

## NEWBURGH TRANSPORT APPRAISAL - DETAILED OPTIONS APPRAISAL



# NEWBURGH TRANSPORT APPRAISAL

## NEWBURGH TRANSPORT APPRAISAL - DETAILED OPTIONS APPRAISAL

### IDENTIFICATION TABLE

<b>Client/Project owner</b>	SEStran, Newburgh Train Station Group, Fife Council
<b>Project</b>	Newburgh Transport Appraisal
<b>Study</b>	Newburgh Transport Appraisal - Detailed Options Appraisal
<b>Type of document</b>	Report
<b>Date</b>	June 2022
<b>Reference number</b>	108224
<b>Number of pages</b>	181

### APPROVAL

Version	Name		Position	Date	Revision
1	Author:	Jana Haspicova; David Murtagh	Associate Associate	02/03/2022	1 <sup>st</sup> Draft for client comment
	Checked:	Neill Birch	Director	02/03/2022	
	Approved:	Neill Birch	Director	02/03/2022	
2	Author:	Jana Haspicova; David Murtagh	Associate Associate	26/04/2022	2 <sup>nd</sup> Draft for client comment
	Checked:	Neill Birch	Director	26/04/2022	
	Approved:	Neill Birch	Director	26/04/2022	
3	Author:	Jana Haspicova; David Murtagh	Associate Associate	13/06/2022	3 <sup>rd</sup> Draft addressing client comments, with track changes
	Checked:	Neill Birch	Director	13/06/2022	
	Approved:	Neill Birch	Director	13/06/2022	
4	Author:	Jana Haspicova; David Murtagh	Associate Associate	30/06/2022	Final Report
	Checked:	Neill Birch	Director	30/06/2022	
	Approved:	Neill Birch	Director	30/06/2022	
	Final Approval:	Newburgh Train Station Group Fife Council SEStran	Client Group	30/06/2022	

## TABLE OF CONTENTS

EXECUTIVE SUMMARY	7
<b>1. INTRODUCTION</b>	<b>10</b>
1.1 BACKGROUND	11
1.2 SCOTTISH TRANSPORT APPRAISAL GUIDANCE (STAG)	11
1.3 PURPOSE OF THIS REPORT	11
1.4 PRE-APPRAISAL (INITIAL APPRAISAL: CASE FOR CHANGE)	11
1.5 PRELIMINARY OPTIONS APPRAISAL	14
<b>2. DETAILED APPRAISAL METHODOLOGY</b>	<b>16</b>
2.1 INTRODUCTION	16
2.2 REFINEMENT OF OPTIONS FOR DETAILED APPRAISAL	16
2.3 DETAILED APPRAISAL OF THE OPTIONS	21
2.4 APPRAISAL TOOLS	24
2.5 STAKEHOLDER ENGAGEMENT	25
2.6 THE IMPACTS OF THE COVID-19 PANDEMIC	26
2.7 THE IMPACTS OF THE CLIMATE CHANGE EMERGENCY	32
<b>3. OPTION PERFORMANCE AGAINST TRANSPORT PLANNING OBJECTIVES</b>	<b>33</b>
3.1 INTRODUCTION	33
3.2 ACCESSIBILITY MODELLING AND CATCHMENT ANALYSIS	39
3.3 OPTION APPRAISAL AGAINST TPOs	39
3.4 TPO APPRAISAL SUMMARY	51
<b>4. OPTION IMPACTS AGAINST STAG CRITERIA</b>	<b>53</b>
4.1 INTRODUCTION	53
4.2 ENVIRONMENT	53
4.3 SAFETY	73
4.4 ECONOMY	75
4.5 INTEGRATION	77
4.6 ACCESSIBILITY AND SOCIAL INCLUSION	82
4.7 STAG APPRAISAL SUMMARY	86
<b>5. ANALYSIS OF COST TO GOVERNMENT AND VALUE FOR MONEY</b>	<b>88</b>
5.1 INTRODUCTION	88
5.2 COST ESTIMATES	88
5.3 COST BENEFIT ANALYSIS	91
<b>6. ANALYSIS OF RISK AND UNCERTAINTY</b>	<b>93</b>
6.1 INTRODUCTION	93

<b>6.2</b>	<b>FEASIBILITY, AFFORDABILITY AND PUBLIC ACCEPTABILITY</b>	<b>93</b>
<b>6.3</b>	<b>RISK MANAGEMENT</b>	<b>97</b>
<b>6.4</b>	<b>UNCERTAINTY ANALYSIS</b>	<b>99</b>
<b>7.</b>	<b>SUMMARY AND CONCLUSIONS OF DETAILED OPTIONS APPRAISAL</b>	<b>104</b>
<b>7.1</b>	<b>INTRODUCTION</b>	<b>104</b>
<b>7.2</b>	<b>SUMMARY</b>	<b>104</b>
<b>7.3</b>	<b>CONCLUSIONS</b>	<b>108</b>
	<b>APPENDIX A – OPTION ASSUMPTIONS</b>	<b>111</b>
	<b>APPENDIX B – TRANSPORT MODELLING APPROACH</b>	<b>122</b>
	<b>APPENDIX C – QUANTITATIVE APPRAISAL TOOLS</b>	<b>128</b>
	<b>APPENDIX D – ECONOMIC ASSESSMENT FRAMEWORK &amp; COST ASSUMPTIONS</b>	<b>129</b>
	<b>APPENDIX E – POLICY REVIEW</b>	<b>136</b>
	<b>APPENDIX F – EQUALITY IMPACT ASSESSMENT</b>	<b>147</b>
	<b>APPENDIX G – APPRAISAL SUMMARY TABLES</b>	<b>150</b>

## LIST OF FIGURES

Figure 0.1 : Summary of key problems, set TPOs, and Detailed Appraisal Summary	8
Figure 1.1 : Summary of key problems, opportunities, issues, constraints, set TPOs and potential transport options	13
Figure 2.1 : DRT Trips to and from Newburgh (2019 – 2021)	21
Figure 2.2 : Average number of cars passing selected counters on weekdays <sup>8</sup>	27
Figure 3.1 : Option 1 – Public transport JT savings to education centre from existing situation (TRACC 800m)	41
Figure 3.2 : Option 2 – Public transport JT savings to hospitals/health centre from existing situation (TRACC 800m)	42
Figure 3.3 : Option 2 – Change in Mode (TCRTM)	44
Figure 3.4 : Option 3 – Proposed Train Station Locations	45
Figure 3.5 : Option 3a Walking Catchment	46
Figure 3.6 : Option 3c Walking Catchment	46
Figure 3.7 : Option 3d Walking Catchment	47
Figure 3.8 : Option 3 – Public transport JT savings to hospitals/health centre from existing situation (TRACC 1500m)	48
Figure 3.9 : Option 3 – Changes in Mode (TCRTM)	49
Figure 3.10 : Option 4 – Changes in Mode (TCRTM)	51
Figure 4.1 : Newburgh TCRTM/TUBA Sectors	76
Figure 6.1 : Public Response – Preferred Option	97
Figure A.1 : Option 1 Existing Bus Routes	111
Figure A.2 : Option 1 Service 36 – Proposed Timetable Improvements	112
Figure A.3 : Option 1 Service 94 – Proposed Timetable Improvements (Mon-Sat)	113
Figure A.4 : Option 1 Service 94 – Proposed Timetable Improvements (Sun)	114
Figure A.5 : Option 2 New Express Bus Route	115
Figure A.6 : Option 2 New Express Bus Service – Proposed Timetable Improvements (3 buses)	116
Figure A.7 : Option 3 – Proposed Train Station Locations	117
Figure A.8 : Option 3 Proposed Rail Timetable serving Newburgh	119
Figure F.1 : TAYPlan 20 Year Proposals (2012-2032)	141
Figure F.2 : Newburgh Developments Mentioned in the Fife LDP	143
Figure F.3 : Fifeplan Spatial Strategy, Page 15	144
Figure F.4 : Local Transport Strategy for Fife: List of Objectives	145

## LIST OF TABLES

Table 1.1 : Summary of Preliminary Appraisal of Options	15
Table 2.1 : Stakeholder Engagement During Detailed Appraisal	25
Table 2.2 : Review of Problems, Opportunities, Issues and Constraints	30
Table 3.1 : Option 1 – Changes to existing bus services	40
Table 3.2 : Option 2 - Average public transport journey times to health centres	43
Table 3.3 : Option 2 - Average public transport journey times train stations	43
Table 3.4 : Option 3 – Proposed Station Location Population Catchments	46
Table 3.5 : Option 3 - Average public transport journey times train stations	47
Table 3.6 : TPO Appraisal Summary	52
Table 4.1 : Environmental Appraisal Summary	73
Table 4.2 : Accident savings, Newburgh Area, 15 years (2027-42)	73
Table 4.3 : Safety Appraisal Summary	75
Table 4.4 : TCRTM Annualisation Factors	75
Table 4.5 : Summary of Present Value of Benefits (£m), 60 year appraisal	77
Table 4.6 : Integration Appraisal Summary	82

Table 4.7 : Average Public Transport Journey Time from Newburgh to Regional Train Station	82
Table 4.8 : Average Public Transport Journey Time from Newburgh to Regional Hospitals/Health Centres	83
Table 4.9 : Average Public Transport Journey Time from Newburgh to Education	83
Table 4.10 : Option 3 – Proposed Station Location Population Catchments	84
Table 4.11 : Accessibility and Social Inclusion Summary	86
Table 4.12 : STAG Criteria Appraisal Summary	87
Table 5.1 : Estimated Costs (£m) for Option 1 and Option 2 in 2020 prices, excluding VAT (undiscounted)	89
Table 5.2 : Estimated Costs (£m) for Option 3 in 2020 prices, excluding VAT (undiscounted)	89
Table 5.3 : Range of estimated costs (£m) for Option 3e in 2020 prices, excluding VAT (undiscounted)	90
Table 5.4 : Summary of Cost-Benefit Analysis	91
Table 5.5 : Summary of Cost-Benefit Analysis (Modular Station)	92
Table 6.1 : Risk Management	98
Table 6.2 : Low Growth Sensitivity – Summary of Cost Benefit Analysis (£million)	101
Table 6.3 : High Cost Sensitivity – Summary of Cost Benefit Analysis (£million)	102
Table 7.1 : Summary of Appraisal	108
Table A.1 : Journey time summary table Ladybank to Hilton Junction	120
Table A.2 : Journey time summary table Hilton Junction to Ladybank	120
Table D.1 : Station Cost Summary Table	132
Table D.2 : Station Operating Costs (2020 Prices)	134

## EXECUTIVE SUMMARY

SYSTRA Limited (SYSTRA) has been commissioned by the South East of Scotland Transport Partnership (SEStran), the Newburgh Train Station Group (NTSG) and Fife Council to undertake a transport appraisal of Newburgh with a particular focus on improving movements to Perth, Edinburgh and Fife by sustainable modes.

The work is being undertaken in accordance with the Scottish Transport Appraisal Guidance (STAG) and builds on the Newburgh and Area North Fife STAG Pre-appraisal Transport Study, carried out by the NTSG in 2018.

This report presents the findings of the Detailed Options Appraisal stage of the Newburgh Transport Appraisal. It follows the Pre-Appraisal (Initial Appraisal: Case for Change) and the Initial Options Appraisal stages of the project. It is the final report for the study.

### The Case for Change and Preliminary Options

The Pre-Appraisal (Initial Appraisal: Case for Change) stage collated relevant socio-demographic and transport information for the study area, identified the key transport related problems, opportunities, issues and constraints for Newburgh and set out three Transport Planning Objectives (TPOs) for the study:

- **TPO1** – Improve transport access to key services and markets (including employment, training, education, health and leisure opportunities) for Newburgh residents;
- **TPO2** – Improve public transport connectivity and journey times to and from Newburgh for residents, businesses and visitors;
- **TPO3** – Increase sustainable travel to and from Newburgh.

The Case for Change recommended six potential options that could help address the identified problems and opportunities. The work was informed by an extensive stakeholder and public consultation.

The subsequent Preliminary Options Appraisal, qualitatively assessed the identified six options against the TPOs, five STAG criteria, Established Policy Directives and factors concerning feasibility, affordability and public acceptability, to ensure they were likely to fulfil the study's requirements. The work was informed by another round of stakeholder consultation, which resulted in some 233 responses received from local residents, businesses, a campaign group, transport providers and operators; as well as Newburgh visitors.

### Detailed Options Appraisal

This report represents the final stage of the STAG process, namely the Detailed Options Appraisal stage. Following the Preliminary Options Appraisal, this report first refined the final set options for Detailed Appraisal as follows:

- Option 1 – Improved (existing) bus services to/from Newburgh;
- Option 2 – (New) Express bus service through Newburgh;
- Option 3a – New permanent train station in Newburgh on Abernethy Road;
- Option 3c – New permanent train station in Newburgh at the East of Town;
- Option 3d – New permanent train station in Newburgh at Clatchard Quarry;
- Option 3e – New modular “temporary” train station in at one of the above locations;
- Option 4 – Car sharing

Each of the identified options have been qualitatively and quantitatively assessed the identified options against the TPOs, five STAG criteria, Established Policy Directives and factors concerning feasibility, affordability and public acceptability, to ensure they are likely to fulfil the study's requirements and it was informed by another round of stakeholder consultation. Figure 0.1 summarises how the identified problems in the study area, such as poor access to services and markets by public transport, lengthy journeys by public transport and lack of public transport options in Newburgh led to the identification of the TPOs for the study. It then shows how each Option scored in the detailed appraisal against these TPOS and STAG criteria.

Figure 0.1 : Summary of key problems, set TPOs, and Detailed Appraisal Summary

Problems	Appraisal Criteria	Options						
<b>Access to services and markets by public transport</b> <ul style="list-style-type: none"> <li>No evening bus services</li> <li>Bus timetable does not allow efficient commuting to/from work, place of study, hospitals and social/leisure destinations</li> <li>Poor public transport integration</li> <li>Lack of bus service frequency</li> <li>Limited weekend public transport services</li> <li>Small bus vehicles do not meet demand</li> </ul>	<b>Transport Planning Objectives</b>	<b>OPTION 1:</b> Improved (existing) bus services	<b>OPTION 2:</b> (New) Express bus service	<b>OPTION 3: New Train Station in Newburgh</b>				<b>OPTION 4:</b> Car Sharing
	<b>TPO 1:</b> Improve transport access to key services and markets for Newburgh residents			<b>3a:</b> Abernethy Rd	<b>3c:</b> East of Town	<b>3d:</b> Clatchard Quarry	<b>3e:</b> Modular Station	
	<b>TPO 2:</b> Improve public transport connectivity and journey times to and from Newburgh							
<b>Lengthy journeys</b> <ul style="list-style-type: none"> <li>Long commuting distances</li> <li>Lengthy public transport journeys to key commuting destinations e.g. Cupar, Dundee, Kirkcaldy and Edinburgh</li> </ul>	<b>TPO 3:</b> Increase sustainable travel to and from Newburgh							
<b>Lack of transport modal choice to/from Newburgh</b> <ul style="list-style-type: none"> <li>Limited public transport options</li> <li>Limited active travel options</li> </ul>	<b>STAG Criteria</b>							
<b>High public transport fares</b> <ul style="list-style-type: none"> <li>Compared to car travel</li> </ul>	<b>Safety</b>							
<b>Attracting inward investment</b> <ul style="list-style-type: none"> <li>Poor connectivity</li> </ul>	<b>Environment</b>							
	<b>Economy</b>							
	<b>Integration</b>							
	<b>Accessibility &amp; Social Inclusion</b>							
	<b>Cost to Government (BCR)</b>							
		<b>2.1</b>	<b>3.7</b>	<b>8.2</b>	<b>5.9</b>	<b>5.9</b>	<b>16.8 to 78.8</b>	<b>n/a</b>

## Study Conclusions

On consideration of all appraisal criteria, Option 3a (new rail station at Abernethy Road) is the best performing option, providing the highest BCR and appraisal scores against the TPOs and STAG criteria. It is also considered the most feasible of all rail options from a construction and accessibility perspective.

If a modular platform was constructed as an alternative at the Abernethy Road site, this Option (3e) would realise the same benefits as 3a but at significantly lower costs. A short modular station platform would represent a deviation from standard platform design and would require further feasibility assessment should it be decided to progress with it. Recent short-length station reopenings in Scotland do show however that such an option is possible.

Option 3c (new rail station at east of Town) also achieves a positive BCR and generally performs well against the TPOs and STAG criteria. However, while overall positive, the strengths of these benefits is lower than Option 3a. Crucially, the construction of a station at this site is likely to be significantly more challenging than Option 3a and cost therefore may be higher than those indicated in the BCR calculations, including the high-cost uncertainty analysis. A similar outcome is seen in Option 3d (new station at Clatchard Quarry), however the option does not perform as well as Options 3a or 3c against the TPOs or STAG criteria, particularly Integration and Accessibility and Social Inclusion given its less convenient location. Any modular station at these locations would again realise the same benefits and disbenefits at the permanent options, albeit at significantly lower cost.

Following detailed appraisal of three possible locations for a new permanent or modular train station in Newburgh, it can be reasonably concluded that Option 3c and Option 3d should not be progressed in favour of Option 3a at Abernethy Road.

Option 1 is a relatively low cost option which has generated a positive BCR and overall is considered to bring minor positive benefits against STAG criteria and TPOs. Further discussions could be undertaken with local bus operators to discuss the feasibility of this option going forward whilst recognising the challenging situation for bus operators and local government finance currently. Crucially however, discussions with Fife Council highlighted that there is no additional funding presently available from the Council to subsidise the enhancement of any existing services. While it may be desirable to further consider this option and explore other funding mechanism, the feasibility of realising this option for comparatively lower benefits means it is unlikely to merit further consideration.

Option 2 is the highest cost option, with capital costs anticipated to be significantly higher than the other options under consideration in this appraisal due to the requirement for regular bus fleet renewal. In order to be successful, the option will require close coordination with bus operators, Fife Council and potentially subsidies to support any services. Fife Council however have advised that any new service competing with existing supported services would be highly likely to mean existing funding resource was directed elsewhere, as the existing gap in service / service provision would no longer exist in Newburgh. There is also the possibility of abstraction from commercial services by the new, supported service. As in Option 1, discussions with Fife Council highlight that there is no additional funding presently available from the Council to subsidise any new service. The option is therefore only likely to be realised if alternative funding sources can be identified (e.g. the operator Stagecoach commercially funds the option). While it may be desirable to further consider this option and explore other funding mechanisms, particularly following high appraisal performance in this report, the significant cost and associated risk of the option need to be taken into account by decision-makers.

