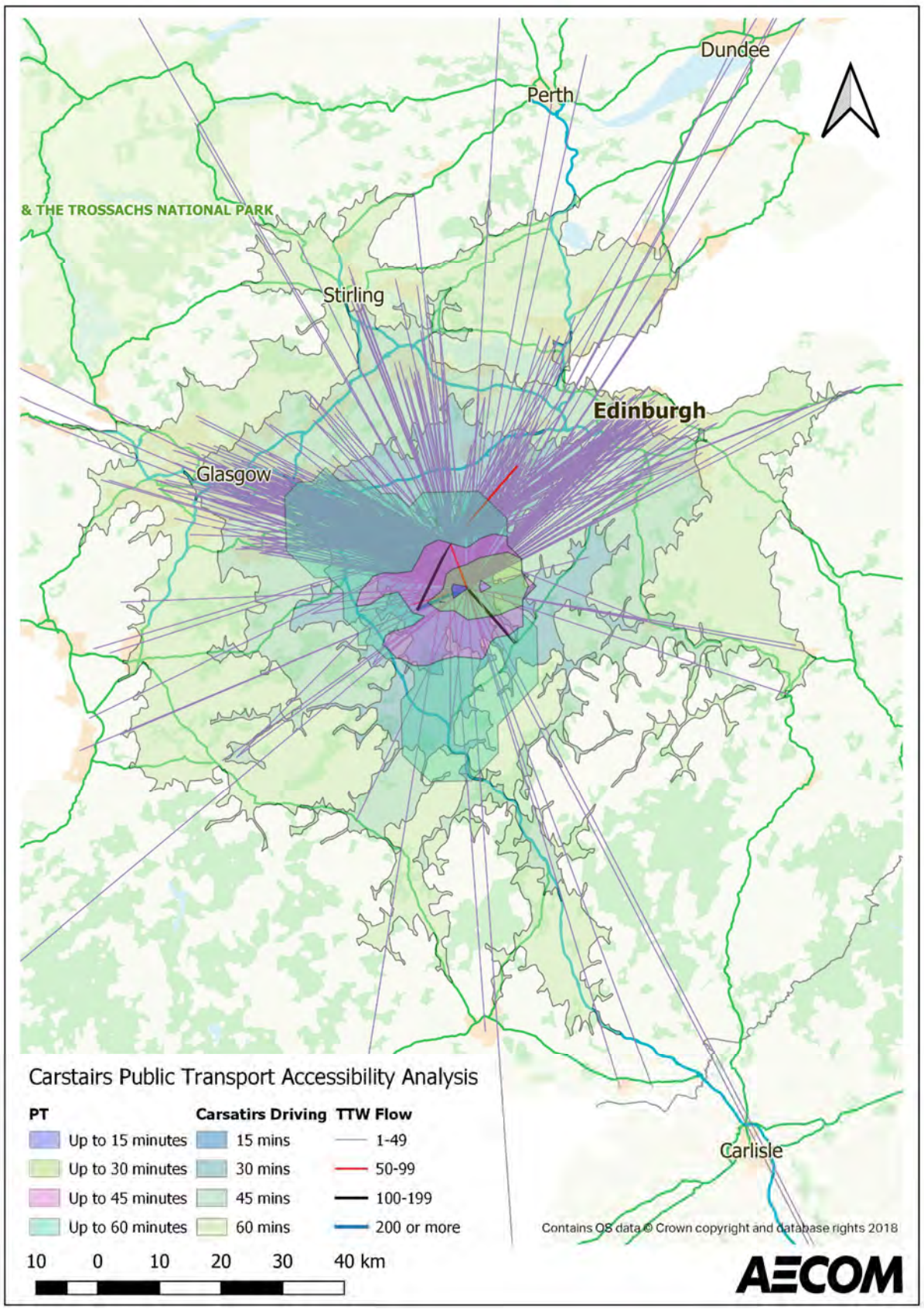

Figure 2-13 Carstairs Public Transport Accessibility Analysis – car v public transport

The map in Figure 2-13 illustrates that current public transport options for Carstairs primarily enable journeys to locations to the north, south and east of the settlement within a 60 minute catchment with limited catchment to the east. It can further be seen that Edinburgh and Glasgow are accessible within a 45 minute drive time with Dumfries just outside the 60 minute threshold. In comparison, Airdrie/Coatbridge represents the outer extent of

the public transport catchment in a north-westerly direction, Stonehouse the western extent and Crawford the southern extent.

It can be seen that whilst the existing TTW journeys with the largest flows (Lanark) can be undertaken within the 60 minute public transport threshold, there are large TTW flows to Bellsquarry, Adambrae and Kirkton that cannot be undertaken within the same threshold. It can further be seen that there are numerous TTW journeys to locations within Edinburgh and Glasgow which cannot be reached within the 60 minute public transport threshold.

This public transport catchment translates to 156,498 households

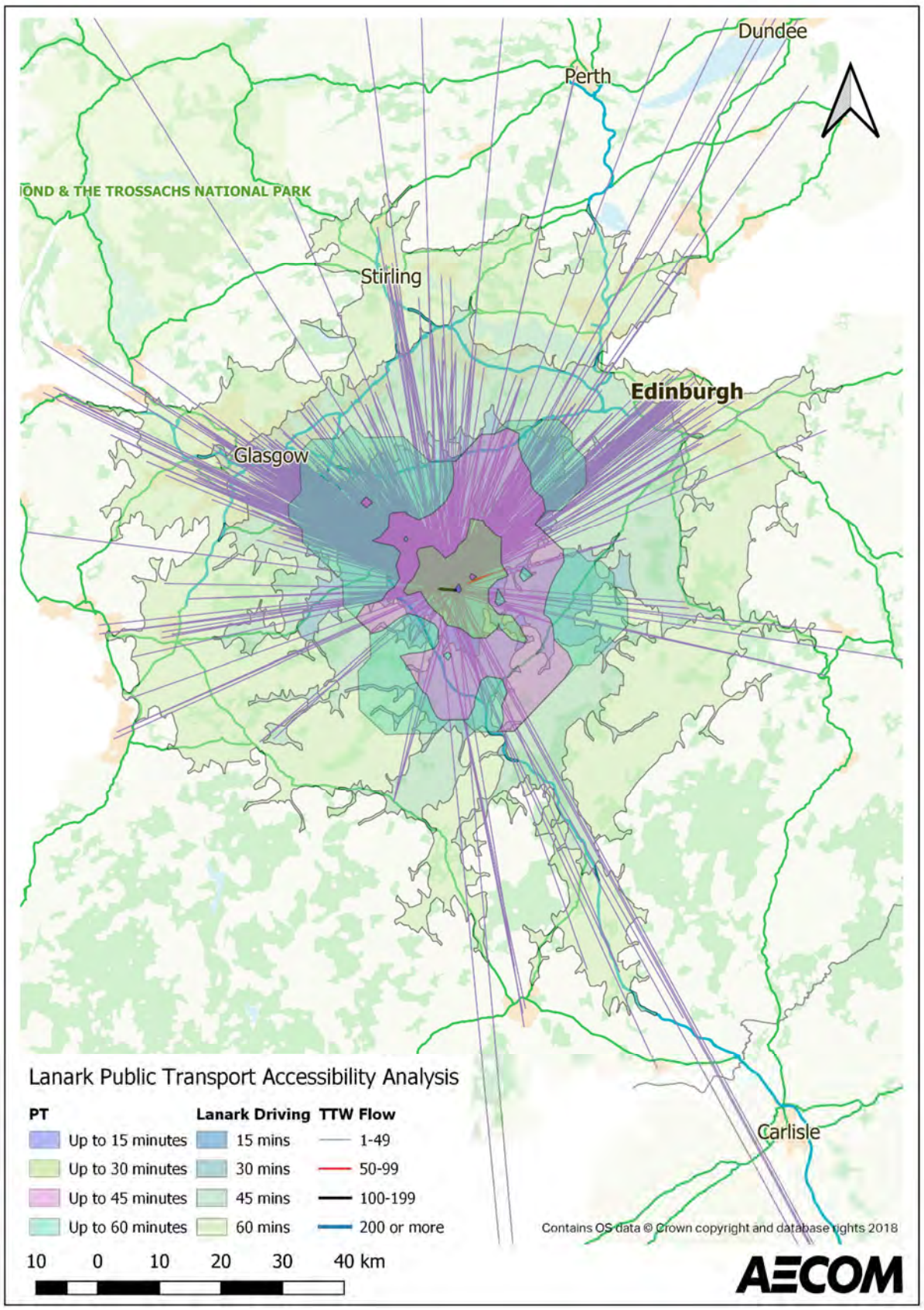

Figure 2-14 Lanark Public Transport Accessibility Analysis – car v public transport

The map in Figure 2-14 illustrates that current public transport options for Lanark enable journeys of roughly the same distance to be undertaken in any direction within a 60 minute catchment. It can further be seen that Edinburgh and Glasgow are accessible within a 60 minute and 45 minute drive time respectively. This compares to the 60 minute public transport boundary of the east end of Glasgow, Crawford and Livingston.

It can be seen that whilst the existing TTW journeys with the largest flows (Lanark) can be undertaken within the 60 minute public transport threshold, there are numerous TTW journeys to locations within Edinburgh and Glasgow which cannot be reached within the same threshold.

This public transport catchment translates to 281,152 households

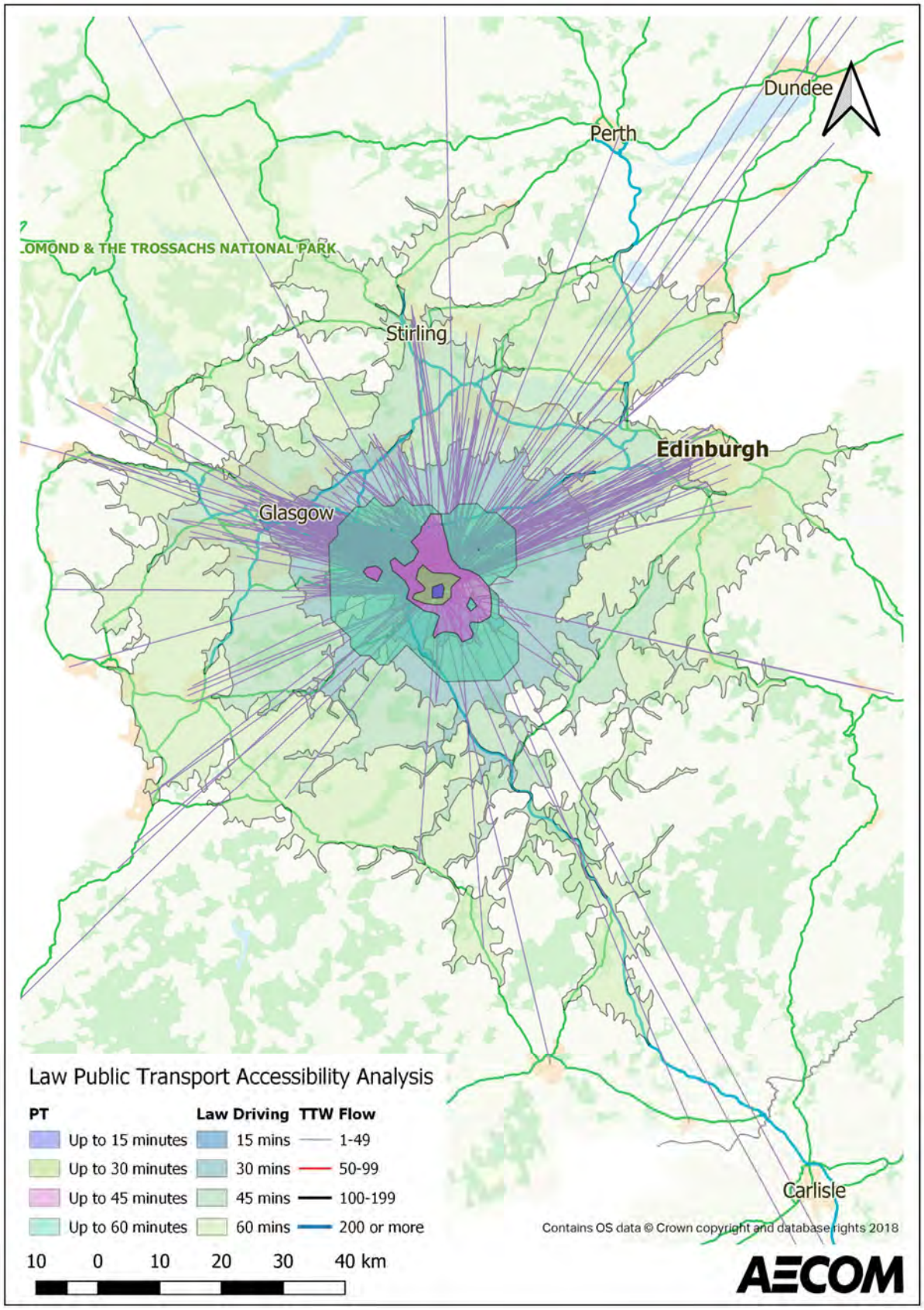

Figure 2-15 Law Public Transport Accessibility Analysis – car v public transport

The map in Figure 2-15 illustrates that current public transport options for Law enable journeys of roughly the same distance to be undertaken in any direction within a 60 minute catchment. It can further be seen that Edinburgh and Glasgow are accessible within a 60 minute and 45 minute drive time respectively. This compares to the 60 minute public transport boundary of the east end of Glasgow, Strathaven, Lesmahagow and west of Forth.

It can be seen that whilst the existing TTW journeys with the largest flows to other SLC locations can be undertaken within the 60 minute public transport threshold, there are large TTW flows to Glasgow City Centre that cannot be undertaken within the same threshold. It can further be seen that there are numerous TTW journeys to locations within Edinburgh and other locations in Glasgow which cannot be reached within the 60 minute public transport threshold.

This public transport catchment translates to 195,154 households

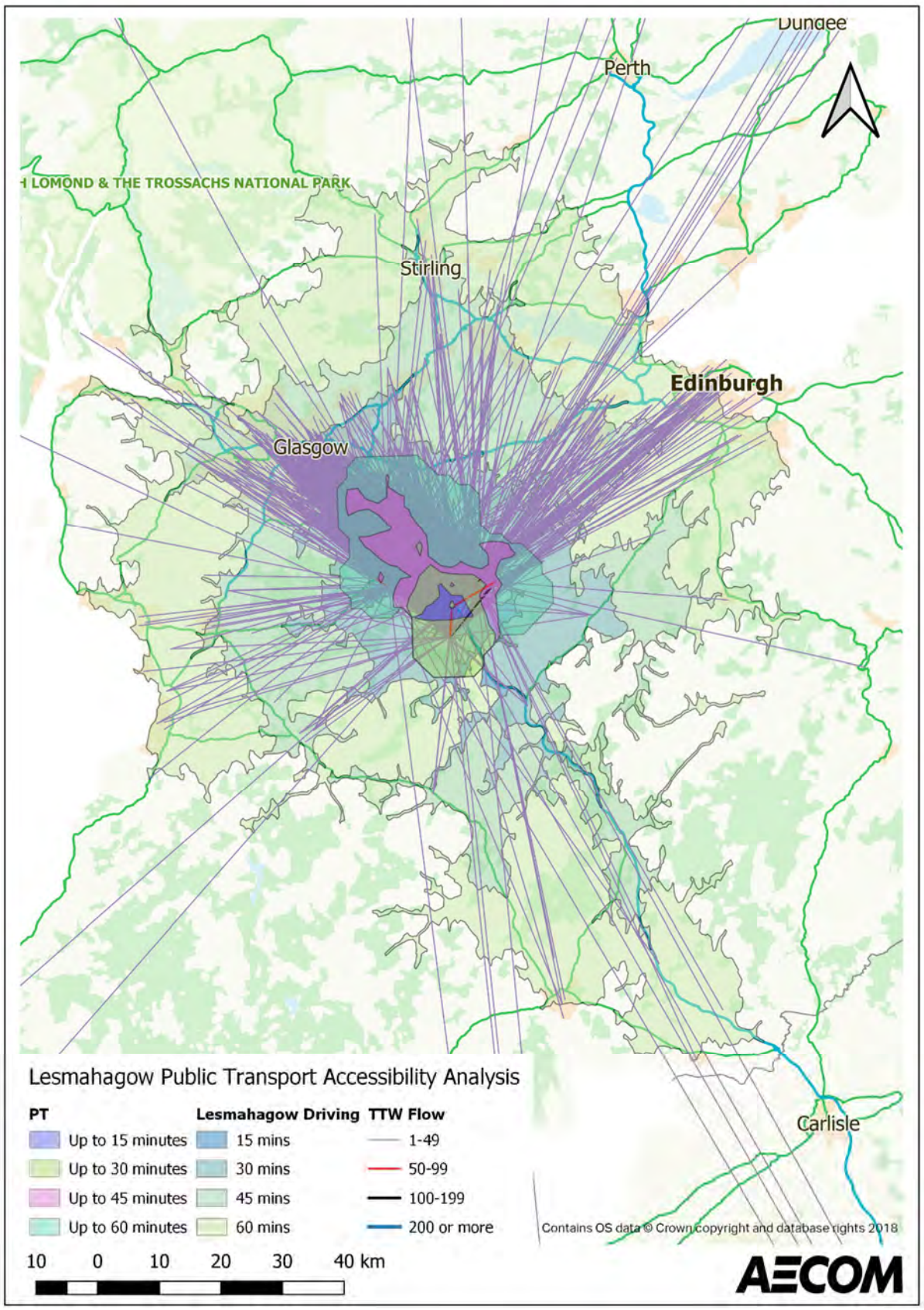

Figure 2-16 Lesmahagow Public Transport Accessibility Analysis – car v public transport

The map in Figure 2-16 illustrates that current public transport options for Lesmahagow primarily enable journeys to locations to the north of the settlement within a 60 minute catchment. It can further be seen that Edinburgh's west end and Dumfries are accessible within a 60 minute drive time, with Glasgow accessible within a 30 minute

drive time. This compares to the 60 minute public transport boundary of the east end of Glasgow, Carstairs and Douglas.

It can be seen that whilst the existing TTW journeys with the largest flows to other SLC locations can be undertaken within the 60 minute public transport threshold, there are numerous TTW journeys to locations within Edinburgh and other locations in Glasgow which cannot be reached within the 60 minute public transport threshold.

This public transport catchment translates to 163,652 households.

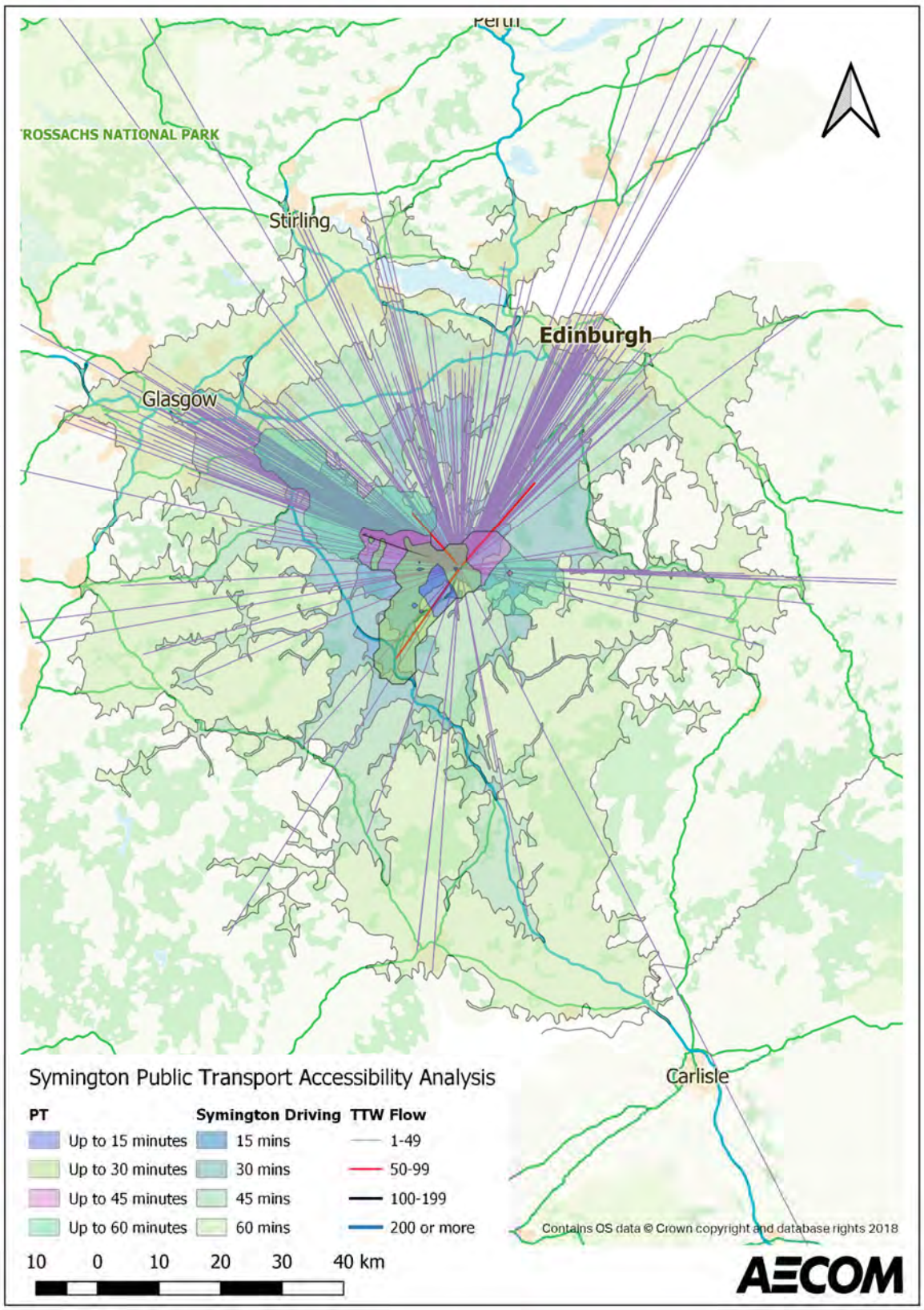

Figure 2-17 Symington Public Transport Accessibility Analysis – car v public transport

The map in Figure 2-17 illustrates that current public transport options for Symington primarily enable journeys to locations to the north / north-west of the settlement within a 60 minute travel time catchment. Considered alongside the Urban/Rural classification of Symington as a 'Remote Rural Area' which is defined as an area with a population of less than 3,000 people and with a drive time of between 30 and 60 minutes to a Settlement of 10,000 or more, it can be seen that the level of public transport accessibility is significantly lower than the equivalent accessibility by private car. It can further be seen that Edinburgh and Glasgow are accessible within a

60 minute drive time which compares to the 60 minute public transport boundary of the east end of Crawford, Bellshill and southwest of Peebles.

It can be seen that whilst the existing TTW journeys with the largest flows to other SLC locations can be undertaken within the 60 minute public transport threshold, there are numerous TTW journeys to locations within Edinburgh and Glasgow which cannot be reached within the 60 minute public transport threshold – particularly towards Edinburgh.

This public transport catchment translates to 69,250 households.

Bus Services

Details of bus services including frequencies, journey time and first/last departure times are presented in Appendix A.5. Services include direct connections between

- Lanark, Carluke and Glasgow;
- Lanark, Carluke and Hamilton;
- Lanark, Carstairs and Carnwath; and
- Lanark, Symington and Biggar.

In summary:

- Overall, there are regular services including express services between Lanark, Carluke and Glasgow, however, large parts of the study area have no direct connections to Glasgow. These do however tend to be in the lesser populated parts of the area.
- Transport accessibility analysis illustrates that from a starting point of the population based mid-point of the nine settlements in Clydesdale focused upon in the Pre-Appraisal analysis, it is not possible to reach either Glasgow or Edinburgh city centre within a 60 minute public transport journey time (taking into account walk time and interchange time and timetabling).
- There are connections provided which link the smaller towns in the study area however some of these run with low service frequencies.
- There are limited direct connections from Clydesdale to Hamilton (the principal town of South Lanarkshire). The 317 service between Lanark and Hamilton now operates on a fully subsidised basis having previously operated on a commercial basis.
- There are no direct bus connections from Clydesdale to East Kilbride, East Kilbride is a major town within South Lanarkshire which is an area for education, healthcare and retail.
- The commercial 240X service connecting Law with Glasgow was withdrawn in 2019. A subsidised hourly route between Carluke, Law and Hamilton now operates following previous commercial operator withdrawals from the village. This does not access Carluke railway station, and direct connections from Hamilton to Law are not available after 18.00.
- There is an hourly bus service providing a direct connection between Biggar and Edinburgh. This includes four services per day in either direction with onward connection to/from Dumfries and Galloway. There are currently no other direct bus connections from Clydesdale to Edinburgh.

Rail Services

Details of rail services including frequencies, journey time and first/last departure times are presented in Appendix A.6. Services include direct connections between

- Lanark, Carluke and Glasgow; and
- Glasgow, Carluke, Carstairs and Edinburgh.

Demand Responsive Transport

Demand Responsive Transport (DRT) is the term used to describe on-demand transport services that primarily operate locally, in areas of low passenger demand which are not covered by conventional bus services. Journeys are booked in advance and there is a degree of flexibility in the timetable, the selection of the route as well as the

stopping points along it. Often, DRT services are available to individuals based on meeting an eligibility criteria e.g. pensionable age. Vehicles used for DRT services include taxis, mini-buses or other vehicles. DRT tends to be a shared transport service.

This report reviews DRT as this can be a solution to travel demand that is lower and more dispersed, as in many rural areas in Scotland.

MyBus Services run in the area and are operated by SPT. The M19 MyBus serves Wishaw/Shotts, with the R800 serving Lanark and R900 serving Three Valleys. Their general characteristics are listed below:

- MyBus is a bookable bus service offering door-to-door transport. The service can be used for shopping, GP appointments, visiting friends, attending local clubs, etc, except for hospital appointments. Journeys where there are alternative public transport services already available are not provided.
- Passengers get picked up and dropped off as close as possible to their destination by vehicles which are low-floor and wheelchair accessible. The driver provides assistance to board the bus from the pavement.
- Bookings are accepted from one day before traveling to 2hrs before travelling, either online or by phone (lines are closed over the weekend). Registration of passenger details prior to the booking is recommended. Group bookings of more than three people regularly travelling to the same destination at the same time are also accepted.
- Normal bus fares apply and can be checked at the time of booking. Fares for children aged between 5 and 15 are confirmed during the booking while Scottish Citizens National Entitlement Card holders as well as Companion Card holders travel for free.
- Service M19 operates daily from 09:00 to 18:00 and Wednesday evenings from 18:00 to 23:30. Figure 2-18 illustrates the coverage area of the service. Only part of the coverage area falls within the study area boundary.

Service R800 operates Monday to Saturday from 07:00 to 18:00 and Sundays from 09:00 to 18:00.

- Figure 2-19 illustrates the coverage area of the service, which falls entirely within the study area.
- Service R900 operates Monday to Saturday from 07:00 to 23:30 and Sundays from 09:00 to 23:30. Figure 2-20 illustrates the coverage area of the service. The majority of the coverage area falls within the study area.