There are no costs associated with Option 4 where a car sharing scheme in Newburgh would be informal, likely organised by the community and will have no capital costs or additional ongoing operating or maintenance costs. Although the costs are negligible, there are very few benefits associated with this option, and its feasibility would be challenging (absence of critical mass of users to make it attractive, and reliance on community volunteers to manage it). For these reasons, it is not recommended that this option is considered further.

**It can be concluded therefore that Option 3a is the most suitable solution to meet all of the study objectives and therefore meet the needs of people and business in Newburgh and the surrounding areas. It can also be concluded that if a 10m modular station is feasible following further exploration, Option 3e would represent the best value for money option, and it should be situated at the Abernethy Road site. It is therefore recommended that these two options are worthy of further consideration by Transport Scotland.**

blank page

# 1. INTRODUCTION

## 1.1 Background

- 1.1.1 SYSTRA Limited (SYSTRA) has been commissioned by the South East of Scotland Transport Partnership (SEStran), the Newburgh Train Station Group (NTSG) and Fife Council to undertake a transport appraisal of Newburgh with a particular focus on improving movements to Perth, Edinburgh and Fife by sustainable modes.
- 1.1.2 Sustainable transport in Newburgh has been the focus for a number of recent studies and the transport appraisal seeks to collate, review and progress the agenda. It also builds on the Newburgh and Area North Fife STAG Pre-appraisal Transport Study, carried out by the NTSG in 2018.

## 1.2 Scottish Transport Appraisal Guidance (STAG)

- 1.2.1 As required by the conditions of the Local Rail Development Fund (LRDF), the study is being undertaken in accordance with the Scottish Transport Appraisal Guidance (STAG). The process provides a framework to assess the performance of different transport options to address the identified problems and opportunities, and presents the results in a consistent manner to decision makers. The STAG process comprises four stages as follows:
- **Pre-Appraisal (Initial Appraisal: Case for Change):** where the problems, opportunities, issues and constraints are identified and scoped. Study-specific Transport Planning Objectives (TPOs) are then identified and an 'optioneering' and sifting process undertaken to provide a list of possible options to address the problems and opportunities;
  - **Initial Appraisal (Preliminary Options Appraisal):** where the potential options are appraised against the TPOs, five STAG criteria, Established Policy Directives and factors concerning feasibility, affordability and public acceptability, to ensure they are likely to fulfil the study's requirements;
  - **Detailed Appraisal (Detailed Options Appraisal):** which involves more detailed consideration of potential options taken forward following the Initial Appraisal (Preliminary Options Appraisal), and where the outcomes to inform investment decision makers are presented. The Detailed Options Appraisal also includes proposals for monitoring and evaluation; and
  - **Post-Appraisal:** which involves the application of the monitoring and evaluation proposals developed as part of the appraisal.

## 1.3 Purpose of this Report

- 1.3.1 The purpose of this report is to present the findings of the Detailed Options Appraisal. This is the third and final stage of the Newburgh transport appraisal, and aims to quantitatively appraise the transport options recommended from the previous Preliminary Options Appraisal stage. We first briefly summarise the work undertaken prior to the Detailed Appraisal stage.

## 1.4 Pre-Appraisal (Initial Appraisal: Case for Change)

- 1.4.1 The Pre-Appraisal (Initial Appraisal: Case for Change) stage was completed and approved in Spring 2020<sup>1</sup>. It collated relevant socio-demographic and transport information for the study area and identified the key problems, opportunities, issues and constraints for Newburgh. A set of three Transport Planning Objectives (TPOs) were then developed, and a list of potential interventions that could help address the identified problems and opportunities generated.

---

<sup>1</sup> [Case for Change Report, SYSTRA, 2020](#)

The process resulted in six multi-modal transport options recommended for further consideration in the Preliminary Options Appraisal.

- 1.4.2 The Pre-Appraisal (Initial Appraisal: Case for Change) work was informed by extensive stakeholder and public consultation and suggested that improved transport links, which would give Newburgh better access to major Scottish cities, would lead to an enhanced local economy, bring better access to employment and education and the potential for new investment. Easier and more sustainable travel options would make it easier for people to reach hospitals, schools and visit other areas of the country as well as give better access to Newburgh.
- 1.4.3 A summary of the identified problems, opportunities, issues and constraints; the agreed TPOs, and the potential transport options for the Preliminary Options Appraisal are presented in Figure 1.1.

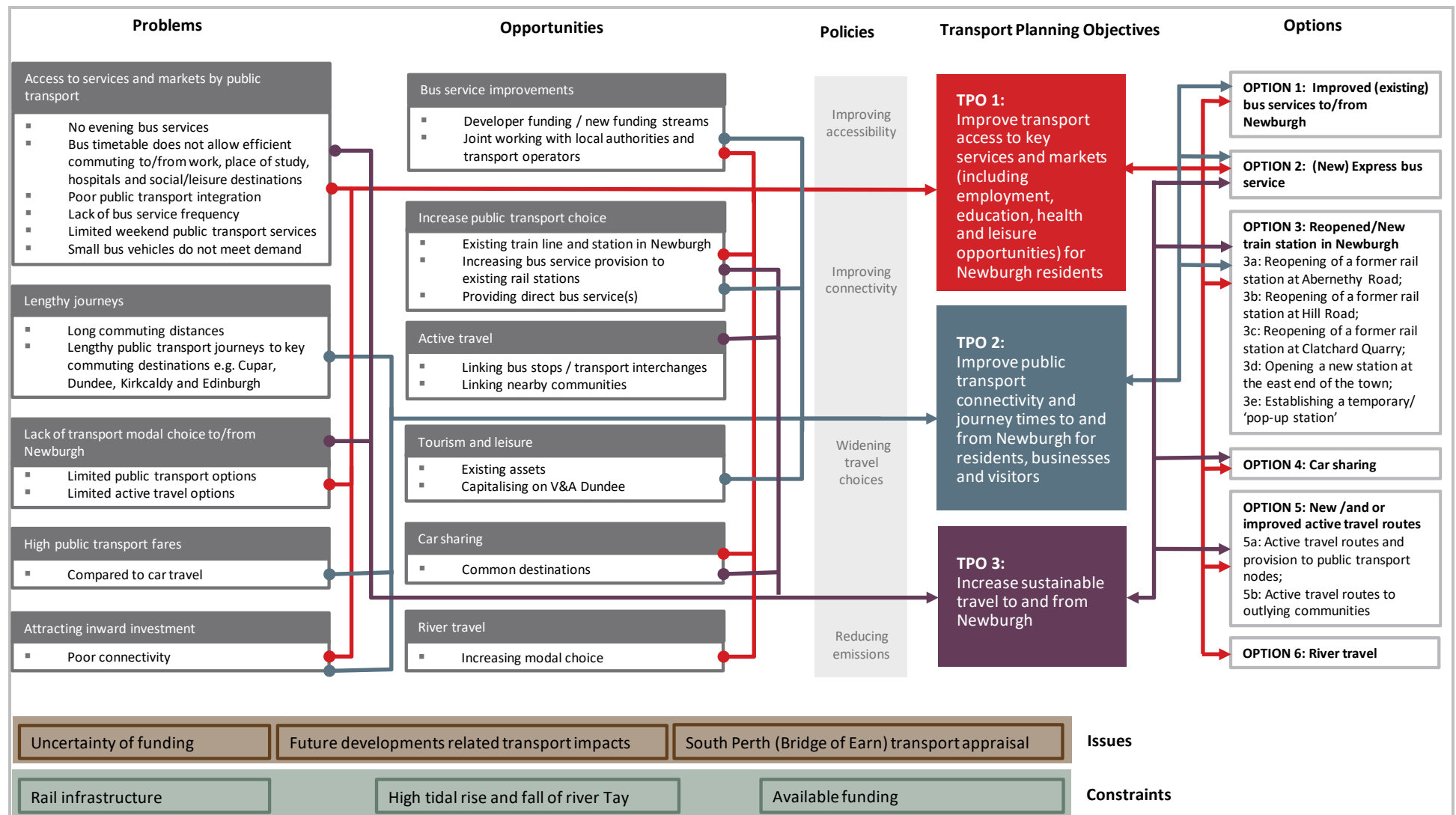


Figure 1.1 : Summary of key problems, opportunities, issues, constraints, set TPOs and potential transport options

## 1.5 Preliminary Options Appraisal

- 1.5.1 The Preliminary Options Appraisal<sup>2</sup> qualitatively assessed the potential six options against the TPOs, five STAG criteria, Established Policy Directives and factors concerning feasibility, affordability and public acceptability. The work was informed by another round of stakeholder consultation, which resulted in some 233 responses received from local residents, businesses, a campaign group, transport providers and operators; as well as Newburgh visitors.
- 1.5.2 The Preliminary Options Appraisal recommended the following five transport options for Detailed Appraisal:
- Option 1 – Improved (existing) bus services to/from Newburgh;
  - Option 2 – (New) Express bus service through Newburgh;
  - Option 3 – New/Reopened train station in Newburgh;
  - Option 4 – Car sharing; and
  - Option 5 – New/Improved active travel routes
- 1.5.3 The summary of scoring of all options is shown in Table 1.1 below.

---

<sup>2</sup> [Preliminary Options Appraisal Report, SYSTRA, 2020](#)

**Table 1.1 : Summary of Preliminary Appraisal of Options**

Option	Option name	Appraisal against TPOs			Appraisal against STAG criteria					Implementability appraisal				Select?
		<b>TPO1</b> - Improve transport access to key services and markets (including employment, education, health and leisure opportunities) for Newburgh residents	<b>TPO2</b> - Improve public transport connectivity and journey times to and from Newburgh for residents, businesses and visitors	<b>TPO3</b> - Increase sustainable travel to and from Newburgh	Environment	Safety	Economy	Integration	Accessibility	Technical Feasibility	Operational Feasibility	Affordability	Public Acceptability	
1	Improved (Existing) Bus Services to/from Newburgh	✓✓	✓	✓	-	-	✓	✓✓	✓✓	Minor	Major	Moderate to Major	Minor	Yes
2	(New) Express Bus Service	✓✓	✓✓	✓	-	-	✓✓	✓✓	✓✓	Minor	Major	Moderate to Major	Minor	Yes
3	Reopened/New Train Station in Newburgh	✓✓	✓✓	✓✓	-	✓	✓✓	✓✓ to ✓✓✓	✓✓	Moderate	Major	Moderate to Major	Minor	Yes
4	Car Sharing	✓	- to ✓	✓	-	-	✓	✓	✓	Minor	Moderate to Major	Minor to Moderate	Major	Yes
5	New and/or Improved Active Travel Routes	✓	✓	✓	✓	✓	✓	✓✓	✓✓	Minor to moderate	Minor	Minor to moderate	Minor	Yes
6	River Services	✓	- to ✓	-	✗	✓	✓	✓	✓	Major	Major	Major	Minor	No

## 2. DETAILED APPRAISAL METHODOLOGY

### 2.1 Introduction

- 2.1.1 This stage of the study is the Detailed Appraisal (Detailed Options Appraisal). This report details the performance of the options against the TPOs and against the five STAG criteria (Environment, Safety, Economy, Integration and Accessibility, and Social Inclusion), Cost to Government, Risk and Uncertainty and the Monitoring and Evaluation Plan. The methodology for undertaking the detailed appraisal is set out in this chapter, firstly by refining the Options for detailed appraisal.

### 2.2 Refinement of Options for Detailed Appraisal

- 2.2.1 Following feedback from key stakeholder the options have been refined further to produce the following set of options for detailed appraisal. Full details of the option assumptions is provided in Appendix A.

#### Option 1 - Improved (Existing) Bus Services to/from Newburgh

- 2.2.2 This option includes enhanced bus service provision to **Perth, Cupar, and Ladybank** in order to:

- Improve public transport access to key services and markets i.e. employment, training, places of study, health care and leisure facilities; and
- Help increase public transport choice.

- 2.2.3 Currently, there are two bus services operating in Newburgh, the 36 between Perth and Glenrothes and the 94/94A between St Andrews and Newburgh. The 94/94A service is supported by Fife Council. The option includes the provision of **greater frequencies** of bus services; **extended hours** of operation; and improved **connectivity with train services** for onward travel.

- 2.2.4 In terms of bus service 36; this means:

- Adding 4 evening journeys Mon-Sat (in each direction) to provide an hourly service from circa 19:00; and
- Adding 3 journeys on Sunday (in each direction) to provide approx. 2-hourly services throughout the day.

- 2.2.5 In terms of bus service 94; this means:

- Adding 1 morning (Mon-Sat) journey (in each direction); and
- Adding 7 journeys on Sunday (in each direction) to provide approximately 2-hourly service throughout the day.

- 2.2.6 Full details on timetable assumptions for the option is provided in Appendix A.

#### Option 2 - (New) Express Bus Service



- 2.2.7 This option introduces a new Express bus service between **Newburgh, Cupar, Perth, and Broxden Park and Ride** in order to provide:
- Connections to other strategic bus services to major Scottish towns and cities (e.g. connecting with other Citylink and Megabus services at Broxden P&R); and
  - **Direct and faster service to/from Cupar and Perth**, thus offering improved access to key services and markets, improved connectivity, and increased travel choice.
- 2.2.8 The option provides a new 'loop' service between Cupar – Newburgh – Broxden P&R – Perth bus station – Newburgh – Cupar. It is a fast and limited stop service; running hourly, to complement the existing services 36 and 94. In combination with these services it allows approximately half hourly services between Newburgh and Cupar and Newburgh and Perth. Full details on timetable assumptions for the option is provided in Appendix A.
- 2.2.9 This option includes Active Travel improvements, considered as Option 5 in the previous stages of the appraisal; specifically:
- Improved facilities and information at key bus stop in Newburgh in terms of improved links to/from the bus stop and the provision of safe and secure cycle parking at the bus stops; and
  - Traffic free active travel route between Newburgh and Abernethy; and Newburgh and Lindores (Den, Grange).

### Option 3 - New Train Station in Newburgh

- 2.2.10 This option aims to **increase travel choice**, increase **connectivity**, and help facilitate **access** to key services and markets by opening a new train station in Newburgh. There are four options for a proposed train station, namely:
- **Option 3a:** Reopening of a former rail station at Abernethy Road; or
  - **Option 3c:** Opening a new station at the east end of the town; or
  - **Option 3d:** Reopening of a former railway station at Clatchard Quarry; or
  - **Option 3e:** Opening of the station as a modular or 'pop-up' structure (potentially to test user demand for the service) at one of the above locations.
- 2.2.11 The proposed site at Abernethy Road (3a) is the site of a former rail station, with a site entrance opposite an existing car park, which includes a bus turning circle. Whilst the former station yard is owned by a private company, the access to the old station site has been reserved by Network Rail.
- 2.2.12 The proposed site at the East end of town (3c) is situated behind Newburgh primary school on a sloping hillside. This is an entirely new site, with nearby land proposed for 12ha mixed use housing and employment development.
- 2.2.13 The proposed site at Clatchard Quarry (3d) lies to the south east of Newburgh and is also the site of a former rail station. The site lies on a hillside and the option would require the purchase of third-party land from the Quarry.
- 2.2.14 For each site location, a permanent and modular structure (3e) is considered.
- 2.2.15 The current rail line is single track and a station will therefore only require one platform, with cross-track pedestrian access not required. At this stage, a single platform of 150m is assumed



for the permanent station options and a 10m platform is assumed for the modular station option, in order to estimate cost of construction. Full detailed design of the platform and station will be required should this option be progressed, with further details provided in Appendix A.

- 2.2.16 At this stage, the modular option can be applied at any of the four potential station locations. Therefore Option 3e has not been appraised as a scheme in its own right, but where the modular approach might result in different appraisal outcomes for example in environmental impacts or cost-benefit analysis, these differences are examined as part of an overall appraisal of a modular train station option.
- 2.2.17 The option introduces a stop on all train services passing through Newburgh, as timetabled in ScotRail's most recent published timetable (15<sup>th</sup> May 2022)<sup>3</sup>. The option adds approximately 2 minutes onto existing journey times, depending on the direction of travel and the site in consideration, with full analysis provided in the detailed appraisal and Appendix A.
- 2.2.18 This option includes Active Travel improvements, considered as Option 5 in the previous stages of the appraisal; specifically:
- Improved facilities and information at key bus stop in Newburgh in terms of improved links to/from the bus stop and the provision of safe and secure cycle parking at the bus stops; and
  - Traffic free route between Newburgh and Abernethy; and Newburgh and Lindores (Den, Grange).

#### Option 4 - Car Sharing

- 2.2.19 The aim of the option is to increase car sharing to and from Newburgh in order to help improve access to key services and markets, widen people's travel choices, help reduce lengthy journeys by public transport and help address high public transport fares.
- 2.2.20 The option explored:
- Setting up a Newburgh community car share scheme;
  - Setting up a new community car club facility in Newburgh; and
  - Integration with Mobility as a Service (MaaS).

Discussions with relevant stakeholders (TACTRAN, SEStran and Fife Council) highlighted that:

- Further promotion of the current liftshare scheme and/or setting up a specific Newburgh liftshare scheme at <https://liftshare.com/uk/community/sestran> will not be feasible as SEStran Board took the decision to bring the contract with Liftshare to an end in September 2021. This was influenced by the restrictions on car sharing posed by the Government during the Covid-19 pandemic. Although discussions are continuing at Regional Transport Partnership level about possible joint, or common procurement models for a liftsharing platform once the current restrictions and guidance ease, this is unlikely to be resolved prior to the completion of this study.
- Whilst TACTRAN's liftshare could still be used for trips to the Tactran area, Newburgh is not in the Tactran area and this would not help the majority of Newburgh residents who need access to the area outside of Tactran.

<sup>3</sup> [ScotRail Timetable May 2022](#)



- Setting up a new community car club facility in Newburgh (which assumed the provision of 2<sup>4</sup> (electric) car club vehicles in the centre of Newburgh) is also unlikely to be feasible. This is because the availability of ongoing funding for car clubs continues to be an issue; and based on the findings of a recent Car Club study by Fife Council, Newburgh was not considered as a suitable location for a car club.
- The integration with Mobility as a Service (MaaS) is currently unlikely to be of benefit to Newburgh residents to resolve the problems identified in the Case for Change stage of this appraisal. Whilst Tactran are currently developing their ENABLE MaaS Platform (<https://tactranenable.scot/>), the journeys offered are currently very limited and include:
  - The My D&A (Dundee & Angus College) travel tool – which aims to offer inclusive access for students to further education and college, as well as promoting sustainable inter-campus movement for staff;
  - The GoNHS Tayside service aims to offer sustainable access options for journeys to Perth Royal Infirmary; and
  - The Loch Lomond and Trossachs National Park (LLTNP) app and web app aims to promote sustainable transport options in this heavily used tourist area.

Each of these pilots make use of the Tactran ENABLE MaaS platform to different extents – from a web-based journey planner with GoNHS Tayside, to being able to book and pay for transport options through an app and web app in the LLTNP pilot.

The scheme that may perhaps be the most relevant to the Newburgh residents includes the GoNHS Tayside service; this currently provides integration at an information level only and allows planning of journeys from origins across the Tayside area, although currently the only destination selectable is Perth Royal Infirmary. An example of the options available for Newburgh can be found at: <https://www.gonhstayside.co.uk>. The service offers a choice of journeys by different modes of transport including walking, bicycle, bus, rail, and taxi. Journeys can be selected based on the lowest cost, journey time, departure/arrival times, wait time and journeys with the least interchanges. The platform will be capable of supporting demand responsive transport options, and will link to options related to car hire. However this is anticipated to be as a link to an existing external website for car club or car share booking, rather than a truly integrated car sharing solution. Further funding and development would be required to achieve this, which is out of the scope of this appraisal.

Moreover, as the ENABLE MaaS Platform will operate as a pilot service only, the platform will only be live for a period of 6-9 month as part of the MaaS Investment Fund Round 1. To enable continued operation of the platform there would be a number of ongoing costs such as platform license fees, DRT service data feed fees, and staff and customer support costs. Further development costs would also be required to facilitate use of the service outwith the specific pilot use cases listed above, i.e. to create a website/app to allow travel from Newburgh to anywhere in the Tayside region.

Unfortunately SEStran's MaaS project was not successful for round 2 of the MaaS Investment Fund (MIF2); however, they are in discussions with Tactran and their ENABLE platform to explore further options that may cover the SEStran area. This is at an early stage and unlikely to be resolved within the timescales of this study.

---

<sup>4</sup> Based on the provision available at existing rural community car clubs e.g. Car Bute, Wheels4Creetown and Mallaig West Wheels

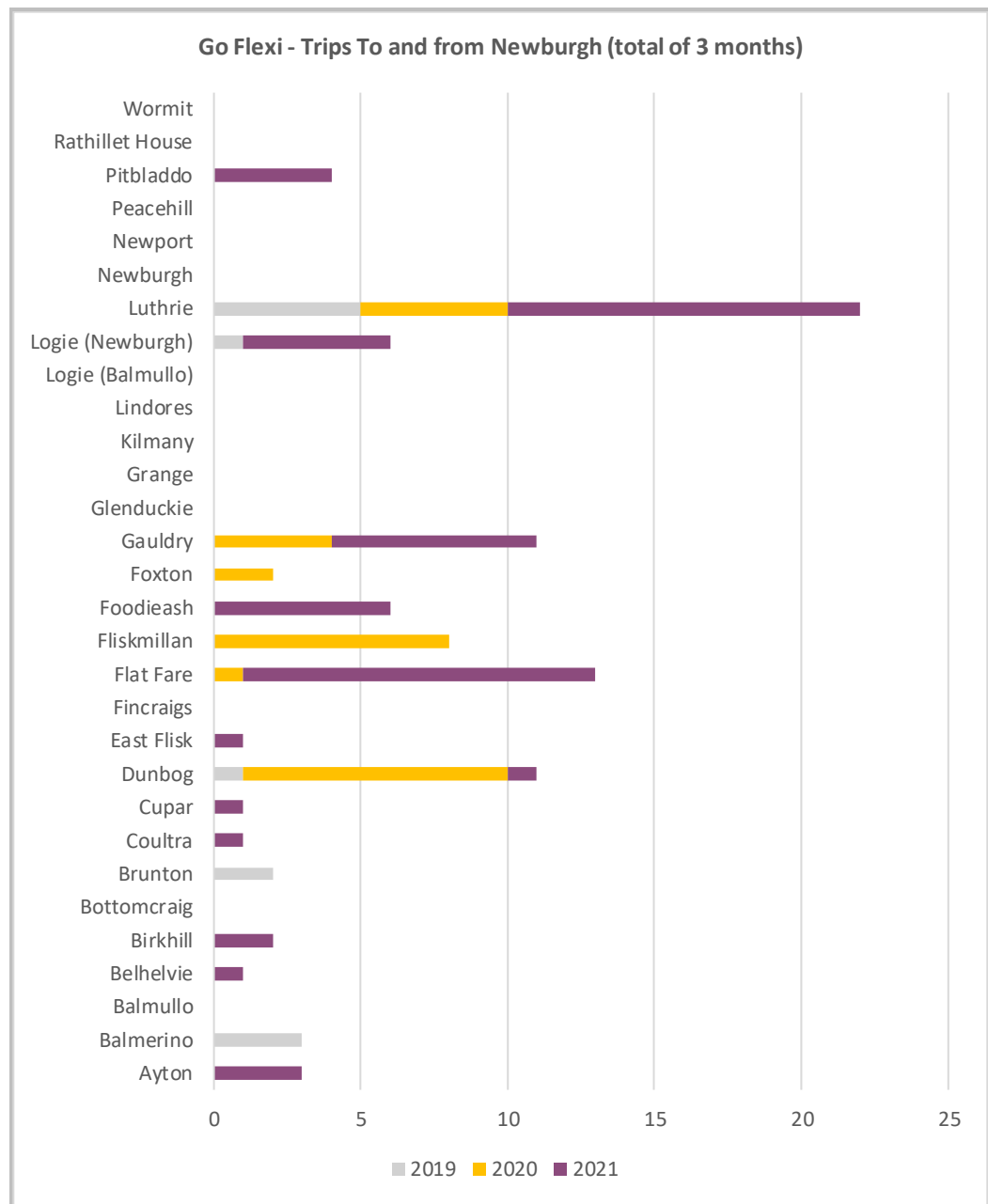


- 2.2.21 Therefore for the purposes of this appraisal, the option is limited to considering informal car-sharing between those travelling to and from Newburgh.
- 2.2.22 It should be noted that during various stakeholder discussions, the option of Demand Responsive Transport (DRT) was raised again and whether this could replace the car sharing option. Whilst DRT has an important role to play in rural communities, Newburgh already has the 'Go Flexi' DRT that operates in the area<sup>5</sup>. During the development of the Case for Change report, it was concluded that it was not suitable for daily commuting or education. Nevertheless, the latest patronage figures were analysed to help illustrate the current demand for the service. This showed that for 3 comparative months of May, June and July during 2019, 2020 and 2021, the total number of passengers using the service were very small, with origins and destinations being in small settlements, currently not connected by any public transport (e.g. Dunbog, Fliskmillan, Foodieash, Gauldry and Luthrie). DRT therefore plays an important role in connecting residents of small settlements with interchanges for onward travel. Figure 2.1 shows further details.

---

<sup>5</sup> [Case for Change Report, SYSTRA, 2020](#); section 5.4





**Figure 2.1 : DRT Trips to and from Newburgh (2019 – 2021)**

## 2.3 Detailed Appraisal of the Options

- 2.3.1 The detailed appraisal evaluates the performance of the options against the TPOs and against the five STAG criteria (Environment, Safety, Economy, Integration and Accessibility, and Social Inclusion), Cost to Government and Risk and Uncertainty.
- 2.3.2 The performance of an option against each criteria follows the seven-point scale of assessment as recommended in STAG, and has therefore been adopted for this part of the appraisal process:



- **Major benefit (✓✓✓):** these are benefits or positive impacts which, depending on the scale of benefit or severity of impact, the practitioner feels should be a principal consideration when assessing an option's eligibility for funding;
- **Moderate benefit (✓✓):** the option is anticipated to have only a moderate benefit or positive impact. Moderate benefits and impacts are those which taken in isolation may not determine an option's eligibility for funding, but taken together do so;
- **Minor benefit (✓):** the option is anticipated to have only a small benefit or positive impact. Small benefits or impacts are those which are worth noting, but the practitioner believes are not likely to contribute materially to determining whether an option is funded or otherwise.
- **No benefit or impact (-):** the option is anticipated to have no or negligible benefit or negative impact.
- **Small minor cost or negative impact (✗):** the option is anticipated to have only a moderate cost or negative impact. Moderate costs/negative impacts are those which taken in isolation may not determine an option's eligibility for funding, but taken together could do so.
- **Moderate cost or negative impact (✗✗):** the option is anticipated to have only a moderate cost or negative impact. Moderate costs/negative impacts are those which taken in isolation may not determine an option's eligibility for funding, but taken together could do so; and
- **Major cost or negative impacts (✗✗✗):** these are costs or negative impacts which, depending on the scale of cost or severity of impact, the practitioner should take into consideration when assessing an option's eligibility for funding.

### Transport Planning Objectives

- 2.3.3 During the Initial Appraisal: Case for Change stage of the study, a set of the following Transport Planning Objectives (TPOs) were developed to address the changes sought in the study area and tackle the identified problems and opportunities:

**TPO1** – Improve transport access to key services and markets (including employment, training, education, health and leisure opportunities) for Newburgh residents;

**TPO2** – Improve public transport connectivity and journey times to and from Newburgh for residents, businesses and visitors;

**TPO3** – Increase sustainable travel to and from Newburgh.

- 2.3.4 **TPO 1** focuses on addressing transport problems for the residents of Newburgh in being able to access work, training and study opportunities, as well as destinations for wider health care (i.e. hospitals) and leisure / cultural activities, particularly for households with no access to a car. The objective also aims to alleviate problems with the existing public transport access which includes limited bus service frequency, limited evening and weekend services, small sized vehicles, unattractive bus timetabling and poor transport integration. In addition, it aims to realise opportunities for widening transport options to Newburgh residents.
- 2.3.5 **TPO 2** aims to improve connectivity to and from Newburgh by public transport and help reduce the lengthy journey times, especially to key commuting destinations that include Cupar, Perth, Glenrothes, St Andrews and Kirkcaldy, as well as Dundee, Edinburgh and the other major key city regions, Aberdeen and Glasgow, helping to drive the Scottish economy.



The objective also focusses on realising tourism and leisure opportunities by making use of Newburgh's existing assets (e.g. Firth of Tay waterfront, Pitmedden Forest, Fife Coastal Path, historical sites, and Lindores Abbey Distillery and Visitors Centre) as well as providing opportunities for attracting more investment to the area.

- 2.3.6 **TPO 3** focuses on changing travel behaviour to encourage more sustainable trips to and from Newburgh, in order to help reduce the need to rely on the private car for commuting trips. Newburgh has an above average proportion of households with two and more cars, and this objective aims to help address the balance. The objective also aims to realise opportunities for active travel (particularly for short trips to link neighbouring communities as well as public transport facilities), and the potential to increase public transport choice.
- 2.3.7 In accordance with STAG, TPOs should be developed with SMART principles in mind, i.e. objectives should be:
- Specific: saying in precise terms what is sought;
  - Measurable: it will be possible to measure whether or not the objective has been achieved;
  - Attainable: there is general agreement that the objective can be achieved;
  - Relevant: it is a sensible indicator or proxy for the change which is sought; and
  - Timed: it will be associated with an agreed future point by which it will have been met.
- 2.3.8 It is acknowledged that TPOs may not be fully SMART at the earlier stages of the appraisal process, however, they should be subject to review and refinement as the process develops and more detail comes forward. This is important to ensure study objectives provide a framework against which performance can be assessed as part of monitoring and evaluation activities following the implementation / construction of measures.
- 2.3.9 The SMARTening of the TPOs for detailed appraisal is undertaken in Chapter 3

#### STAG Criteria

- 2.3.10 The options have also been appraised against the five main STAG criteria of Environment; Safety; Economy; Integration; and Accessibility and Social Inclusion; as well as a number of sub-criteria, as follows:
- Environment:
    - Noise and vibration;
    - Global air quality - carbon dioxide (CO<sub>2</sub>);
    - Local air quality - particulates (PM<sub>10</sub>) and nitrogen dioxide (NO<sub>2</sub>);
    - Water quality, drainage and flood defence;
    - Geology;
    - Biodiversity and habitats;
    - Landscape;
    - Visual amenity;
    - Agriculture and soils;
    - Cultural heritage; and
    - Physical Fitness.
  - Safety:



- Accidents; and
  - Security.
- Economy:
  - Transport Economic Efficiency (TEE); and
  - Wider Economic Impacts.
- Integration:
  - Transport integration;
  - Transport and land-use integration; and
  - Policy integration.
- Accessibility and Social Inclusion:
  - Community Accessibility; and
  - Comparative Accessibility.

### Cost to Government

- 2.3.11 To understand the benefits associated with an option, the net cost of an option from a public spending perspective is required. This allows an overall value for money assessment to be made. The Cost to Government consists of investment costs, operating and maintenance costs, grant/subsidy payments, revenues, and taxation impacts, adjusted for Optimism Bias.

### Risk and Uncertainty

- 2.3.12 Assumptions made as part of the appraisal carry an element of risk in terms of the costs associated with the interventions and the benefits potentially generated. The Risk and Uncertainty section considers the risks and identifies potential mitigations. In addition, this section will also consider the uncertainty associated with COVID-19 and the impact it may have on the benefits and disbenefits associated with the proposed interventions.

## 2.4 Appraisal Tools

- 2.4.1 To support the appraisal of the options a number of tools have been employed. These tools allow for options to be quantitatively appraised against the Transport Planning Objectives and STAG criteria:
- Tay Cities Regional Transport Model (TCRTM) – contributes to economic, environment and safety appraisal
  - TRACC accessibility modelling - supports Accessibility and Social Inclusion and TPO appraisal
  - Transport Users Benefit Appraisal (TUBA) – economic assessment
  - COBALT – safety assessment
- 2.4.2 Details of all modelling and quantitative appraisal tools used during the detailed appraisal are provided in Appendix B and Appendix C.



## 2.5 Stakeholder Engagement

2.5.1 Following the extensive stakeholder engagement during the previous stages of the Newburgh transport appraisal, stakeholder discussions and liaison continued throughout the Detailed Appraisal stage.

2.5.2 The purpose was to ensure that:

- Stakeholders were updated on the development of the project;
- Those affected by the proposals were aware of them, understood them; and had the opportunity to provide feedback;
- Specific information was gathered from relevant stakeholders to help quantify the detailed appraisal of options; and
- Any implementation risks arising from stakeholder concerns relating to the proposals were minimised.

2.5.3 A wide range of stakeholders were engaged with, as outlined in Table 2.1 many of whom had also been consulted during the earlier stages of the Newburgh Transport Appraisal.

**Table 2.1 : Stakeholder Engagement During Detailed Appraisal**

Stakeholder Group	Stakeholders
Government	Transport Scotland, SESTRan, TACTRAN, Fife Council; Relevant local Community Councils, Councillors and MSPs
	Environmental organisations (Scottish Natural Heritage (SNH), Scottish Water, Scottish Environment Protection Agency (SEPA),
Transport operators	Stagecoach; Moffat & Williamson; ScotRail/Abelio
Infrastructure providers	Sustrans, Network Rail
Interest groups	Newburgh Train Station Group; Newburgh Community Trust, Perth and Kinross Countryside Trust
Local business community	Lindores Abbey Distillery and Visitors Centre; A&J Stephen Limited housing developer; Robertson/Kingdom housing (Banklands development)
General public	Members of the Newburgh community and those that travel to Newburgh

2.5.4 Due to the COVID-19 travel restrictions, which limited the opportunities to engage with stakeholders face to face, the engagement was undertaken through:

- Direct emails to stakeholders;
- Updates through the project website at [www.newburghsustainabletransport.co.uk](http://www.newburghsustainabletransport.co.uk); – which also included an opportunity for stakeholder to provide feedback using an online survey form;
- Telephone/on-line calls, as required;
- Industry and community networks, including their websites and social media (including a local Courier article); and
- Presentations; including at a Rail User group meeting and to a local MSP.

2.5.5 The outcomes of the engagement are considered throughout the report.



## 2.6 The impacts of the COVID-19 Pandemic

- 2.6.1 The Case for Change sets the foundations for a study. It is the stage at which problems, opportunities, issues and constraints are identified and Transport Planning Objectives are developed to appraise options against. The Case for Change was developed in 2019 and early 2020, prior to the COVID-19 pandemic. The majority of the Preliminary Appraisal work was undertaken during Scotland's first lockdown in Summer 2020 when there was great uncertainty over the length of restrictions and impacts related to COVID-19.
- 2.6.2 The Preliminary Appraisal did not take account of COVID-19 and, instead, proposed to address COVID-19 impacts in the Detailed Appraisal.
- 2.6.3 COVID-19 and associated restrictions put in place by both the UK and Scottish governments continued to impact on how people, work, study and socialise. This in turn has impacted on how travel is viewed and undertaken currently and will be in the medium to long term.
- 2.6.4 There remains great uncertainty and this section brings together some of the recent studies into Post-COVID travel behaviour.

### COVID impacts on the study

- 2.6.5 There are two main reasons to understand the impacts of COVID-19. Firstly, it may have changed the problems, issues, opportunities and constraints, and therefore the TPOs need to remain valid for the study to proceed. COVID-19 may result in changes which mean that there is no longer a Case for Change in the study's current format or that the TPOs require tailoring to address changes in travel behaviour, needs and land use.
- 2.6.6 Secondly, to appraise the options comprehensively, modelling will be required to assess the level of demand for the options proposed and the potential benefits and disbenefits. To undertake this, appropriate scenarios are required to take account of the following potential COVID-19 related impacts:
- Commuting related changes:
    - Employment/unemployment rates
    - Working from home/flexible working patterns
  - Attitudes to public transport
  - Propensity to use Active Travel modes
  - Impact on public transport
- 2.6.7 Appendix B will discuss the COVID-19 model demand scenarios further. In Chapter 6, Risk and Uncertainty will also discuss the impact of COVID-19 and other aspects which may impact on the viability of the options proposed.
- 2.6.8 The remainder of this section will examine ongoing studies into changes in travel patterns and behaviours to inform the possible impacts on the existing problems, issues, opportunities and constraints and TPOs.

### Changes to travel patterns

- 2.6.9 The ongoing COVID-19 pandemic has led to major changes in travel behaviour, some of which are likely to endure in the longer term and challenge the viability of current transport delivery



models.