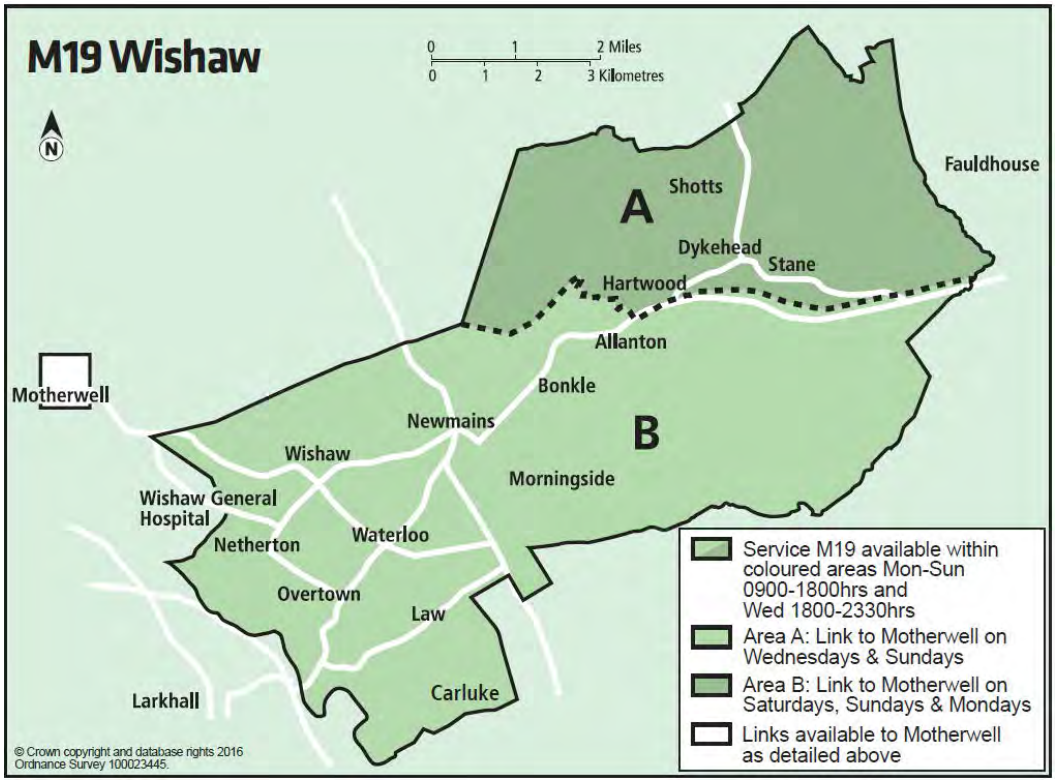

Figure 2-18 Coverage map of MyBus Service M19 (© SPT)

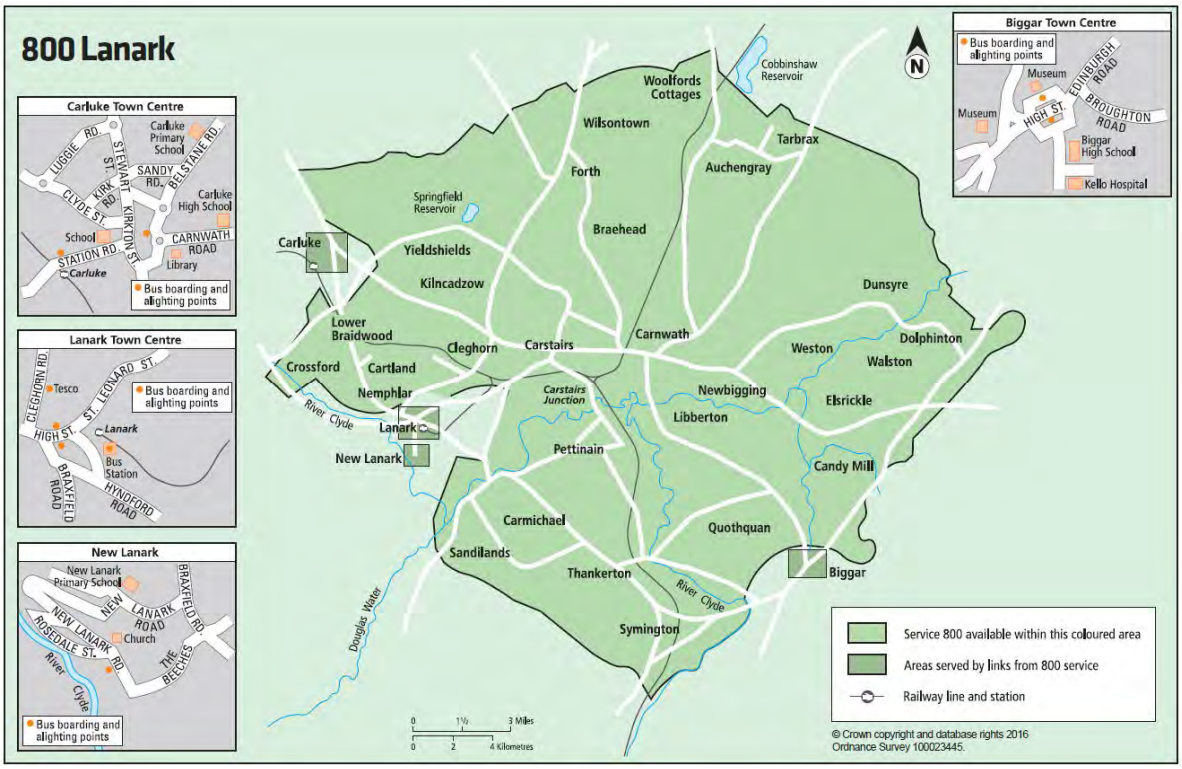

Figure 2-19 Coverage map of MyBus Service R800 (© SPT)

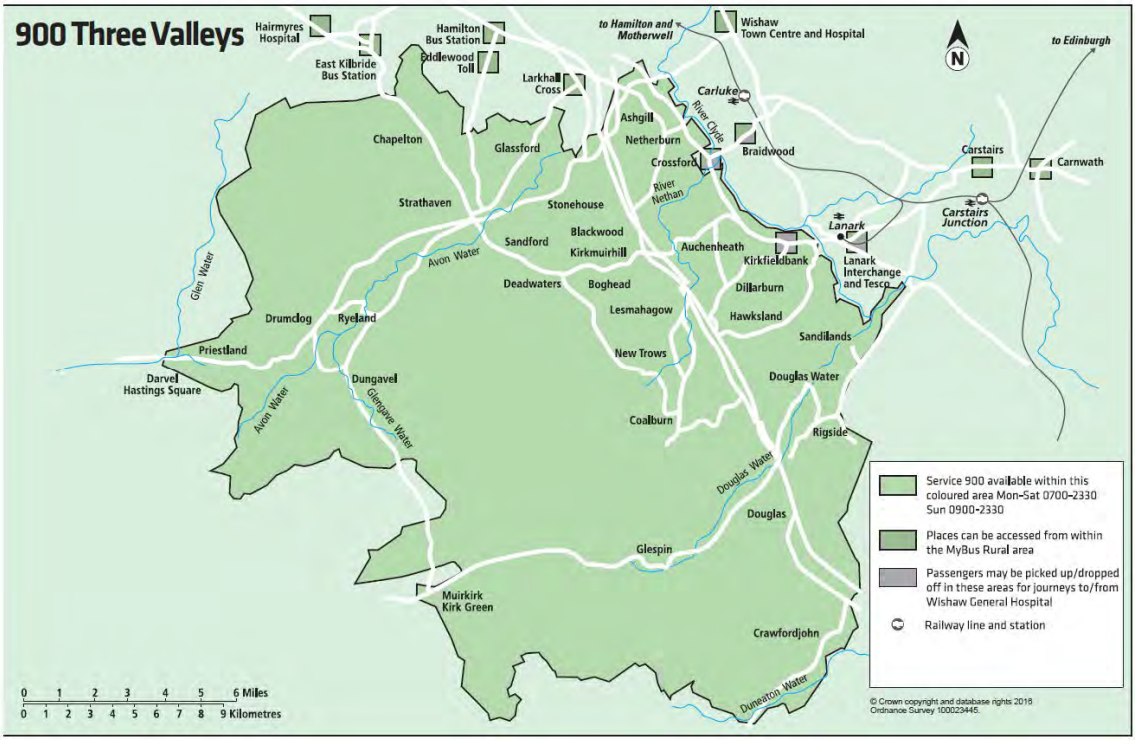

Figure 2-20 Coverage map of MyBus Service R900 (© SPT)

Community transport services are offered by the Rural Development Trust (RTD): The main characteristics are listed below:

- Community transport services are provided to over 350 community groups within South Lanarkshire. Over 100,000 passenger journeys per year are currently operated, mainly taking community groups on trips and outings. School transport is also provided.

- The service provides residents in rural areas such as Crawford, Abington, Douglas and Rigside with a timetabled bus service which offers interchange opportunities not currently provided within the existing public transport network.
- Aside from transport provision, the RDT provides low cost maintenance and repairs to a number of voluntary and community organisations in South Lanarkshire who operate their own minibuses.
- RTD receives funding from SPT to allow the continuation of its community transport scheme[10].

Traffic Patterns

Annual Average Daily Flow (AADF) traffic count data collected by the Department for Transport (DfT) provides a nationwide dataset of traffic count data which allows for a comparative trend to be established. Within the study area there are a total of 45 traffic count locations.

This data shows that the highest traffic flows in the area are on the M74 corridor and that traffic flows have remained at a level within 10% of their 2012 volumes at the majority of count locations within the study area. Further details are presented in Appendix A.8.

Accident Data

Personal Injury Accident (PIA) data collated by the DfT provides a nationwide dataset of PIAs occurring on the public road network. Three year accident data for the study area is presented in Appendix A.9.

[10] Community Transport Projects, SPT Committee Report, 08/01/2018, http://www.spt.co.uk/documents/latest/op260118_agenda12.pdf

Problems & Opportunities Review

03

3. Problems & Opportunities Review

Introduction

The Pre-Appraisal stage of this process described the transport issues identified in the study area, together with an analysis of opportunities for improvement. Through the additional baselining activities identified in Chapter 2, we build on this further in this section.

Problems

STAG defines problems as 'the genesis of an option and are measurable through shortfalls in meeting the objectives'[11]. Problems should include those that can be quantified through data analysis as well as 'perceived' problems which are those which are experienced but not easily encapsulated through data analysis.

Problems Identified at Pre-Appraisal

The following list re-states the problems as identified within the Pre-Appraisal study. Discussion as to any changes in the intervening period follows in the subsequent section:

- Transport provision is generally poor in the rural parts of Clydesdale, meaning residents are unable to access education, healthcare and employment opportunities. This particularly affects young people and those with a low income who may not be able to afford a private car.
- A large proportion of Clydesdale residents do not live near to the rail network, meaning they must rely on other modes, such as bus or car, to access a station.
- Many of the off peak bus services do not integrate with rail services, meaning residents are unable to use them to access connecting rail services to Glasgow, Edinburgh and beyond.
- Private car ownership and use is high, resulting in environmental impacts such as carbon emissions.
- Law is between Carluke and Wishaw with regular bus and rail services running past the village however there is no rail halt and an issue with local bus operations has cut the village off completely by public transport[12].
- There are no direct bus services from many locations in Clydesdale to Glasgow - from these areas, interchange is required at Lanark or Carluke for any onward travel.
- There are very limited public transport connections to tourism sites including the World Heritage Site at New Lanark, limiting the potential of the area.
- The West Coast Mainline is currently constrained and would be unable to support additional, slow moving services, or potentially the introduction of new stops.

Problems Identified at Part 1 Appraisal

In addition to the problems identified at the Pre-Appraisal stage, the following were identified within the Part 1 Appraisal study:

- Further decline in bus patronage and bus operations in the area including withdrawal of a direct link between Law and Glasgow in January 2019, which may re-emphasise the need to look at public transport connectivity issues from Law in particular, as well as impacting upon the commercial viability of proposals to improve bus services generally.
- Particular geographic problems in the southern part of Clydesdale were highlighted by some attendees at the stakeholder workshop, with a feeling that more needs to be done to tackle transport accessibility and transport isolation issues in these communities and areas.

[11] https://www.transport.gov.scot/publication/stag-technical-database/section-2/#s2
[12] It is noted that public transport services do operate in Law, as detailed in Appendix A.5

Opportunities

STAG requires the Pre-Appraisal process to identify opportunities to improve the transport system and the way it is used. In this study, we have revisited the opportunities identified in the Pre-Appraisal and enhanced their definition.

Opportunities Identified at Pre-Appraisal

The following list re-states the opportunities as identified within the Pre-Appraisal study. Discussion as to any changes in the intervening period follows in the subsequent section:

- Increase the accessibility of health and social facilities.
- Increase the accessibility of employment and education opportunities.
- Increase the proportion of residents employed in higher value sectors. It may be that current transport connectivity is constraining access to higher value employment opportunities.
- Improve house prices in Clydesdale which are lower than the national average but higher than the local authority average. Transport accessibility is one of a number of factors which influence house prices, with improvements in transport access having the potential to lead to increases in the supply and demand for housing.
- Increase the accessibility to tourism in the area and take particular advantage of the World Heritage Site at New Lanark and take cognisance of the important role tourism plays in the region and the local economy.
- Encourage modal shift away from private car use and increase the sustainable transport mode share.
- Potential future opportunity for rail, if rail capacity is freed up by the extension of HS2 to Scotland, enabling the introduction of new potential rail stations at Symington and or Law. In this regard, both existing and future train movements, train timetabling, potential stopping time at new stations, train path availability and signalling need to be fully understood. If the West Coast Main Line is substantially upgraded or alternatively bypassed by new HS2 bypass lines it will still be in use for freight traffic. Local passenger services will be able to operate alongside freight services as the speed differential between a 75mph multimodal freight train and a stopping passenger train is much reduced compared with the current differential between 75 mph freight trains and 110/125 mph non-stopping passenger trains.
- Potential for rail freight integration.

Opportunities Identified at Part 1 Appraisal

The work carried out in this study have highlighted the following additional opportunities:

- The implementation of Scotland's first LEZ in Glasgow may present an opportunity through investment in better buses, together with any funding made available from Government for greener bus fleets.
- High levels of engagement with study to date which supports a will (public and political) for change.
- Windfarm community benefit funds potentially offer the opportunity to fund sustainable travel projects though this may require a change to the current administration of these funds.
- The potential for High Speed Rail in Scotland in future years could release capacity on existing railway lines. There is however a large degree of uncertainty over this and the project is still developing.

Issues

STAG defines issues as uncertainties that the study may not be in a position to resolve, but must work within the context of. Examples of issues include 'the impact of a major new land-use development has yet to become clear' or 'a study for a neighbouring area may lead to a proposal that results in significant changes to through traffic passing across a study area'.

Issues Identified at Pre-Appraisal

The following list re-states the issues as identified within the Pre-Appraisal study. Discussion as to any changes in the intervening period follows in the subsequent section:

- The commercial viability of any new bus services that may be introduced and private operator appetite to operate new services, similarly, the vulnerability of existing services, SPT and SLC note withdrawal of specific services in recent years.
- The potential subsidy that may be required to increase bus provision in the area.
- Commercial bus market does not believe it is feasible to divert services to Law, losing journey time and potential patronage between Carluke and Wishaw.
- Potential rail station at Law would be sited very close to two existing train stations at Carluke and Wishaw.
- Symington sits on a segment of line that is not currently served by ScotRail, and is only served by operators which run intercity services. In the SLC area, ScotRail is focussed on their existing commitments providing station expansions and redevelopments which are not focused in/around Symington area.
- Existing station at Carstairs and proposals for Carstairs redevelopment may weaken the case for the development of a new rail station in Clydesdale due to the proximity of catchment areas.

Issues Identified at Part 1 Appraisal

In addition to the issues identified at Pre-Appraisal, the following were identified within the Part 1 Appraisal study:

- South Lanarkshire's Draft Air Quality Strategy proposes plans to investigate the use of traffic regulation conditions in relation to bus Euro standards within SLC's AQMAs which includes the entire town of Lanark. This presents uncertainties in terms of the minimum vehicle emissions standards that may be imposed upon bus operators in these areas.
- The issue of the current commercial nature of bus service provision in Scotland and the UK was re-emphasised through stakeholder consultation in this study, which makes it challenging to provide services in areas of lower demand and / or geographically dispersed communities without substantial public subsidy.

Constraints

STAG defines constraints as the bounds within which a study is being undertaken. These may include statutory powers, funding levels or legislation. They can also include physical constraints such as boundaries and terrain, and areas of environmental sensitivity or importance.

Constraints Identified at Pre-Appraisal

The following list re-states the constraints as identified within the Pre-Appraisal study. Discussion as to any changes in the intervening period follows in subsequent sections:

- Available Council and SPT budget to operate subsidised bus services.
- Site specific infrastructure (signalling and points) constraints at Law Junction.
- Capacity issues on the West Coast Main Line.
- Limited rail station catchment population at Symington and Law given both are relatively close to neighbouring stations.
- The West Coast Main Line is a highly important strategic link between Scotland and England subject to both high speed rail traffic and freight traffic, with freight paths protected to enable Government to achieve objectives and aims with regards to modal shift for transporting freight. The line is currently approaching capacity which could make the introduction of stops and services challenging, however this

needs to be explored in greater detail with consideration of the future impact of an extension of HS2 into Scotland which could provide greater scope for the introduction of local rail services. Both existing and future train movements, train timetabling, stopping time at new stations, train path availability and signalling need to be fully understood, especially in light of the Scotland Route Study.

Constraints Identified at Part 1 Appraisal

In addition to the constraints identified at pre-appraisal, the following Environmental constraints have been identified within this Part 1 Appraisal study:

- Areas potentially vulnerable to flooding around the river Nethan from east of Carluke to north of Douglas.
- Nine conservation areas within the study area.
- The approximate southern half of the study area is designated as an Environmentally Sensitive Area.
- The Clyde Valley Woodlands is designated as a National Nature Reserve.
- There are 36 Sites of Specific Scientific Interest in the study area.
- There are six Special Areas of Conservation in the study area.
- New Lanark is designated as a UNESCO World Heritage Site.
- Muirkirk and North Lowther Uplands is designated as a Special Protection Area.

Summary

Whilst the landscape in terms of problems, issues, opportunities and constraints in the study area remains largely unchanged since the time of the Pre-Appraisal study, the preceding sections illustrate the additional factors identified in the Part 1 study which have further informed the refinement of TPOs, Options and the appraisal process.

Engagement

04

4. Engagement

Introduction

Engagement is a central component of the STAG process. The form and extent of engagement is proportionate to the scale of the study and the stage of the STAG process. Subsequent to the extensive engagement work undertaken for the purpose of the Pre-Appraisal study, targeted stakeholder engagement was undertaken to further inform the Part 1 Appraisal study. The aim of the Part 1 engagement activities is to:

- Better understand the key problems, issues, opportunities and constraints that should be considered as part of the study;
- Discuss and confirm the study objectives; and
- Identify and assess the relative merits of different options for taking forward to appraisal.

One-to-One Discussions

One-to-one discussions were undertaken with transport operators, the regional transport partnership and a member of the Scottish Youth Parliament. Details of the outcomes from these discussions are contained in Table 4-1.

Table 4-1 Stakeholder Comments

Stakeholder	Comments
SPT	• Noted that description in Pre-Appraisal report of Law being cut off by public transport was not correct at time of writing, though in early 2019, the operator has given notice of intention to withdraw 240X services from Law, which leaves Law with no Glasgow connection. Commercial reasons, lack of patronage in Law, as well as higher costs overall with move to Euro6 vehicles. • Changes to note in 2018 to bus services in area – service between Dumfries and Edinburgh via Biggar, now reduced in frequency and changes to termination point of some services, though less of an impact in Clydesdale. L2 no longer running at Lesmahagow. 317 service is now fully supported (was commercial). • Generally, bus subsidy has increased in SPT area and commercial services are reducing. Bus market is declining in the UK generally and there are lots of factors behind it. • Commercial bus market is heavily reliant on reimbursement from concessionary fares; the reimbursement rate is due to decrease this year which may impact commercial viability of services. • Congestion and lack of bus infrastructure in the Glasgow City region, including South Lanarkshire, is increasing issues for bus operators e.g. on one route, First Glasgow had 14 vehicles and now need 17 to maintain frequency of service due to journey time delay from congestion. Congestion in Hamilton, lack of bus priority impacts on services destined for Clydesdale, and extra journey time could be the difference between some services being commercial. Some operators have stated they could extend their commercial networks if journey times improved. • Funding in the 2019 capital programme (SPT and SLC) to develop (Lanark) bus station and expand P&R at Lanark. • Have looked at quality partnerships previously in Hamilton but concluded it could not be delivered due to lack of bus priority for services. • Mybus services operate in the study area and are open to everyone. Looking at partnership working with community transport operators in some parts of the study area, including Abington. • On rail options, should note work at Motherwell Station to improve station, platforms and integration with other modes. Linked to City Deal. • On bus options at Abington, a hub has been explored previously but issues over land ownership and enforcement of any long-stay parking restrictions at petrol/retail service area.
ScotRail / Network Rail	• The Scotland Route Study by Network Rail is a key document to be aware of, though nothing substantial / specific in this document for the Clydesdale area. • Rail funding is changing, and Network Rail now have to bid for funding and demonstrate a business case based on a STAG approach. The Scottish Minister's HLOS for CP6 https://www.transport.gov.scot/media/39496/high-level-output-specification-hlos-for-control-period-6-final.pdf is a key document guiding outputs, and now pipeline projects are being developed and finalised. The study team should be aware there are committed projects already, whilst others are still being developed and confirmed. • Recast of the Shott's line timetable will follow electrification, and new timetable expected May 2019 with additional hourly service at Breich. Two-coach trains replaced by three-coach on some services – capacity is constrained at either end in Glasgow and Edinburgh, so it is not possible to currently increase capacity significantly. Aspiration to run an hourly service between Edinburgh and Glasgow via Carstairs though depends on infrastructure enhancements – improvements at Carstairs are currently being looked at (in terms of junction asset renewals) including power supply issues. Curriehill is the current power supply source, and a possible project in CP6 2021-22 is to upgrade power supply at Curriehill which may facilitate enhanced frequency. Carstairs junction - looking to rationalise layout and carry out enhancement to support line speed increases, north-east bypass of station and making infrastructure more resilient. Would allow 2 trains at Carstairs to stop simultaneously – 2nd half of CP6. • Enhancements at Glasgow Central being explored, and Edinburgh Waverley Masterplan work ongoing. Any Glasgow Central infrastructure improvements would not likely commence until CP7 (2024 onwards). Looking at Argyle line but will have limited impact on Clydesdale study area and number of services remain the same. • Shieldmuir Junction – work to enable 6 car operation ongoing, class 385s will be introduced on Lanark route from later in 2019 (existing have 6 car trains but shorter in length than new coaches). Will be relocating access to the station in 2019. No substantial seat capacity improvements on this route but will be higher quality of service and may be potential for journey time improvements. • Freight on routes through Clydesdale – Freight Market Study. In summary, there are targets to increase freight volumes by 7.5% throughout CP6 which could theoretically mean more freight on lines in the Clydesdale area. It should also be noted that once Currie feeder in place, some freight services will go via Shotts instead of Carstairs which would reduce journey time by 20 minutes. Some diversion of services via Carstairs during Shotts electrification but that will revert back. There may be more electric services running up East Coast Main Line (ECML) in future. No particular known changes in cross-border freight at the moment – some changes around origin and destination mainly but not to services. Should also note Hargreaves site near Carstairs, and the development of enhanced gauge from Borders, through the study area to support more freight. • Office of Road and Rail rail station usage data changes – note that introduction of Clydesdale services would account for major jump in station usage estimates identified in historical data.

	• Clydesdale services are generally popular, and ScotRail do get customer feedback on how busy Saturday services to Edinburgh are when the rugby is on (3 car services run on a Saturday compared to 4 cars Mon-Fri). • Motherwell, will be improved station facilities there as part of City Deal. • Brief discussion on long list of options from Pre Appraisal study. o A new rail service from Lanark to Edinburgh would require new infrastructure and query over whether the demand could not already be serviced by Carluke/Carstairs services to Edinburgh. o In theory, ScotRail could call at Law as they run services in this area. Demand for such a service is a different question. There are no ScotRail services near Symington and there's no ability to turn train until Carlisle, so would require a different transport operator to stop, and these rail operators run longer-distance cross-border services, so may not be a priority for them. o Hamilton to Lanark services – Lanark services now run to Glasgow Central. High level and better journeys times for Lanark passengers as a result, though not good connections at Motherwell, so journeys to Hamilton are a challenge. However there are constraints on this line as various services threading through each other, and it's very challenging to change the timetable as a result to improve connections between Motherwell and Lanark. o A new station at Law would increase journey times for existing passengers using this line, and there is a focus on journey time improvements in Scotland. Law is also within very close proximity to 2 existing stations and a P&R. Capacity constraints on this line as two intercity trains an hour in each direction plus freight – therefore uncertain if capacity exists to stop at Law, and a loop may not be feasible for a service.
Royal Voluntary Service (RVS)	• The community transport service is focussed on the Clydesdale villages. It relies on volunteers who use their own cars to pick up generally older people for e.g. medical appointments and shopping trips. • A minibus is also hired from the Rural Development Trust to enable a fortnightly shopping trip to Lanark to be run. • The community transport service used to be busy and vibrant. At its peak there were around 35-40 volunteers and around 70 clients. Historically, the RVS had an office presence in Lesmahagow, through which clients would book their community transport. The Lesmahagow office has now closed so the service has lost an element of visibility in the community. Feedback from clients suggests that they do not like speaking to a Glasgow based office on the phone to make travel arrangements. • Another factor in the reduction of usage over time is due to the propensity of volunteers to give up if their regular client(s) and therefore withdraw from using the service. • The recognition of difficulties caused by early morning timetabling of medical appointments for residents of rural Clydesdale locations by the NHS has also reduced the need for community transport provision to medical appointments. • No specific problems and opportunities in addition to those identified at Pre-Appraisal. Transport accessibility in rural areas of Clydesdale is the biggest problem. Limited resources for patient transport services can also result in situations whereby eligible individuals cannot access the service due to vehicles being in use in other areas. The result of this is increased costs to eligible patients for making private transport arrangements e.g. taxi and inability to access healthcare (missed appointments). • TPOs adequately cover the type of outcomes the study should be striving to achieve. • Bus service improvements would have the biggest impact. • There is no rail station in the south of the study area currently, so a station at Symington would also have a big impact. • Walking and cycling options are a good option to enable people to be more active. • With commercial bus services, there is always the threat that they are not viable and may be withdrawn. • The option for community transport services should be included in proposals. This should include the availability for community groups to run services. The Rural Development Trust do currently offer the use of their minibus for community groups but there may be limited knowledge/availability of this. • Car or minibus provision and potentially Council buses could be utilised to provide community transport services. • Community transport services offer a level of sustainability not always possible with commercial or other services, particularly in rural locations.
Transport Scotland	• Should High Speed Rail be delivered in Scotland (potentially a 10 year project from 2029), it is the current intention to route all longer distance trains on the West Coast Main Line along this high speed route, which in theory, could release some capacity on existing lines although this is a developing scenario. Intermediate stations are still being explored although Motherwell has been ruled out due to constraints in that area.
Reece Harding Member of Scottish Youth Parliament (MSYP)	• The cost of public transport is a particular barrier for young people, with the results of SYP's consultation indicating that many young people feel it is unfair that they are charged adult fares from the age of 16. • Accessibility of public transport, particularly in rural and remote areas is a problem – young people engaged with are supportive of a new rail station at Law. • The southern section of Clydesdale has been overlooked in terms of the problems/opportunities identified – South Lanarkshire's Youth Council recently held a rural summit in Biggar which provided the opportunity for young people to engage with various different services. For many young people, this was the first time they'd had such an