- 2.6.10 Transport Scotland have been monitoring travel trends since the start of the pandemic-related restrictions (lockdown) in March 2020 in Scotland.
- 2.6.11 Transport Scotland currently publish a regular series of survey results to understand current attitudes to travel now and going forward. The COVID-19 Public Attitudes Survey began in May 2020 and are ongoing at the time of writing. The most recently published set of survey data (Wave 20<sup>6</sup>), reports findings from surveys which took place from 18-24 August 2021, with pertinent results outlined below.
- 2.6.12 36% of respondents somewhat or strongly agreed with the statement that *I will avoid public transport and use my car or other vehicle more than I did before*. This is down from 45% in Wave 19 (July 2021).
- 2.6.13 Given the nature of the pandemic there is no corresponding, pre-COVID, baseline for these survey results; however they do suggest that there is an unease about public transport use going forward. In addition, 48% expect to work from home more often in the future. We recognise, however, that many in the workforce do not have this opportunity; for example, SYSTRA research has highlighted the different attitudes towards commuting and working from home by mode of travel with 36% of rail users expecting to use rail less compared to 31% for bus users.
- 2.6.14 Transport Scotland published a review of data and trends covering the first 6 months of the pandemic. Behaviours will continue to evolve but this indicates how travel has changed. Figure 2.2 below shows the distribution of cars across a weekday for five periods: 2 – 15 March (prelockdown), 30 March – 12 April (lockdown), 1 – 7 June (phase one of easing), 13 – 26 July (phase three of easing) and 24 August – 6 September (after schools had reopened).<sup>7</sup>

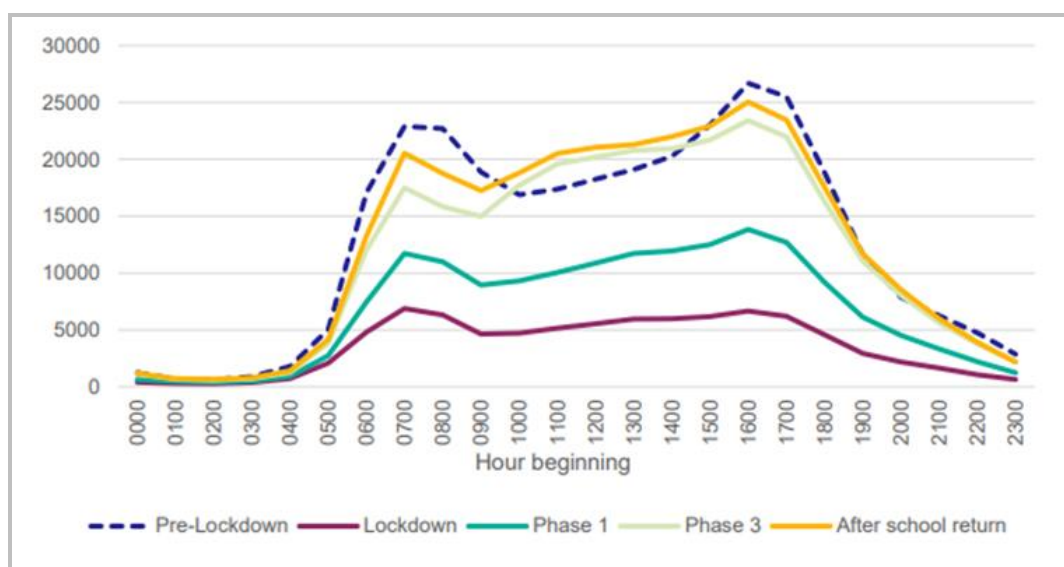


Figure 2.2 : Average number of cars passing selected counters on weekdays <sup>8</sup>

- 2.6.15 The figure shows that the distinctive commuting pattern pre-lockdown has become less distinct. Although car traffic has returned to close to pre-lockdown levels the peaks are less

<sup>6</sup> <https://www.transport.gov.scot/publication/covid-19-public-attitudes-survey-data-wave-20/>

<sup>7</sup> <https://www.transport.gov.scot/media/49017/covid-19-scotlands-transport-and-travel-trends-during-the-first-six-months-of-the-pandemic.pdf>

defined and car traffic has become heavier between 10 am and 3 pm. This is assumed to be linked to increased working from home giving greater flexibility during the day and furloughed staff also having greater flexibility to travel during the day. Importantly, the data indicates the need to consider public transport connectivity throughout the day and not only morning and evening peaks, as traditionally considered.

- 2.6.16 The COVID-19 pandemic has also seen a significant rise in walking and cycling levels, building on previous, more-modest increases in walking and cycling journeys. It is not clear how long this increase might be sustained for. Nevertheless, Cycling Scotland has been monitoring cycling levels at locations across Scotland since the start of the Covid-19 restrictions. In its “one year on” review, it found a 47% rise in people cycling from 23 March 2020 to 22 March 2021 compared to the same period 2019-2020<sup>8</sup>.
- 2.6.17 STPR2 (draft report published January 2022<sup>9</sup>) is Scotland’s review of the strategic transport network informing investment and as part of STPR2 a COVID-19 Addendum<sup>10</sup> drew together data from Scottish Government, Transport Scotland, Google and the University of Leeds. The addendum sought to understand the travel behaviours over the course of the pandemic and identify some short-medium term potential travel behaviour changes. These included:
- A switch from public transport to car connected to concerns around cleanliness, control of diseases and the perceived convenience of private cars
  - Uncertainties about distancing and demand for public transport may impact on the viability of services and may result in loss of services to some, disproportionately impacting lower income groups with less access to private vehicles
  - Reduction in commuting and work travel due to increased flexible working
  - A switch to online services may reduce discretionary travel, impacting on development locations and potentially driving a reliance on more local, high street services.
  - Changes in the peak demand profile may change the approach to servicing public transport in the traditional peak periods
  - Suggestions that respondents may avoid air travel in the future may drive domestic tourism and travel associated with it. This is on a backdrop of minimal international tourists in 2020.
- 2.6.18 The Addendum highlights that accounting for risk and uncertainty is an integral part of STAG. However, the scale of potential change currently may not be suitably addressed by sensitivity testing (as currently described in STAG) and therefore scenario planning techniques to represent a range of possible futures may be more appropriate. This will be considered further in Chapters 6 and Appendix B.

What does this mean for this study?

- 2.6.19 At this stage, forecasting demand and behaviours remains challenging and therefore the impact of the Covid-19 pandemic is uncertain and the changing profile of travel may be maintained. However, as noted below, it is considered that the original outcomes from the Case for Change and Preliminary Appraisal stages remain valid for this current Detailed Appraisal stage. The uncertainty associated with these behaviours, alongside ongoing

<sup>8</sup> <https://www.cycling.scot/mediaLibrary/other/english/9444.pdf>

<sup>9</sup> <https://www.transport.gov.scot/our-approach/strategy/strategic-transport-projects-review-2/>

<sup>10</sup> <https://www.transport.gov.scot/media/49076/national-case-for-change-report-appendix-b-covid-19-addendum.pdf>



uncertainties around cost of living increases (e.g. fuel) is captured in the sensitivity modelling detailed in Chapter 6.

#### **Review of problems, issues, opportunities and constraints**

- 2.6.20 The problems, opportunities, issues and constraints which underpin this study were identified prior to the COVID-19 pandemic in the Case for Change report. To ensure these and the resulting TPOs are still valid a review is undertaken here, drawing on the current and potential travel behaviour changes identified above.
- 2.6.21 Table 2.2 shows that while the COVID-19 pandemic has introduced some further uncertainty, all problems, issues, opportunities remain valid for the study.



**Table 2.2 : Review of Problems, Opportunities, Issues and Constraints**

Problems, Issue, Opportunity or Constraint	Detail	COVID-19 Impact/Change
<b>Problem</b>		
Access to services and markets by public transport	Existing operating times taken by public transport services are limiting people's options to access their required service.	Unlikely to change and may even worsen if operators require to cost save/react to lower usage
Lengthy journeys	Journeys by public transport are often lengthy, especially when compared to car journey times, with car the preferred mode if available.	No change
Lack of transport modal choice to/from Newburgh	Limited travel options available, contributing to high car use and impact the ability to travel more including for leisure and cultural trips	No Change
High public transport fares	Perception of high public transport fares when compared to car travel	Unlikely to change and possible fares increase as operators react to lower usage/cost impacts



Opportunities		
Bus service improvements	There are opportunities to improve bus service provision if additional funding can be secured	Operator capacity and/or funding streams may reduce but the opportunity still remains
Increase public transport choice	Opportunity to open new rail station on existing Edinburgh-Perth rail line and/or increase bus services/routes	Opportunity still remains
Active travel	Opportunities for active travel to support public transport journeys and opportunities to improve short distance active travel links	Opportunity still remains
Tourism and leisure	Newburgh's location provides opportunities to boost leisure and recreational activities	Opportunity still remains
Car sharing	Opportunity to help facilitate improved access for Newburgh residents via a more formal approach to car sharing	Opportunity remains but there may be some difficulties from flexible working arrangements
Issues		
Uncertainty of funding	Uncertainties in terms of the available funding/funding priorities for transport interventions by the government, transport operators and developers	Issue remains
Future developments related transport impacts	The FifePlan proposes a new mixed use development in Newburgh, comprising some 275 dwellings and employment	Issue remains
Bridge of Earn transport appraisal	Uncertainty over the outcomes of the Bridge of Earn LRDF study and how this will impact this study	Issue remains. Bridge of Earn study continues to progress alongside this study
Constraints		
Rail infrastructure	Constraints related to the rail infrastructure	No change. Recent timetable changes considered
Available funding	Tight budgets to improve the transport provision (for example by public transport operators to increase the service provision)	Constraint remains and may be increase as a result of COVID-19 economic impacts



## Review of Transport Planning Objectives

- 2.6.22 The preceding tables shows that while some uncertainty has resulted from the COVID-19 pandemic, the problems, opportunities, issues and constraints remain valid. As a result, there is no evidence to support a change in the Transport Planning Objectives as they currently stand. As part of the study, recognition will be given to how behaviours may change, for example, changing attitudes to public transport and travel patterns (commuting, in particular) but the TPOs remain appropriate and relevant as in an evolving environment they continue to represent evidence-based problems and support policy aims within Scotland, including the NTS2 Delivery Plan 2020-22 aim to develop a coordinated package of policy interventions to reduce car kilometres by 20% by 2030.

## 2.7 The Impacts of the Climate Change Emergency

- 2.7.1 A Climate Emergency was declared by the Scottish and UK Governments in 2019. The subsequent Climate Change Act 2019<sup>11</sup> commits the Scottish Government to a target of net zero emissions of all greenhouse gases by 2045, with a legally binding target of reducing these by 75% by 2030 across Scotland.
- 2.7.2 The updated Climate Change Plan was first published in 2018, with amendments made in light of the Covid-19 pandemic in December 2020<sup>12</sup>, setting out the strategy until 2032 to allow Scotland to become carbon neutral by 2045. The plan notes that Scotland is committed to a green recovery from the Covid-19 pandemic, which captures the opportunities to transition to net zero, , including increased travel by sustainable modes.
- 2.7.3 In transport, commitment and actions are aligned with the NTS2, combining technological advances with measures to enable mode-shift:
- Commit to lowering car kilometres undertaken by 20% by 2030;
  - Phase out the need for new petrol and diesel cars and vans by 2030, moved forward to 2025 for public bodies;
  - De-prioritise single occupancy car trips;
  - Support public transport, walking and cycling transformational projects; and
  - Engage with the public and encourage individuals to move towards low carbon living.
- 2.7.4 Transport Scotland is currently in the process of refreshing the STAG process and it is likely some of the current STAG sub-criteria will be re-allocated under different STAG criteria headings, including a specific criteria on Climate Change. However, as an updated technical database is not yet available describing the Climate Change criteria, it is proposed that the existing, adopted appraisal against the five STAG criteria will capture the impact on climate change, in particular Environment and Integration.

<sup>11</sup> <https://www.legislation.gov.uk/asp/2019/15/enacted>

<sup>12</sup> <https://www.gov.scot/publications/securing-green-recovery-path-net-zero-update-climate-change-plan-20182032/documents/>



### 3. OPTION PERFORMANCE AGAINST TRANSPORT PLANNING OBJECTIVES

#### 3.1 Introduction

- 3.1.1 The TPOs set out below were developed during the Case for Change stage of the study to address the changes sought in the study area and to address the identified problems and opportunities.

**TPO1** – Improve transport access to key services and markets (including employment, training, education, health and leisure opportunities) for Newburgh residents;

**TPO2** – Improve public transport connectivity and journey times to and from Newburgh for residents, businesses and visitors;

**TPO3** – Increase sustainable travel to and from Newburgh.

- 3.1.2 In accordance with STAG, TPOs should be developed with SMART principles in mind, i.e. objectives should be:

- Specific: saying in precise terms what is sought;
- Measurable: it will be possible to measure whether or not the objective has been achieved;
- Attainable: there is general agreement that the objective can be achieved;
- Relevant: it is a sensible indicator or proxy for the change which is sought; and
- Timed: it will be associated with an agreed future point by which it will have been met.

- 3.1.3 It is acknowledged that TPOs may not be fully SMART at the earlier stages of the appraisal process, however, they should be subject to review and refinement as the process develops and more detail comes forward. This is important to ensure study objectives provide a framework against which performance can be assessed as part of monitoring and evaluation activities following the implementation / construction of measures.

- 3.1.4 The SMARTening of the TPOs as part of the Detailed Appraisal is shown below. It outlines the SMART principles for each objective, and suggests the Key Performance Indicator(s) (KPIs) to be used in the assessment of options. For any option(s) progressed it will be important to: keep the indicators for the TPOs under review; set up and maintain a clear project evaluation plan; and see that the necessary data and information is collected both before and after project implementation to facilitate the evaluation.



EXISTING TPOs	KPIs
<p><b>TPO 1 - Improve transport access to key services and markets (including employment, training, education, health and leisure opportunities) for Newburgh residents</b></p> <p><b>TPO 1</b> focuses on addressing transport problems for residents of Newburgh in being able to access work, training and study opportunities, as well as destinations for wider health care (i.e. hospitals) and leisure / cultural activities, in particular for households with no access to a car. The objective also aims to address problems with the existing public transport access which includes limited bus service frequency, limited evening and weekend services, small sized vehicles, restrictive bus timetabling and poor transport integration. In addition, it aims to realise opportunities for widening transport options for Newburgh residents.</p>	<ul style="list-style-type: none"> <li>○ Improve frequency of public transport between Newburgh and Perth, Newburgh and Cupar, and Newburgh and Ladybank (morning, evening and Sunday)</li> <li>○ Improve average journey times between Newburgh and the nearest hospital facilities for Newburgh residents (Cupar, Perth, Kirkcaldy, Glenrothes, St Andrews, Dundee, Dunfermline)</li> <li>○ Improve average journey times between Newburgh and the nearest leisure facilities for Newburgh residents (Cupar, Perth, Dundee)</li> <li>○ Improve average journey times between Newburgh and the nearest retail facilities for Newburgh residents (Cupar, Perth, Dundee, Glenrothes, Kirkcaldy)</li> <li>○ Improve average journey times between Newburgh and the nearest education facilities for Newburgh residents (Cupar, Perth, Dundee, St Andrews, Kirkcaldy)</li> </ul>

TPO REQUIREMENT	COMMENT
Specific	As per KPIs
Measurable	<ul style="list-style-type: none"> <li>○ Census 2011 and 2022 data</li> <li>○ Average journey times measurable using TRACC accessibility tool e.g.: <ul style="list-style-type: none"> <li>● Reduction (in minutes) in public transport journey times;</li> <li>● Change in public transport stop service frequency;</li> <li>● % of Newburgh resident population with journey time of under xx minutes;</li> <li>● % of Newburgh's non-car households with journey time of under xx minutes;</li> <li>● No reduction in current public transport accessibility for Newburgh residents;</li> </ul> </li> </ul> <p><i>Note: once TRACC outputs are available for the baseline scenario, the targets can be specified further, and refined as appropriate.</i></p> <ul style="list-style-type: none"> <li>○ Scottish Index of Multiple Deprivation – particularly 'Geographic access to services' domain</li> </ul>
Attainable	Continuation of partnership working between Fife Council, Perth & Kinross Council, public transport operators, transport network providers, and Transport Scotland
Relevant	<p>The improved public transport frequency and reduced journey times will help to:</p> <ul style="list-style-type: none"> <li>○ Improve public transport access to employment and training, the nearest hospitals, education, leisure and retail facilities currently not available in Newburgh;</li> <li>○ Address problems of no evening public transport service between Newburgh and Perth that would allow for leisure trips as well as commuting to/from work (e.g. by extending service frequency to evening hours );</li> </ul>

TPO REQUIREMENT	COMMENT
	<ul style="list-style-type: none"> <li>○ Address problems of limited Sunday public transport service between Newburgh and Perth, and no Sunday public transport service between Newburgh and Cupar to allow for leisure and retail trips as well as commuting to/from work (e.g. by adding/increasing service frequency on Sunday);</li> <li>○ Address problems of limited morning public transport service between Newburgh and Cupar to allow for employment, training, education, health, leisure, and retail trips (e.g. by extending service frequency in the morning);</li> <li>○ Address problems related to small sized vehicles currently deployed on the route between Perth, Newburgh and Glenrothes (e.g. by having smaller vehicles running more often);</li> <li>○ Improve transport integration (e.g. reducing wait/interchange time at public transport stops/hubs by services running more often);</li> <li>○ Improve the overall door-to-destination travel time (including for multi-modal journeys);</li> <li>○ Widen transport choice by improving frequency of bus services to the nearest train station(s) and allowing onward travel to destinations further afield (e.g. Kirkcaldy, Dundee, Edinburgh, Glasgow, Aberdeen etc);</li> <li>○ Support the 19% of Newburgh residents with no access to a car/van; an above average population of over 65 years old; an above average population of those whose daily activities are limited a little due to their health; an above average proportion of part-time workers; and the majority of Newburgh residents employed in health &amp; social care, retail, construction and manufacturing, often requiring shift work;</li> <li>○ Rebalance the above average car ownership and a reliance on car travel to reach people's destinations (Newburgh has below average proportion of population who commute to work by public transport when compared to Fife and Scotland as a whole);</li> <li>○ Support national, regional and local policies to improve accessibility and widen travel choices.</li> </ul>
Timed	<ul style="list-style-type: none"> <li>○ Base year</li> <li>○ Future year - the year of opening / modelled forecast year</li> <li>○ Monitoring as will be specified in the Monitoring and Evaluation Framework</li> </ul>

EXISTING TPOs	KPIs
<p><b>TPO 2 – Improve public transport connectivity and journey times to and from Newburgh for residents, businesses and visitors</b></p> <p><b>TPO 2</b> aims to improve connectivity to and from Newburgh by public transport and help reduce journey times, especially to key commuting destinations such as Cupar, Perth, Glenrothes, St Andrews and Kirkcaldy, as well as Dundee, Edinburgh and the other major key city regions, Aberdeen and Glasgow. The objective also focusses on realising tourism and leisure opportunities by making use of Newburgh’s existing assets (e.g. River Tay waterfront, Pitmedden Forest, Fife Coastal Path, historical sites, and Lindores Abbey Distillery and Visitors Centre) as well as providing opportunities for attracting more investment to the area.</p>	<ul style="list-style-type: none"> <li>○ Reduce journey time between Newburgh and Cupar, Glenrothes, St Andrews, Kirkcaldy, Perth, Dundee, Edinburgh, Aberdeen and Glasgow by public transport whilst minimising the number of transport interchanges.</li> </ul>