	opportunity due to limited transport opportunities. • Taxis are often the only option for young people, though they are prohibitive due to their cost. • Bus service frequency in Thankerton (hourly is too low). • Public transport options to New Lanark and other tourist attractions are limited. • The Pre-Appraisal consultation wasn't very youth friendly – the SYP can provide advice on making engagement materials youth friendly. • Objectives adequately reflect the problems in the study area. • TPO2 could be made clearer to explain what is meant by integration – ticketing/timetabling/both? • TPO3 has a strong link to the SYP campaign – young people in particular face issues re: accessibility. • Options 3,4 & 12 address issues of accessibility. • Options 3&4 could receive external funding to support their delivery. • There are no compatibility issues with any of the options. • Deliverability of options 3&4 will be impacted by additional factors such as requirements for e.g. additional track and signalling. Timetable changes would also be required for existing services in order to accommodate extra stops. • Increased frequency of rail services would also impact the wider rail network and may necessitate a wider review of timetables. • The commercial nature of bus services may make delivery of service improvements difficult – e.g. the justification given for the withdrawal of the bus service from Law was commercial reasons. • Disruption to the existing road network would likely be caused during the construction of new active travel infrastructure. • Option 13 and others where existing services or alternative options already exist would be considered lower priority than e.g. Option 4 where no alternative options currently exist. These higher priority options would open up access to new opportunities.
Whitelaw's Coaches	• Many areas within the 'Clydesdale' mapped area are mainly rural communities. Unlike large towns or cities, local bus services will be less frequent or non-existent as the commercial viability or sustainability does not exist compounded by low population and high car ownership per household. • We have no plans to increase frequency on any services we currently operate within the area. These services on a standalone basis are not commercially sustainable. An element of cross-subsidy through our network supports these services. The majority of the services that we took on operating solely in the Clydesdale area, were adopted when operators went out of business, were done so at 100% commercial risk to Whitelaw's. These services are regularly impacted on negatively, by roadworks/road closures, poor road space, poor road standards, inconsiderate parking and untreated/poor condition surfaces during winter weather conditions. In some cases the diversion for works or closures have been up to a 3 hour diversion route, given the nature of the rural road network and the significantly reduced routes/roads buses can physically travel on and safely. • SPT make very valid observations in regards to South Lanarkshire, and in particular Hamilton and other surrounding areas within the SLC area. There are a number of improvements, without huge capital costs coupled with more creative and brave parking policies and restrictions that SLC could establish to improve the operating environment in their local authority areas to allow a better platform for buses, passengers and potential passengers. This could also have a positive impact on other services deployed to more rural areas. It would require brave and bold policies that restrict car, LGV and HGV movement particularly in town areas and provide a better, quicker, easier operating environment for buses. If road congestion is not reduced and improvements are not made, within many areas within SLC area, bus services will reduce in frequency and numbers. Against a significant bus patronage decline in the SLC area (one of the largest areas of decline in Scotland) - increased frequency and sustainability of services will not be an option to combat increased road congestion, abundant and cheap local parking, lack of bus consideration/policies. • SLC also need to look at reviving their town centres, making them vibrant community hubs with retail outlets worth visiting and that provide paid jobs at the heart of it to boost the economy of the areas, community activity and this would naturally support bus services to/through/from these areas and local communities aligned. Favourable or zero business rates for a suitable period to kick start businesses/shops/eating places in dying town centres, bring back thriving retail outlets and unique retail offerings to their town centres would be a very welcomed approach. Most town centre retail outlets are empty, so what is the additional loss is there? None. • We do not operate in the area, so it would be inappropriate to comment. However I would add that there are many other areas requiring consideration within the area you are looking at in this study/project with significant need. Another consideration would be that if such a service was deemed to be commercially viable, would an operator already servicing the area not operate it? We are a demand responsive industry • Again we do not operate in the area of Law, so would be inappropriate to comment. Why is there a big focus on Law – the 'Clydesdale' area is much wider? Are these skewed outcomes given attendance at a workshop and local people only providing local issues? If so, how do you intend to engage a wider opinion/views? • Rail timetables never take into consideration with bus timetables. Variations to timetables follow two completely different processes for rail and bus. This is often felt by multi modal passengers on transferring from rail to bus on their homeward bound journey when the train either arrives late or the time has been changed to arrive later and the bus has already departed within the registered time and legal tolerance. However the bus companies receive the complaint in any case as it was the last section of the

	journey to get home that was not enabled as anticipated, even although the bus service has operated consistently and as timetabled. Whilst integration of modes or services does make for a far better proposition for passengers, it will not always work. Also where changes from bus to bus when more than one operator is involved – under competition rules, they cannot 'agree' a collaborative approach. This is illegal. • Most local service routes are operated by buses, not coaches (with exception of long distance, registered coach travel). Whitelaw's were fully DDA compliant over a decade before legislation dictated compliance. We have one of the youngest bus fleets in Scotland, if not in the UK. We operate every local service mile with Euro VI Low Carbon certified buses. These are of a high specification with full e-leather interior, wood effect flooring and 10 camera CCTV (interior and exterior). The average age of our bus fleet is 2 years old and we generally do not keep buses longer than 5 years. So in short, no I do not believe we as a company need to improve the comfort or quality of our buses. Any new buses introduced always take into account the latest requirements, quality of finishing, passenger comfort and safety. • Main problems/issues for us operators in the Clydesdale area include: o Congestion. o Local parking policies. o Car ownership (lack of restriction/cheap cost of ownership). o Roadwork/Road closure policies and practices. o Dying town centres. o Lack of bus priority. o Lack of consideration of bus services/passengers.

Stakeholder Workshop

A stakeholder workshop event was undertaken with representation by community groups, transport operators and authorities, council officers, elected members and health and social care partners. The event included presentation of the outcomes from the Pre-Appraisal study and discussion group sessions on problems, issues & opportunities, study objectives and proposed options.

Outcomes from the workshop and a list of attendees are contained in Appendix A.8 with outcomes summarised below:

- A major theme for problems in the study area was around public transport connections, bus and rail, across the area.
- Attendees commented on the geographical diversity of the Clydesdale area.
- The deregulated nature of the bus market was felt to make it hard for bus services to serve areas like Clydesdale as they are not commercially viable but socially necessary.
- Objectives should capture accessibility both to and from Clydesdale.
- Objectives should capture more specific journey purposes, in particular access to employment, education and health.
- At least one additional or revised option is required to tackle issues in the south of the Clydesdale area.
- Community benefit funds from windfarm projects provides the opportunity for funding support.

Option Refinement and Packaging and Appraisal against TPOs

05

5. Option Refinement and Packaging

Introduction

This chapter presents a finalised list of options which have been generated from an analysis of problems and opportunities in the study area, for assessment as part of the STAG 1 Appraisal. It provides a recap on the process followed to arrive at the list of options for appraisal following the Initial Pre-Appraisal study and sets out the further option development work carried out as part of this Part 1 Appraisal exercise, including through the review of feedback from stakeholder engagement.

Definition of Do-Minimum Scenario

In STAG, all generated options must be appraised against a Do-Minimum option. This considers the impacts on the transport network if no action is taken i.e. if no 'Do-Something' options are implemented. To inform definition of the Do-Minimum Scenario, factors that could potentially influence the demand, supply and costs of travel within the study area have been considered.

The Do-Minimum, in line with STAG, "comprises all schemes and proposals under construction or for which statutory powers exist and funding is available"[13].

The Part 1 Appraisal process allows a renewed analysis of the Do-Minimum scenario which was identified within the Pre-Appraisal as containing no committed transport improvements in the Clydesdale area i.e. the continuation of the current situation.

Since the conclusion of the Pre-Appraisal, there has been a planning application submitted for the creation of an additional 26 car parking spaces at Carstairs Rail Station Park & Ride (P&R). This represents one element of the option generated at Pre-Appraisal stage to:

Provide strategic P&R facility at Carstairs, with local bus services calling at the station, bus timetable integrated with rail

SPT's indicative 2019/20 Capital Plan includes the proposed £150k funding for 'Carstairs P&R'.

City Region Deal proposals to improve transport interchange opportunities at Motherwell Rail Station[14] may also directly impact the option generated at Pre-Appraisal to:

Improve rail timetables to allow an enhanced interchange at Motherwell Rail Station for Clydesdale residents who require to access Hamilton

Potential enhancements to rail infrastructure in the form of upgrading the Curriehill power supply and rationalising the layout of Carstairs junction may also directly impact on the deliverability of rail based options and will potentially result in decreased rail journey times for existing services.

Other than the above, there has been no material change in the period since the conclusion of the Pre-Appraisal study. On this basis, the Do-Minimum for the purposes of the Clydesdale study area is defined in Table 5-1.

Table 5-1: Do-Minimum Scenario

Scheme/Proposal	Comment	Impact on Study Area
Carstairs Park & Ride	A planning application has been submitted for the creation of an additional 26 car parking spaces at Carstairs Rail Station P&R. SPT's 2019/20 Capital Plan commits £240k funding for the project. This represents phase 1 of a proposed potential 3 phases of enhancements at Carstairs as identified in the SLC P&R Strategy.	Expansion of the Carstairs Rail Station P&R will potentially enable a greater number of residents from the study area to travel by sustainable modes.

[13] *Scottish Transport Appraisal Guidance*, The Scottish Government (June, 2008), p.30
[14] https://www.northlanarkshire.gov.uk/index.aspx?articleid=33761

Scheme/Proposal	Comment	Impact on Study Area
Motherwell Rail Station Improvements	£3.5 million City Region Deal funding committed to deliver: • An expanded bus facility on Muir Street • Relocated pedestrian crossing on Muir Street at Motherwell Station • New arrangements for taxis and disabled parking • Footpath and cycle path improvements • A new footway to link Hamilton Road with Motherwell Station • New layouts at Farm Street, High Road and Pollock Street car parks • Removal of on-street parking bays on Muir Street ScotRail additionally committed to deliver £5 million project to improve station buildings and forecourt	Rail services to the Clydesdale area are routed through Motherwell. Proposals to enhance interchange opportunities at the rail station may result in improved interchange opportunities for Clydesdale residents who require to access to Hamilton. Access improvements may also enhance the journey experience for individuals travelling between Motherwell and Clydesdale and may potentially promote mode shift from private car.
Carstairs junction layout rationalisation	Rationalisation of the existing Carstairs junction layout to include north-east bypass of the station and enhancing resilience.	Junction rationalisation would enable two trains to simultaneously stop at Carstairs and would support line speed increases. Existing rail services to/from Edinburgh and those to/from south of the study area currently route through Carstairs. All rail based proposals would be impacted by changes at Carstairs junction.
Curriehill power supply upgrade	Upgrade of the power supply at Curriehill.	Amongst the constraints on rail capacity is the power supply at Curriehill. Upgrading the power supply may facilitate enhanced frequency of services on the line which could enable conditions for rail service based options.

Each of the individual options assessed as part of the STAG Part 1 study will assume that all committed transport improvements and development allocations are implemented, and their impacts will be assessed in the context of these being in place.

The Reference Case

A reference case in appraisal terms is a scenario "which includes other non-controversial but as yet uncommitted transport schemes and/or development profiles, and which can be used as a baseline for option comparison. The reference case does not replace the Do-Minimum scenario but should be used to complement STAG".

The potential for High Speed Rail 2 through the study area in the future will need to be considered, as this could release capacity on the West Coast Main Line (WCML). That said, there is limited confirmed detail on this project to date and it is not considered sufficient to include as a Reference Case at this point in time.

Pre-Appraisal - Option Development

At Pre-Appraisal stage, an initial process of option generation and sifting was undertaken based on a high level appraisal of the options identified to address the problems and opportunities established for the study area. This initial exercise comprised 18 options across all modes of transport to address the TPOs for the study. The outcome from this exercise was that all options were considered suitable for more detailed appraisal as part of this STAG 1 Appraisal. The options are presented in **Table 5-2**.

Table 5-2: Options Emerging from Pre-Appraisal Study

Ref	Option

Ref	Option
1	Increasing the frequency of rail services between Carluke, Carstairs and Edinburgh
2	Introduce new rail services between Lanark and Edinburgh
3	Provide rail halt at Law
4	Provide rail halt at Symington
5	Improve rail timetable to allow improved interchange at Motherwell Rail Station for Clydesdale residents who require to access Hamilton
6	Provide a dedicated shuttle bus service between Law, and Carluke Rail Station, working on a high frequency and integrating with the rail timetable
7	Extend the current Subsidised service 243 from Carluke X to Carluke Rail Station. This service would need to run to a higher frequency than it does presently
8	Improve bus/rail integration before/after core hours at Lanark Rail Station to ensure connections are available to Clydesdale towns and villages outwith the core working day
9	Provide a strategic Park and Ride facility at Lanark with local bus services calling at the station, bus timetable integrated with rail
10	Provide a strategic Park and Ride facility at Carstairs, with local bus services calling at the station, bus timetable integrated with rail
11	During peak travel hours, provide half hourly service between Biggar/Symington and Lanark. SPT subsidise the early and late services on an hourly frequency. Proposal to increase the frequency connecting with commuter trains to Glasgow to half hourly services
12	Encourage bus services to Glasgow to stop at Law
13	Provide dedicated shuttle service linking Carstairs Rail Station, Lanark Rail Station and New Lanark Heritage Village, integrated with the rail network. Note, that services to Carstairs would not have to be high frequency as there are only limited train services calling at Carstairs each day
14	Provide safe walking and cycling routes connecting towns/villages in close proximity, where there is a demonstrable flow. i.e. Law, Carluke and Braidwood. Investigate the Old Wishaw Road, would require surfacing and lighting
15	Provide safe walking and cycling routes connecting towns/villages in close proximity where there is a demonstrable flow. i.e. Biggar and Symington
16	Provide safe walking and cycling routes connecting towns/villages in close proximity where there is a demonstrable flow. i.e. Carnwath and Carstairs
17	Ensure appropriate/suitable walking access is provided to transport hubs and stops including rail stations, bus stations and bus stops
18	Improve vehicle quality for bus services in the area

These options fall within broad themes of:

- Active Travel;
- Rail Services;
- Rail Stations;
- Bus Service Improvements;
- Behaviour Change; and
- P&R and Bus Hubs.

Pre-Appraisal Option Assessment – Option Sifting

A list of options for improving the transport situation in the study area (across all modes of transport currently available within the area) has been developed in the *Pre-Appraisal Report*. These have undergone an Initial Appraisal against the TPOs (see previous section). Following this appraisal, it was concluded that all the options from the long list merit further consideration and will be taken forward into STAG Part 1.

Part 1 Appraisal – Further Option Definition

The options brought forward from Pre-Appraisal for further consideration in Part 1 Appraisal are set out below. We discuss these options below, setting out:

- Rationale for further consideration at Part 1.
- Further definition where possible.
- An indication of any options with compatibility issues (e.g. due to scale of cost, geographical area, overlapping user groups or competing objectives).
- Confirmation of their inclusion in Part 1 Appraisal, and option name or appropriate option package.

Table 5-3 Options - further definition

Option	Geographical Focus	Further Definition	Compatibility Issues	Appraise further in Part 1?	Final Option Name in Part 1 Appraisal
1 - Increasing the frequency of rail services between Carluke, Carstairs and Edinburgh.	WCML rail corridor between Carluke, Carstairs and Edinburgh.	This option involves increasing the frequency of existing rail services on the WCML which currently operate on a roughly 2 hourly frequency Mon-Sat (6 services per day).	Possible tension with option 3 as a new station on the existing line would likely result in a journey time disbenefit for existing services. This may constrain available capacity for running increased frequency of existing services on the corridor. May pose timetabling difficulties with the WCML used to carry both local rail services and higher speed cross-boundary services. Possible tension with option 2 as new services between Edinburgh and Lanark, may constrain available capacity for running increased frequency of existing services on the corridor. Possible tension with option 5 as timetable changes to improve interchange opportunities at Motherwell for existing services on the WCML, may constrain available capacity for running increased frequency of existing services on the corridor.	Yes	Rail Services: Carluke-Carstairs-Edinburgh
2 - Introduce new rail services between Lanark and Edinburgh.	WCML rail corridor from Lanark branch to Edinburgh.	This option involves the introduction of new rail services between Lanark and Edinburgh. This would require the implementation of a new section of line connecting to a spur to the west of Carstairs Junction.	Possible tension with option 1 as increased frequency of existing services on the WCML corridor may constrain available capacity for running new services between Edinburgh and Lanark, and capacity on the WCML and linking networks is already highly constrained.	Yes	Rail Services: Lanark-Edinburgh
3 - Provide rail station at Law.	Law.	A new rail station on the WCML at Law, along which existing WCML services are routed.	Possible tension with option 1 as increased frequency of existing services on the corridor may constrain available capacity for the implementation of a new station on the route. Possible tension with option 5 as timetable changes to improve interchange at Motherwell station may constrain available capacity for the implementation of a new station on the route.	Yes	Rail Stations: Law
4 - Provide rail station at Symington.	The proposal is specifically for a rail station at Symington, though, with the exception of Lockerbie, there are no other passenger stations on the corridor between Carstairs and Carlisle.	A new rail station on the WCML at Symington, along which existing cross-border WCML services are routed.	Could be tension with Option 3 if both done together and same services expected to stop at both (negative impact on journey times for existing trains and passengers on longer distance routes in particular).	Yes	Rail Stations: Symington
5 - Improve rail time table to allow improved interchange at Motherwell Rail Station for Clydesdale residents who require to access Hamilton.	WCML services that serve Clydesdale stations.	Improve rail time table to allow improved interchange at Motherwell Rail Station for Clydesdale residents who require to access Hamilton (integration with bus timetables).	Possible tension with option 1 as increased frequency of existing services on the corridor may constrain available capacity for implementing timetable changes to improve interchange at Motherwell.	Yes	Rail Services: Motherwell
6 - Provide a dedicated shuttle bus service between Law, and Carluke Rail Station, working on a high frequency and integrating with the rail timetable.	Law to Carluke Rail Station road corridor.	A dedicated shuttle bus service between Law, and Carluke Rail Station, working on a high frequency and integrating with the rail timetable to enable residents of Law to access rail services at Carluke. This would be a completely new service in addition to the existing Law – Carluke local service (no 243) which terminates at Carluke Cross.	Option may be redundant in the event that option 3 (a rail station at Law) is delivered. This option may therefore represent a 'next best' measure. Level of service required will be directly impacted by option 1 if the frequency of existing rail services on the WCML is to be increased.	Yes.	Bus Services: Law-Carluke shuttle
7 - Extend the current Subsidised service 243 from Carluke X to Carluke Rail Station.	Carluke Cross to Carluke Rail Station (Bus Route 243).	The extension of the existing bus service route 243 from its current terminating point on Mount Stewart Street Carluke to Carluke Rail Station. This service would need to run to a higher frequency than it does presently.	Level of service required will be directly impacted by option 1 if the frequency of existing rail services on the WCML is to be increased.	Yes	Bus Services: Carluke Cross route extension
8 - Improve bus/rail integration before/after core hours at Lanark Rail Station to ensure connections are available to Clydesdale towns and villages out with the core working	Lanark Rail Station.	Numerous bus services operate from Lanark Rail Station Interchange. Of these, the majority operate only during daytime hours. Train timetables however operate from earlier in the morning to later in the evening, limiting opportunity for onward public transport	Level of service required will be directly impacted by option 2 if new services to Edinburgh are to be established.	Yes	Bus Services: Lanark interchange

.Option	Geographical Focus	Further Definition	Compatibility Issues	Appraise further in Part 1?	Final Option Name in Part 1 Appraisal
day.		connection to Clydesdale settlements.			
9 – Provide strategic P&R facility at Lanark with local bus services calling at the station, bus timetable integrated with rail.	The proposal is specifically for a P&R facility at Lanark Rail Station. It would be anticipated that this would also be used by residents from surrounding settlements to enable journeys to be made by rail.	Strategic P&R facility at Lanark Rail Station, with ancillary bus service connections and timetable improvements to integrate with rail services. Potential options include expansion of the existing on-site parking facilities and/or creation of new off-site parking facilities. Potential options also include reconfiguration of the bus bays, waiting and access arrangements to increase capacity and improve safety. Potential options to improve passenger comfort include covered, enclosed seated waiting areas.	Strong relationship with option 8. Level of service required will be directly impacted by option 2 if new services to Edinburgh are to be established.	Yes	Park & Ride: Lanark
10 - Provide strategic P&R facility at Carstairs, with local bus services calling at the station, bus timetable integrated with rail.	The proposal is specifically for a P&R facility at Carstairs Rail Station. It would be anticipated that this would also be used by residents from surrounding settlements to enable journeys to be made by rail.	Strategic P&R facility at Carstairs Rail Station, with ancillary bus service connections and timetable improvements to integrate with rail services. Potential options include expansion of the existing on-site parking facilities and/or creation of new off-site parking facilities. Potential options to improve passenger comfort include covered, enclosed seated waiting areas.	Level of service required will be directly impacted by option 1 if the frequency of existing rail services on the WCML is to be increased.	Yes	Park & Ride: Carstairs
11 - During peak travel hours, provide half hourly service between Biggar/Symington and Lanark	Biggar to Symington to Lanark road corridor.	During peak travel hours, provide half hourly service between Biggar/Symington and Lanark. SPT subsidise the early and late services on an hourly frequency. Proposal to increase the frequency connecting with commuter trains to Glasgow to half hourly services.	Option (in its entirety) may be redundant in the event that option 4 (a rail station at Symington) is delivered. This option may therefore represent a 'next best' measure.	Yes	Bus Services: Biggar-Synington-Lanark
12 - Encourage bus services to Glasgow to stop at Law.	Law.	Bus services such as those connecting Dumfries to Glasgow and Lanark (via Carluke) to Glasgow operate on road corridors adjacent to Law. Proposal to encourage these services to call at Law.	Possible tension with option 3 as a new station at Law may abstract from any potential demand for bus services to Glasgow.	Yes	Bus Services: Law
13 - Provide dedicated shuttle service linking Carstairs Rail Station, Lanark Rail Station and New Lanark Heritage Village, integrated with the rail network.	Carstairs Rail Station to Lanark Rail Station to New Lanark Heritage Village road corridor.	Provide a new, dedicated shuttle service linking Carstairs Rail Station, Lanark Rail Station and New Lanark Heritage Village, integrated with the rail network. Note, that services to Carstairs would not have to be high frequency as there are only limited train services calling at Carstairs each day.	Level of service required will be directly impacted by option 1 if the frequency of existing rail services on the WCML is to be increased. Level of service required will be directly impacted by option 2 if new services to Edinburgh are to be established.	Yes	Bus Services: Carstairs-Lanark-New Lanark

Option	Geographical Focus	Further Definition	Compatibility Issues	Appraise further in Part 1?	Final Option Name in Part 1 Appraisal
14 - Provide safe walking and cycling routes connecting towns/villages in close proximity where there is a demonstrable flow. Law, Carluke and Braidwood.	Between Law, Carluke and Braidwood	Provide safe walking and cycling routes between Law, Carluke and Braidwood. Investigate the Old Wishaw Road; would require surfacing and lighting.	No compatibility issues.	Yes; package with options 15, 16 & 17.	Active Travel Infrastructure
15 - Provide safe walking and cycling routes connecting towns/villages in close proximity where there is a demonstrable flow. Biggar and Symington.	Between Biggar and Symington.	Provide safe walking and cycling routes between Biggar and Symington.	No compatibility issues.	Yes; package with options 14, 16 & 17.	Active Travel Infrastructure
16 - Provide safe walking and cycling routes connecting towns/villages in close proximity where there is a demonstrable flow. Carnwath and Carstairs.	Between Carnwath and Carsatirs..	Provide safe walking and cycling routes between Carnwath and Carstairs.	No compatibility issues.	Yes; package with options 14, 15 & 17.	Active Travel Infrastructure
17 - Ensure appropriate/suitable walking access is provided to transport hubs and stops including rail stations, bus stations and bus stops.	At public transport stops and hubs across the study area e.g. Lanark Bus and Rail Interchange.	Ensure bus transport stops and hubs are accessible to pedestrians. This could potentially entail raised bus boarder kerbs, footway access to all public transport stops and dropped kerb crossing points on approach routes to all public transport stops.	No compatibility issues.	Yes; package with options 14, 15 & 16.	Active Travel Infrastructure
18 - Improve vehicle quality for bus services in the area.	On bus routes along the study corridors.	Improve bus vehicle quality to provide greater journey quality benefits for passengers. This could potentially entail upgrading existing vehicles to improve emissions standards or replacing with new vehicles with the same objective. Potential options could also include on-board stop announcement and display, wi-fi and high quality seating.	No compatibility issues.	Yes	Bus Services: Vehicle Quality

Further options added at Part 1

In addition to the options identified and progressed from the Pre-Appraisal study, and subsequent to additional data analysis and stakeholder engagement, a further three options are proposed to address issues identified in the study area. These options are:

- Creation of bus hubs on the M74 corridor with feeder services from the surrounding area at Abington **and / or** Lesmahagow;
- Expansion of existing / development of new Demand Responsive Transport (DRT) services to serve Clydesdale, and southern / rural settlements in particular; and
- Implementation of behaviour change initiatives including Clydesdale transport information provision (e.g. via a website or app) and information on car sharing opportunities to maximise awareness of existing transport provision.

The bus hub and DRT options are proposed to address problems, issues and opportunities considered to be particularly prevalent in rural parts of Clydesdale. Behaviour change initiatives are a vital component in terms of awareness raising of sustainable travel options and encouraging their use.

Final list of options for Part 1 Appraisal

Table 5-4 presents the final list of options for Part 1 Appraisal (Comprised of the option names / packages detailed in Table 2-1 and the additional three options detailed above)

Table 5-4 Final List of Options for Part 1 Appraisal

Number	Name
1	Rail Services: Carluke-Carstairs-Edinburgh
2	Rail Services: Lanark-Edinburgh
3	Rail Services: Motherwell
4	Rail Stations: Law
5	Rail Stations: Symington
6	Bus Service Improvements: Law-Carluke shuttle
7	Bus Service Improvements: Carluke Cross route extension
8	Bus Service Improvements: Lanark Interchange
9	Bus Service Improvements: Biggar-Symington-Lanark
10	Bus Service Improvements: Law
11	Bus Service Improvements: Carstairs-Lanark-New Lanark
12	Bus Service Improvements: Vehicle Quality
13	Bus Service Improvements: M74 Bus Hubs
14	Bus Service Improvements: Demand Responsive Transport
15	Active Travel Infrastructure
16	Park & Ride: Lanark

17	Park & Ride: Carstairs
18	Behaviour Change

Appraisal of options against TPOs

Informed by the problems, issues, opportunities and constraints identified within the scope of the Pre-Appraisal study, a set of Initial Transport Planning Objectives (TPOs) were developed to express the outcomes the study seeks to achieve.

This section sets out the approach taken to developing Initial TPOs for the Pre-Appraisal study and the subsequent step of 'smartening' and refining the TPOs for the purpose of the Part 1 Appraisal.

Setting TPOs

STAG guidance discusses the role of TPOs and the process of setting them in detail[15]. This is summarised below. TPOs should:

- Confirm the outcomes sought by the study (as opposed to the activities required to achieve them);
- Serve as a basis for directing and guiding the entire study process;
- Be based on a comprehensive exploration and understanding of the root causes of problems and consequences of opportunities;
- Should be informed by existing and relevant material such as previous consultations or existing objectives;
- Should be informed by the Scottish Government's Purpose and National Outcomes, and relevant established policy directives;
- Provide clarity in the appraisal of transport options, and facilitate objective-led, informed outcomes; and
- Be SMART (Specific, Measurable, Achievable/Attainable, Realistic and Timed).

Analysis of Relevant and Existing Policy Directives and Objectives

To ensure TPOs developed for the Pre-Appraisal study took cognisance of national, regional and local objectives of relevance, analysis of policy directives and objectives from relevant strategy documents was undertaken. This approach ensures consistency of outcomes. National, regional and local objectives of relevance are illustrated in Figure 5-1.

[15] https://www.transport.gov.scot/publication/stag-technical-database/section-3/

	Transport Scotland, NTS (2016)	Transport Scotland, Scotland's Railways (2006)	Scottish Government, National Planning Framework 3 (2014)	SPT RTS	Tourism Lanarkshire	SLC, LTS (2013-23	SLC, LDP (2015-20	SLC, Single Outcome Agreement (2013-23)	SLC, Economic Strategy (2013-23)	SLC, Air Quality Strategy (2014-19)
	• Improved journey times and connections, to tackle congestion and lack of integration and connections in transport; • Reduced emissions, to tackle climate change, air quality, health improvement; • Improved quality, accessibility and affordability, to give choice of public transport, better quality services and value for money, or alternative to car; • Promote economic growth by building, enhancing managing and maintaining transport services, infrastructure and networks to maximise their efficiency; • Promote social inclusion by connecting remote and disadvantaged communities and increasing the accessibility of the transport network; • Protect our environment and improve health by building and investing in public transport and other types of efficient and sustainable transport which minimise emissions and consumption of resources and energy; • Improve safety of journeys by reducing accidents and enhancing the personal safety of pedestrians, drivers, passengers and staff; and • Improve integration by making journey planning and ticketing easier and working to ensure smooth connection between different forms of transport.	• Objectives for the Glasgow suburban network: Continue to target capacity issues. • Objectives for Rural Routes: Revise train services in the light of changing travel patterns and markets including tourism developments. It is noted that promoting social inclusion is a driver in these areas as is economic growth through tourism.	• South Lanarkshire forms part of the Glasgow and Clyde Valley region – Scotland's biggest economic region with particular strengths in energy, financial services, universities, life sciences and tourism. • "Regeneration is the central focus of planning across this city region. Partnership working is driving consolidation and renewal of the built environment, embedding future growth within a distinctive placemaking agenda." • "The relationship between Glasgow and its surrounding communities is crucial. Considerable progress is being made in transforming many of the towns across the region. Whilst sharing the common driver of adapting to economic change, these towns are finding distinctive solutions which reflect each of their unique qualities, whilst working together to contribute to the wider cities agenda.".	Vision: • "A world class sustainable system that acts as a catalyst for an improved quality of life for all." Strategic Objectives: • Improved Connectivity: The West of Scotland has a transport system that underpins a strong, sustainable economy; • Access for All: The west of Scotland has a transport system that is safe, secure and accessible to all • Reduced Emissions: The west of Scotland has a transport system that promotes sustainable travel for a cleaner environment and healthier lives; and • Attractive, Seamless, Reliable Travel: the West of Scotland has a transport system that provides attractive, seamless, reliable travel	• Vision: "by 2020 Lanarkshire will be a destination offering distinct authentic experiences, excellent quality, value for money and accessible for all". The document sets out their mission of growing tourism expenditure in Lanarkshire by 2.5% per year from 2016 to 2020.	Vision statement: • "Our transportation network and assets will be high quality, safe and well maintained. It will be accessible and integrated with well served internal and external links to essential services, employment and education opportunities. It will support economic recovery and regeneration whilst protecting and preserving the environment and will be safe and attractive for users. It will be sustainable and offer genuine travel choice." Strategic objectives: • Ensure that transport supports and facilitates economic recovery, regeneration and sustainable development; • Improve quality and safety for all by improving the condition of road and footway infrastructure; • Alleviate the impacts of traffic congestion and traffic growth throughout south Lanarkshire, which adversely affect the economy and environment; • Improve health and wellbeing by facilitating and encouraging active travel, through the development of attractive, safe and convenient walking and cycling networks; • Promote accessibility, to key services, job opportunities and community facilities through the development and influencing of public transport improvements; and • Mitigate, adapt and manage the effects of climate change, including flooding, on transport infrastructure and communities.	Strategic vision: • "to promote the continued growth and regeneration of South Lanakrshire by seeking sustainable economic and social development within a low carbon economy whilst protecting and enhancing the environment". Four distinctive themes were identified including Economy & Regeneration, People & Place, Environment and Infrastructure, which provided the basis for identifying four broad objectives: • Encourage sustainable economic growth; • Meet the community's needs; • Enhance and safeguard the environment; and • Maximise the use of existing infrastructure	Vision: • "To improve the quality of life for all in South Lanarkshire by ensuring equal access to opportunities and to services that meet people's needs". The relevant national priorities and community plan objectives include: • Economic Recovery & Growth: Supporting the development of a sustainable transport infrastructure • In encouraging economic growth and regeneration it is imperative that South Lanarkshire Council has a high quality transport network. Transport systems that are reliable, fast, convenient, easily accessed and safe will provide local businesses with access to markets and encourage new developments.	Vision: • "over the next ten years our vision is for South Lanarkshire to have one of the strongest and most dynamic economies in Scotland, where businesses, communities and residents achieve their full potential and prosper". Under the heading of physical infrastructure and place, a number of relevant key priorities are identified: • Completing key strategic roads and transport infrastructure projects; • Supporting and participating in the development of plans to develop local infrastructure systems and networks; and • Protecting, developing and promoting South Lanarkshire's environment, unique landscape, cultural and built heritage and green network.	• Under the theme of people and communities, "it is widely acknowledged that road traffic is a major source of air pollution, particularly in urban areas where there is a high incidence of congestion but also in rural settlements where high volumes of traffic require to pass along narrowed streets. Consequently, there are a number of positive connections between this strategy and the South Lanarkshire Local Transport Strategy which was adopted by the Council in 2013." Prposals include: • Create close links and synergy between this strategy and other Council led strategies including the Local Transport Strategy, the Local Development Plan and the South Lanarkshire Core Paths Plan to help reduce the need to travel and reliance on private vehicles; • Work with Transport Scotland to improve air quality in the AQMAs attributed to the trunk road network and ensure air quality does not deteriorate in South Lanarkshire due to changes in emissions from the trunk road network; • Ensure the regular exchange of information between transport planners and air quality professionals relating to both air quality information and traffic information; and • Promote active travel schemes in tandem with other Council and partnership strategies, including the LTS and the LDP
TPO1	✓			✓		✓		✓	✓	✓
TPO2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
TPO3	✓	✓	✓	✓		✓	✓	✓	✓	✓
TPO4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Figure 5-1 Regional and Local Objectives

TPOs

The TPOs set by the Pre-Appraisal study were:

- TPO 1: Increase the mode share of sustainable transport for all journey purposes including access to new employment opportunities.
- TPO 2: Increase transport integration.
- TPO 3: Increase public transport accessibility.
- TPO 4: Increase accessibility to Clydesdale's attractions for people within and outwith the area.

Smartening of TPOs

In order to assess the success of progressed options, TPOs require to be SMART (Specific, Measurable, Attainable, Relevant and Timed). STAG guidance defines a SMART objective as:

- Specific, it will say in precise terms what is sought;
- Measurable, there will exist means to establish to stakeholders' satisfaction whether or not the objective has been achieved;
- Attainable, there is general agreement that the objective set can be reached;
- Relevant, the objective is a sensible indicator or proxy for the change which is sought; and
- Timed, the objective will be associated with an agreed future point by which it will have been met.

STAG guidance further states that 'At Pre-Appraisal, Transport Planning Objectives may be articulated in general terms indicating the desired direction of change. It is recommended that this is sufficient for the purposes of qualitative Part 1 Appraisal. In advance of Part 2 Appraisal, Transport Planning Objectives must be finalised in more specific terms and where appropriate, include a target'.

Table 5-5 illustrates the assessment of the Initial Draft TPOs from the Pre-Appraisal study against SMART criteria.

Table 5-5: TPOs vs SMART criteria

TPO	Specific	Measurable	Attainable	Relevant	Timed
TPO 1: Increase the mode share of sustainable transport for all journey purposes including access to new employment opportunities.	Objective is specific in terms of the desired direction of change for mode share and the journey types for which it relates. The objective could be smartened to make specific reference to the geographic study area and other utility trip attractors.	The Census offers robust, 10 yearly data on journey mode share at a granular level. Automatic traffic and non-motorised user (NMU) count equipment, in conjunction with bus / rail passenger data could be used as a proxy for monitoring change in mode share.	Options linked to facilitating journeys by sustainable transport, so is attainable.	Addresses both the emergent and root cause problems and the opportunities: – Existing lack of access to employment opportunities due in part to lack of access to transport options. - Existing high levels of personal car ownership and use and the resultant vehicle emissions.	To be delivered over the period of the current LTS to 2023.
TPO 2: Increase transport integration.	The objective is specific in terms of the desired direction of change for transport integration. The objective	Car and cycle parking capacity at, and cycle routes to, public transport hubs can be measured. Public transport	Bus services that operate on a commercial basis are outwith the control of public bodies in terms of timetabling. There is the	Addresses problems of bus services not integrating with rail services and the vehicle emissions associated with the high levels of	To be delivered over the period of the current LTS to 2023.

TPO	Specific	Measurable	Attainable	Relevant	Timed
	could be smartened to state which modes of transport (or all modes) it relates to. The objective could be smartened to make specific reference to the geographic study area and to specify travel modes.	timetables for differing modes i.e. bus and rail, can be analysed to assess how they align. Journey planning tools e.g. Traveline Scotland can be used to determine end-to-end multi-modal journey times including wait time.	opportunity for public sector funders of subsidised services to determine the timetabling. Glasgow Central timetable optimisation work will have a bearing on the extent of rail timetable changes that can be facilitated. Dependent on bus /rail routes, it may not be possible to align departure/arrival times at all stops on a route.	personal car ownership and use, caused in part due to lack of integrated transport options.	
TPO 3: Increase public transport accessibility.	The objective is specific in terms of the desired direction of change for public transport accessibility and the transport mode(s) to which it relates. The objective could be smartened to make specific reference to the geographic study area and to highlight inbound and outbound nature of accessibility.	The proportion of households able to access the public transport services and hubs within a defined period of time or defined distance is measurable, as is the number of households within x journeys times by public transport from certain centre-points (as shown in this study).	Bus services that operate on a commercial basis are outwith the control of public bodies in terms of routing and where they stop to collect passengers. There is the opportunity for public sector funders of subsidised services to determine routes and the location of stops. Glasgow Central timetable optimisation work will have a bearing on the extent of rail timetable changes or new station facilities that can be facilitated. Dependent on the availability of land for construction and in accordance with Planning legislation, there may be the opportunity for public sector bodies to develop new public transport infrastructure.	Addresses problems of bus and rail services not stopping at locations within the study area and the vehicle emissions associated with the high levels of personal car ownership and use, caused in part due to lack of integrated transport options.	To be delivered over the period of the current LTS to 2023.
TPO 4: Increase accessibility to	The objective is	The proportion	Bus services	Clydesdale is	To be delivered

TPO	Specific	Measurable	Attainable	Relevant	Timed
Clydesdale's attractions for people within and outwith the area.	specific in terms of the desired direction of change for accessibility of visitor attractions. Specifically linked to the Clydesdale area and its visitor attractions. The objective could be smartened to highlight inbound & outbound nature of accessibility	of households able to access visitor attractions within a defined period of time or defined distance is measurable. Visitor numbers at attractions in the study area could be used as a proxy for measuring accessibility.	that operate on a commercial basis are outwith the control of public bodies in terms of routing, timetabling and where they stop to collect passengers. There is the opportunity for public sector funders of subsidised services to determine routes, timetables and the location of stops. Glasgow Central timetable optimisation work will have a bearing on the extent of rail timetable changes that can be facilitated.	home to a number of significant tourist attractions including the UNESCO World Heritage Site of New Lanark, the Falls of Clyde, Craignethan Castle and the museums at Biggar. Addresses problems of limited public transport connections to tourism sites.	over the period of the current LTS to 2023).

As noted in Table 5-5, there is scope to further refine the TPOs generated in the Pre-Appraisal to smarten them. These objectives were also sense-checked with stakeholders at the Part 1 Appraisal stakeholder workshop, and some refinements have been made on that basis also. Part 1 Appraisal versions of the TPOs are listed as follows:

- TPO 1: Increase the mode share of sustainable transport in Clydesdale for all journey purposes particularly access to employment, education and healthcare.
- TPO 2: Increase transport integration between rail, bus, walking and cycling within Clydesdale.
- TPO 3: Increase public transport accessibility of Clydesdale for people within and outwith the area.
- TPO 4: Increase accessibility of Clydesdale's attractions for people within and outwith the area.

Appraisal against TPOs

In this section, an appraisal of the options from the Pre-Appraisal plus additional options introduced in Part 1 has been carried out against Transport Planning Objectives.

The scoring approach is based on a 7-point scale, commonly used in transport appraisal:

- + 3 – major beneficial impacts
- +2 – moderate beneficial impacts
- +1 – minor beneficial impacts
- 0 – neutral / no impact
- -1 – minor detrimental impacts
- -2 – moderate detrimental impacts
- -3 – major detrimental impacts

The following table presents the performance of options against TPOs, with a summary commentary.

Table 5-6 Appraisal of initial un-packaged options against TPOs

Final Option Name	1. Increase the mode share of sustainable transport in Clydesdale for all journey purposes particularly access to employment, education and healthcare	2. Increase transport integration between rail, bus, walking and cycling within Clydesdale	3. Increase public transport accessibility of Clydesdale for people within and outwith the area	4. Increase accessibility of Clydesdale's attractions for people within and outwith the area	Commentary on initial performance against TPOs
1. Rail Services: Carluke-Carstairs-Edinburgh	+2	0	+1	+1	This option will support increased sustainable travel mode share and will support increased accessibility. It may support access to work and tertiary education opportunities in Edinburgh in particular.
	Increased service frequency would enable the movement of greater numbers of passengers on rail services between Carluke, Carstairs and Edinburgh. Increased service frequency may also engender greater confidence in rail options. This would increase the level of accessibility to employment, education and healthcare opportunities which may encourage mode shift from private car to rail.	Increased service frequency on rail services between Carluke, Carstairs and Edinburgh would be anticipated to have no benefit or negative impact on transport integration between modes.	Increased service frequency would enable the movement of greater numbers of passengers on rail services between Carluke, Carstairs and Edinburgh, thus increasing the level of public transport accessibility of Clydesdale for people within and outwith the area.	Increased service frequency would enable the movement of greater numbers of passengers on rail services between Carluke, Carstairs and Edinburgh, thus increasing the level of public transport accessibility of Clydesdale's attractions for people within and outwith the area.	
2. Rail Services: Lanark-Edinburgh	+2	0	+2	+2	This option will support increased sustainable travel mode share and will support increased accessibility. It may support access to work and tertiary education opportunities in Edinburgh in particular. If combined with modes of accessing New Lanark, this could support improved access to visitor attractions.
	New rail services between Lanark and Edinburgh would enable a direct route between the settlements, negating the requirement to detour via Carluke or other stations on the existing Edinburgh - Glasgow route. This would increase the level of accessibility to employment, education and healthcare opportunities which may encourage mode shift from private car to rail.	New rail services between Lanark and Edinburgh would be anticipated to have no benefit or negative impact on transport integration between modes.	New rail services between Lanark and Edinburgh would enable a direct route between the settlements, negating the requirement to detour via Carluke or other stations on the existing Edinburgh - Glasgow route, thus increasing the level of public transport accessibility of Clydesdale for people within and outwith the area.	New rail services between Lanark and Edinburgh would enable a direct route between the settlements, negating the requirement to detour via Carluke or other stations on the existing Edinburgh - Glasgow route, thus increasing the level of public transport accessibility of Clydesdale's attractions for people within and outwith the area.	
3. Rail Services: Motherwell	+1	+2	+1	+1	This option will support increased sustainable travel mode share and will support increased accessibility, in particular as it provides a public transport link where there are currently limited options.
	In terms of population, Hamilton is one of the largest settlements in SLC and is a major administrative centre. The University of the West of Scotland has a recently opened campus at the Hamilton International Park. Improved integration of bus / rail timetables at Motherwell would enable mixed mode journeys to be made with a reduced interchange time. This may have a minor positive impact on encouraging mode shift from private car to public transport for journeys to employment, education and healthcare.	Improved integration of bus / rail timetables at Motherwell would enable mixed mode journeys to be made with a reduced interchange time.	Improved integration of bus / rail timetables at Motherwell would enable mixed mode journeys to be made with a reduced interchange time. This would have a minor benefit on increasing the level of public transport accessibility of Clydesdale for people within and outwith the area.	Improved integration of bus / rail timetables at Motherwell would enable mixed mode journeys to be made with a reduced interchange time. This would have a minor benefit on increasing the level of public transport accessibility of Clydesdale's attractions for people within and outwith the area.	
4. Rail Stations: Law	+2	+1	+2	+1	This option will support increased sustainable travel mode share and will support increased accessibility, in particular as it provides a public transport link where there are currently limited options.
	A new rail station at Law would facilitate direct public transport journeys to Glasgow, Edinburgh and other locations within SLC. This may encourage mode shift from private car to public transport for journeys to employment, education and healthcare.	A new rail station at Law would be anticipated to have a minor benefit on transport integration between modes.	A new rail station at Law would introduce direct public transport connections to Edinburgh and Glasgow and would provide new options for journeys to other SLC locations, thus increasing the level of public transport accessibility of Clydesdale for people within and outwith the area.	A new rail station at Law would introduce direct public transport connections to Edinburgh and Glasgow and would increase the level of accessibility with other SLC settlements, thus increasing the level of public transport accessibility of Clydesdale's attractions for people within and outwith the area.	
5. Rail Stations:	+3	+1	+3	+3	This option will support increased sustainable

Final Option Name	1. Increase the mode share of sustainable transport in Clydesdale for all journey purposes particularly access to employment, education and healthcare	2. Increase transport integration between rail, bus, walking and cycling within Clydesdale	3. Increase public transport accessibility of Clydesdale for people within and outwith the area	4. Increase accessibility of Clydesdale's attractions for people within and outwith the area	Commentary on initial performance against TPOs
Symington	A new rail station at Symington would potentially facilitate direct public transport journeys to Glasgow, Edinburgh, Carlisle and other locations within SLC. This may encourage mode shift from private car to public transport for journeys to employment, education and healthcare.	A new rail station at Symington would be anticipated to have minor beneficial impact on transport integration between modes.	A new rail station at Symington would potentially facilitate direct public transport connections to Edinburgh, Glasgow and Carlisle and would provide new options for journeys to other SLC locations, thus increasing the level of public transport accessibility of Clydesdale for people within and outwith the area.	A new rail station at Symington would potentially facilitate direct public transport connections to Edinburgh, Glasgow and Carlisle would increase the level of accessibility with other SLC settlements, thus increasing the level of public transport accessibility of Clydesdale's attractions for people within and outwith the area.	travel mode share and will support increased accessibility, providing a new public transport link (although bus connections already exist from Symington). .
6. Bus Service Improvements: Law-Carluke shuttle	+1 A shuttle bus service between Law Village and Carluke Rail Station would enable access to Carluke station and rail services via public transport modes. This may encourage mode shift from private car to public transport for journeys to employment, education and healthcare.	+2 A shuttle bus directly serving Carluke rail station would enable cross mode integration from Law Village.	+2 A shuttle bus service between Law Village and Carluke Rail Station would enable access to Carluke Rail Station and rail services via public transport modes. This would enable cross-modal public transport journeys to Edinburgh, Glasgow and other SLC locations, thus increasing the level of public transport accessibility of Clydesdale for people within and outwith the area.	+1 A shuttle bus service between Law Village and Carluke Rail Station would enable access to Carluke station and rail services via public transport modes. This would enable cross-modal public transport journeys to Edinburgh, Glasgow and other SLC locations, thus increasing the level of public transport accessibility of Clydesdale's attractions for people within and outwith the area.	This option will support increased sustainable travel mode share, increased transport integration and will support increased accessibility.
7. Bus Service Improvements: Carluke Cross route extension	+1 Extending the 243 service route to include Carluke Rail Station would enable access from Law Village to Carluke Rail Station and rail services via public transport modes. This may encourage mode shift from private car to public transport for journeys to employment, education and healthcare.	+1 A bus directly serving Carluke Rail Station would enable cross mode integration from Law Village.	+1 Extending the 243 service route to include Carluke Rail Station would enable access from Law Village to Carluke Rail Station and rail services via public transport modes. This would enable cross-modal public transport journeys to Edinburgh, Glasgow and other SLC locations, thus increasing the level of public transport accessibility of Clydesdale for people within and outwith the area.	0 Extending the 243 service route to include Carluke Rail Station would enable access from Law Village to Carluke Rail Station and rail services via public transport modes. This would enable cross-modal public transport journeys to Edinburgh, Glasgow and other SLC locations, thus increasing the level of public transport accessibility of Clydesdale's attractions for people within and outwith the area.	This option will support increased sustainable travel mode share, increased transport integration and will support increased public transport accessibility.
8. Bus Service Improvements: Lanark Interchange	+2 Improving bus/rail integration before/after core hours at Lanark Rail Station would enable cross-modal public transport access to/from Lanark and connected settlements. This may encourage mode shift from private car to public transport for journeys to employment, education and healthcare.	+2 Improving bus/rail integration before/after core hours at Lanark Rail Station would enable cross mode integration between bus and rail.	+2 Improving bus/rail integration before/after core hours at Lanark Rail Station would enable cross-modal public transport access to/from Lanark and connected settlements. This would enable cross-modal public transport journeys to Edinburgh, Glasgow	+1 Improving bus/rail integration before/after core hours at Lanark Rail Station would enable cross-modal public transport access to/from Lanark and connected settlements. This would enable cross-modal public transport journeys to Edinburgh,	This option will support increased sustainable travel mode share, increased transport integration and will support increased accessibility.

Final Option Name	1. Increase the mode share of sustainable transport in Clydesdale for all journey purposes particularly access to employment, education and healthcare	2. Increase transport integration between rail, bus, walking and cycling within Clydesdale	3. Increase public transport accessibility of Clydesdale for people within and outwith the area	4. Increase accessibility of Clydesdale's attractions for people within and outwith the area	Commentary on initial performance against TPOs
			and other SLC locations, thus increasing the level of public transport accessibility of Clydesdale for people within and outwith the area.	Glasgow and other SLC locations, thus increasing the level of public transport accessibility of Clydesdale's attractions for people within and outwith the area.	
9. Bus Service Improvements: Biggar-Symington-Lanark	+1 A half hourly frequency on the Biggar/Symington to Lanark bus service, integrating with commuter trains to Glasgow, would enable cross-modal public transport access to/from Lanark. This may encourage mode shift from private car to public transport for journeys to employment, education and healthcare.	+1 A half hourly frequency on the Biggar/Symington to Lanark bus service, integrating with commuter trains to Glasgow, would be anticipated to have a minor benefit on integration between modes.	+1 A half hourly frequency on the Biggar/Symington to Lanark bus service, integrating with commuter trains to Glasgow, would enable cross-modal public transport access to/from Lanark. This would enable cross-modal public transport journeys to Edinburgh, Glasgow and other SLC locations, thus increasing the level of public transport accessibility of Clydesdale for people within and outwith the area.	+1 A half hourly frequency on the Biggar/Symington to Lanark bus service, integrating with commuter trains to Glasgow, would enable cross-modal public transport access to/from Lanark. This would enable cross-modal public transport journeys to Edinburgh, Glasgow and other SLC locations, thus increasing the level of public transport accessibility of Clydesdale's attractions for people within and outwith the area.	This option will support increased sustainable travel mode share, increased transport integration and will support increased accessibility.
10. Bus Service Improvements: Law	+2 The introduction of Glasgow-bound bus services to Law Village would introduce direct public transport options to Glasgow and potentially locations in southern parts of Clydesdale and the Borders. This may encourage mode shift from private car to public transport for journeys to employment, education and healthcare.	0 The introduction of Glasgow-bound bus services to Law Village would be anticipated to have no benefit on integration between modes.	+2 The introduction of Glasgow-bound bus services to Law Village would introduce direct public transport options to Glasgow and potentially locations in southern parts of Clydesdale and the Borders, thus increasing the level of public transport accessibility of Clydesdale for people within and outwith the area.	+1 The introduction of Glasgow-bound bus services to Law Village would introduce direct public transport options to Glasgow and potentially locations in southern parts of Clydesdale and the Borders, thus increasing the level of public transport accessibility of Clydesdale's attractions for people within and outwith the area.	This option will support increased sustainable travel mode share and will support increased accessibility.
11. Bus Service Improvements: Carstairs-Lanark-New Lanark	+1 A shuttle bus service between Carstairs Rail Station, Lanark Rail Station and New Lanark would enable access to New Lanark and Edinburgh via public transport modes. This may encourage mode shift from private car to public transport for journeys to employment, education and healthcare.	+2 A shuttle bus directly serving Carstairs and Lanark Rail Stations would enable cross mode integration from Edinburgh and New Lanark.	+1 A shuttle bus service between Carstairs Rail Station, Lanark Rail Station and New Lanark would enable access to New Lanark and Edinburgh via public transport modes. This would enable cross-modal public transport journeys to Edinburgh, Glasgow and other SLC locations, thus increasing the level of public transport accessibility of Clydesdale for people within and outwith the area.	+2 A shuttle bus service between Carstairs Rail Station, Lanark Rail Station and New Lanark would enable access to New Lanark and Edinburgh via public transport modes. This would enable cross-modal public transport journeys to Edinburgh, Glasgow and other SLC locations, thus increasing the level of public transport accessibility of Clydesdale's attractions, in particular the Falls of Clyde and New Lanark World Heritage Site for people within and outwith the area.	This option will support increased sustainable travel mode share, increased transport integration and will support increased accessibility.