TPO REQUIREMENT	COMMENT
Specific	As per KPIs
Measurable	<ul style="list-style-type: none"> <li>○ Census 2011 and 2022 data</li> <li>○ Average journey times measurable using TRACC accessibility tool e.g.: <ul style="list-style-type: none"> <li>● Reduction (in minutes) in public transport journey times;</li> <li>● No increase in the number of transport interchanges for public transport journeys;</li> <li>● % of Newburgh resident population with journey time of under xx minutes;</li> <li>● % of Newburgh’s non-car households with journey time of under xx minutes;</li> <li>● No reduction in current public transport accessibility for Newburgh residents;</li> </ul> </li> </ul> <p><i>Note: once TRACC outputs are available for the baseline scenario, the targets can be specified further, and refined as appropriate.</i></p> <ul style="list-style-type: none"> <li>○ Scottish Index of Multiple Deprivation – particularly ‘Geographic access to services’ domain</li> <li>○ Travel to work data: <ul style="list-style-type: none"> <li>● % of travel to work trips to/from Newburgh by mode</li> </ul> </li> </ul>
Attainable	Continuation of partnership working between Fife Council, Perth & Kinross Council, public transport operators and transport network providers, and Transport Scotland

TPO REQUIREMENT	COMMENT
Relevant	<p>The reduced public transport journey times and minimised transport interchanges per door-to-destination journey will help to:</p> <ul style="list-style-type: none"> <li>○ Reduce the current lengthy public transport journeys to employment and training, the nearest hospitals, education, leisure and retail facilities currently not available in Newburgh;</li> <li>○ Widen transport choice by directly connecting Newburgh with main public transport hubs e.g. Perth, Ladybank and Cupar, and thus allowing onward travel to destinations further afield (e.g. Kirkcaldy, Dundee, Edinburgh, Glasgow, Aberdeen etc);</li> <li>○ Support the 19% of Newburgh residents with no access to a car/van, an above average population of over 65 years old, an above average population of those whose daily activities are limited a little due to their health, an above average proportion of part-time workers and the majority of Newburgh residents employed in health &amp; social care, retail, construction and manufacturing, often requiring shift work;</li> <li>○ Rebalance the above average car ownership and a reliance on car travel to reach people's destinations (Newburgh has below average proportion of population who commute to work by public transport when compared to Fife and Scotland as a whole);</li> <li>○ Improve accessibility to/from Newburgh to capitalise on the area's leisure and tourism opportunities, and thus support local employment opportunities;</li> <li>○ Support national, regional and local policies to improve accessibility, connectivity, widen travel choices, reduce emissions and promote tourism</li> </ul>
Timed	<ul style="list-style-type: none"> <li>○ Base year</li> <li>○ Future year - the year of opening / modelled forecast year</li> <li>○ Monitoring as will be specified in the Monitoring and Evaluation Framework</li> </ul>

EXISTING TPOs	KPIs
<p><b>TPO 3 – Increase sustainable travel to and from Newburgh</b></p> <p><b>TPO 3</b> focuses on changing travel behaviour to encourage more sustainable trips to and from Newburgh in order to help reduce the need to rely on private cars for commuting trips. Newburgh has an above average proportion of households with two and more cars, and this objective aims to help address the balance.</p> <p>The objective also aims to realise opportunities for active travel (particularly for short trips to link neighbouring communities as well as public transport facilities), and the potential to increase public transport choice.</p>	<ul style="list-style-type: none"> <li>○ Increase public transport mode share for longer distance trips to and from Newburgh</li> <li>○ Increase active travel mode share for local trips to, from and within Newburgh</li> </ul>

TPO REQUIREMENT	COMMENT
Specific	As per KPIs
Measurable	<ul style="list-style-type: none"> <li>○ Census 2011 and 2022 data</li> <li>○ Travel to work and education <ul style="list-style-type: none"> <li>● % of Newburgh resident that travel to work / study by public transport (bus, train) by distance/destination</li> <li>● % of Newburgh resident that travel to work / study by active modes of travel (walking, cycling) by distance/destination</li> <li>● % of Newburgh resident that travel to work / study by car (single occupancy, car sharing) by distance/destination</li> <li>● % of work trips to Newburgh by origin and mode</li> </ul> </li> </ul>
Attainable	Continued partnership working between Fife Council, Perth & Kinross Council, public transport operators and transport network providers, and Transport Scotland
Relevant	<ul style="list-style-type: none"> <li>○ The increase in public transport and active travel mode share will help to: <ul style="list-style-type: none"> <li>● Support the 19% of Newburgh residents with no access to a car/van</li> <li>● Rebalance the above average car ownership and a reliance on car travel to reach people's destinations (Newburgh has below average proportion of population who commute to work by public transport when compared to Fife and Scotland as a whole).</li> <li>● Support national, regional and local policies to improve accessibility, connectivity, widen travel choices and reduce emissions.</li> </ul> </li> </ul>
Timed	<ul style="list-style-type: none"> <li>○ Base year</li> <li>○ Future year - the year of opening / modelled forecast year</li> <li>○ Monitoring as will be specified in the Monitoring and Evaluation Framework</li> </ul>

## 3.2 Accessibility Modelling and Catchment Analysis

- 3.2.1 Accessibility modelling was undertaken using TRACC to inform the quantitative assessment of each option against the TPOs. This software allows for timetables to be amended to reflect changes to the network and travel times are calculated between origins and destinations using a number of parameters. For the analysis outlined in this section, a walk distance of 800m was applied, this means that to join the public transport network the origins and destinations need to be within 800m of a bus stop or train station on the road/path network. In some options the residents are located over 800m and therefore not captured in this analysis. This has been described further below. The 800m limit applies to the walk distance to join the public transport network and any walking distance between interchanges, for example, the distance between a bus stop and train station. Bus-rail connection services have not been included within the analysis but it could be assumed that accessibility may be improved further through the introduction of integrated bus-rail services.
- 3.2.2 The origins used in the analysis are postcodes with one point representing the postcode. Given the rural nature of some of the areas and large geographies it does mean that the output may not be representative of the entire postcode.
- 3.2.3 Distances of 400m and 800m were set in TRACC and these were selected as the CIHT published guidance is that 400m is an acceptable walk length for accessing two bus services on single high frequency routes but recognises that 400m may be excessive for some members of the population<sup>13</sup>. In a study by WYG the National Travel Survey was used to calculate average and 85th percentile distances for journeys to bus and rail. The 85<sup>th</sup> percentile distance to bus stops in Scotland was 800m and rail was 1,610m<sup>14</sup>. The distances are calculated based on the road/path network.
- 3.2.4 Catchment analysis has been used to assess TPO1, and in particular the performance of Option 3. The three proposed locations of a rail station in Newburgh all provide new transport infrastructure/access but offer differing population catchments. The catchment analysis considered distances of 400m, 800m and 1500m. A 1500m distance is included in the catchment analysis to represent that some people are likely to consider a 20minute walk to a train station acceptable inside 1500m. It should be recognised that 800m and 1,500m walk distances would not be attractive, or possible, for some members of the population and they represent a higher catchment than would be reflected in reality.
- 3.2.5 The TRACC and catchment analysis utilised 2011 Census data. This 2011 Census data is now over ten years old and does not include any developments completed and occupied in the intervening years or planned developments but does provide a useful indication of the potential catchment.

## 3.3 Option Appraisal against TPOs

**TPO1** – Improve transport access to key services and markets (including employment, training, education, health and leisure opportunities) for Newburgh residents

**TPO2** – Improve public transport connectivity and journey times to and from Newburgh for residents, businesses and visitors

**TPO3** – Increase sustainable travel to and from Newburgh.

<sup>13</sup> Buses in Urban Developments, CIHT, 2018

<sup>14</sup> [https://www.sthelen.gov.uk/media/331745/cd-2229-wyg\\_how-far-do-people-walk.pdf](https://www.sthelen.gov.uk/media/331745/cd-2229-wyg_how-far-do-people-walk.pdf)

## Option 1

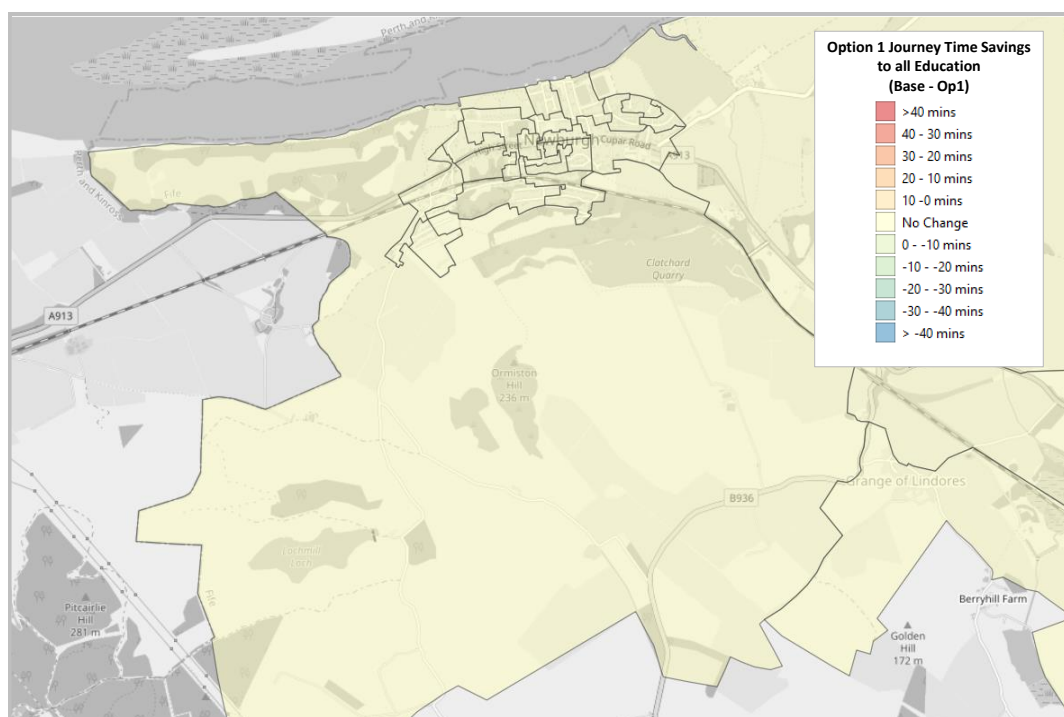
- 3.3.1 Option 1 would provide enhanced bus service provision to Perth, Cupar and Ladybank to enable public transport access to key services and markets i.e. employment, places of study, and wider health care and leisure facilities, and to help increase public transport choice. The option includes the provision of greater frequencies of bus services and extended hours of operation, as well as improving connectivity with train services to help facilitate onward travel. These changes would increase the opportunities, services and markets that Newburgh residents could access early in the day (before 07:00am), late in the evening (after 19:00pm) and on weekends. They would also allow an improved access to rail interchange (e.g. Ladybank) and offer a more competitive alternative to a private car.
- 3.3.2 The option proposes to extend the service running times of the Stagecoach services 36 and 94 as shown in Table 3.1. Full timetable assumptions are provided in Appendix A.

**Table 3.1 : Option 1 – Changes to existing bus services**

Service	Route	Option	Approx. service times in Newburgh		
			Weekday	Saturday	Sunday
Stagecoach 36	Glenrothes - Perth	Existing Service	06:20-18:20 Hourly	07:20-18:25 Hourly	10:20-16:20 2 Hourly
		Proposed Service	06:20-22:30 Hourly	07:20-22:30 Hourly	08:20-20:20 2 Hourly
Stagecoach 36	Perth - Glenrothes	Existing Service	06:25-19:50 Hourly	07:50-19:50 Hourly	11:45-17:45 2 Hourly
		Proposed Service	06:20-23:55 Hourly	07:20-23:55 Hourly	09:45-21:45 2 Hourly
Stagecoach 94	Newburgh - St. Andrews	Existing Service	06:50, 08:25-23:20 Hourly	06:50, 08:25-23:20 Hourly	No service
		Proposed Service	06:20-23:20 Hourly	06:20-23:20 Hourly	08:25-20:25 2 Hourly
Stagecoach 94	St. Andrews - Newburgh	Existing Service	06:10, 06:50-21:50 Hourly	06:10, 06:50-21:50 Hourly	No service
		Proposed Service	05:45, 06:10, 06:50-21:50 Hourly	05:45, 06:10, 06:50-21:50 Hourly	06:50-19:50 2 Hourly

- 3.3.3 The proposed changes will give improved hours of accessibility to and from key services, however the proposals do not address journey times by public transport and TRACC analysis confirms there to be no journey time savings as a result of the option. Changes in public transport journey times to education establishments, regional hospitals, retail centres and selected train stations were examined, with journey times to all destinations showing no reductions. For example, journey time comparisons by public transport to education between the existing service provision and Option 1 is shown in Figure 3.1.

[Note all TRACC diagrams to be formalised for final report – size/legend/scale/copywrite etc.]



**Figure 3.1 : Option 1 – Public transport JT savings to education centre from existing situation (TRACC 800m)**

- 3.3.4 Option 1 does not improve journey times. Importantly however, is the increased ability to access locations before 09:00am (i.e. before most employment/education starts) and after 19:00pm (when shift work may begin/end). For example, the proposed timetable changes would provide two bus services to St. Andrews that arrive before 09:00am, opening up possible further education opportunities at the University of St. Andrews.

**TPO1** – Improve transport access to key services and markets (including employment, training, education, health and leisure opportunities) for Newburgh residents

**TPO2** – Improve public transport connectivity and journey times to and from Newburgh for residents, businesses and visitors

**TPO3** – Increase sustainable travel to and from Newburgh.

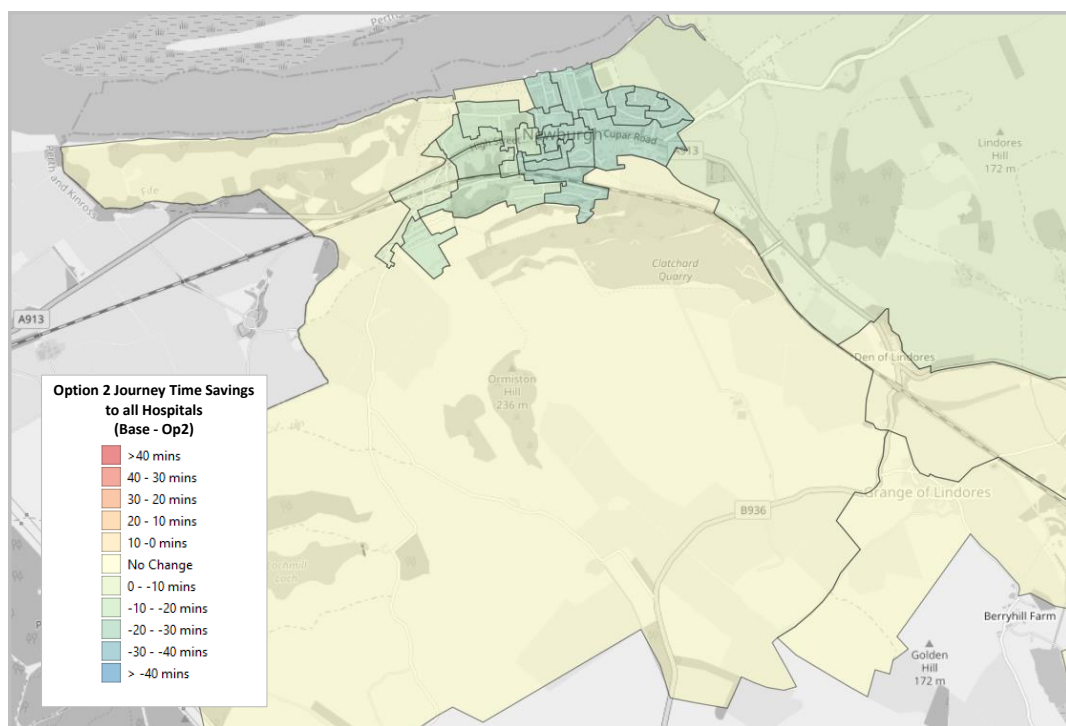
By providing additional bus services outside 07:00am and 19:00pm, Options 1 provides a **moderate benefit** against TPO1.

As outlined above, there are no expected benefits to public transport journey times but the proposal will increase accessibility to other transport interchanges thereby positively influencing transport connectivity and providing a **minor benefit** against TPO2.

The Tay Cities Regional Transport Model (TCRTM) simulates regional traffic on an average weekday between 07:00am and 19:00pm and therefore it is not possible to quantify the changes in public transport patronage and the effectiveness of the option against TPO3. However, with increased flexibility around travel times, it is reasonable to conclude that the option may positively impact sustainable travel to and from Newburgh and this results in a **minor benefit** against TPO3.

## Option 2

- 3.3.5 The option proposes a new express bus service between Cupar and Perth, providing an hourly service in both directions from approximately 06:40am to 23:20pm. Journey times would be approximately 20 minutes to Cupar (currently approximately 50 minutes), 23 minutes to Broxden (no direct service) and 30 minutes to Perth bus station (currently approximately 35 minutes). The proposed timetable of the new services has been derived to complement existing bus services serving Newburgh such that the area is served with a half-hourly frequency (i.e. approximately 1 express and 1 existing service per hour). Full timetable assumptions are provided in Appendix A.
- 3.3.6 TRACC analysis concludes the Option 2 will help reduce journey times to key transport interchanges and services such as regional hospitals and retail centres. Figure 3.2 shows public transport journey time savings to regional hospitals and health centres from Newburgh, with journey time savings of up to 30 minutes.



**Figure 3.2 : Option 2 – Public transport JT savings to hospitals/health centre from existing situation (TRACC 800m)**

- 3.3.7 Average journey times from the Newburgh area to specific regional health centres were extracted from TRACC (including 800m walk distance) for journeys made by public transport between 10:00am and 12:00 noon (two hours), as shown in Table 3.2. Journey times improve to all regional centres, in particular to the Adamson Hospital, Cupar and The Royal Infirmary, Perth with journey time savings of approximately 29 minutes and 23 minutes respectively.

**Table 3.2 : Option 2 - Average public transport journey times to health centres**

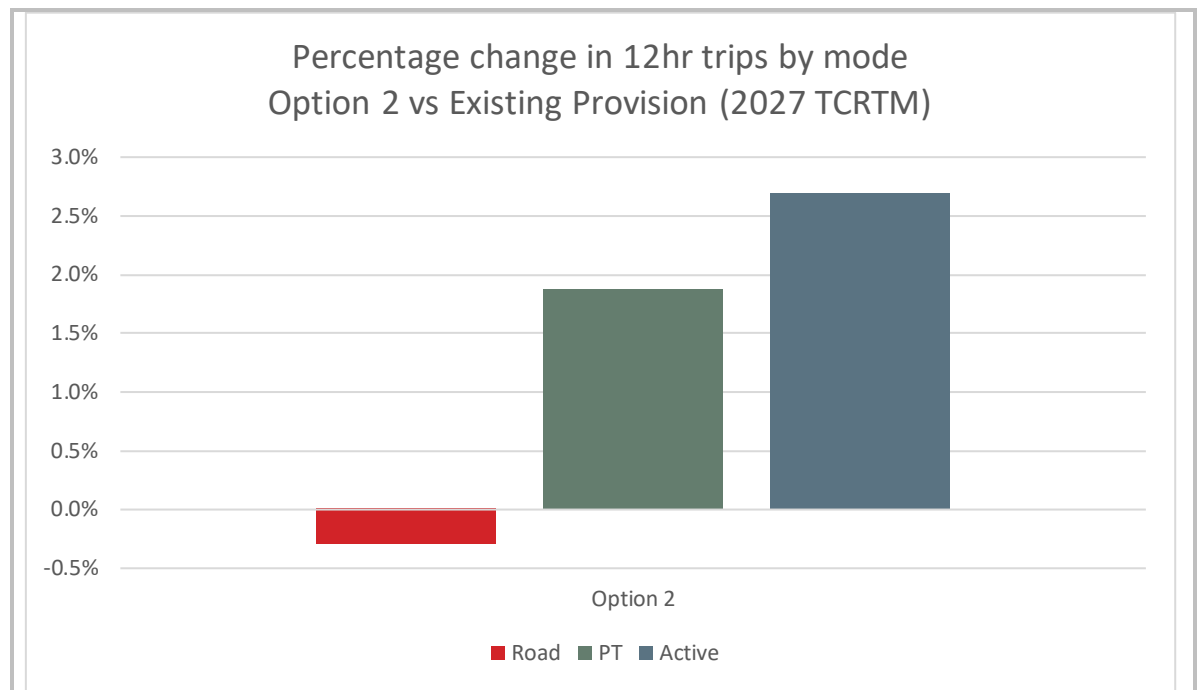
Destination	PT Journey time (hh:mm)		
	Base	Option 2	Difference
Adamson Hospital Cupar	01:07	00:37	-00:29
The Royal Infirmary Perth	00:51	00:27	-00:23
Victoria Hospital Kirkcaldy	N/A	01:25	N/A
Glenrothes Hospital	00:45	00:45	00:00
St Andrews Community Hospital	01:31	01:16	-00:14
Ninewell Hospital Dundee	01:26	01:16	-00:09
Queen Margaret Dunfermline	N/A	01:18	N/A

- 3.3.8 A noticeable impact shown in Table 3.2 is improved journey times to Ninewells Hospital in Dundee, St. Andrews Community Hospital, Victoria Hospital in Kirkcaldy and Queen Margaret Hospital in Dunfermline, where all public transport journeys require interchanges with different services. Note, TRACC shows it is not possible to travel by public transport to hospitals in Dunfermline or Kirkcaldy (including walk time) in the 10:00-12:00 timeframe with existing public transport provision, while this option's proposals make this possible. The proposals in Option 2 therefore are shown not only to improve journey times but also accessibility and transport connectivity to critical health services in the region. Similar time savings are noted to education, retail centres and rail stations.
- 3.3.9 Average journey times from the Newburgh area to four regional train stations were extracted from TRACC (including 800m walk distance) for Option 2, as shown in Table 3.3. Journey times are based on existing rail timetables and proposed option timetable assumptions as outlined in Appendix A.

**Table 3.3 : Option 2 - Average public transport journey times train stations**

Destination	PT Journey time (hh:mm)		
	Base	Option 2	Difference
Perth Train Station	00:41	00:22	-00:18
Edinburgh Waverley	02:06	02:04	-00:01
Cupar Train Station	00:46	00:32	-00:14
Dundee Train Station	01:16	01:06	-00:09

- 3.3.10 Table 3.3 shows that the option two proposals result in journey time savings to key regional train stations, providing improved access to national rail services and in turn opening up further viable opportunities to access employment and leisure by sustainable means. The proposals however do not reduce public transport journey times to Edinburgh.
- 3.3.11 Initial analysis from the Tay Cities Regional Transport Model (TCRTM) shows there to be an overall percentage increase in public transport and active travel use as a direct result of introducing the proposed bus services changes of Option 2 as shown in Figure 3.3.



**Figure 3.3 : Option 2 – Change in Mode (TCRTM)**

**TPO1** – Improve transport access to key services and markets (including employment, training, education, health and leisure opportunities) for Newburgh residents

**TPO2** – Improve public transport connectivity and journey times to and from Newburgh for residents, businesses and visitors

**TPO3** – Increase sustainable travel to and from Newburgh.

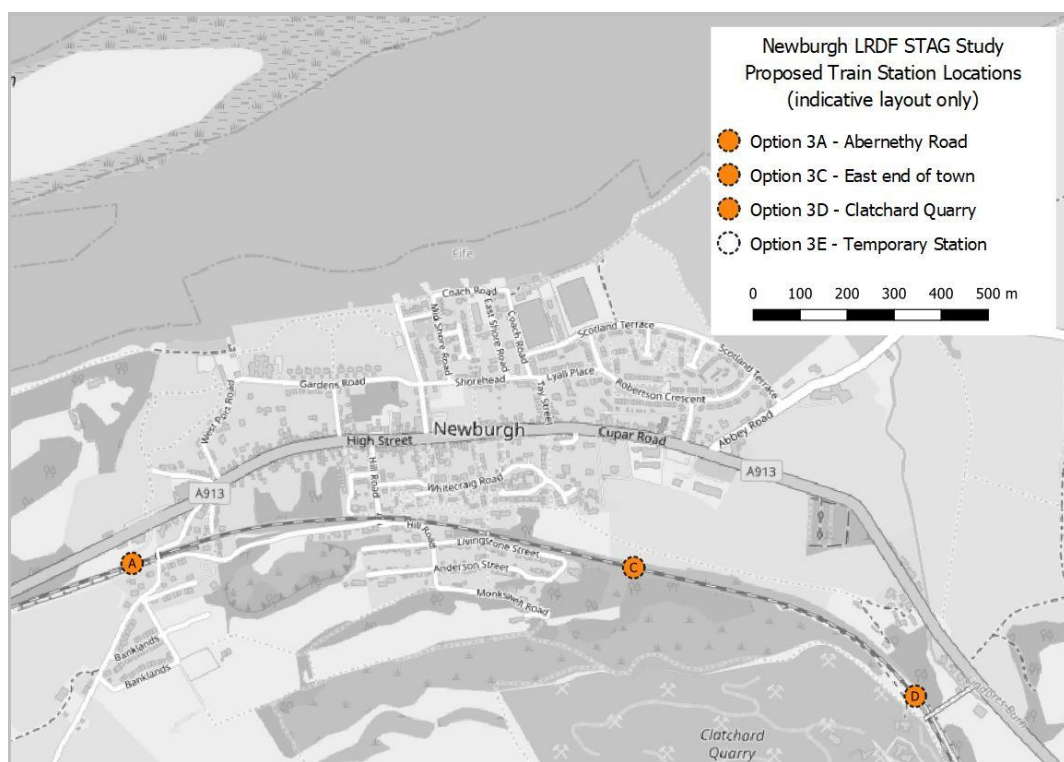
By providing an express bus service to complement existing bus services, Option 2 provides benefits to public transport journey times and increases accessibility to key services and other transport interchanges thereby positively influencing transport connectivity. Option 2 therefore brings **moderate benefit** against TPO1 and TPO2

Traffic model analysis shows there to be a small increase travel by sustainable modes and in turn **minor benefits** against TPO3.

### **Option 3a/c/d/e**

3.3.12 Option 3 proposes a new train station in Newburgh in order to help increase public transport choice for trips to and from Newburgh, increase connectivity, and help facilitate access to key services and markets. The option considers the opening of the rail station as both a permanent and a modular/pop-up structure to test user demand for the service. It also considers multimodal access to the stations. The option considers three possible locations as follows, with locations shown in Figure 3.4:

- 3a: Reopening of a former rail station at Abernethy Road
- 3c: Opening a new station at the east end of the town
- 3d: Reopening of a former railway station at Clatchard Quarry
- 3e: Modular station (at any location)

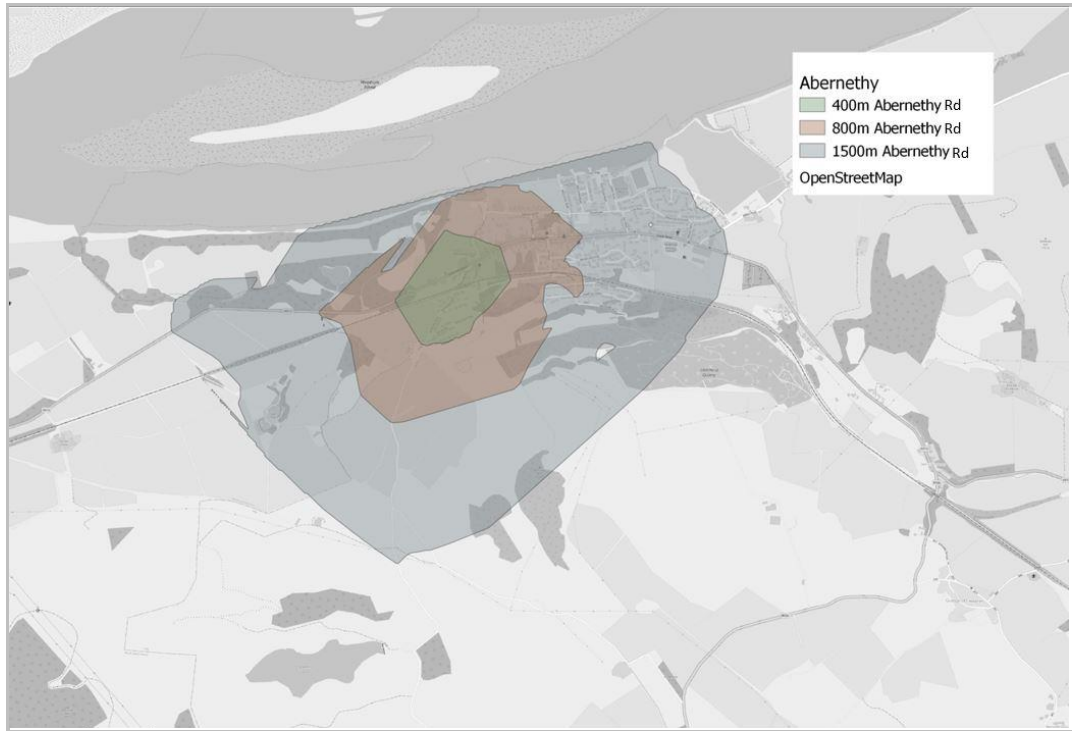


**Figure 3.4 : Option 3 – Proposed Train Station Locations**

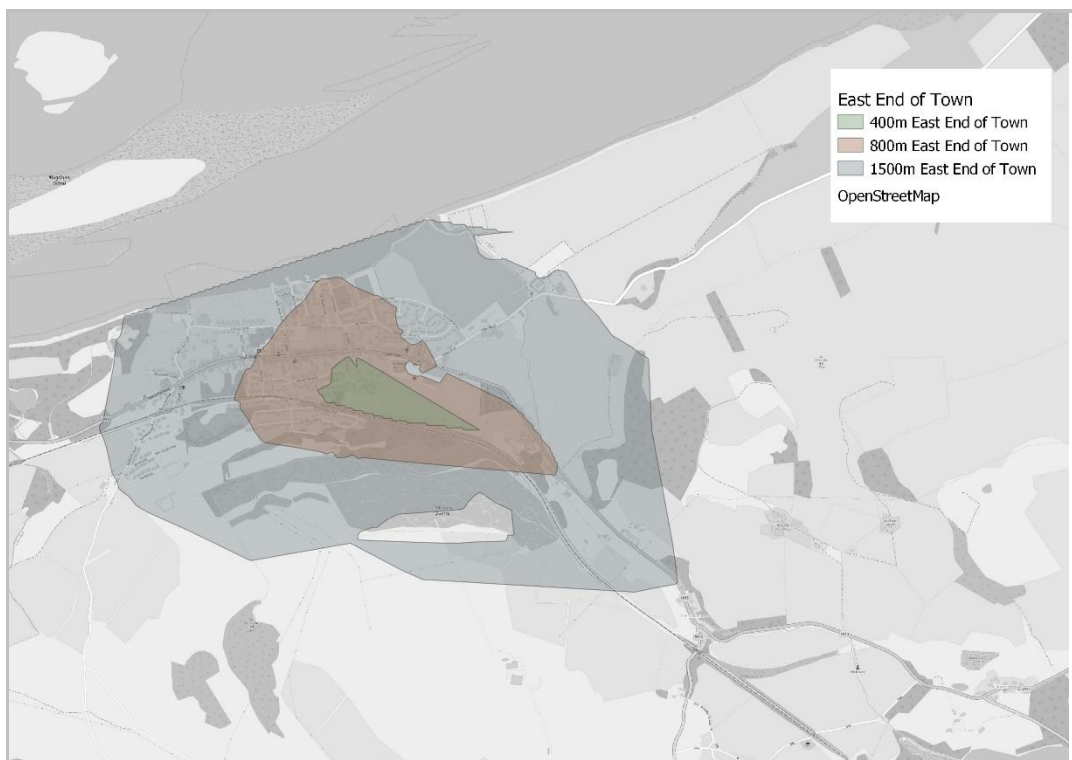
- 3.3.13 The three proposed locations are likely to provide differing benefits, and this is captured throughout this detailed appraisal process. In respect of the TPO appraisal, catchment and TRACC analysis highlight a number of these differences. Option 3e, the modular station is not considered separately here as the assessment against TPOs for option a, c & d holds true for any modular station location.
- 3.3.14 Consideration of the walking catchments of 400m, 800m and 1500m for each proposed station location shows that the catchments for Option 3a (Abernethy Road) and 3c (East of town) capture a similar proportion of Newburgh residents and a larger number of the local population than Option 3d (Clatchard Quarry). Total population walking catchments are shown in Table 3.4. (Note the numbers are cumulative i.e. those captured in 400m are also included in 800m and 1500m), with diagrammatical catchments shown in Figure 3.5, Figure 3.6 and Figure 3.7.

**Table 3.4 : Option 3 – Proposed Station Location Population Catchments**

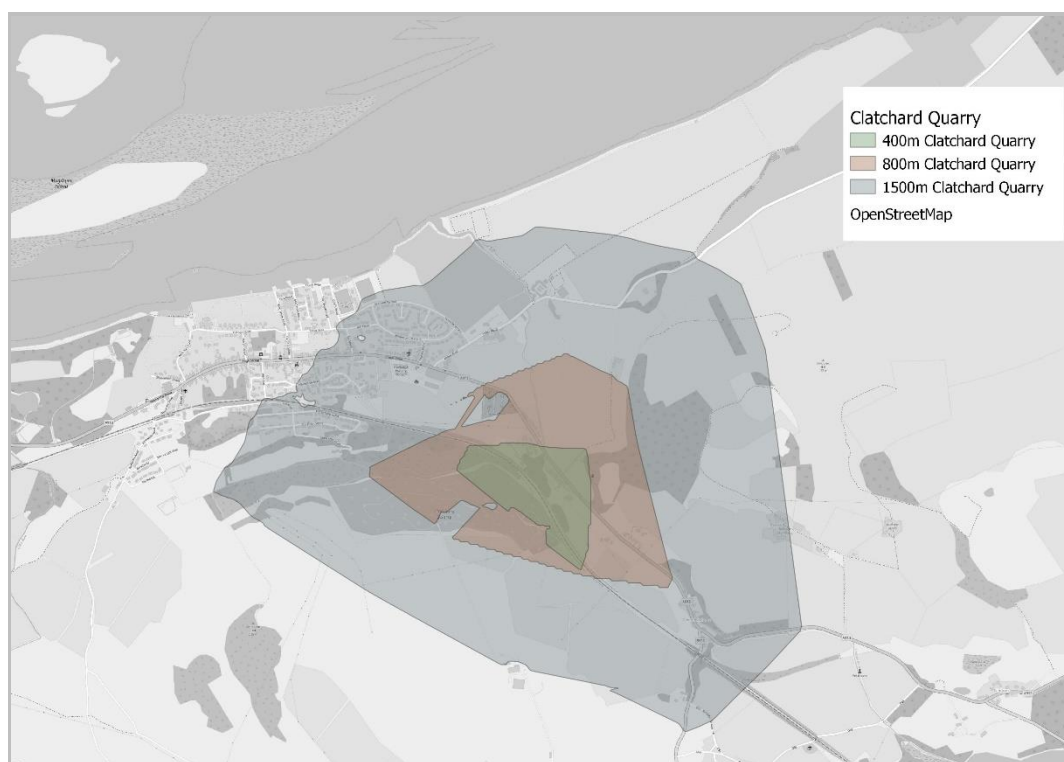
Option	Location	Population Catchments (no. of people)		
		400m	800m	1500m
Option 3a	Abernethy Road	518	1292	2262
Option 3c	East end of town	308	1649	2322
Option 3d	Clatchard Quarry	97	178	1511



**Figure 3.5 : Option 3a Walking Catchment**



**Figure 3.6 : Option 3c Walking Catchment**



**Figure 3.7 : Option 3d Walking Catchment**

- 3.3.15 The above diagrams and table show that for Option 3a and 3c the majority of the population in Newburgh is captured inside 1500m of the proposed station locations. A station located at Clatchard Quarry (3d) does not capture the western extent of the town, and while it is likely some members of this remaining population would still walk to the station at this location, such a trip will not be possible for all. Further accessibility considerations are taken into account in the STAG Criteria appraisal.
- 3.3.16 Average journey times from the Newburgh area to four regional train stations were extracted from TRACC (including 1500m walk distance) for Option 3a, 3c and 3d, as shown in Table 3.5.