Final Option Name	1. Increase the mode share of sustainable transport in Clydesdale for all journey purposes particularly access to employment, education and healthcare	2. Increase transport integration between rail, bus, walking and cycling within Clydesdale	3. Increase public transport accessibility of Clydesdale for people within and outwith the area	4. Increase accessibility of Clydesdale's attractions for people within and outwith the area	Commentary on initial performance against TPOs
12. Bus Service Improvements: Vehicle Quality	+1 Improved bus vehicle quality may encourage mode shift from private car to public transport for journeys to employment, education and healthcare.	0 Improved bus vehicle quality would be anticipated to have no benefit on transport integration.	0 Improved bus vehicle quality would be anticipated to have no benefit on public transport accessibility of Clydesdale for people within and outwith the area.	0 Improved bus vehicle quality would be anticipated to have no benefit on public transport accessibility of Clydesdale's attractions for people within and outwith the area.	This option will support increased sustainable travel mode share.
13. Bus Service Improvements: M74 Bus Hubs	+1 Creation of bus hubs on the M74 would enable access to Glasgow, the Scottish Borders and other SLC locations via public transport modes. This may encourage mode shift from private car to public transport for journeys to employment, education and healthcare.	+2 Creation of bus hubs on the M74 would enable multi-leg bus journeys to be undertaken from surrounding areas and would create P&R opportunities for car/bus based journeys, thus increasing transport integration.	+2 Creation of bus hubs on the M74 would facilitate public transport journeys to destinations not currently served by local services, thus increasing the public transport accessibility of Clydesdale for people within and outwith the area.	+1 Creation of bus hubs on the M74 would facilitate public transport journeys to destinations not currently served by local services, thus increasing the public transport accessibility of Clydesdale's attractions for people within and outwith the area.	This option will support increased sustainable travel mode share, increased transport integration and will support increased accessibility.
14. Bus Service Improvements: Demand Responsive Transport	+2 DRT services to rural areas of Clydesdale would enable access to public transport options in locations where scheduled public transport services are not available. This may encourage mode shift from private car to public transport for journeys to employment, education and healthcare.	0 DRT services would not be anticipated to increase transport integration.	+2 DRT services to rural areas of Clydesdale would enable access to public transport options in locations where scheduled public transport services are not available, thus increasing the public transport accessibility of Clydesdale for people within and outwith the area.	+1 DRT services to rural areas of Clydesdale would enable access to public transport options in locations where scheduled public transport services are not available, thus increasing the accessibility of Clydesdale's attractions for people within and outwith the area.	This option will support increased sustainable travel mode share and will support increased accessibility.
15. Active Travel Infrastructure	+1 Active travel links between neighbouring settlements would enable access to local employment, education and healthcare opportunities which may encourage mode shift from motorised transport modes to active travel. The provision of appropriate/suitable walking access to transport hubs and stops including rail stations, bus stations and bus stops would enable access to public transport connections to Glasgow and other locations in SLC. This would further enable access to local employment, education and healthcare opportunities which may encourage mode shift from motorised transport modes to active travel.	+1 The provision of appropriate/suitable walking access to transport hubs and stops including rail stations, bus stations and bus stops would enable integration between active travel and public transport modes.	+1 Active travel links between neighbouring settlements and the provision of appropriate/suitable walking access to transport hubs and stops including rail stations, bus stations and bus stops would increase the level of public transport accessibility of Clydesdale for people within and outwith the area.	+1 Active travel links between neighbouring settlements and the provision of appropriate/suitable walking access to transport hubs and stops including rail stations, bus stations and bus stops would increase the level of accessibility of Clydesdale's attractions for people within and outwith the area.	This option will support increased sustainable travel mode share, increased transport integration and will support increased accessibility.
16. Park & Ride: Lanark	+2 A P&R facility at Lanark would enable access to rail connections to Glasgow and other locations in SLC to greater numbers of passengers. This would increase the level	+2 A P&R facility at Lanark would enable cross mode integration from bus and car.	+2 A P&R facility at Lanark with associated bus service integration would enable access to Lanark station and rail services via public	+1 A P&R facility at Lanark with associated bus service integration would enable access to Lanark station and rail services via public	This option will support increased sustainable travel mode share, increased transport integration and will support increased accessibility.

Final Option Name	1. Increase the mode share of sustainable transport in Clydesdale for all journey purposes particularly access to employment, education and healthcare	2. Increase transport integration between rail, bus, walking and cycling within Clydesdale	3. Increase public transport accessibility of Clydesdale for people within and outwith the area	4. Increase accessibility of Clydesdale's attractions for people within and outwith the area	Commentary on initial performance against TPOs
	of accessibility to employment, education and healthcare opportunities which may encourage mode shift from private car to rail.		and private transport modes. This would enable cross-modal public transport journeys to Glasgow and other SLC locations, thus increasing the level of public transport accessibility of Clydesdale for people within and outwith the area.	and private transport modes. This would enable cross-modal public transport journeys to Glasgow and other SLC locations, thus increasing the level of accessibility of Clydesdale's attractions for people within and outwith the area.	
17. Park & Ride: Carstairs	+2 A P&R facility at Carstairs would enable access to rail connections to Edinburgh, Glasgow and other locations in SLCs to greater numbers of passengers. This would increase the level of accessibility to employment, education and healthcare opportunities which may encourage mode shift from private car to rail.	+2 A P&R facility at Carstairs would enable cross mode integration from bus and car.	+2 A P&R facility at Carstairs with associated bus service integration would enable access to Carstairs station and rail services via public and private transport modes. This would enable cross-modal public transport journeys to Edinburgh, Glasgow and other SLC locations, thus increasing the level of public transport accessibility of Clydesdale for people within and outwith the area.	+1 A P&R facility at Carstairs with associated bus service integration would enable access to Carstairs station and rail services via public and private transport modes. This would enable cross-modal public transport journeys to Edinburgh, Glasgow and other SLC locations, thus increasing the level of accessibility of Clydesdale's attractions for people within and outwith the area.	This option will support increased sustainable travel mode share, increased transport integration and will support increased accessibility.
18. Behaviour Change	+2 Creation of bus hubs on the M74 would enable access to Glasgow, the Scottish Borders and other SLC locations via public transport modes. This may encourage mode shift from private car to public transport for journeys to employment, education and healthcare.	0 The implementation of behaviour change initiatives would be anticipated to have no impact on integration between modes.	0 The implementation of behaviour change initiatives would be anticipated to have no impact on the public transport accessibility of Clydesdale for people within and outwith the area.	0 The implementation of behaviour change initiatives would be anticipated to have no impact on the accessibility of Clydesdale's attractions for people within and outwith the area.	This option will support increased sustainable travel mode share.

Option Appraisal against STAG criteria

06

6. Option Appraisal against STAG criteria

Introduction

This section sets out the appraisal of options against STAG criteria. The aim of the assessment at this stage is to highlight any particular issues that may impact upon the performance of the option, or opportunities that suggest the option may offer strong benefits.

An appraisal of the performance of each option against the five STAG criteria for transport (Environment, Safety, Economy, Integration and Accessibility and Social Inclusion) is presented by criteria in this chapter, and summarised in Table 6-6. Each of these STAG criteria should be addressed in more detail in Part 2 Appraisal, where relevant to the option being assessed. The following tables summarise the overall performance of the option against each main STAG criterion, with a commentary on specific issues to note.

In addition, Appendix A.1 sets out Part 1 Appraisal Summary Tables (ASTs) that have been completed for each of the options appraised during this stage of the STAG process.

Environment

STAG states that

'The key environmental attributes and characteristics of the study area must be summarized. This should draw attention to the particular qualities of the area, making reference to specially designated sites within the study area and to known proposals for change.

At Part 1 Appraisal, a qualitative assessment should be completed using the seven-point-scale assessment, considering the relative size and scale of its impacts.'

Appraisals of the options against the Environmental criteria are presented in Table 6-1.

Table 6-1 Initial Appraisal of Environmental Impacts of Options

Final Option Name	Commentary on Initial Performance	Initial Score of Performance
1. Rail Services: Carluke-Carstairs-Edinburgh	Potential for noise impact from the increased service operation. However, noise mitigation including barriers may be required in certain sections, which would lessen any impacts. Air Quality: Potential for increased localised emissions arising from increased vehicle use of rail station and P&R. Carluke Rail Station is not far from an SSSI and a Nature Reserve: The increased service frequency could potentially impact them. Further assessment may be needed. Carstairs Rail Station is located next to an SLA: The increased frequency of service could potentially impact it. Further assessment may be needed. However, potential for modal shift to more sustainable modes for longer distance journeys would result in reduced emissions of CO2 and other pollutants on the wider network. As increased frequency of services may promote mode shift for Edinburgh-bound journeys from Lanark, there would also potentially be a positive impact on the Lanark AQMA.	+2
2. Rail Services: Lanark-Edinburgh	Potential for noise impact from the increased service operation. However, noise mitigation including barriers may be required in certain sections, which would lessen any impacts. Air Quality: Potential for increased localised emissions arising from increased vehicle use at the rail station and P&R, which would affect the Lanark AQMA. However, potential for modal shift to more sustainable modes for longer distance journeys would result in reduced emissions of CO2 and other pollutants on the wider network.	+2

Final Option Name	Commentary on Initial Performance	Initial Score of Performance
3. Rail Services: Motherwell	This option is unlikely to require new infrastructure. Changes to service patterns on existing routes are unlikely to have significant effects for noise and vibration. Air Quality: Improved interchange for residents of Clydesdale, may promote modal shift to sustainable transport modes. This would result in reduced emissions of CO2 and other pollutants on the wider network.	+/-
4. Rail Stations: Law	This option is likely to require new/updated infrastructure as the station was closed in 1965. Potential for noise impact during construction and operation. New infrastructure is likely to introduce new noise sources that may pass close to residential areas and through locations that are not currently subject to significant noise impacts (although impact depends on ambient noise levels and level of vehicle movements already occurring). Any new stopping services would also result in increased noise from the stop-start of the trains. Air Quality: No existing station, P&R or parking provision, therefore potential detrimental localised impact as encouraging more cars into the village. However, potential for modal shift to more sustainable modes for longer distance journeys would result in reduced emissions of CO2 and other pollutants on the wider network. Potential visual impact from introducing new features into the landscape.	+1
5. Rail Stations: Symington	Little remains of the former station, closed in 1965. Potential for noise impact during construction and operation. Significant new infrastructure is likely to introduce new noise sources that may pass close to residential areas and through locations that are not currently subject to significant noise impacts (although impact depends on ambient noise levels and level of vehicle movements already occurring). Any new stopping services would also result in increased noise from the stop-start of the trains. Air Quality: No existing station, P&R or parking provision, therefore potential detrimental impact as encouraging more cars into the settlement. However, potential for modal shift to more sustainable modes for longer distance journeys would result in reduced emissions of CO2 and other pollutants on the wider network. Potential visual impact in introducing new features into townscape.	+2
6. Bus Service Improvements: Law-Carluke shuttle	Noise: Noise impacts for residential areas from additional bus services. Vehicle noise impacts may also be mitigated if the option results in modal shift from cars to bus. No significant road or bus stop infrastructure is anticipated to be required, as the bus services would be using the existing routes and interchange facilities. Assumed to have an impact on air quality overall (as bus service would be of high frequency) but that could be mitigated, with bus engines becoming cleaner with new technologies and regulations. If impacts on traffic flow (e.g. leads to general traffic congestion in the town centres), which may increase emissions from vehicles in stop-start conditions. Potential to mitigate this through traffic management and design. However, potential for modal shift with people preferring the use of public transport to cars to get to Carluke Rail Station, resulting in decreased numbers of cars in the settlement centres and better air quality. Potential for modal shift to more sustainable modes for longer distance journeys would also result in reduced emissions of CO2 and other pollutants on the wider network. Carluke has a Local National Reserve within its town centre. Further investigations might be needed.	+2
7. Bus Service Improvements: Carluke Cross route extension	Noise impacts will depend on the route taken by the bus service. It is unlikely that significant new infrastructure is needed. New bus stops/facilities may increase noise impacts due to road traffic flows increasing in these areas though impacts unlikely to be significantly above background noise levels from existing traffic. Assumed to have an impact on air quality overall (as bus service would be of increased frequency) but that could be mitigated, with bus engines becoming cleaner with new technologies and regulations. If impacts on traffic flow (e.g. leads to general traffic congestion in the town centres), which may increase emissions from vehicles in stop-start conditions. Potential to mitigate this through traffic management and design. However, potential for modal shift with people preferring the use of public transport to	+1

Final Option Name	Commentary on Initial Performance	Initial Score of Performance
	cars to get to Carluke Rail Station, resulting in decreased numbers of cars in the settlement centres and better air quality. Potential for modal shift to more sustainable modes for longer distance journeys would also result in reduced emissions of CO2 and other pollutants on the wider network. Carluke Rail Station is not far from an SSSI and a Nature Reserve: the increased service could potentially impact them. Further assessment may be needed.	
8. Bus Service Improvements: Lanark Interchange	Noise impacts for residential areas from additional bus services. No significant road or bus stop infrastructure is anticipated to be required, as the bus services would be using the existing routes and interchange facilities. Air Quality: Potential for increased localised emissions arising from increased bus volumes on town streets and using the bus interchange, which would affect the Lanark AQMA, unless bus vehicles are modern and clean (which may be required for any services also running within the Glasgow LEZ). However, potential for modal shift with people preferring the use of public transport to cars to get to Lanark Rail Station, resulting in decreased numbers of cars in the town centre and better air quality. Potential for modal shift to more sustainable modes for longer distance journeys would also result in reduced emissions of CO2 and other pollutants on the wider network Lanark is in a Special Landscape Area and close to National Nature Reserves, SSSIs and SACs, so further investigation on the impacts might be needed.	+2
9. Bus Service Improvements: Biggar-Symington-Lanark	This option is unlikely to require new infrastructure as buses would use the existing routes. However, more bus traffic could result in slightly decreasing air quality, which could be in turn managed by the introduction of cleaner buses. The increased frequency of buses could have an impact on the AQMA in Lanark, however, this could be mitigated with the potential decrease in cars (modal shift from private vehicle to bus) and by cleaner bus vehicles. Further investigation may be needed. Biggar is in a Special Landscape Area and the town centre is classed as a Conservation Area. Further exploration may be needed. Symington is in an Environmentally Sensitive Area and a Special Landscape Area, so needs further exploration.	+1
10. Bus Service Improvements: Law	This option might require slight infrastructure changes, which would result in noise increase for surrounding residential areas. Potential noise impact from bus services stopping at Law. Air Quality: Potential for increased localised emissions arising from increased bus volumes on local road network, unless bus vehicles are modern and clean (which may be required for any services also running within the Glasgow LEZ). However, potential for modal shift to more sustainable modes for longer distance journeys would also result in reduced emissions of CO2 and other pollutants on the wider network. Law is in a Special Landscape Area and in close proximity to NNRs, SSSIs, and SACs so further investigation may be needed depending on the routes buses takes.	+2
11. Bus Service Improvements: Carstairs-Lanark-New Lanark	Impacts depend on nature of proposals. Any significant new infrastructure could introduce new noise sources but only if it generates bus traffic in areas close to noise receptors (i.e. residential areas) which are not currently served by bus or subject to significant noise impacts. Vehicle noise impacts may also be mitigated if the option results in modal shift from cars to bus. Air Quality: Potential for increased localised emissions arising from increased bus volumes on streets in Lanark Town Centre and using the bus interchange, which would affect the Lanark AQMA. Assumed to have an impact on air quality overall (as bus service would be of high frequency) but that could be mitigated, with bus engines becoming cleaner with new technologies and regulations. If impacts on traffic flow (e.g. leads to general traffic congestion in the settlement centres), which may increase emissions from vehicles in stop-start conditions. Potential to mitigate this through traffic management and design. However, potential for modal shift with people preferring the use of public transport to	+2

Final Option Name	Commentary on Initial Performance	Initial Score of Performance
	cars to get to Lanark Rail Station, resulting in decreased numbers of cars in the settlement centres and better air quality. Potential for modal shift to more sustainable modes for longer distance journeys would also result in reduced emissions of CO2 and other pollutants on the wider network. Lanark is in a Special Landscape Area and close to National Nature Reserves, SSSIs and SACs, so further investigation on the impacts might be needed. New Lanark is a World Heritage Site, so any infrastructure changes would require further investigation.	
12. Bus Service Improvements: Vehicle Quality	Potential for reduction in noise if quieter bus fleet. Potential for improved air quality if cleaner bus fleet. Potential for modal shift if fleet is attractive to users.	+2
13. Bus Service Improvements: M74 Bus Hubs	New infrastructure is likely to introduce noise during construction and operation. The new bus hub facilities are likely to introduce new noise sources (cars and buses) that may pass close to residential areas and through locations that are not currently subject to significant noise impacts. Air Quality: Potential for increased localised emissions arising from increased bus volumes on surrounding road network unless modern and clean vehicle fleets in use. However, potential for modal shift to more sustainable modes for longer distance journeys could result in fewer private vehicles on the M74, thus resulting in reduced emissions of CO2 and other pollutants on the wider network. Abington is in an Environmentally Sensitive Area and in close proximity to SLAs and SSSIs. Further investigation may be needed.	+1
14. Bus Service Improvements: Demand Responsive Transport	Potential for noise impacts, as services may pass close to residential areas and through locations that are not currently subject to significant noise impacts. However, could have beneficial impacts on noise and air quality overall through modal shift, with people using these services instead of cars.	+2
15. Active Travel Infrastructure	Air Quality: Benefits identified include positive impact on localised emissions reductions and emissions reductions on the wider network by promoting sustainable modes of transport and modal shift. Some visual impacts from new signage which can be mitigated through good design principles. Law, Carluke and Braidwood are in a Special Landscape Area and in close proximity to Nature Reserves, SACs and SSSIs. Carluke is also in close proximity to LNRs. Further exploration may be needed. Biggar is in a Special Landscape Area and the settlement centre is classed as a Conservation Area. Further exploration may be needed. Symington is in an Environmentally Sensitive Area and a Special Landscape Area, so needs further exploration. The centre of Carnwath is classed as a Conservation Area. Further exploration may be needed.	+2
16. Park & Ride: Lanark	New infrastructure is likely to introduce noise during construction and operation. The new P&R facilities are likely to introduce new noise sources (cars and buses) that may pass close to residential areas and through locations that are not currently subject to significant noise impacts. Air Quality: Potential for increased localised emissions arising from increased bus volumes on town streets and using the bus interchange, which would affect the Lanark AQMA. However, potential for modal shift with people preferring the use of public transport to cars to get to Lanark Rail Station, resulting in decreased numbers of cars in the town centre and better air quality. Potential for modal shift to more sustainable modes for longer distance journeys would also result in reduced emissions of CO2 and other pollutants on the wider network Potential impact on landscape and visual amenity that would need further	+2

Final Option Name	Commentary on Initial Performance	Initial Score of Performance
	investigation, as Lanark centre is a Conservation Area.	
17. Park & Ride: Carstairs	New infrastructure is likely to introduce noise during construction and operation. The new P&R facilities are likely to introduce new noise sources (cars and buses) that may pass close to residential areas and through locations that are not currently subject to significant noise impacts. Air Quality: Potential for increased localised emissions arising from increased bus volumes on surrounding road network. However, potential for modal shift with people preferring the use of public transport to cars to get to Carstairs station, resulting in decreased numbers of cars on the road network and better air quality. Potential for modal shift to more sustainable modes for longer distance journeys would also result in reduced emissions of CO2 and other pollutants on the wider network.	+2
18. Behaviour Change	Potential for modal shift to more sustainable modes is likely to have a positive impact in terms of noise and air quality.	+1

Safety

STAG states that:

'The Safety Criterion comprises two sub-criteria; accidents and security. In Part 1 Appraisal, practitioners should take account of impacts against both sub-criteria including:

- *Identifying for accidents which, if any, user group may be affected and develop projections of what will be the likely impact of each option; and*
- *Considering whether each option has any material impact on security for the users.*

At Part 1 Appraisal, a qualitative assessment should be completed using the seven-point-scale assessment, considering the relative size and scale of its impacts."

Appraisals of the options against the Safety criteria are presented in Table 6-2.

Table 6-2 Initial Appraisal of Safety Impacts of Options

Final Option Name	Commentary on Initial Performance	Initial Score of Performance
1. Rail Services: Carluke-Carstairs-Edinburgh	Encouraging residents to choose more sustainable transport options over car use could lead to a reduction in the number of vehicles on the road for longer journeys, and thus a reduction in accident risk. Rail is considered to be a safer mode of transport than the private car. However, there may be a small increase in the number of vehicles on local roads associated with station parking facilities.	+1
2. Rail Services: Lanark-Edinburgh	Encouraging residents to choose more sustainable transport options over car use could lead to a reduction in the number of vehicles on the road for longer journeys, and thus a reduction in accident risk. Rail is considered to be a safer mode of transport than the private car. However, there may be a small increase in the number of vehicles on local roads associated with station parking facilities.	+1
3. Rail Services: Motherwell	Encouraging residents to choose more sustainable transport options over car use could lead to a reduction in the number of vehicles on the road for longer journeys, and thus a reduction in accident risk. Rail is considered to be a safer mode of transport than the private car. However, there may be a small increase in the number of vehicles on local roads associated with station parking facilities.	+1
4. Rail Stations: Law	Encouraging residents to choose more sustainable transport options over car use could lead to a reduction in the number of vehicles on the road for longer journeys, and thus a reduction in accident risk. Rail is considered to be a safer mode of transport than the private car. However, there may be a small increase in the number of vehicles on local roads associated with station parking facilities.	+1

Final Option Name	Commentary on Initial Performance	Initial Score of Performance
5. Rail Stations: Symington	Encouraging residents to choose more sustainable transport options over car use could lead to a reduction in the number of vehicles on the road for longer journeys, and thus a reduction in accident risk. Rail is considered to be a safer mode of transport than the private car. However, there may be a small increase in the number of vehicles on local roads associated with station parking facilities.	+1
6. Bus Service Improvements: Law-Carluke shuttle	Encouraging residents to choose more sustainable transport options over car use could lead to a reduction in the number of vehicles on the road for longer journeys, and thus a reduction in accident risk. Rail is considered to be a safer mode of transport than the private car.	+1
7. Bus Service Improvements: Carluke Cross route extension	Encouraging residents to choose more sustainable transport options over car use could lead to a reduction in the number of vehicles on the road, and thus a reduction in accident risk. Public transport is considered to be a safer mode of transport than the private car.	+1
8. Bus Service Improvements: Lanark Interchange	Encouraging residents to choose more sustainable transport options over car use could lead to a reduction in the number of vehicles on the road, and thus a reduction in accident risk. Public transport is considered to be a safer mode of transport than the private car.	+1
9. Bus Service Improvements: Biggar-Symington-Lanark	Encouraging residents to choose more sustainable transport options over car use could lead to a reduction in the number of vehicles on the road, and thus a reduction in accident risk. Public transport is considered to be a safer mode of transport than the private car.	+1
10. Bus Service Improvements: Law	Encouraging residents to choose more sustainable transport options over car use could lead to a reduction in the number of vehicles on the road, and thus a reduction in accident risk. Public transport is considered to be a safer mode of transport than the private car.	+1
11. Bus Service Improvements: Carstairs-Lanark-New Lanark	Encouraging residents to choose more sustainable transport options over car use could lead to a reduction in the number of vehicles on the road, and thus a reduction in accident risk. Public transport is considered to be a safer mode of transport than the private car.	+1
12. Bus Service Improvements: Vehicle Quality	Encouraging residents to choose more sustainable transport options over car use could lead to a reduction in the number of vehicles on the road, and thus a reduction in accident risk. Public transport is considered to be a safer mode of transport than the private car.	+1
13. Bus Service Improvements: M74 Bus Hubs	Encouraging residents to choose more sustainable transport options over car use could lead to a reduction in the number of vehicles on the road, and thus a reduction in accident risk. Public transport is considered to be a safer mode of transport than the private car.	+1
14. Bus Service Improvements: Demand Responsive Transport	Encouraging residents to choose more sustainable transport options over car use could lead to a reduction in the number of vehicles on the road, and thus a reduction in accident risk. Public transport is considered to be a safer mode of transport than the private car.	+1
15. Active Travel Infrastructure Package	Encouraging residents to choose more sustainable transport options over car use could lead to a reduction in the number of vehicles on the road, and thus a reduction in accident risk. Public and active transport is considered to be a safer mode of transport than the private car.	+1
16. Park & Ride: Lanark	Encouraging residents to choose more sustainable transport options over car use could lead to a reduction in the number of vehicles on the road, and thus a reduction in accident risk. Public transport is considered to be a safer mode of transport than the private car.	+1
17. Park & Ride: Carstairs	Encouraging residents to choose more sustainable transport options over car use could lead to a reduction in the number of vehicles on the road, and thus a reduction in accident risk. Public transport is considered to be a safer mode of transport than the private car.	+1
18. Behaviour	Encouraging residents to choose more sustainable transport options over car use	+1

Final Option Name	Commentary on Initial Performance	Initial Score of Performance
Change Package	could lead to a reduction in the number of vehicles on the road, and thus a reduction in accident risk. Public transport is considered to be a safer mode of transport than the private car.	

Economy

STAG states that:

'Wider economic impacts should be considered at the beginning and at the end of Part 1 Appraisal. At the beginning, they should inform the selection of Transport Planning Objectives and at the end they should be reconsidered when the outcomes of particular options are described… Wider economic impacts will be scoped qualitatively in the Part 1 Appraisal Summary Tables (AST) in order to establish whether there is a need to undertake a detailed Part 2 Appraisal.'[16]

Appraisals of the options against the Economy criteria are presented in Table 6-3.

Table 6-3 Initial Appraisal of Economic Impacts of Options

Final Option Name	Commentary on Initial Performance	Initial Score of Performance
1. Rail Services: Carluke-Carstairs-Edinburgh	Encouraging residents to choose more sustainable transport options over car use could lead to a reduction in the number of vehicles on the road for longer journeys, and thus a reduction in one potential congestion-causing factor for remaining users of the road network. Journey time savings would be anticipated for individuals transferring from road to rail as would travel time reliability improvements. Increased frequency of rail services between Carluke, Carstairs and Edinburgh may increase the attractiveness of the surrounding areas for commuting trips to Edinburgh, thus increasing the marketability of residential development land in the area. Accessibility of the region's tourist attractions including the likes of New Lanark and the Falls of Clyde would also be increased through increased rail service frequency. This would benefit the local economy. Journey time disbenefit for existing users of the rail network, including long-distance cross-border services may offset any local economic benefits.	+/-
2. Rail Services: Lanark-Edinburgh	Encouraging residents to choose more sustainable transport options over car use could lead to a reduction in the number of vehicles on the road for longer journeys, and thus a reduction in one potential congestion-causing factor for remaining users of the road network. Journey time savings would be anticipated for individuals transferring from road to rail as would travel time reliability improvements. Journey time savings would also be realised in comparison to existing rail journeys between Edinburgh and Lanark which currently detour via Carluke or other stations on the network. Direct rail services between Lanark and Edinburgh may increase the attractiveness of the surrounding areas for commuting trips to Edinburgh, thus increasing the marketability of residential development land in the area. Accessibility of the region's tourist attractions including the likes of New Lanark and the Falls of Clyde would also be increased through direct rail services. This would benefit the local economy. Journey time disbenefit for existing users of the rail network, including long-distance cross-border services may offset any local economic benefits.	+1
3. Rail Services: Motherwell	Encouraging residents to choose more sustainable transport options over car use could lead to a reduction in the number of vehicles on the road for longer journeys, and thus a reduction in one potential congestion-causing factor for remaining users of	+/-

[16] https://www.transport.gov.scot/publication/stag-technical-database/section-9/#s911

Final Option Name	Commentary on Initial Performance	Initial Score of Performance
	the road network. Journey time savings would be realised in comparison to existing rail journeys via Motherwell should the interchange time be reduced. Journey time disbenefit for existing users of the rail network, including long-distance cross-border services may offset any local economic benefits.	
4. Rail Stations: Law	Encouraging residents to choose more sustainable transport options over car use could lead to a reduction in the number of vehicles on the road for longer journeys, and thus a reduction in one potential congestion-causing factor for remaining users of the road network. Journey time savings for existing rail passengers in the Law catchment would be realised in comparison to existing rail journeys made via interchange at Carluke or Wishaw. A rail station at Law may increase the attractiveness of the surrounding areas for commuting trips to Edinburgh, Glasgow and other parts of SLC thus increasing the marketability of residential development land in the area. Accessibility of the region's tourist attractions including the likes of New Lanark and the Falls of Clyde would also be increased through a new station. This would benefit the local economy. Journey time disbenefit for existing users of the rail network, including long-distance cross-border services may offset any local economic benefits.	-1
5. Rail Stations: Symington	Encouraging residents to choose more sustainable transport options over car use could lead to a reduction in the number of vehicles on the road for longer journeys, and thus a reduction in one potential congestion-causing factor for remaining users of the road network. Journey time savings for existing public transport passengers in the Symington catchment would be realised in comparison to bus journeys. A rail station at Symington may increase the attractiveness of the surrounding areas for commuting trips to Edinburgh, Glasgow, Carlisle and other parts of SLC thus increasing the marketability of residential development land in the area. Accessibility of the region's tourist attractions including the likes of New Lanark and the Falls of Clyde would also be increased through a new station. This would benefit the local economy. Journey time disbenefit for existing users of the rail network, including long-distance cross-border services may offset any local economic benefits.	-1
6. Bus Service Improvements: Law-Carluke shuttle	Encouraging residents to choose more sustainable transport options over car use could lead to a reduction in the number of vehicles on the road for longer journeys, and thus a reduction in one potential congestion-causing factor for remaining users of the road network.	+1
7. Bus Service Improvements: Carluke Cross route extension	Encouraging residents to choose more sustainable transport options over car use could lead to a reduction in the number of vehicles on the road, and thus a reduction in one potential congestion-causing factor for remaining users of the road network.	+1
8. Bus Service Improvements: Lanark Interchange	Encouraging residents to choose more sustainable transport options over car use could lead to a reduction in the number of vehicles on the road, and thus a reduction in one potential congestion-causing factor for remaining users of the road network.	+1
9. Bus Service Improvements: Biggar-Symington-Lanark	Encouraging residents to choose more sustainable transport options over car use could lead to a reduction in the number of vehicles on the road, and thus a reduction in one potential congestion-causing factor for remaining users of the road network.	+1
10. Bus Service Improvements: Law	Encouraging residents to choose more sustainable transport options over car use could lead to a reduction in the number of vehicles on the road, and thus a reduction in one potential congestion-causing factor for remaining users of the road network. Journey time disbenefit for existing users of the diverted bus services, including long-	+/-

Final Option Name	Commentary on Initial Performance	Initial Score of Performance
	distance inter-urban services may offset any local economic benefits.	
11. Bus Service Improvements: Carstairs-Lanark-New Lanark	Encouraging residents to choose more sustainable transport options over car use could lead to a reduction in the number of vehicles on the road, and thus a reduction in one potential congestion-causing factor for remaining users of the road network. Direct public transport connectivity to Edinburgh may increase the attractiveness of the surrounding areas for commuting trips to Edinburgh, thus increasing the marketability of residential development land in the area. Accessibility of the region's tourist attractions including the likes of New Lanark and the Falls of Clyde would also be increased through dedicated shuttle services linking in with the rail network. This would benefit the local economy.	+2
12. Bus Service Improvements: Vehicle Quality	The implementation of improved bus vehicle quality is anticipated to have no economic benefit.	+/-
13. Bus Service Improvements: M74 Bus Hubs	Encouraging residents to choose more sustainable transport options over car use could lead to a reduction in the number of vehicles on the road, and thus a reduction in one potential congestion-causing factor for remaining users of the road network. Improved transport accessibility of catchment areas may also increase the attractiveness of these locations as commuting locations for trips to Glasgow, the Scottish Borders and other parts of SLC.	+1
14. Bus Service Improvements: Demand Responsive Transport	Encouraging residents to choose more sustainable transport options over car use could lead to a reduction in the number of vehicles on the road, and thus a reduction in one potential congestion-causing factor for remaining users of the road network.	+1
15. Active Travel Infrastructure	Encouraging residents to choose more sustainable transport options over car use could lead to a reduction in the number of vehicles on the road, and thus a reduction in one potential congestion-causing factor for remaining users of the road network.	+1
16. Park & Ride: Lanark	Encouraging residents to choose more sustainable transport options over car use could lead to a reduction in the number of vehicles on the road, and thus a reduction in one potential congestion-causing factor for remaining users of the road network. Journey time savings would be anticipated for individuals transferring from road to rail as would travel time reliability improvements. Accessibility of the region's tourist attractions including the likes of New Lanark and the Falls of Clyde would also be increased through improved P&R facilities. This would benefit the local economy.	+2
17. Park & Ride: Carstairs	Encouraging residents to choose more sustainable transport options over car use could lead to a reduction in the number of vehicles on the road, and thus a reduction in one potential congestion-causing factor for remaining users of the road network. Journey time savings would be anticipated for individuals transferring from road to rail as would travel time reliability improvements. Accessibility of the region's tourist attractions would also be increased through improved P&R facilities. This would benefit the local economy.	+2
18. Behaviour Change	Encouraging residents to choose more sustainable transport options over car use could lead to a reduction in the number of vehicles on the road, and thus a reduction in one potential congestion-causing factor for remaining users of the road network.	+1

Integration

STAG states that:

'The Integration objective has three sub-criteria, which together should summarise the full extent of integration impacts. These include:

- *Transport Integration, which relates to the degree to which a proposal fits with other transport infrastructure and services;*

- *Transport and Land-Use Integration, which relates to the fit between the option and established land-use plans and land-use/transport planning guidance; and*
- *Policy Integration, which relates to the appropriateness of the option in light of wider policies including those of both Central and Local Government.*

At Part 1 Appraisal, a qualitative assessment should be completed using the seven point scale assessment, considering the relative size and scale of its impacts.'

Maps illustrating the transport and land-use integration element of the options are contained in Figure 6-1 and Figure 6-2 with the Appraisal of the options against the Integration criteria are presented in Table 6-4

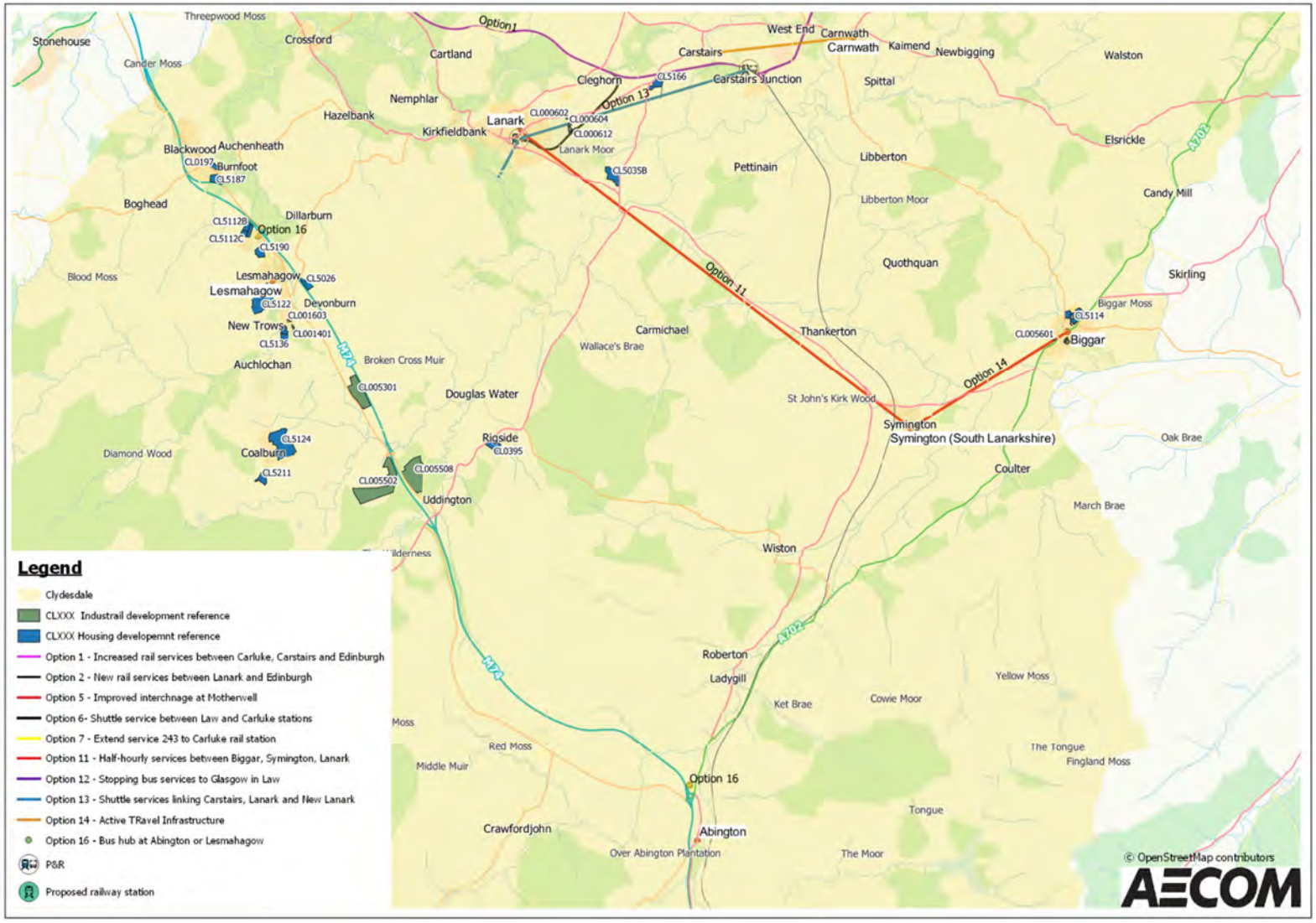

Figure 6-1 Transport & Land Use Integration Appraisal (i)

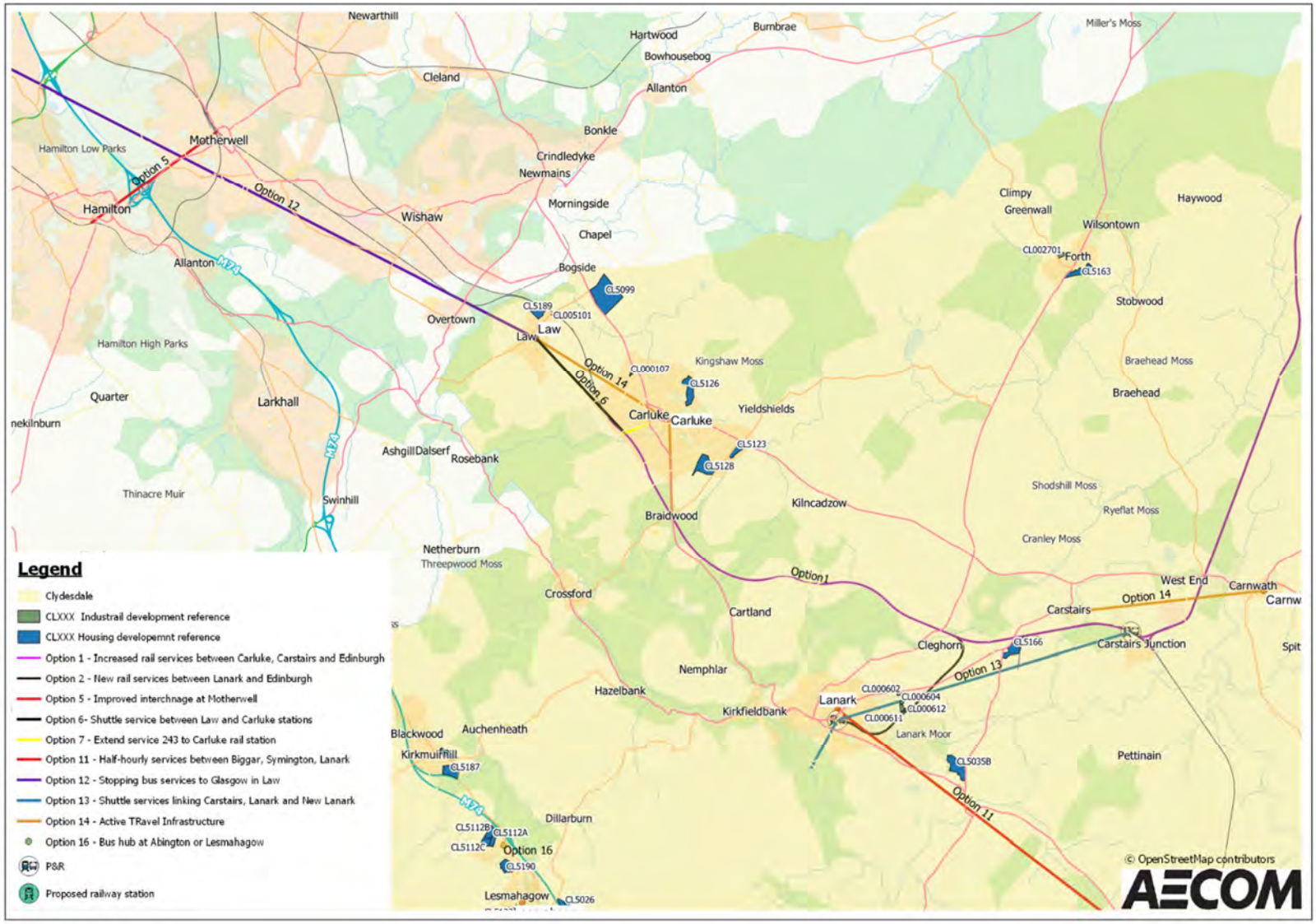

Figure 6-2 Transport & Land Use Integration Appraisal (ii)

Table 6-4 Initial Appraisal of Integration Impacts of Options

Final Option Name	Commentary on Initial Performance	Initial Score of Performance
1. Rail Services: Carluke-Carstairs-Edinburgh	In terms of Transport Integration, increased frequency of rail services between Carluke, Carstairs and Edinburgh would be anticipated to have a negligible impact as this is an existing service. In Transport and Land Use Integration terms, this option is situated in the vicinity of proposed residential developments at Ravenstruther, Boghall Road, Stonedyke Road and Carluke south-east and non-residential development at Castlehill. This will therefore enable integration of the proposed developments with public transport services, thus facilitating e.g. commuting trips or trips to access healthcare, education or retail opportunities. In Policy Integration terms, this option fits with aspirations to increase the proportion of trips made by sustainable travel modes. This would potentially have the resultant effect of positive impacts on air quality and emissions reduction policy directives. Through its knock-on effect on existing public transport services, this option would however have a potential negative impact on policy directives to reduce inter-urban journey times.	+1
2. Rail Services: Lanark-Edinburgh	In terms of Transport Integration, new direct rail services between Lanark and Edinburgh would be anticipated to have a minor positive impact as this is an existing service, although interchange is required currently. In Transport and Land Use Integration terms, this option is situated in the vicinity of proposed circa 3ha non-residential development in Lanark and the 264 unit at Winston Barracks. This will therefore enable integration of the proposed developments with public transport services, thus facilitating e.g. commuting trips or trips to access healthcare, education or retail opportunities. In Policy Integration terms, this option fits with aspirations to increase the proportion of trips made by sustainable travel modes. This would potentially have the resultant effect of positive impacts on air quality and emissions reduction policy directives. Through its knock-on effect on existing public transport services, this option would however have a potential negative impact on policy directives to reduce inter-urban journey times.	+1
3. Rail Services: Motherwell	In terms of Transport Integration, the improved integration of bus / rail timetables would enhance service integration for cross-modal journeys. With bus services operating in alignment with the rail timetable, this option would enable public transport services to operate in a more complementary manner. In Transport and Land Use Integration terms, this option would have the potential to integrate with proposed new residential and non-residential developments in the study area, thus facilitating e.g. commuting trips or trips to access healthcare, education or retail opportunities. In Policy Integration terms, this option fits with aspirations to increase the proportion of trips made by sustainable travel modes. This would potentially have the resultant effect of positive impacts on air quality and emissions reduction policy directives. Through its knock-on effect on existing public transport services, as other services may be impacted by any re-timetabling on this complex network, this option would however have a potential negative impact on policy directives to reduce inter-urban journey times.	+1
4. Rail Stations: Law	In terms of Transport Integration, a rail station at Law, with active travel, bus and car integration would enhance service integration for cross-modal journeys. With bus services operating in alignment with the rail timetable, this option would enable public transport services to operate in a more complementary manner. In Transport and Land Use Integration terms, this option is situated in the vicinity of proposed residential developments at Law Hospital and Birk's Farm. This will therefore enable integration of the proposed developments with public transport services, thus facilitating e.g. commuting trips or trips to access healthcare, education or retail opportunities. In Policy Integration terms, this option fits with aspirations to increase the proportion of trips made by sustainable travel modes. This would potentially have the resultant effect of positive impacts on air quality and emissions reduction policy directives.	+2

Final Option Name	Commentary on Initial Performance	Initial Score of Performance
	Through its knock-on effect on existing public transport services, this option would however have a potential negative impact on policy directives to reduce inter-urban journey times. This option is consistent with the LDP in South Lanarkshire, though is not reflected in strategy documents by Network Rail.	
5. Rail Stations: Symington	In terms of Transport Integration, a rail station at Symington, with active travel, bus and car integration would enhance service integration for cross-modal journeys. With bus services operating in alignment with the rail timetable, this option would enable public transport services to operate in a more complementary manner. In Transport and Land Use Integration terms, this option is situated in the vicinity of proposed residential development at Manse Road. This will therefore enable integration of the proposed developments with public transport services, thus facilitating e.g. commuting trips or trips to access healthcare, education or retail opportunities. In Policy Integration terms, this option fits with aspirations to increase the proportion of trips made by sustainable travel modes. This would potentially have the resultant effect of positive impacts on air quality and emissions reduction policy directives. Through its knock-on effect on existing public transport services, this option would however have a potential negative impact on policy directives to reduce inter-urban journey times. This option is consistent with the LDP in South Lanarkshire, though is not reflected in strategy documents by Network Rail.	+2
6. Bus Service Improvements: Law-Carluke shuttle	In terms of Transport Integration, a shuttle bus service between Law Village and Carluke Rail Station would enhance service integration for cross-modal public transport journeys. Operating at a high frequency in alignment with the rail timetable, this option would enable public transport services to operate in a more complementary manner. In Transport and Land Use Integration terms, a shuttle bus service between Law Village and Carluke Rail Station is situated in the vicinity of proposed residential developments at Birk's Farm, Stonedyke Road, Boghall, Road and Law Hospital. This will therefore enable integration of the proposed developments with neighbouring settlements, thus facilitating e.g. commuting trips or trips to access healthcare, education or retail opportunities. In Policy Integration terms, the provision of a rail shuttle bus service fits with aspirations to increase the proportion of trips made by of sustainable travel modes. This would potentially have the resultant effect of positive impacts on air quality and emissions reduction policy directives.	+3
7. Bus Service Improvements: Carluke Cross route extension	In terms of Transport Integration, the extension of the 243 bus service route from Law village to Carluke Rail Station would enhance service integration for cross-modal public transport journeys. Operating at a high frequency in alignment with the rail timetable, this option would enable public transport services to operate in a more complementary manner. In Transport and Land Use Integration terms, the extended bus service between Law Village and Carluke Rail Station is situated in the vicinity of proposed residential developments at Birk's Farm, Stonedyke Road, Boghall, Road and Law Hospital. This will therefore enable integration of the proposed developments with neighbouring settlements, thus facilitating e.g. commuting trips or trips to access healthcare, education or retail opportunities. In Policy Integration terms, the provision of an extended bus service fits with aspirations to increase the proportion of trips made by of sustainable travel modes. This would potentially have the resultant effect of positive impacts on air quality and emissions reduction policy directives.	+2
8. Bus Service Improvements: Lanark Interchange	In terms of Transport Integration, the amendment of bus/rail timetables before/after core hours at Lanark Rail Station would enhance service integration for cross-modal public transport journeys. Operating in alignment with the rail timetable, this option would enable public transport services to operate in a more complementary manner. In Transport and Land Use Integration terms, this option is situated in the vicinity of proposed circa 3ha non-residential development in Lanark and the 264 unit at Winston Barracks. This will therefore enable integration of the proposed developments with public transport services, thus facilitating e.g. commuting trips or trips to access healthcare, education or retail opportunities.	+3

Final Option Name	Commentary on Initial Performance	Initial Score of Performance
	In Policy Integration terms, this option fits with aspirations to increase the proportion of trips made by of sustainable travel modes. This would potentially have the resultant effect of positive impacts on air quality and emissions reduction policy directives.	
9. Bus Service Improvements: Biggar-Symington-Lanark	In terms of Transport Integration, an increase in the frequency of the existing subsidised service would enhance service integration for cross-modal public transport journeys. Operating in alignment with the rail timetable, this option would enable public transport services to operate in a more complementary manner. In Transport and Land Use Integration terms, this option is situated in the vicinity of proposed circa 3ha non-residential development in Lanark and the 264 unit at Winston Barracks. At the Biggar end, it is also situated in the vicinity of the Edinburgh Road residential development and non-residential development of circa 2ha. This will therefore enable integration of the proposed developments with public transport services, thus facilitating e.g. commuting trips or trips to access healthcare, education or retail opportunities. In Policy Integration terms, this option fits with aspirations to increase the proportion of trips made by of sustainable travel modes. This would potentially have the resultant effect of positive impacts on air quality and emissions reduction policy directives.	+3
10. Bus Service Improvements: Law	In terms of Transport Integration, the introduction of Glasgow-bound bus services to Law Village would mainly have benefits in terms of accessibility and connectivity as opposed to service integration benefits. In Transport and Land Use Integration terms, this option is situated in the vicinity of proposed residential developments at Birk's Farm, Stonedyke Road, Boghall, Road and Law Hospital. This will therefore enable integration of the proposed developments with neighbouring settlements, thus facilitating e.g. commuting trips or trips to access healthcare, education or retail opportunities. In Policy Integration terms, the introduction of Glasgow-bound bus services to Law Village fits with aspirations to increase the proportion of trips made by of sustainable travel modes. This would potentially have the resultant effect of positive impacts on air quality and emissions reduction policy directives. Through its knock-on effect on existing public transport services, this option would however have a potential negative impact on policy directives to reduce inter-urban journey times.	+1
11. Bus Service Improvements: Carstairs-Lanark-New Lanark	In terms of Transport Integration, a shuttle bus service between Carstairs Rail Station, Lanark Rail Station and New Lanark would enhance service integration for cross-modal public transport journeys. Operating at a frequency in alignment with the rail timetable, this option would enable public transport services to operate in a more complementary manner. In Transport and Land Use Integration terms, this option is situated in the vicinity of proposed residential developments at Ravenstruther and Winston Barracks and proposed circa 3ha non-residential development in Lanark. This will therefore enable integration of the proposed developments with neighbouring settlements, thus facilitating e.g. commuting trips or trips to access healthcare, education or retail opportunities. In Policy Integration terms, the provision of a rail shuttle bus service fits with aspirations to increase the proportion of trips made by of sustainable travel modes. This would potentially have the resultant effect of positive impacts on air quality and emissions reduction policy directives.	+2
12. Bus Service Improvements: Vehicle Quality	In terms of Transport Integration, the introduction of Glasgow-bound bus services to Law Village would be anticipated to have a negligible impact. No conflict with existing land uses. Measures would encourage the residents of new developments and surrounding areas of Clydesdale to use the public transport services to access a variety of land-uses throughout Clydesdale, SLC and for journeys to/from Edinburgh and Glasgow. In Policy Integration terms, this option fits with aspirations to increase the proportion of trips made by sustainable travel modes. This would potentially have the resultant effect of positive impacts on air quality and emissions reduction policy directives. There may also be a direct positive impact on air quality and emissions reduction policy directives by introducing vehicles with improved emissions standards.	+1

Final Option Name	Commentary on Initial Performance	Initial Score of Performance
13. Bus Service Improvements: M74 Bus Hubs	In terms of Transport Integration, the provision of bus hubs on the M74 would enhance service integration for cross-modal public transport journeys. Operating in alignment with local feeder services and longer distance services, this option would enable public transport services to operate in a more complementary manner. That said, the extension of an existing route may impact on journey times for existing passengers and reduce the attractiveness of the service, which could impact on bus revenues. In Transport and Land Use Integration terms, this option is situated in the vicinity of proposed residential developments at Wellburn Farm, Brocketsbrae, Milton Farm, Birkwood Hospital and Balgray Road. It is also in the vicinity of circa 30ha non-residential development. This will therefore enable integration of the proposed developments with public transport services, thus facilitating e.g. commuting trips or trips to access healthcare, education or retail opportunities. In Policy Integration terms, this option fits with aspirations to increase the proportion of trips made by of sustainable travel modes. This would potentially have the resultant effect of positive impacts on air quality and emissions reduction policy directives.	+3
14. Bus Service Improvements: Demand Responsive Transport	In terms of Transport Integration, the provision of DRT would be anticipated to have a negligible impact. In Transport and Land Use Integration terms, further analysis would be required to determine the geographical areas in which the service(s) should operate, but they would have the potential to integrate with proposed new residential and non-residential developments in the study area, thus facilitating e.g. commuting trips or trips to access healthcare, education or retail opportunities. In Policy Integration terms, this option fits with aspirations to increase the proportion of trips made by sustainable travel modes. This would potentially have the resultant effect of positive impacts on air quality and emissions reduction policy directives.	+2
15. Active Travel Infrastructure	In terms of Transport Integration, active travel infrastructure to provide connectivity between neighbouring settlements would be anticipated to have a positive impact. Improvements with regard to walking access to transport hubs and stops would also be anticipated to have a positive impact on transport integration. In Transport and Land Use Integration terms, active travel infrastructure between Law, Carluke and Braidwood is situated in the vicinity of proposed residential developments at Birk's Farm, Stonedyke Road, Boghall, Road and Law Hospital. This will therefore enable integration of the proposed developments with neighbouring settlements, thus facilitating e.g. commuting trips or trips to access healthcare, education or retail opportunities. Active travel infrastructure between Carstairs and Carnwath is in the vicinity of the proposed residential development at Ravenstruther and active travel infrastructure between Symington and Biggar is in the vicinity of the proposed Edinburgh Road residential development and non-residential development of circa 2ha. In Policy Integration terms, the provision of active travel infrastructure fits with aspirations to increase the proportion of trips made by active travel modes. This would potentially have the resultant effect of positive impacts on air quality and emissions reduction policy directives.	+1
16. Park & Ride: Lanark	In terms of Transport Integration, a P&R facility at Lanark Rail Station with bus timetables integrated with rail would enhance service integration for cross-modal journeys. With bus services operating in alignment with the rail timetable, this option would enable public transport services to operate in a more complementary manner. In Transport and Land Use Integration terms, this option is situated in the vicinity of proposed circa 3ha non-residential development in Lanark and the 264 unit at Winston Barracks. This will therefore enable integration of the proposed developments with public transport services, thus facilitating e.g. commuting trips or trips to access healthcare, education or retail opportunities. In Policy Integration terms, this option fits with aspirations to increase the proportion of trips made by of sustainable travel modes. This would potentially have the resultant effect of positive impacts on air quality and emissions reduction policy directives.	+3
17. Park & Ride: Carstairs	In terms of Transport Integration, a P&R facility at Carstairs station with bus timetables integrated with rail would enhance service integration for cross-modal journeys. With bus services operating in alignment with the rail timetable, this option would enable	+2

Final Option Name	Commentary on Initial Performance	Initial Score of Performance
	public transport services to operate in a more complementary manner. In Transport and Land Use Integration terms, this option is situated in the vicinity of proposed residential development at Ravenstruther. This will therefore enable integration of the proposed development with public transport services, thus facilitating e.g. commuting trips or trips to access healthcare, education or retail opportunities. In Policy Integration terms, this option fits with aspirations to increase the proportion of trips made by sustainable travel modes. This would potentially have the resultant effect of positive impacts on air quality and emissions reduction policy directives.	
18. Behaviour Change	Transport Integration - potential for improved public transport information and the marketing of services, will improve integration between modes and services and reduce reliance on private car use. There is potential for a slight indirect benefit on ticketing through improved marketing of discount tickets that are available. Transport and Land Use Integration - No conflict with existing land uses. Measures would encourage the residents of new developments and surrounding areas of Clydesdale to use the public transport services to access a variety of land-uses throughout Clydesdale, SLC and for journeys to/from Edinburgh and Glasgow. Policy Integration - Aligns well with Local Transport Strategy and other transport strategies by supporting use of public transport.	+1

Accessibility and Social Inclusion

STAG states that:

'The Accessibility and Social Inclusion Criterion includes the sub-criteria of Community Accessibility and Comparative Accessibility, the Part 1 Appraisal involves qualitative assessment of:

Community Accessibility

- *Public transport network coverage – changes in accessibility provided by the public transport system; and*
- *Access to local services – changes in accessibility by walking and cycling to local services.*

Comparative Accessibility

- *The distribution of impacts by people group – compare impacts for different population groups relevant to local policy objectives; and*
- *The distribution of impacts by location – compare impacts for policy sensitive locations such as Community Regeneration Areas and areas of deprivation defined by the Scottish Index of Multiple Deprivation.*

At Part 1 Appraisal, a qualitative assessment should be completed for the overall appraisal against the Accessibility and Social Inclusion Criterion using the seven-point-scale assessment, considering the relative size and scale of impacts.'