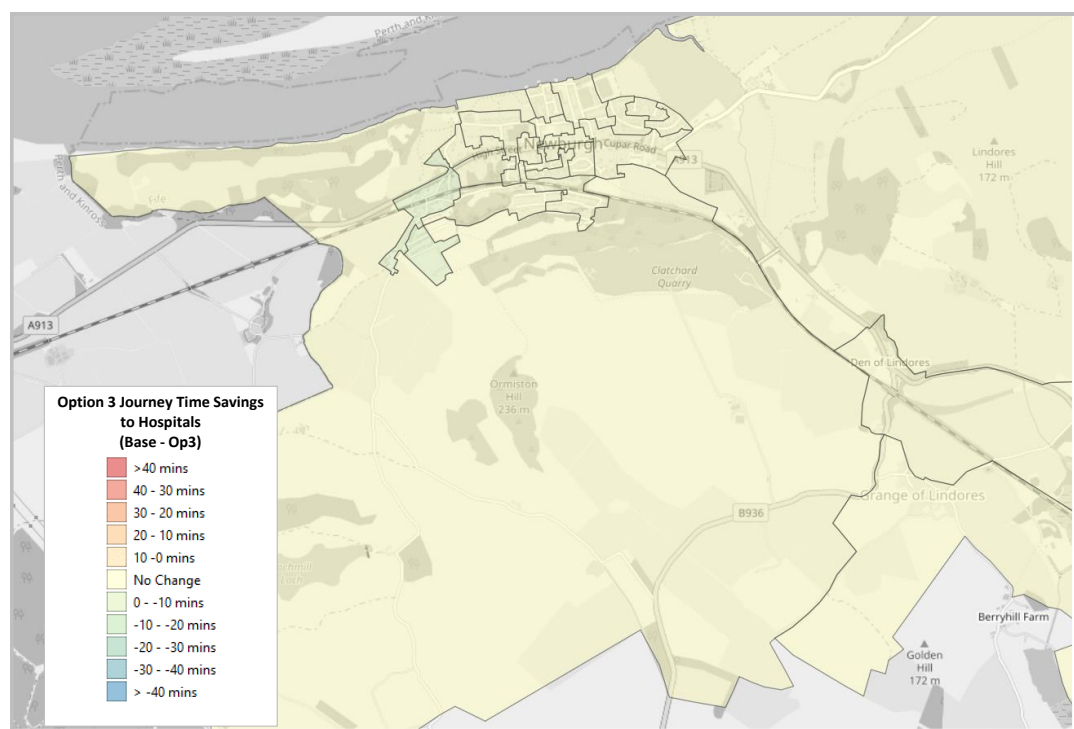
**Table 3.5 : Option 3 - Average public transport journey times train stations**

Destination		PT Journey time (hh:mm)			
		Base	Option 3a	Option 3c	Option 3d
Perth Train Station	Journey Time (hh:mm)	00:41	00:27	00:27	00:26
	Difference from Base		-00:13	-00:14	-00:14
Edinburgh Waverley	Journey Time	02:06	01:25	01:17	01:59
	Difference from Base		-00:41	-00:49	-00:06
Cupar Train Station	Journey Time	00:46	00:46	00:46	00:46
	Difference from Base		-00:00	00:00	00:00
Dundee Train Station	Journey Time	01:16	01:07	01:08	01:16
	Difference from Base		-00:08	-00:07	00:00

- 3.3.17 The addition of a new station in Newburgh provides opportunities to access key regional locations and train stations and the TRACC analysis shows that being able to travel by train from Newburgh brings journey time savings compared to existing public transport provision. Of particular note are the significant journey time savings of between 40 minutes and 50 minutes for public transport journeys to Edinburgh, and subsequently to intermediate stations such as Inverkeithing and Edinburgh Gateway (airport and tram) for Option 3a and Option 3b. The journey time savings to key regional train stations provide improved access to

national rail and air services and open up further viable opportunities to access employment, retail and leisure by sustainable means.

- 3.3.18 The accessibility analysis shows no journey time savings to Edinburgh from a station located at Clatchard Quarry, where factoring in a 1500m walk time, it is shown average journey times for all Newburgh residents are comparable to existing situations for the time frame examined in TRACC (07:00 – 09:00). This highlights some limitations of accessibility for a station at Clatchard Quarry where TRACC does not consider a journey starting over 1500m from the proposed station site as a viable option and calculates another public transport journey route to Edinburgh (e.g. bus to Ladybank and train to Edinburgh). The journey times shown in Table 3.5 represent average journey times for all Newburgh residents and, as shown in the 1500m catchment analysis, a station located at Clatchard Quarry does not capture the western extent of the town and TRACC does not consider the train a viable for such households origins. In reality, such households would likely still benefit from a station located here but overall accessibility is poorer. Comparative accessibility is considered in more detail in the relevant STAG criteria appraisal.
- 3.3.19 TRACC analysis of average public transport journey times to education (07:00 – 09:00am), health centres and retail destination (10:00am – 12:00 noon) show there to be minimal journey time savings compared to the existing provision as a result of the introduction of a rail station in Newburgh. Journey time difference for Option 3a to regional hospitals/health centres are the only specific comparison to show savings, and in this case of less than 10 minutes for the immediate area around the proposed station, as shown in Figure 3.8.
- 3.3.20 These minor journey time differences to specific locations are to be expected. For example there is an existing direct bus service to Perth Royal Infirmary (approximately 40 minutes), whereas by train this would require switching modes in Perth. Similarly, the existing bus service provides direct access to central Perth retail areas, whereas the train would require some walking in Perth.



**Figure 3.8 : Option 3 – Public transport JT savings to hospitals/health centre from existing situation (TRACC 1500m)**

- 3.3.21 These minor journey time differences do not tell the full picture however as, by providing quicker access to regional rail station, the option proposals open up further opportunities to

access a wider variety of services, for example late evening shopping or socialising in Perth or Edinburgh

3.3.22 Initial analysis from the Tay Cities Regional Transport Model (TCRTM) shows there to be an overall increase in public transport and active travel use as a direct result of introducing a new train station in Newburgh, as shown in Figure 3.9.

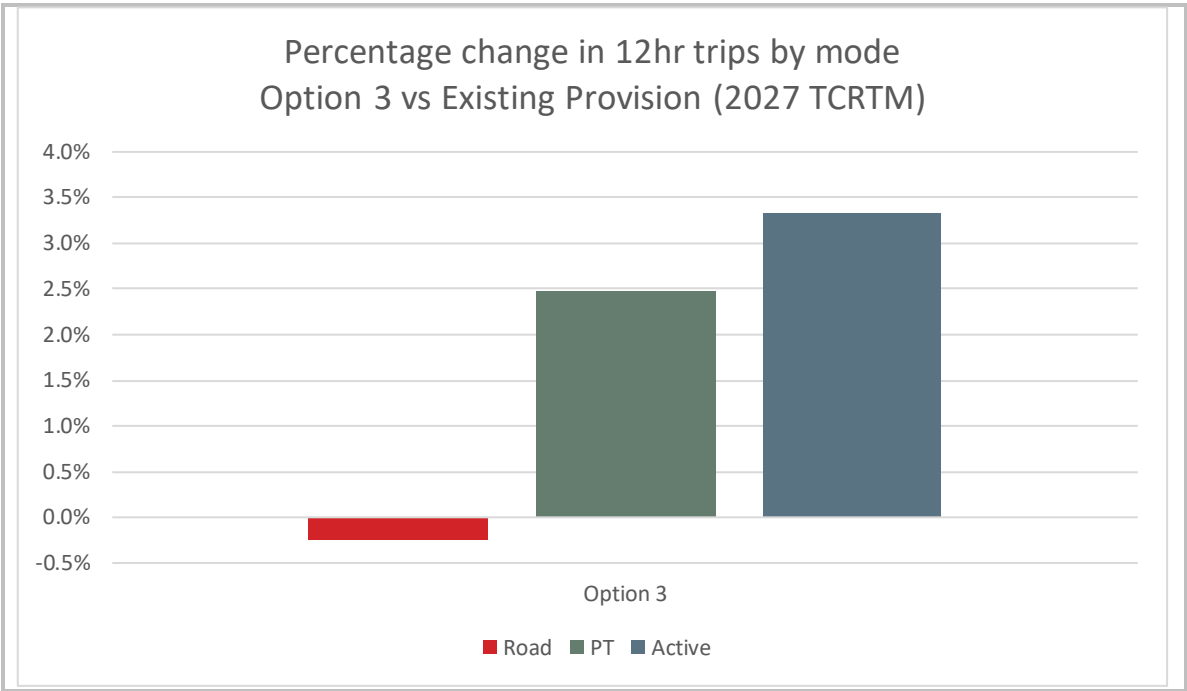


Figure 3.9 : Option 3 – Changes in Mode (TCRTM)

**TPO1** – Improve transport access to key services and markets (including employment, training, education, health and leisure opportunities) for Newburgh residents

**TPO2** – Improve public transport connectivity and journey times to and from Newburgh for residents, businesses and visitors

**TPO3** – Increase sustainable travel to and from Newburgh.

By providing a new train station in Newburgh, Option 3 is shown to improve public transport access to key services and improve public transport journey times to regional centres and in turn improve connectivity. The location of the station impacts the scale of this improvement with Option 3a (Abernethy Road) and Option 3c (East end of town) shown to be located inside 1500m walk for most of the town’s population. Option 3d (Clatchard Quarry) is located more than 1500m from the western extent of the town. This results in significant journey time savings to Edinburgh for Options 3a and 3c but not Option 3d, as discussed above.

Upon consideration of the above analysis, Option 3a and Option 3c bring **moderate benefit** against TPO1, TPO2 TPO3.

Option 3d brings **minor benefits** against the TPOs.

Option 3e would be expected to realise the same benefits as each permanent station location.

Option 4

- 3.3.23 Option 4 looks to increase car sharing to and from Newburgh in order to improve access to key services and markets, widen people's travel choices, help reduce lengthy journeys by public transport and help address perceived high public transport fares. As noted in the refinement of options for Detailed Appraisal (Chapter 2), the option explored:
- Setting up a Newburgh community car share scheme;
  - Setting up a new community car club facility in Newburgh; and
  - Integration with Mobility as a Service (MaaS).
- 3.3.24 Discussions with relevant stakeholders (TACTRAN, SEStran and Fife Council) highlighted that the only current viable option open to appraisal at this stage is informal car-sharing between those travelling to and from Newburgh. Given the lack of options for hosting, funding or publicising a car share scheme, the success of this option would likely depend on community responsibility. For example creating a social media group where those looking to participate could make arrangements to car share.
- 3.3.25 Depending on the success or uptake from the community, the option has the potential to encourage car sharing, limit the impact of individual car travel, and help address high public transport fares. It also helps to widen travel choice. However, access for those without a car, who would benefit from the increased accessibility the most (car owners already have this access), is dependent on others being willing and able to consistently provide lift-sharing services.
- 3.3.26 The option could improve connectivity and journey times by sharing rides to public transport hubs such as Perth bus or rail station, and thus potentially providing minor improvements to overall travel times and connections to key services and markets.
- 3.3.27 The Case for Change report found that car ownership is higher among Newburgh households (81%) than found throughout Fife (74%) and Scotland as a whole (69%) (Census 2011)<sup>15</sup>. The data also indicates that Newburgh has a higher proportion of households with two, three as well as four and more cars/vans and also a higher proportion of those that car share when travelling to work when compared to regional and national figures. The option therefore has the potential to make use of the comparatively high car ownership among Newburgh's households and the above average percentage of Newburgh residents who already car share. It is therefore expected, that the option would increase sustainable travel by reducing single occupancy car travel.
- 3.3.28 Option 4 was modelled in the TCRTM by adjusting current levels of car occupancy. The model outputs showed a decrease in the number of vehicles on the road network as a result of informal car sharing agreements in place. As expected from the option, there is no corresponding shift to public transport or active travel. The percentage change in trip mode as a result of Option 4 is shown in Figure 3.10 where the differences are a result of increases to car occupancy parameters for modelled trips to and from the Newburgh area.

<sup>15</sup> <https://www.scotlandscensus.gov.uk/>

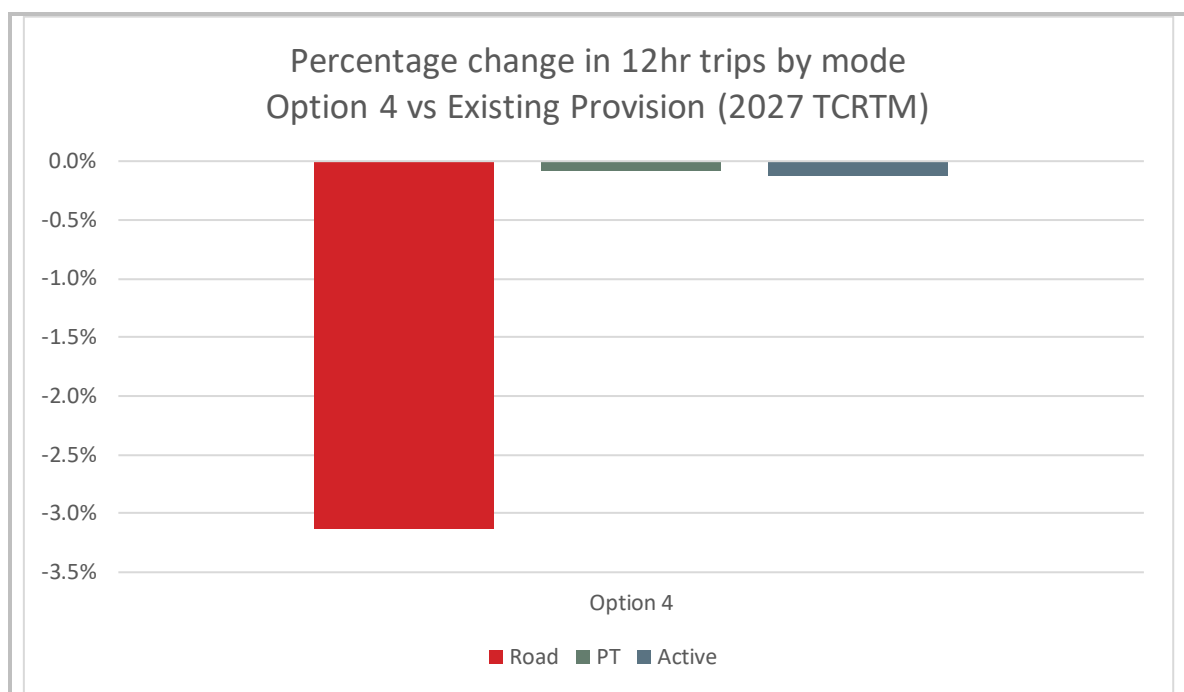


Figure 3.10 : Option 4 – Changes in Mode (TCRTM)

**TPO1** – Improve transport access to key services and markets (including employment, training, education, health and leisure opportunities) for Newburgh residents

**TPO2** – Improve public transport connectivity and journey times to and from Newburgh for residents, businesses and visitors

**TPO3** – Increase sustainable travel to and from Newburgh.

The restricted ability or opportunities to car share is unlikely to have a notable impact on journey times or public transport connectivity for residents, businesses and visitors and therefore the option scores **neutrally** against TPO 1 and TPO2

If implemented successfully the option would be expected to increase sustainable travel through car sharing rather than increased public transport or active travel use, and will provide **minor benefit** to TPO3.

### 3.4 TPO Appraisal Summary

3.4.1 **Appraisal of the options against the TPOs conclude that the new train station options 3a (Abernethy Road), 3c (East end of town) and 3e (at locations a or c) are the best performing options, all bringing moderate benefits against all three TPOs.** By providing a new train station in Newburgh, these options are shown to improve public transport access to key services and improve public transport journey times to regional centres and in turn improve connectivity. The location of the station impacts the scale of this improvement and for this reason Option 3d (Clatchard Quarry) does not perform as well as the other locations. **If a modular station was constructed at Abernethy Road (3a) or East of Town (3c), it is expected that the same benefits would be realised, at a lower cost.**

3.4.2 All other options are shown to bring a range of minor to moderate benefits though Option 4 scores neutrally against TPO1 and TPO2. Table 3.6 summarises the performance of each option against the study's three TPOs.

**Table 3.6 : TPO Appraisal Summary**

Option	Description	TPO 1	TPO 2	TPO 3
1	Improved (Existing) Bus Services	✓✓	✓	✓
2	(New) Express Bus Service	✓✓	✓✓	✓
3a & 3e	Train station Abernethy Rd	✓✓	✓✓	✓✓
3c & 3e	Train station East of Town	✓✓	✓✓	✓✓
3d & 3e	Train station Clatchard Quarry	✓	✓	✓
4	Car Sharing	—	—	✓

## 4. OPTION IMPACTS AGAINST STAG CRITERIA

### 4.1 Introduction

- 4.1.1 This chapter describes the impact of the options against the five STAG criteria, consisting of Environment, Safety, Economy, Integration and Accessibility & Social Inclusion. Full Appraisal Summary Tables (ASTs) are provided in Appendix G.

### 4.2 Environment

- 4.2.1 The environmental sub-criteria considered in detail during this Detailed Appraisal include:

- Noise and Vibration
- Global Air Quality – carbon dioxide (CO<sub>2</sub>)
- Local Air Quality – particulate matter (PM<sub>10</sub>) and nitrogen dioxide (NO<sub>2</sub>)
- Water Quality, Drainage and Flood Defence
- Geology
- Biodiversity and Habitats
- Landscape
- Visual Amenity
- Agriculture and Soil
- Cultural Heritage
- Physical Fitness

- 4.2.2 Option 3a, 3c and 3d are assessed individually due the specific environmental impacts associated with each site. Full details of option scoring against each of the Environment sub-criteria is provided in the Appraisal Summary Tables in Appendix G.

#### Option 1

##### Noise and Vibration

- 4.2.3 Provision of improved bus services in an established transport corridor will not require significant road or bus infrastructure as the service would use the existing routes and interchange facilities. During operation, the option would add additional bus operation hours to the route with the potential for increasing noise levels however, it is unlikely to be significant. Vehicle noise impacts may also be mitigated if the option results in a modal shift from cars to buses. There is the potential for a negative impact on the small number of commercial/recreational operations located in or close to the proposed route, though the exact scale of impact will depend on impact on traffic flow / speed. Specific mitigation measures would be developed in response to identified impacts, where practicable. Therefore, no material changes in traffic flows on key roads in the study area or beyond are expected from this option. No significant effects on transport noise or vibration for receptors adjacent to bus routes or facilities are predicted.

##### Global Air Quality (CO<sub>2</sub>)

- 4.2.4 Fife Council has declared a state of Climate Emergency and has committed to take action to reduce carbon emissions across Fife Council area. The Fife Action on Climate Change (2019) has established a target to achieve net-zero carbon status by 2045. National Atmospheric Emissions Data for Fife identifies total CO<sub>2</sub> emissions of 586 (kt) across transport (2019). Within this, 276 kt of CO<sub>2</sub> emissions are from road transport on A-class roads and 225 kt of CO<sub>2</sub> from road transport on minor roads and 71 kt from motorways. Overall, provision of

sustainable transport and increasing the modal share will lead to a minor improvement in global air quality.

#### Local Air Quality (PM<sub>10</sub> and NO<sub>2</sub>)

- 4.2.5 Fife 2020 Air Quality Progress Report identifies that the main air quality issues for the Council area relate to traffic congestion at Cupar and Dunfermline. Significant road and bus stop infrastructure is not anticipated for this option, as the bus services would be using the existing routes and interchange facilities. The impact of additional emissions from extra buses can be mitigated (with new engine technologies and regulation) and this is expected to be minor. This option may result in a modal shift from private cars to buses, which could lead to a reduction in the overall vehicular emissions along the proposed route. Overall, provision of sustainable transport and increasing the modal share will lead to a minor improvement in local air quality.