Appraisals of the options against the Accessibility and Social Inclusion criteria are presented in Table 6-5.

Table 6-5 Initial appraisal of Accessibility Impacts of Options

Final Option Name	Commentary on Initial Performance	Initial Score of Performance
1. Rail Services: Carluke-Carstairs-Edinburgh	This option would serve areas within the 15% most deprived in Scotland. It would primarily benefit in terms of frequency of services as opposed to opening up new accessibility opportunities.	+1
2. Rail Services: Lanark-Edinburgh	New rail services between Lanark and Edinburgh would increase the level of accessibility to employment, education and healthcare opportunities in Edinburgh.	+2

Final Option Name	Commentary on Initial Performance	Initial Score of Performance
	This option would serve areas within the 10% most deprived in Scotland.	
3. Rail Services: Motherwell	The improved integration of bus / rail timetables would have a minor benefit on accessibility and social inclusion for residents of Clydesdale, large proportions of which are rural in nature. This would potentially include areas within the 10% most deprived in Scotland.	+1
4. Rail Stations: Law	The creation of a new station at Law would have a moderate benefit on accessibility and social inclusion for residents of the catchment, for whom there are currently no direct public transport options to Edinburgh and Glasgow. A station would also provide new options for journeys to other SLC locations. This option would serve areas within the 30% most deprived in Scotland.	+2
5. Rail Stations: Symington	The creation of a new station at Symington would have a moderate benefit on accessibility and social inclusion for residents of the catchment, for whom there are currently no rail options. A station would potentially facilitate rail options for journeys to Edinburgh, Glasgow, Carlisle and other SLC locations.	+2
6. Bus Service Improvements: Law-Carluke shuttle	The implementation of shuttle bus services between Law Village and Carluke Rail Station would have a minor benefit on accessibility and social inclusion for residents of the village, for whom there are currently no rail options or bus options to Edinburgh or Glasgow. Shuttle services would facilitate rail options for journeys to Edinburgh, Glasgow and other SLC locations. This option would serve areas within the 15% most deprived in Scotland.	+1
7. Bus Service Improvements: Carluke Cross route extension	The extension of the operating route of the existing 243 service to Carluke Rail Station would have a minor benefit on accessibility and social inclusion for residents of Law Village, for whom there are currently no rail options or bus options to Edinburgh or Glasgow. Extended length, higher frequency services would facilitate rail options for journeys to Edinburgh, Glasgow and other SLC locations. This option would serve areas within the 15% most deprived in Scotland.	+1
8. Bus Service Improvements: Lanark Interchange	The improvement of bus/rail integration outwith core hours have a moderate benefit on accessibility and social inclusion for existing and prospective public transport users, for whom options for connecting bus journeys from Lanark interchange outwith core hours are currently limited. This would facilitate public transport options for journeys to Edinburgh, Glasgow and other SLC locations. This option would serve areas within the 30% most deprived in Scotland.	+2
9. Bus Service Improvements: Biggar-Symington-Lanark	An increase in the frequency of the existing subsidised service would have a moderate benefit on accessibility and social inclusion for existing and prospective public transport users, for residents of the area for whom options for bus journeys to Lanark are currently limited. This would facilitate public transport options for journeys to Edinburgh, Glasgow and other SLC locations. This option would serve areas within the 30% most deprived in Scotland.	+2
10. Bus Service Improvements: Law	The introduction of Glasgow-bound bus services to Law Village would have a moderate benefit on accessibility and social inclusion for residents of the catchment, for whom there are currently no direct public transport options to Glasgow. This option would also provide new options for journeys to other SLC locations. This would also potentially open up direct public transport options to locations in southern parts of Clydesdale and the Borders. This option would serve areas within the 30% most deprived in Scotland.	+2
11. Bus Service Improvements: Carstairs-Lanark-New Lanark	The implementation of shuttle bus services between Carstairs Rail Station, Lanark Rail Station and New Lanark would have a moderate benefit on accessibility and social inclusion for residents of the catchment, for whom there are currently no direct public transport options to Edinburgh. This would enable public transport journeys to Edinburgh, Glasgow and other SLC locations, thus increasing the level of public transport accessibility of Clydesdale for people within and outwith the area. The proposals would have a positive impact on social exclusion, particularly for the Carstairs and surrounding area which are classed as Accessible Rural Areas.	+2

Final Option Name	Commentary on Initial Performance	Initial Score of Performance
	This option would serve areas within the 25% most deprived in Scotland.	
12. Bus Service Improvements: Vehicle Quality	The implementation of improved bus vehicle quality is anticipated to have some benefit on accessibility and social inclusion if accessibility levels for people with mobility difficulties are improved.	+1
13. Bus Service Improvements: M74 Bus Hubs	The creation of bus hubs on the M74 corridor would have a moderate benefit on accessibility and social inclusion for residents of the catchment, for whom there are currently limited longer distance public transport options. A hub would potentially facilitate public transport options for journeys to Glasgow, the Scottish Borders and other SLC locations. This option would serve areas within the 10% most deprived in Scotland.	+2
14. Bus Service Improvements: Demand Responsive Transport	The implementation of DRT services would have a moderate benefit on accessibility and social inclusion for residents of the catchment, for whom there are currently limited scheduled public transport services available. This would potentially include areas within the 10% most deprived in Scotland.	+2
15. Active Travel Infrastructure	Active travel infrastructure would have a moderate benefit on accessibility and social inclusion for residents of the catchment, which includes areas classed as Accessible Rural. Walking and cycling are more affordable ways to travel than public transport or owning a private car, and thus benefit those on lower incomes (though access to bicycles can be a barrier). Active travel infrastructure between Law, Carluke and Braidwood would encompass areas within the 15% most deprived in Scotland.	+2
16. Park & Ride: Lanark	A P&R facility at Lanark station would have a moderate benefit on accessibility and social inclusion for residents of the catchment, which includes areas classed as Accessible Rural. This option would serve areas within the 30% most deprived in Scotland.	+2
17. Park & Ride: Carstairs	A P&R facility at Carstairs station would have a moderate benefit on accessibility and social inclusion for residents of the catchment, which includes areas classed as Accessible Rural. This option would serve areas within the 25% most deprived in Scotland.	+2
18. Behaviour Change	The implementation of behaviour change initiatives would not be anticipated to have an impact on accessibility and social inclusion. Promoting car sharing may benefit those for whom lack of transport through e.g. cost is a barrier.	+ 1

Table 6-6 Summary of options appraisal against STAG Criteria

STAG Criteria	STAG Part 1 Options																		
	Rail Services			Rail Stations		Bus Service Improvements									Active Travel Infrastructure	Park & Ride		Behaviour Change
	1. Carluke-Carstairs-Edinburgh	2. Lanark-Edinburgh	3. Motherwell	4. Law	5. Symington	6. Law-Carluke shuttle	7. Carluke Cross route extension	8. Lanark Interchange	9. Biggar-Symington-Lanark	10. Law	11. Carstairs-Lanark-New Lanark	12. Vehicle Quality	13. M74 Bus Hubs	14. Demand Responsive Transport	15. Active Travel Infrastructure	16. Lanark	17. Carstairs	18. Behaviour Change
Environment	+2	+2	0	+1	+2	+2	+1	+2	+1	+2	+2	+2	+1	+2	+2	+2	+2	+1
Safety	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1
Economy	0	+1	0	-1	-1	+1	+1	+1	+1	0	+2	0	+1	+1	+1	+2	+2	+1
Integration	+1	+1	+1	+2	+2	+3	+2	+3	+3	+1	+2	+1	+3	+2	+1	+3	+2	+1
Accessibility and Social Inclusion	+1	+2	+1	+2	+2	+1	+1	+2	+2	+2	+2	+1	+2	+2	+2	+2	+2	+1

Options Deliverability Appraisal

07

7. Options Deliverability Appraisal

Introduction

In this section, an appraisal is presented of each option against deliverability criteria from STAG.

Criteria Covered

STAG guidance advocates that a Part 1 Appraisal considers the feasibility, affordability and public acceptability of options. The appraisal should consider:

- Feasibility - a preliminary assessment of the feasibility of construction or implementation and operation (if relevant) of an option and the status of its technology (e.g. proven, prototype, in development etc.) as well as any cost, timescale or deliverability risks associated with the construction or operation of the option, including consideration of the need for any departure from design standards that may be required. Similarly, consideration should be given to who would operate the option, including, if relevant, their statutory powers to operate an option and any other issues (e.g. cost) which may impact on its operation;
- Affordability - the scale of the financing burden on the promoting authority and other possible funding organisations and the risks associated with these should be considered together with the level of risk associated with an option's ongoing operating or maintenance costs and its likely operating revenues (if applicable); and
- Public Acceptability - the likely public response is of importance at this initial appraisal phase and reference to supporting evidence, for example results from a consultation exercise, must be provided where appropriate.

Assessment of Deliverability

Table 7-1 sets out an assessment of the deliverability of options / option packages.

Cost estimates are outlined and banded, which is appropriate for this Part 1 Appraisal. Low generally refers to less than £1m, Medium to £1m-5m, High above £5m. However, option packages are difficult to estimate when they include a number of relatively low-cost measures which may be cumulatively medium to high cost, depending on scope and design.

Table 7-1 Assessment of Deliverability

Option	Option Details	Feasibility	Affordability	Public Acceptability
1. Rail Services: Carluke-Carstairs-Edinburgh	This option entails increasing the frequency of existing rail services between Carluke, Carstairs and Edinburgh.	**Technical:** Increasing rail service frequencies is deemed to be technically feasible and includes no untried technologies or practices. **Operational:** Existing passenger and freight rail services operate on the line between Carluke, Carstairs and Edinburgh. A recast of the Shott's line timetable will follow electrification with a new timetable expected in May 2019. There are also capacity constraints at Carstairs Junction and at terminating ends of the line at Glasgow Central and Edinburgh Waverley Rail Stations. There is a focus on journey time improvements in Scotland. The introduction of additional services on the network may result in a journey time disbenefit for existing services which would be contrary to the aims of rail investment to date. The impact of timetable changes resulting from increased frequency of services would require to be modelled to understand the capability of their inclusion, as well as the demand for increased frequency. **Financial:** The level of service requirements for services operating as part of the ScotRail franchise are established by Transport Scotland. The requirement to operate increased frequency rail services between Carluke, Carstairs and Edinburgh could potentially be included within Transport Scotland's criteria for delivery of the ScotRail franchise.	Medium to high cost (assuming additional rolling stock and staffing may be required to run additional services)	Proposals to increase the frequency of existing rail services between Carluke, Carstairs and Edinburgh are likely to be publicly acceptable for residents of the study area. Stakeholders have noted in engagement that Saturday services to Edinburgh can be very busy on this line, particularly for major events in Edinburgh e.g. Sporting events. Existing users of the rail network from outwith the study area however who may be impacted negatively by potential resultant journey time disbenefit would be anticipated to object to proposals for increased frequency of services.
2. Rail Services: Lanark-Edinburgh	This option entails the introduction of new rail services between Lanark and Edinburgh. This would require the implementation of a new sections of rail track from a spur on the existing line between Carluke and Carstairs junction.	**Technical:** The implementation of new rail services between Lanark and Edinburgh would require the installation of new sections of rail track. A detailed feasibility study would require to be undertaken to determine the technical deliverability of such an option. The implementation of new rail services / rail track includes no untried technologies or practices **Operational:** Existing passenger and freight rail services operate on the line between Carluke, Carstairs and Edinburgh. A recast of the Shott's line timetable will follow electrification with a new timetable expected in May 2019. There are also capacity constraints at Carstairs Junction and at terminating ends of the line at Glasgow Central and Edinburgh Waverley Rail Stations. There is a focus on journey time improvements in Scotland. The introduction of additional services on the network may result in a journey time disbenefit for existing services. The impact of timetable changes resulting from increased frequency of services would require to be modelled to understand the capability of their inclusion. **Financial:** The level of service requirements for services operating as part of the ScotRail franchise are established by Transport Scotland. The requirement to operate new rail services between Lanark and Edinburgh could potentially be included within Transport Scotland's criteria for delivery of the ScotRail franchise. The implementation of new sections of rail track required to facilitate new services between Lanark and Edinburgh could potentially be progressed through the rail enhancements and capital investment pipeline for delivery through Network Rail's enhancement programme.	Medium to High cost (assuming a new section of track and associated works would be required plus additional rolling stock and staffing to operate services on new route)	Proposals to introduce new services between Lanark and Edinburgh are likely to be publicly acceptable for residents of the study area. Existing users of the rail network from outwith the study area however who may be impacted negatively by potential resultant journey time disbenefit would be anticipated to object to proposals for implementation of new services.
3. Rail Services: Motherwell	This option entails the integration of bus / rail timetables to allow improved interchange at Motherwell station for Clydesdale residents who require to access Hamilton.	**Technical:** The improved integration of bus / rail timetables includes no untried technologies or practices **Operational:** Existing passenger and freight rail services operate through Motherwell Rail Station. A recast of the Shott's line timetable will follow electrification with a new timetable expected in May 2019. There are also capacity constraints at Carstairs Junction and at terminating ends of the line at Glasgow Central and Edinburgh Waverley Rail Stations. There is a focus on journey time improvements in Scotland. The ability to implement rail timetable changes may be heavily constrained by these existing services and network capacity constraints, and engagement with rail stakeholders suggests this network involves a highly complicated series of following and crossing services which have already been carefully timetabled. The impact of timetable changes would require to be modelled to understand the capability of their inclusion. **Financial:** It is not anticipated that proposals to improve integration of bus / rail timetables would incur any additional costs over and above the costs associated with the running of current timetabled services.	Low cost (assuming this relates to timetabling only and service/rolling stock levels would not be anticipated to change).	Proposals to improve integration of bus / rail timetables are likely to be publicly acceptable for residents of the study area. Existing users of the rail network from outwith the study area however who may be impacted negatively by potential resultant journey time disbenefit would be anticipated to object to proposals.

Option	Option Details	Feasibility	Affordability	Public Acceptability
4. Rail Stations: Law	This option entails the implementation of a rail station and associated car parking and bus integration at Law.	**Technical:** Previous feasibility studies on the construction of a new rail station at Law have been undertaken and conclude that it is technically feasible to construct a six-car platform (both directions) rail station with ancillary bus and parking facilities at this location. Land for the development of a rail station has been safeguarded in the LDP. The construction of a new station at Law includes no untried technologies or practices. **Operational:** Existing passenger and freight rail services operate through the site of the proposed rail station which is in close proximity to Carluke and Wishaw Rail Stations. A recast of the Shott's line timetable will follow electrification with a new timetable expected in May 2019. There are also capacity constraints at Carstairs Junction and at terminating ends of the line at Glasgow Central and Edinburgh Waverley Rail Stations. The creation of a new station on the existing line would increase journey times for existing passengers using this line. There is a focus on journey time improvements in Scotland. In order to offset journey time increases for existing services, it may be necessary to reduce the number of station calls at other stations on the network. The impact of introducing a new station on existing timetables would require to be modelled to understand the capability of its inclusion. The close proximity of Law to existing railway stations may mean Law has a limited catchment in terms of new rail passengers, and may transfer existing rail (and possibly bus) passengers, in addition to some new rail passengers transferring from private car journeys. This matters for the business case for rail operations in terms of revenue from passengers. **Financial:** The construction costs of any new station facility would require to be met by the project promoter. New stations entail significant costs. On completion, responsibility for the ongoing operation of the station would lie with Network Rail, with ScotRail responsible for the scheduling of services.	Medium to High cost: 2008 feasibility study estimated costs at circa £3.2 million +50/-20%. This excluded: • Signalling, overhead line and main line track costs (only minor work envisaged). • Station building other than waiting shelters • Existing service diversions • Piled foundations • Footbridge extension to south • Additional access paths and cycle tracks • REC costs • Permanent land purchase costs. • Any land purchase or rental during construction • Station maintenance • Car park maintenance • Legal and other fees • Client internal costs • Additional train set (if required) • Additional train crew (if required) • Increased train costs (fuel and brakes) • Station access charges • Station staffing costs Assumed that estimates (adjusted for inflation and 2019 rates) remain relevant. NB. It is unclear how optimism bias has been applied to 2008 estimates.	There is a long-standing aspiration for a rail station in Law by some stakeholders (though not all stakeholders engaged with for this study agree it is needed). Proposals to introduce a new rail station at Law are likely to be publicly acceptable for residents of the station's catchment area. Existing users of the rail network from outwith the catchment area however who may be impacted negatively by potential resultant journey time disbenefit and/or reduced frequency of stopping services would be anticipated to object to proposals.
5. Rail Stations: Symington	This option entails the implementation of a rail station and associated car parking and bus integration at Symington.	**Technical:** Previous feasibility studies on the construction of a new rail station at Symington have been undertaken and conclude that it is technically feasible to construct a six-car platform (both directions) rail station with ancillary bus and parking facilities at this location. Land for the development of a rail station has been safeguarded in the LDP. The construction of a new station at Symington includes no untried technologies or practices. **Operational:** Existing passenger and freight rail services operate through the site of the proposed rail station. A recast of the Shott's line timetable will follow electrification with a new timetable expected in May 2019. There are also capacity constraints at Carstairs Junction and at terminating ends of the line at Glasgow Central and Edinburgh Waverley rail stations. The location of the proposed station is on a section of the network not currently served by ScotRail. Operators of cross-border services may be unlikely to call at the proposed station and one has stated this in consultations for this study. It may therefore be challenging to introduce stopping services at any new station at this location. The creation of a new station on the existing line would increase journey times for existing passengers using this line. There is a focus on journey time improvements in Scotland and for cross-border services. The impact of introducing a new station on existing timetables would require to be modelled to understand the capability of its inclusion. The demand for such a rail station may be relatively low (based on previous forecasts by Halcrow 2006), and the population catchment is limited in this rural area, which may call into question the business case for investing in a commercial rail network environment. **Financial:** The construction costs of any new station facility would require to be met by the project promoter. On completion, responsibility for the ongoing operation of the station would lie with Network Rail, with ScotRail responsible for the scheduling of services.	Medium to High cost: 2008 feasibility study estimated costs at circa £3.4-3.9 million +/-50%. This excluded: • Increased train operating costs • Station access charges (circa £15k/annum) • Existing service diversions • Access road costs beyond 100 metres in length • Piled foundations • Additional access paths and cycle tracks • REC costs • Permanent land purchase costs • Any land purchase or rental during construction • Station maintenance (circa £10k/annum) • Car park maintenance • Legal and other fees • Track costs (only minor work envisaged) • Client internal costs.	There is a long-standing aspiration for a rail station in Symington. Proposals to introduce a new rail station at Symington are likely to be publicly acceptable for residents of the station's catchment area. Existing users of the rail network from outwith the catchment area however who may be impacted negatively by potential resultant journey time disbenefit would be anticipated to object to proposals.

Option	Option Details	Feasibility	Affordability	Public Acceptability
6. Bus Service Improvements: Law-Carluke shuttle	This option entails the implementation of a dedicated shuttle bus service between Law village and Carluke Rail Station. The service would operate on a high frequency and would integrate with the rail timetable.	**Technical:** The implementation of shuttle bus services includes no untried technologies or practices. **Operational:** In a de-regulated market, the commercial viability of any bus service must be considered by a prospective operator. The anticipated level of patronage would need to be assessed to determine the viability or otherwise of the shuttle bus as a commercial service. There may also be a reluctance for commercial bus operators to serve a rail station if they deem the rail station/services to be in direct competition to the routes they operate. Subsidisation of shuttle services would need to be considered in the context of the social necessity of the service and within the parameters of existing local and regional budgetary constraints for the subsidisation of services. Should the decision be made to subsidise any new service, this may come at the expense of an existing service subsidised elsewhere. **Financial:** In order to run a dedicated, high frequency shuttle service, this would require a sizeable fleet of vehicles and drivers. The source of funding for such a service would be dependent on the commercial or subsidised nature of the service. In a de-regulated market, the commercial viability of any bus service must be considered by a prospective operator. The anticipated level of patronage would need to be assessed to determine the viability or otherwise of the shuttle bus as a commercial service. There may also be a reluctance for commercial bus operators to serve a rail station if they deem the rail station/services to be in direct competition to the routes they operate. Subsidisation of shuttle services would need to be considered in the context of the social necessity of the service and within the parameters of existing local and regional budgetary constraints for the subsidisation of services. Should the decision be made to subsidise any new service, this may come at the expense of an existing service subsidised elsewhere. Finally, bus operators in consultation for this study have noted that they respond to routes where they believe there is a financial case for a service, and if they are not providing a service on a route already, it may suggest there is limited scope for profitability.	Medium cost: Depends on whether subsidy is required to operate. Potentially medium cost.	Proposals to introduce a shuttle bus service between Law village and Carluke Rail Station are likely only to be mildly publicly acceptable. There is a long-standing aspiration for a rail station in Law, and as such, proposed shuttle services to Carluke may only be deemed to be acceptable as a short term, stop-gap measure.. Research also shows that people prefer not to interchange.
7. Bus Service Improvements: Carluke Cross route extension	This option entails the extension of the existing 243 service from Law to Carluke to a terminating point at Carluke Rail Station. The service would operate on a higher frequency than currently and would integrate with the rail timetable.	**Technical:** The extension of the operating route of the existing 243 service includes no untried technologies or practices. **Operational:** An increase in the frequency and route length of the existing subsidised service would require additional vehicles and drivers and would thus incur additional cost. This would need to be considered in the context of the social necessity of the service and within the parameters of existing local and regional budgetary constraints for the subsidisation of services. Should the decision be made to expand the existing subsidised service, this may come at the expense of an existing service subsidised elsewhere. **Financial:** An increase in the frequency and route length of the of the existing subsidised service would require additional vehicles and drivers and would thus incur additional cost. This would need to be considered in the context of the social necessity of the service and within the parameters of existing local and regional budgetary constraints for the subsidisation of services. Should the decision be made to expand the existing subsidised service, this may come at the expense of an existing service subsidised elsewhere.	Medium cost (assuming new services and vehicles required).	Proposals to extend the existing 243 service route to Carluke Rail Station and increase the frequency of the service are likely to be publicly acceptable assuming that changes do not lead to the withdrawal of services elsewhere. In the event that service enhancements could only be facilitated by the withdrawal of subsidised services elsewhere, proposals would likely be met with objection.
8. Bus Service Improvements: Lanark Interchange	This option entails the amendment of bus / rail timetables and bus service level increase outwith core hours to enable interchange at Lanark Rail Station and ensure connections are available to Clydesdale towns and villages outwith the core working day.	**Technical:** The amendment of bus/rail timetables before/after core hours at Lanark Rail Station includes no untried technologies or practices. **Operational:** In a de-regulated market, the commercial viability of any bus service must be considered by a prospective operator. The anticipated level of patronage would need to be assessed to determine the viability or otherwise of extending the bus service operating hours on a commercial basis. Subsidisation of services would need to be considered in the context of the social necessity of the service and within the parameters of existing local and regional budgetary constraints for the subsidisation of services. Should the decision be made to	Medium cost: Depends on whether subsidy is required to operate.	Proposals to improve bus/rail integration outwith core hours are likely to be publicly acceptable assuming that changes do not lead to the withdrawal of services elsewhere. In the event that service enhancements could only be facilitated by the withdrawal of services elsewhere, proposals would likely be met with objection.

Option	Option Details	Feasibility	Affordability	Public Acceptability
		subsidise any extended service, this may come at the expense of an existing service subsidised elsewhere. An extension to the operating hours of existing services would potentially require additional vehicles and/or drivers and would thus incur additional cost. **Financial:** In a de-regulated market, the commercial viability of any bus service must be considered by a prospective operator. The anticipated level of patronage would need to be assessed to determine the viability or otherwise of extending the bus service operating hours on a commercial basis. Subsidisation of services would need to be considered in the context of the social necessity of the service and within the parameters of existing local and regional budgetary constraints for the subsidisation of services. Should the decision be made to subsidise any extended service, this may come at the expense of an existing service subsidised elsewhere. An extension to the operating hours of existing services would potentially require additional vehicles and/or drivers and would thus incur additional cost.		
9. Bus Service Improvements: Biggar-Symington-Lanark	This option entails increasing the frequency of the part-subsidised Biggar/Symington to Lanark service from a 1hr frequency to a 1/2hr frequency during peak travel hours. The proposal is to increase the frequency connecting with commuter trains to Glasgow.	**Technical:** The increase in frequency of the Biggar/Symington to Lanark bus service, integrating with commuter trains to Glasgow, includes no untried technologies or practices. **Operational:** An increase in the frequency of the existing subsidised service would require additional vehicles and drivers and would thus incur additional cost. This would need to be considered in the context of the social necessity of the service and within the parameters of existing local and regional budgetary constraints for the subsidisation of services. Should the decision be made to expand the existing subsidised service, this may come at the expense of an existing service subsidised elsewhere. **Financial:** An increase in the frequency of the existing subsidised service would require additional vehicles and drivers and would thus incur additional cost. This would need to be considered in the context of the social necessity of the service and within the parameters of existing local and regional budgetary constraints for the subsidisation of services. Should the decision be made to expand the existing subsidised service, this may come at the expense of an existing service subsidised elsewhere.	Medium cost (assuming new vehicles and staffing may be required).	Proposals to increase the frequency of the existing subsidised service are likely only to be mildly publicly acceptable. There is a long-standing aspiration for a rail station in Symington, and as such, proposed service level increases to integrate with commuter trains to Glasgow may only be deemed to be acceptable as a short term, stop-gap measure. In the event that service enhancements could only be facilitated by the withdrawal of services elsewhere, proposals would likely be met with objection.
10. Bus Service Improvements: Law	This option entails diverting existing Glasgow-bound bus services through Law to introduce stopping services to Law village.	**Technical:** The introduction of Glasgow-bound bus services to Law village includes no untried technologies or practices. **Operational:** In a de-regulated market, the commercial viability of any bus service must be considered by a prospective operator. The anticipated level of patronage would need to be assessed to determine the viability or otherwise of diverting existing services through Law village. Consideration would also require to be given to any additional journey/drive time the diversion of existing services would entail as maximum permissible driver's hours are governed by legislation. There may be cost implications associated with the requirement of providing additional drivers to maintain current levels of service. There may also be operational cost implications if delays caused due to the diversion of existing services necessitates the running of additional vehicles to maintain current levels of service. Journey time disbenefit for existing bus passengers caused by diverting existing services through Law village may result in a loss of patronage from existing settlements which may limit the commercial attractiveness of this proposal. Law was served by a bus services until early 2019 when it was withdrawn. **Financial:** In a de-regulated market, the commercial viability of any bus service must be considered by a prospective operator. The anticipated level of patronage would need to be assessed to determine the viability or otherwise of diverting existing services through Law village. Consideration would also require to be given to any additional journey/drive time the diversion of existing services would entail as maximum permissible driver's hours are governed by legislation. There may be cost implications associated with the requirement of providing additional drivers to maintain current levels of service. There may also be operational cost implications if delays caused due to the diversion of existing services necessitates the running of additional vehicles to maintain current levels of service. Journey time disbenefit for existing bus passengers caused by diverting existing services through Law village may result in a loss of patronage from existing settlements	Medium cost: Depends on whether subsidy is required to operate. Assuming new vehicles and staffing may be required to extend service operations.	There is a long-standing aspiration for a rail station in Law, and as such, the proposed introduction of Glasgow-bound bus services may only be deemed to be acceptable to residents of Law village as a short term, stop-gap measure. Existing users of the bus services from outwith the catchment area however would be impacted negatively by resultant journey time disbenefit so would be anticipated to object to proposals.

Option	Option Details	Feasibility	Affordability	Public Acceptability
		which may limit the commercial attractiveness of this proposal.		
11. Bus Service Improvements: Carstairs-Lanark-New Lanark	This option entails the implementation of a dedicated shuttle bus service between Carstairs Rail Station, Lanark Rail Station and New Lanark Heritage Village, integrated with the rail network. The service could potentially be delivered through a fleet of Ultra Low Emission Vehicles (ULEVs) e.g. battery or hydrogen fuel cell, with further potential that the energy required to 'refuel' the vehicles is generated by local windfarms. The option of running the service with autonomous or semi-autonomous i.e. driverless vehicles could also be further explored.	**Technical:** The implementation of shuttle bus services includes no untried technologies or practices. **Operational:** In a de-regulated market, the commercial viability of any bus service must be considered by a prospective operator. The anticipated level of patronage would need to be assessed to determine the viability or otherwise of the shuttle bus as a commercial service. There may also be a reluctance for commercial bus operators to serve a rail station if they deem the rail station/services to be in direct competition to the routes they operate. Subsidisation of shuttle services would need to be considered in the context of the social necessity of the service and within the parameters of existing local and regional budgetary constraints for the subsidisation of services. Should the decision be made to subsidise any new service, this may come at the expense of an existing service subsidised elsewhere. **Financial:** In order to run a dedicated, high frequency shuttle service, this would require a sizeable fleet of vehicles and drivers. The source of funding for such a service would be dependent on the commercial or subsidised nature of the service. In a de-regulated market, the commercial viability of any bus service must be considered by a prospective operator. The anticipated level of patronage would need to be assessed to determine the viability or otherwise of the shuttle bus as a commercial service. There may also be a reluctance for commercial bus operators to serve a rail station if they deem the rail station/services to be in direct competition to the routes they operate. There may also potentially be the opportunity for funding support through windfarm community benefits. European Regional Development Fund (ERDF) support may also be available for the development of a 'green energy' fuelled shuttle service i.e. battery/hydrogen fuel cell vehicles 'refuelled' using energy generated at windfarms. UK Government funding may also be available through the Office for Low Emission Vehicles with funding also potentially available from Transport Scotland. Subsidisation of shuttle services would need to be considered in the context of the social necessity of the service and within the parameters of existing local and regional budgetary constraints for the subsidisation of services. Should the decision be made to subsidise any new service, this may come at the expense of an existing service subsidised elsewhere.	Medium cost: Depends on whether subsidy is required to operate. New vehicles and staffing likely required.	Proposals to introduce a shuttle bus service between Carstairs Rail Station, Lanark Rail Station and New Lanark are likely to be publicly acceptable assuming their introduction does not lead to the withdrawal of services elsewhere. In the event that the introduction of a service could only be facilitated by the withdrawal of subsidised services elsewhere, proposals would likely be met with objection. Use of ULEVs to operate the services are also likely to be publicly acceptable. Support may be split on the use of 'driverless' vehicles.
12. Bus Service Improvements: Vehicle Quality	This option entails proposals to improve the vehicle quality of service buses in terms of passenger comfort and emissions standards.	**Technical:** The implementation of improved bus vehicle quality includes no untried technologies or practices. **Operational:** Whilst legislation governing minimum vehicle standards in terms of accessibility must be adhered to by public service vehicle operators[17], outwith the scope of legal requirements, decisions to upgrade vehicle fleets are at the discretion of service operators. In a de-regulated market, this primarily relates to commercial operators. Within the Clydesdale area there are also a number of subsidised services over which funding partners i.e. SLC or SPT can stipulate requirements including minimum vehicle standards. In either scenario, the cost associated with upgrading vehicles within their service life i.e. ahead of schedule may incur significant additional costs to the service operator and so be undeliverable. With the establishment of Scotland's first Low Emissions Zone (LEZ) in Glasgow however, operators running services to Glasgow also require to meet minimum vehicle standards in terms of emissions. Over the 5 years from 2018 to 2022, this will see all service buses operating in the LEZ meeting Euro VI emissions standards[18]. Plans to investigate the use of traffic regulation conditions in relation to bus Euro standards within SLC's AQMAs are also proposed within the draft Air Quality Strategy[19].	Medium to high cost: Depends on whether grant funding available to retrofit existing vehicles, or vehicles replaced with new during their service life.	Proposals to improve bus vehicle quality are likely to be publicly acceptable. There is a risk however that in the absence of improvements to service levels, improvements to vehicle quality would be viewed as a worthless exercise.

[17] http://www.legislation.gov.uk/uksi/2000/1970/contents/made
[18] http://www.glasgow.gov.uk/CouncillorsandCommittees/viewDoc.asp?c=P62AFQDN2UZLDXZ3DN
[19] https://www.southlanarkshire.gov.uk/info/200193/pollution/263/air_quality/10

Option	Option Details	Feasibility	Affordability	Public Acceptability
		Financial: Whilst legislation governing minimum vehicle standards in terms of accessibility must be adhered to by public service vehicle operators, outwith the scope of legal requirements, decisions to upgrade vehicle fleets are at the discretion of service operators. In a de-regulated market, this primarily relates to commercial operators. Within the Clydesdale area there are also a number of subsidised services over which funding partners i.e. SLC or SPT can stipulate requirements including minimum vehicle standards. With the establishment of Scotland's first Low Emissions Zone (LEZ) in Glasgow however, operators running services to Glasgow also require to meet minimum vehicle standards in terms of emissions. Over the 5 years from 2018 to 2022, this will see all service buses operating in the LEZ meeting Euro VI emissions standards. Plans to investigate the use of traffic regulation conditions in relation to bus Euro standards within SLC's AQMAs are also proposed within the draft Air Quality Strategy. In either scenario, the cost associated with upgrading vehicles within their service life i.e. ahead of schedule may incur significant additional costs to the service operator and so be undeliverable. In respect of vehicle upgrades to reduce emissions however, the Scottish Bus Emissions Abatement Retrofit Programme (BEAR) offers funding for buses to be converted to Euro VI standard to help reduce pollution levels in AQMAs[20]. This would potentially enable operators to upgrade their vehicles accordingly without incurring additional cost.		
13. Bus Service Improvements: M74 Bus Hubs	This option entails proposals to create bus hubs on the M74 corridor with feeder services from the surrounding area at Abington and Lesmahagow.	**Technical:** The implementation of bus hubs includes no untried technologies or practices. There is however an issue in this option over controlling long-stay parking associated with a bus hub in relation to the existing Abington service station car parking, and ensuring hub users do not use service station car parking at the expense of the service station's customer access. Technologies do exist which could be used to control this e.g. ANPR enforcement but at a cost. **Operational:** Land ownership and the availability of land for the development of transport facilities on / adjacent to the corridor would require to be explored to identify suitable location(s) for the implementation of any bus hubs. Funding support for the construction of facilities would potentially be available from the regional transport partnership SPT. In a de-regulated market, the commercial viability of running feeder services and/or longer distance connected services must be considered by a prospective operator. The anticipated level of patronage would need to be assessed to determine the viability or otherwise of running services to any hubs. Consideration would also require to be given to any additional journey/drive time the diversion of existing services would entail as maximum permissible driver's hours are governed by legislation. There may be cost implications associated with the requirement of providing additional drivers to maintain current levels of service. There may also be operational cost implications if delays caused due to the diversion of existing services necessitates the running of additional vehicles to maintain current levels of service. Journey time disbenefit for existing bus passengers caused by diverting existing services to any hubs may result in a loss of patronage from existing settlements which may limit the commercial attractiveness of this proposal. In combination, analysis of the above elements would identify the operational feasibility of bus hubs at one or both locations. Similar considerations would be required in relation to the routing of any subsidised services to bus hubs. This would need to be considered in the context of the social necessity of the service and within the parameters of existing local and regional budgetary constraints for the subsidisation of services. Should the decision be made to run subsidised services to any hubs, this may come at the expense of an existing service subsidised elsewhere. **Financial:** Land ownership and the availability of land for the development of transport facilities on / adjacent to the corridor would require to be explored to identify suitable location(s) for the implementation of any bus hubs. Potential locations include in the vicinity of Abington and / or in the vicinity of Lesmahagow. Funding support for the construction of facilities would potentially be available from the regional transport	Low to medium cost: Dependent on type of measures put forward – bus shelters, information boards, real time information for buses, car parking, waiting facilities and physical space for a hub/interchange.	Proposals to create bus hubs on the M74 are likely to be publicly acceptable for residents of the catchment areas assuming that required service changes do not lead to the withdrawal of services elsewhere. In the event that service changes could only be facilitated by the withdrawal of services elsewhere, proposals would likely be met with objection.

[20] https://www.energysavingtrust.org.uk/scotland/businesses-organisations/transport/scottish-bus-emissions-abatement-retrofit-programme

Option	Option Details	Feasibility	Affordability	Public Acceptability
		partnership SPT. In a de-regulated market, the commercial viability of running feeder services and/or longer distance connected services must be considered by a prospective operator. The anticipated level of patronage would need to be assessed to determine the viability or otherwise of running services to any hubs. Consideration would also require to be given to any additional journey/drive time the diversion of existing services would entail as maximum permissible driver's hours are governed by legislation. There may be cost implications associated with the requirement of providing additional drivers to maintain current levels of service. There may also be operational cost implications if delays caused due to the diversion of existing services necessitates the running of additional vehicles to maintain current levels of service. Journey time disbenefit for existing bus passengers caused by diverting existing services to any hubs may result in a loss of patronage from existing settlements which may limit the commercial attractiveness of this proposal. In combination, analysis of the above elements would identify the operational feasibility of bus hubs at one or both locations. Similar considerations would be required in relation to the routing of any subsidised services to bus hubs. This would need to be considered in the context of the social necessity of the service and within the parameters of existing local and regional budgetary constraints for the subsidisation of services. Should the decision be made to run subsidised services to any hubs, this may come at the expense of an existing service subsidised elsewhere.		
14. Bus Service Improvements: Demand Responsive Transport	This option entails the expansion of existing / development of new DRT services to serve Clydesdale, and southern / rural settlements in particular. The service(s) could potentially be delivered through a fleet of ULEVs e.g. battery or hydrogen fuel cell, with further potential that the energy required to 'refuel' the vehicles is generated by local windfarms. The option of running services with autonomous or semi-autonomous i.e. driverless vehicles could also be further explored.	**Technical:** Depending on the model adopted, the implementation of DRT services would either involve no untried technologies or practices or, a more innovative model involving battery/hydrogen powered (potentially autonomous) vehicles would involve leading edge technologies. A feasibility study would be required to establish the suitability of fuel technologies for the distances and terrains involved and for the driverless capabilities on service routes. **Operational:** Consideration could be given to extending existing SPT DRT services, to supporting new community-led initiatives. Consideration needed as to the best size of vehicle and permit regime required but could be open to anyone from specific geographical areas. Community benefit funding from windfarms could potentially be used to support the ongoing operational costs and/or energy generation. **Financial:** Funding support for the delivery of DRT services may potentially be available from SPT. There may also potentially be the opportunity for funding support through windfarm community benefits. ERDF support may also be available for the development of a 'green energy' fuelled DRT service i.e. battery/hydrogen fuel cell vehicles 'refuelled' using energy generated at windfarms. UK Government funding may also be available through the Office for Low Emission Vehicles with funding also potentially available from Transport Scotland. Costs per passenger on DRT tend to be higher than on commercial bus services. Fares can be charged though depends on permit regime used.	Low to high cost: Dependent on scale of coverage, level of service, whether subsidy is required to operate and which model is adopted. DRT services can be costly in terms of cost to run per passenger, as passenger numbers are lower and vehicles smaller.	Proposals to expand the coverage of DRT services in the Clydesdale area are likely to publicly acceptable. Use of ULEVs to operate the services are also likely to be publicly acceptable. Support may be split on the use of 'driverless' vehicles.
15. Active Travel Infrastructure Package	This option entails the provision active travel infrastructure between: • Law, Carluke & Braidwood • Biggar & Symington • Carnwath & Carstairs, and the provision of appropriate/suitable walking access to transport hubs and stops including rail stations, bus stations and bus stops e.g. Lanark Bus and Rail Interchange.	**Technical:** The implementation of active travel infrastructure includes no untried technologies or practices. **Operational:** The ongoing maintenance of any new active travel infrastructure would require to be met by SLC which may result in additional maintenance spend over and above their existing commitments. A maintenance plan should be fully costed if proposals are progressed for further consideration. This should be captured within any cost benefit analysis. **Financial:** 100% design funding support for active travel links may potentially be available from Sustrans, with funding support also potentially available from Sustrans for construction costs. SPT funding support may also potentially be available for active travel link construction costs and for small scale public transport access improvements.	Medium cost	Proposals to provide active travel infrastructure are likely to be publicly acceptable. There is a risk however that construction works will cause delay to the road network. Careful consideration should be given to the timings of works in order to minimise any impact with advanced notice provided to existing users of the network to ensure public awareness.
16. Park & Ride: Lanark	This option entails the provision of a strategic P&R facility at Lanark with local bus services calling at the station and bus timetable integrated with rail.	**Technical:** The implementation of P&R facilities with associated bus service integration includes no untried technologies or practices. The result of a feasibility study considering P&R opportunities at Lanark Railway Station and how to improve the Lanark Interchange as a whole identified the technical feasibility	Low to medium cost: Dependent on option(s) – Development on existing site likely to be low cost option. Development of off-site facility potentially medium cost option.	Proposals to provide a P&R facility at Lanark Rail Station are likely to be publicly acceptable.

Option	Option Details	Feasibility	Affordability	Public Acceptability
		of a number of options. **Operational:** Land ownership arrangements at potential P&R sites may impact the viability of potential options and the operational/maintenance responsibilities. Agreement would require to be reached between relevant parties to ensure appropriate arrangements were in place. Staffing levels required would vary dependent on the option(s) progressed which would have a direct impact on ongoing running costs. There may be a reluctance for commercial bus operators to integrate times with rail timetables if they deem the rail station/services to be in direct competition to the routes they operate. Requirements imposed by the Traffic Commissioner in terms of buses running to their agreed timetables could be an issue in terms of deliverability i.e. a bus may not be permitted to wait for the arrival of train if the train is running late. Timetabling at the bus interchange is also understood to be quite tight currently. **Financial:** Funding support for the construction of P&R facilities may potentially be available from Network Rail and/or SPT.		
17. Park & Ride: Carstairs	This option entails the provision of a strategic P&R facility at Carstairs with local bus services calling at the station and bus timetable integrated with rail.	**Technical:** The implementation of P&R facilities with associated bus service integration includes no untried technologies or practices. A planning application is being progressed for the creation of an additional 26 car parking spaces, by way of an extension to the existing P&R facility at Carstairs. Proposals within the SLC P&R strategy also identified the possibility to increase P&R capacity in a further two phases, the feasibility of which has not been assessed. **Operational:** The land upon which the 26 proposed additional car parking spaces are to be installed belongs to SLC and along with the existing P&R site would become part of SLC's P&R estate. Land for the potential phase 2 and phase 3 extensions is currently under 3rd party ownership. Should they be deemed feasible, SLC would require to reach an agreement with the current landowner(s) in order to progress phase 2 and 3 proposals. There may be a reluctance for commercial bus operators to integrate times with rail timetables if they deem the rail station/services to be in direct competition to the routes they operate. Requirements imposed by the Traffic Commissioner in terms of buses running to their agreed timetables could be an issue in terms of deliverability i.e. a bus may not be permitted to wait for the arrival of train if the train is running late. Timetabling at the bus interchange is also understood to be quite tight currently. **Financial:** SPT have provisionally agreed to offer funding support for the construction of phase 1 P&R facilities. Funding for phase 2 and phase 3 expansions may potentially be available from Network Rail and/or SPT.	Low cost	Proposals to provide a P&R facility at Carstairs Rail Station are likely to be publicly acceptable.
18. Behaviour Change	This option entails the implementation of behaviour change initiatives including Clydesdale transport information provision (e.g. via a website or app) and information on car sharing opportunities to maximise awareness of existing transport provision.	**Technical:** The implementation of behaviour change initiatives includes no untried technologies or practices. **Operational:** Ownership and responsibility for maintaining up-to-date, accurate information would need to be agreed amongst contributing parties. Failure to keep information up to-date may result in a loss in confidence amongst e.g. website or app users which may result in influencing people away from using sustainable travel modes. Funding support for costs associated with delivery of behaviour change initiatives could potentially be available form Smarter Choices Smarter Places (SCSP). **Financial:** Funding support for costs associated with delivery of behaviour change initiatives could potentially be available from SCSP.	Low cost	Proposals to implement behaviour change initiatives are likely to be publicly acceptable.

Summary and Next Steps

08

8. Summary and Next Steps

8.1 The role of Part 1 Appraisal

This Part 1 Appraisal has sought to:

- Review and validate / revise the findings of the Pre-Appraisal stage of work.
- Engage with stakeholders and gather their views to inform the appraisal.
- Further develop options brought forward from Pre-Appraisal, test for compatibility, and carry out further sifting and packaging.
- Test TPOs against evidence, and stakeholder views, and prepare a revised set of TPOs if appropriate.
- Assess a list of transport interventions against STAG Part 1 Appraisal criteria and TPOs.
- Begin an initial assessment of the deliverability of options.

STAG does not recommend, nor does it identify a preferred option. It presents information on the performance of options within a multi-criteria assessment framework. Decision-makers should use this information in their deliberations on transport policy and projects in their area.

8.2 Performance of Options

Table 8-1 presents the performance of each option against the study TPOs and STAG criteria and a measure of Affordability.

Table 8-1 Options Appraisal

Options/Option Packages	Do-Minimum	1. Rail Services: Carluke-Carstairs-Edinburgh	2. Rail Services: Lanark-Edinburgh	3. Rail Services: Motherwell	4. Rail Stations: Law	5. Rail Stations: Symington	6. Bus Service Improvements: Law-Carluke shuttle	7. Bus Service Improvements: Carluke Cross route extension	8. Bus Service Improvements: Lanark Interchange	9. Bus Service Improvements: Biggar-Symington-Lanark	10. Bus Service Improvements: Law	11. Bus Service Improvements: Carstairs-Lanark-New Lanark	12. Bus Service Improvements: Vehicle Quality	13. Bus Service Improvements: M74 Bus Hubs	14. Bus Service Improvements: Demand Responsive Transport	15. Active Travel Infrastructure	16. Park & Ride: Lanark	17. Park & Ride: Carstairs	18. Behaviour Change
Appraisal Criteria																			
Transport Planning Objectives																			
1. Increase the mode share of sustainable transport in Clydesdale for all journey purposes particularly access to employment, education and healthcare	--	+2	+2	+1	+2	+3	+1	+1	+2	+1	+2	+1	+1	+1	+2	+1	+2	+2	+2
2. Increase transport integration between rail, bus, walking and cycling within Clydesdale	--	0	0	+2	+1	+1	+2	+1	+2	+1	0	+2	0	+2	0	+1	+2	+2	0
3. Increase public transport accessibility of Clydesdale for people within and outwith the area	--	+1	+2	+1	+2	+3	+2	+1	+2	+1	+2	+1	0	+2	+2	+1	+2	+2	0
4. Increase accessibility of Clydesdale's attractions for people within and outwith the area	--	+1	+2	+1	+1	+3	+1	0	+1	+1	+1	+2	0	+1	+1	+1	+1	+1	0
STAG Criteria																			
Environment	--	+2	+2	0	+1	+2	+2	+1	+2	+1	+2	+2	+2	+1	+2	+2	+2	+2	+1
Safety	--	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1
Economy	--	0	+1	0	-1	-1	+1	+1	+1	+1	0	+2	0	+1	+1	+1	+2	+2	+1
Integration	--	+1	+1	+1	+2	+2	+3	+2	+3	+3	+1	+2	+1	+3	+2	+1	+3	+2	+1
Accessibility & Social Inclusion	--	+1	+2	+1	+2	+2	+1	+1	+2	+2	+2	+2	+1	+2	+2	+2	+2	+2	+1
Affordability																			
Affordability	--	Medium to high Cost	Medium to high Cost	Low Cost	Medium to high Cost	Medium to high Cost	Medium Cost	Medium Cost	Medium Cost	Medium Cost	Medium Cost	Medium Cost	Medium to high Cost	Low to Medium Cost	Low to High Cost	Medium Cost	Low to Medium Cost	Low Cost	Low Cost

8.3 Summary findings from the Part 1 Appraisal

As a result of this Part 1 / Preliminary Options Appraisal, Table 8-2 presents a list of options that should proceed to Part 2 Appraisal.

Table 8-2 Recommendations for Part 2 Appraisal

Final Option Name	Commentary on Initial Performance	Take forward to Part 2 / Detailed Appraisal?
1. Rail Services: Carluke-Carstairs-Edinburgh	With a current 2-hourly frequency of direct rail services to Edinburgh, there is merit in exploring increased frequency to Edinburgh given there may be improvements to Carstairs junction and track capacity in the near future. Assessment of the business case for this however is required. This option performs well against objectives	Take forward to Part 2 Appraisal as part of package to improve public transport links to Edinburgh from Clydesdale.
2. Rail Services: Lanark-Edinburgh	With no direct rail services to Edinburgh currently (interchange is required) and given the importance of Lanark as a base for onward visitor journeys and some travel to work flows towards Edinburgh, this option performs well against objectives and selected STAG criteria on accessibility and integration.	Take forward to Part 2 Appraisal as part of package to improve public transport links to Edinburgh from Clydesdale.
3. Rail Services: Motherwell	Given the planned improvements at Motherwell Rail Station to enhance quality of the passenger experience and interchange facilities, and the risks to deliverability in this option (complexity of rail route timetabling in this area), this option does not perform strongly in the appraisal.	Do not take forward to Part 2 Appraisal.
4. Rail Stations: Law	Whilst this option largely performs well in the appraisal, there are questions over its benefits v. costs and whether operators would be prepared to serve it. This option should progress to the final stage of appraisal to carry out quantitative appraisal on these elements. It is also safeguarded in the LDP.	Take forward to Part 2 Appraisal.
5. Rail Stations: Symington	Whilst this option largely performs well in the appraisal, there are questions over its benefits v. costs and whether operators would be prepared to serve it. This option should progress to the final stage of appraisal to carry out quantitative appraisal on these elements. It is also safeguarded in the LDP.	Take forward to Part 2 Appraisal.
6. Bus Service Improvements: Law-Carluke shuttle	This option performs well in the appraisal, and particularly in terms of improving accessibility for Law which has a growing population. It could be considered as a possible alternative to option 4 above or a short-term measure.	Take forward to Part 2 Appraisal as part of a package of bus improvements.
7. Bus Service Improvements: Carluke Cross route extension	There are questions over the benefits v. costs of this option if it extends journey times and reduces viability of existing bus services though it performs well against integration criteria.	Take forward to Part 2 Appraisal as part of a package of bus improvements.
8. Bus Service Improvements: Lanark Interchange	This option has deliverability issues if it requires new bus services, and integration of timetabling between different private sector transport operators (which is difficult to achieve). Consideration could be given to more flexible transport options for this e.g. on-demand taxi-bus options.	Take forward to Part 2 Appraisal in package with option 16.
9. Bus Service Improvements: Biggar-Symington-Lanark	This option performs well in the appraisal though there are deliverability concerns as the service operates on a subsidised basis.	Take forward to Part 2 Appraisal as part of a package of bus improvements.
10. Bus Service Improvements: Law	This option performs well in the appraisal though there are deliverability concerns as the commercial bus market has withdrawn some services recently due to lack of demand.	Take forward to Part 2 Appraisal as part of a package of bus improvements but also consider flexible / DRT versions.
11. Bus Service Improvements: Carstairs-Lanark-	This option performs well against objectives and economy criteria in particular, though it could be a costly option. A more flexible form of on-demand transport may be worth exploring further.	Take forward to Part 2 Appraisal as part of a package of bus improvements.

Final Option Name	Commentary on Initial Performance	Take forward to Part 2 / Detailed Appraisal?
New Lanark		
12. Bus Service Improvements: Vehicle Quality	This option is arguably part of the Do Minimum, and in progress under EU standards for vehicle emissions and potentially further progressed by LEZ standards for buses originating in Glasgow.	No, as part of the Do Minimum, as mechanisms already in place for this through LEZ and Euro regulations on vehicles.
13. Bus Service Improvements: M74 Bus Hubs	This option performs well in the appraisal and could see a high level of public acceptability if enhancing public transport connections from the south of the Clydesdale area. There are some deliverability issues with this option, particularly in relation to any interactions with the existing Abington Motorway service area and customer parking.	Take forward to Part 2 Appraisal as part of a package of bus improvements.
14. Bus Service Improvements: Demand Responsive Transport	This new option could be a more achievable option that commercial / subsidised bus services, though DRT can be expensive per passenger. It performs well in the appraisal overall.	Take forward to Part 2 Appraisal.
15. Active Travel Infrastructure	This option performs well in the appraisal and supports the concept of improved active travel links which had strong stakeholder support at the Part 1 Appraisal workshop. This option entails the provision of active travel infrastructure between; • Law, Carluke & Braidwood • Biggar & Symington • Carnwath & Carstairs and the provision of appropriate/suitable walking access to transport hubs and stops including rail stations, bus stations and bus stops e.g. Lanark Bus and Rail Interchange.	Take forward to Part 2 Appraisal.
16. Park & Ride: Lanark	This option performs well in the appraisal and supports the concept of more public transport hubs in Clydesdale which had strong stakeholder support at the Part 1 Appraisal workshop.	Take forward to Part 2 Appraisal in package with option 8.
17. Park & Ride: Carstairs	This option performs well in the appraisal and supports the concept of more public transport hubs in Clydesdale which had strong stakeholder support at the Part 1 Appraisal workshop.	Take forward to Part 2 Appraisal.
18. Behaviour Change	On its own, this option performs well though not strongly in the appraisal. Behaviour change activities should however be integrated within the delivery of all options progressed to Part 2 Appraisal.	No, but integrated with options progressing to Part 2, delivered within existing powers and funding packages.

8.4 Looking ahead to Part 2 Appraisal

STAG Part 2 Appraisal will most likely be required should SLC wish to further assess any option as a result of this Part 1 Appraisal. Typically a Part 2 Appraisal provides a greater level of detail on selected options, to enable a more quantified assessment of their impacts to be undertaken. In particular, the operational impacts of options (e.g. on traffic flows, journeys times, rail demand and timetabling), and impacts on other users of transport networks would be explored, alongside a quantified assessment of the costs and benefits of options.

In terms of the options which have emerged from this study, there are a number which could benefit from a detailed Part 2 Appraisal. Some of these options will carry a more significant cost than others, may have impacts on the operation of road and rail networks, and may not be compatible with each other due to the scale of the interventions and / or the markets they serve. This final list of options is set out in Table 8-3.

Table 8-3 Recommended Part 2 Option Packages

Recommended for Progression to Part 2	Name	Part 1 Options Included
1	Public Transport Links to Edinburgh from Clydesdale	1,2
2	Rail Stations: Law	4
3	Rail Stations: Symington	5
4	Bus Service Improvements	6,7,9,10,11,13
5	Lanark Interchange Improvements	8,16
6	Demand Responsive Transport	14
7	Active Travel Infrastructure	15
8	Carstairs Park & Ride	17