#### Water Quality, Drainage and Flood Defence

- 4.2.6 No significant effects on water environments are anticipated for this option, although a consequent reduction in private vehicular traffic may result in the potential for very small improvement of water runoff quality from roads and urban areas.

#### Geology

- 4.2.7 Significant road and bus stop infrastructure is not anticipated for this option, as the bus services would be using the existing routes and interchange facilities. Therefore, no significant effects on geology or geological/mineral resources are predicted for this option

#### Biodiversity and Habitats

- 4.2.8 Significant road and bus stop infrastructure is not anticipated for this option, as the bus services would be using the existing routes and interchange facilities. Improved bus services may encourage increased use of services with the potential for small changes in use of other modes such as private cars, with minimal impacts on local habitats or species. No significant effects on biodiversity and habitats are predicted from this option.

#### Landscape

- 4.2.9 No significant effects on landscape or townscape are predicted to arise from the improved bus services. The proposed active travel information/ infrastructure improvements would have the potential for minor townscape improvements in Newburgh, including signage and paving.

#### Visual Amenity

- 4.2.10 No significant effects on visual amenity are predicted to arise from the improved bus services. The proposed active travel information/ infrastructure improvements would have the potential for minor improvements in visual amenity in Newburgh, including improved signage and paving.

#### Agriculture and Soil

- 4.2.11 Significant road and bus stop infrastructure is not anticipated for this option, as the bus services would be using the existing routes and interchange facilities. Therefore no significant impacts on agriculture and soils.

#### Cultural Heritage

- 4.2.12 No significant effects on cultural heritage are predicted to arise from the improved bus services. The proposed active travel information/ infrastructure improvements would have the potential for minor townscape improvements, including signage and paving, which could improve the setting of the Newburgh Conservation Area and listed buildings. Physical proposals may have the potential to affect as yet unknown archaeology, depending on location. Assuming suitable mitigation through site investigation, location and design there are unlikely to be significant effects on unknown cultural heritage.

#### Physical Fitness

- 4.2.13 Potential for modal shift with people preferring public transport to private vehicles which may result in increased walking at either end of the journey.

#### Climate Change

- 4.2.14 A shift away from vehicular based travel through the promotion of public transport and walking which in turn will contribute to a reduction in air pollution and carbon emission levels. However impacts the unlikely to be significant.

#### Summary

- 4.2.15 There are no tangible effects from physical infrastructure changes associated with this option. However, if it increases the uptake of a more sustainable form of transport and reduces private car usage, there would be slight improvements in some environmental factors such as run-off, landscape, visual amenity, cultural heritage and potentially in physical fitness. Option 1 is therefore considered to provide a **minor benefit** to the Environment.

#### Option 2

#### Noise and Vibration

- 4.2.16 Provision of express bus service in an established transport corridor combined with upgrades to walking and cycling routes in the vicinity of Newburgh will not require significant road or bus infrastructure as the service would use the existing routes and interchange facilities. During operation, the proposed bus and coach park would result in an increase of two buses per hour during operating hours with the potential for increasing noise levels however, it is unlikely to be significant. Vehicle noise impacts may also be mitigated if the option results in a modal shift from cars to buses. There is the potential for a negative impact on the small number of commercial/recreational operations located in or close to the proposed route, though the exact scale of impact will depend on impact on traffic flow / speed. Specific mitigation measures would be developed in response to identified impacts, where practicable. Therefore, no material changes in traffic flows on key roads in the study area or

beyond are expected from this option. No significant effects on transport noise or vibration for receptors adjacent to bus routes or facilities are predicted.

#### Global Air Quality (CO<sub>2</sub>)

- 4.2.17 The proposals are predominately in an already established transport corridor but also involve opening a new corridor for part of the proposed bus service route. Fife Council has declared a state of Climate Emergency and has committed to take action to reduce carbon emissions across Fife Council area. The Fife Action on Climate Change (2019) has established a target to achieve net-zero carbon status by 2045. National Atmospheric Emissions Data for Fife identifies total CO<sub>2</sub> emissions of 586 (kt) across transport (2019). Within this, 276 kt of CO<sub>2</sub> emissions are from road transport on A-class roads and 225 kt of CO<sub>2</sub> from road transport on minor roads and 71 kt from motorways. Overall, provision of sustainable transport and increasing the modal share will lead to a minor improvement in global air quality.

#### Local Air Quality (PM<sub>10</sub> and NO<sub>2</sub>)

- 4.2.18 Fife 2020 Air Quality Progress Report identifies that the main air quality issues for the Council area relate to traffic congestion at Cupar and Dunfermline. Significant road and bus stop infrastructure is not anticipated for this option, as the bus services would predominately be using the existing routes and interchange facilities. The impact of additional emissions from extra buses can be mitigated (with new engine technologies and regulation). This option may result in a modal shift from private cars to buses, which could lead to a reduction in the overall vehicular emissions along the proposed route. Overall, provision of sustainable transport, increasing the modal share and active travel, will lead to a minor improvement impact in local air quality.

#### Water Quality, Drainage and Flood Defence

- 4.2.19 The proposals are in an already established transport corridor combined with upgrades to walking and cycling routes which are unlikely to have significant impacts on water quality, drainage, and flood defence. Any impacts are likely to be easily mitigated, although further assessment will be required once the scope of the upgrades and improvements of active travel routes are established. Encouraging greater uptake of walking and cycling may result in a decrease in the overall use of private cars, resulting in the potential for very small improvement of water runoff quality from roads and urban areas.

#### Geology

- 4.2.20 The proposals are in an already established transport corridor and involve repurposing existing routes. Minor upgrades to walking and cycling routes are unlikely to have significant impacts on geology and soils. Therefore, no significant effects on geology or geological/mineral resources are predicted for this option.

#### Biodiversity and Habitats

- 4.2.21 Significant road and bus stop infrastructure is not anticipated for this option, as the bus services would be using the existing routes and interchange facilities. Improved bus services may encourage increased use of services with the potential for small changes in use of other

modes such as private cars, with minimal impacts on local habitats or species. No significant effects on biodiversity and habitats are predicted from this option.

#### Landscape

- 4.2.22 No significant effects on landscape or townscape are predicted to arise from the express bus service. The proposed active travel information/ infrastructure improvements would have the potential for minor townscape improvements in Newburgh, including signage and paving, and improvements to core paths and cycle routes outside the settlement, including surfacing, gates and signage.

#### Visual Amenity

- 4.2.23 No significant effects on visual amenity are predicted to arise from the express bus service. The proposed active travel information/ infrastructure improvements would have the potential for minor improvements in visual amenity in Newburgh, including improved signage and paving in the settlement and surfacing, gates and signage on routes outside the settlement, as well as encouraging people's appreciation of the landscape through increased access to the countryside.

#### Agriculture and Soil

- 4.2.24 Significant bus stop infrastructure is not anticipated for this option, as the bus services would be using the existing routes and interchange facilities. Minor upgrades to walking and cycling routes are unlikely to have a significant effect on agricultural land. With respect to soils, appropriate mitigation may include management of any waste soils, promoting reuse where possible. Some limited site investigations may be required dependent on the scope of the upgrades and improvements. Overall no significant impacts on agricultural land and soils are anticipated.

#### Cultural Heritage

- 4.2.25 No significant effects on cultural heritage are predicted to arise from the express bus service. The proposed active travel information/ infrastructure improvements would have the potential for minor townscape improvements, including signage and paving, which could improve the setting of the Newburgh Conservation Area and listed buildings. Proposals outside the settlement would have the potential to encourage more access, which would increase the opportunity to appreciate cultural heritage assets in the area surrounding Newburgh. Physical proposals may have the potential to affect as yet unknown archaeology, depending on location. Assuming suitable mitigation through site investigation, location and design there are unlikely to be significant effects on unknown cultural heritage.

#### Physical Fitness

- 4.2.26 Improvements between public transport and active travel routes between settlements has the potential to encourage modal shift with people preferring active travel and public transport to private vehicles. This would result in increased walking and cycling which would lead to improvements in physical fitness. Increased use of longer sections of route between settlements for both commuting and recreation may have a more significant effect for a small number of people.

## Climate Change

- 4.2.27 A large proportion of journeys made using the motorway network and other routes (such as the A912 and A913) are made by private cars commuting to the City Centres, often from areas out with settlement areas. A shift away from vehicular based travel through the promotion of public transport and walking and cycling which in turn will contribute to a reduction in air pollution and GHG emissions.

## Summary

- 4.2.28 The physical changes associated with this option would be relatively minor, but may make a slight positive contribution to townscape, visual amenity, and cultural heritage. In operation, assuming increased uptake of more sustainable and active forms of transport, there could be slight positive impacts on air quality and GHG emissions, run-off, air quality and physical fitness. Option 2 is therefore considered to provide a **minor benefit** to the Environment.

## Option 3a

## Noise and Vibration

- 4.2.29 The indicative location of a new station, hardstanding and associated infrastructure lies on the western edge of Newburgh on Abernethy Road (A913). The dominant noise source at present is likely to be road and traffic noise from vehicles using the A913. The nearest noise sensitive receptors have been identified as dwellings and commercial premises on Abernethy Road. The scale and extent of potential construction noise and vibration impacts will be dependent on proposed methods and activities, which is yet to be determined. There is potential for changes in noise levels at existing noise sensitive receptors as a result of increased flows and/or re-routing of private cars along existing routes. This option may change traffic volumes into Newburgh via private car and promote modal shift to train connections. During operation, the proposal would draw additional traffic to the area with the potential of increasing noise levels however, it is unlikely to lead to a significant increase in ambient noise levels due to the acoustic environment likely to be dominated by existing road traffic on Abernethy Road. Vehicle noise impacts may also be mitigated in the option results in a modal shift from cars to trains. The magnitude of any potential noise impact will depend on changes in traffic flow / speed.

## Global Air Quality (CO<sub>2</sub>)

- 4.2.30 The indicative location of a new station, hardstanding and associated infrastructure lies on the western edge of Newburgh on Abernethy Road (A913). Fife Council has declared a state of Climate Emergency and has committed to take action to reduce carbon emissions across Fife Council area. The Fife Action on Climate Change (2019) has established a target to achieve net-zero carbon status by 2045. National Atmospheric Emissions Data for Fife identifies total CO<sub>2</sub> emissions of 586 (kt) across transport (2019). Within this, 276 kt of CO<sub>2</sub> emissions are from road transport on A-class roads and 225 kt of CO<sub>2</sub> from road transport on minor roads and 71 kt from motorways. The dominant CO<sub>2</sub> source at present is road traffic movements from vehicles using the A913 and the existing railway line. The addition of a new station would not appreciably alter CO<sub>2</sub> emissions. The development of a new railway station would likely redirect / displace vehicle traffic from current preferred routes, but the works themselves would not lead an increase in overall traffic levels within Fife. Overall, provision

of sustainable transport modes and increasing their modal share will have a minor beneficial impact on global air quality.

#### Local Air Quality (PM<sub>10</sub> and NO<sub>2</sub>)

- 4.2.31 The indicative location of a new station, hardstanding and associated infrastructure lies on the western edge of Newburgh on Abernethy Road (A913). Fife 2020 Air Quality Progress Report identifies that the main air quality issues for the Council area relate to traffic congestion at Cupar and Dunfermline. The nearest sensitive receptors have been identified as dwelling and commercial premises on Abernethy Road. The development of a new railway station would likely redirect / displace vehicle traffic from current preferred routes, but the works themselves would not lead an increase in overall traffic levels within Fife. This option may result in a modal shift from private cars to trains, which could lead to a reduction in the overall vehicular emissions along the proposed route. Overall, provision of sustainable transport modes and increasing their modal share will have a minor beneficial impact on local air quality.

#### Water Quality, Drainage and Flood Defence

- 4.2.32 The nearest SEPA classified watercourse, approximately 400m north of the indicative location, is the transitional water body of the Upper Tay Estuary (ID: 200439) of the Scotland river basin district. It is 59.5 km<sup>2</sup> in area. The overall status of the Upper Tay Estuary at this location has been designated by SEPA as 'Good' in 2019 (the most recent classification). The indicative site is not within a surface water drinking water protected area. The bedrock groundwater body beneath the site is recorded on the SEPA Water Classification Hub as the Bridge of Earn (ID 150510) classified by SEPA as of 'good' in 2019. The superficial groundwater body beneath the site is the Strathearn Sand and Gravel superficial groundwater body (ID: 150811). This waterbody was given an overall status of 'Good' by SEPA in 2019. SEPA Flood Maps indicate that the site is not located within an area susceptible to river or surface flooding. The Upper Tay Estuary to the north of the indicative location is identified having up to a 'High' risk of coastal flooding, however, this is not considered significant owing to its distance from the indicative location. According to SEPA flood maps the study area is not susceptible to river or coastal flooding. The study area already is influenced by the A913 road and existing rail infrastructure. With appropriate design and associated mitigation/ compliance with SEPA and Scottish Water guidance and authorisations, the reopening of the former train station at Abernethy, hardstanding, and associated infrastructure, is unlikely to have a significant adverse effect on water quality, drainage and flooding. No significant effects on water environments are anticipated for this option, although a consequent reduction in private vehicular traffic may result in the potential for very small improvement of water runoff.

#### Geology

- 4.2.33 The indicative location of a new station is at Abernethy Road on a brownfield site. Superficial geology is noted as Till and likely to comprise of superficial glacial clays, sand and gravel. Bedrock geology is composed of mudstone and siltstone of the Ballagan Formation which includes nodules and beds of ferroan dolomite. No published (British Geological Survey (BGS) borehole data is available on site however the closest deep borehole (NO21NW7) records bedrock at 30mbgl. No geological Sites of Special Scientific Interest (SSSIs) or other designated sites of geological value have been identified in the area. The indicative location has not been associated with coal or other mineral mining according to the BGS non coal mining plans in the past and as such the Coal Authority search did not identify any mining in the area.

Economic mineral resources are not anticipated on site. Therefore it is not anticipated that the reopening of a station at Abernethy Road would cause significant impacts on geology.

#### Biodiversity and Habitats

- 4.2.34 The proposed site is brownfield in nature with trees and scrub forming a loose boundary along the around the indicative boundary.
- 4.2.35 Designated sites within 5km of the indicative location include:
- Firth of Tay and Eden Estuary SSSI (Site Code 135198 approx. 400m north)
  - Firth of Tay and Eden Estuary SPA (Site Code 8501 approx. 400m north)
  - Inner Tay Estuary SAC (Site Code 8257 approx. 400m north)
  - Lochmill Loch SSSI (Site Code 135413 approx. 2km southwest)
  - Lindores Loch SSSI (Site code 135348 approx. 2.85 km southeast)
- 4.2.36 Available desktop data (National Biodiversity Network (NBN) Gateway) indicates the site and surrounds support a breeding bird, including Lesser redpoll, Sparrowhawk, Skylark, Short eared Owl (red list). From the desk study it has been established bat species occur within the site and include pipistrelle soprano pipistrelle (*P. pygmaeus*). Red squirrel and hedgehog also occur in the study area within a 2km radius of the indicative location. Impacts on designated sites are considered unlikely. There would be a level of habitat loss as a result of any new infrastructure. It is assumed that appropriate detailed surveys (Extended Phase 1 / Protected Species) for habitats and protected species would thereafter be undertaken as part of detailed station design and recommended mitigation integrated into the implementation such that potential impacts would be reduced to an acceptable level. It is likely that significant adverse impacts to important habitats and priority species can be avoided.

#### Landscape

- 4.2.37 Development of a station with platform(s) and potentially shelters, car parking and lighting at Abernethy Road is unlikely to lead to significant loss or fragmentation of rural fringe character in the Coastal Terraces LCT west of Newburgh or on the townscape of the settlement. The area between the road, railway line and overbridge is largely flat and cleared with a hardstanding partially occupied by light industrial/ storage. The development may provide the opportunity to create a positive entrance feature to Newburgh and established trees and scrub could be incorporated into further measures for landscape integration. The proposed active travel information/ infrastructure improvements would have the potential for minor improvements in townscape in Newburgh, including improved signage and paving as well as core paths and cycle routes outside the settlement, including surfacing, gates and signage.

#### Visual Amenity

- 4.2.38 The site is overlooked by houses on higher ground on the western edge of Newburgh, adjacent to the A913 and cycle route 776 passes by on the overbridge. The development of the site may slightly improve visual amenity from the road and cycle route, although there is the potential for minor adverse visual effects on residents from loss of existing trees and night time lighting. The proposed active travel information/ infrastructure improvements would have the potential for minor improvements in visual amenity in Newburgh, including signage and paving as well as surfacing, gates and signage on routes outside the settlement as well as encouraging people's appreciation of the landscape through increased access to the countryside.

## Agriculture and Soil

- 4.2.39 Potential for impacts on soils may result from the historic and current agricultural land and transportation uses around the periphery. Land Capability for Agricultural data from the MacAulay Land Use Research Institute suggests that the site comprises Class 3.1 agricultural land, which is "land capable of producing consistently high yields of a narrow range of crops and/ or moderate yields of a wider range", however this is likely due to the sensitivity of the mapping since the site is known to be brownfield and is not used for agricultural purposes. The 2016 Carbon and Peatland Map does not record any peatland vegetation and the soils are noted as mineral soils. Made ground is likely to be present due to the former development of the disused station. Potential contamination may arise from transportation uses around the periphery, and the former use of the site as a station. The brownfield nature of the site means that a comprehensive site investigation will be required to inform on ground conditions relating to contamination and allow detailed geotechnical design. The study area is influenced by rail and road infrastructure and the overall impact of the proposal is considered to be small. It is anticipated that the reopening of a former rail station in Newburgh at Abernethy Road would not have significant adverse effects on agriculture land. Impacts related to soil contamination are capable of mitigation through detailed technical studies including desk study and site investigation and adherence to any remediation recommended alongside the production of a CEMP. Mitigation includes careful handling and reuse of topsoil on site where possible and minimisation of earthworks, as well as SUDS to limit sedimentation and adherence to construction best practice. With adequate mitigation in place, it is anticipated that the reopening of a former rail station in Newburgh at Abernethy Road would have a slight negative impact on soils, primarily due to the cost of site investigations. However these would be required for all new station options. It should be noted that costs could rise if significant contamination requiring remediation is encountered, although remediation of soils would also represent an environmental improvement.

## Cultural Heritage

- 4.2.40 There are no nationally listed sites or buildings on or close to the Abernethy Road site. The Newburgh Conservation Area lies close to the east and has many listed buildings, being mainly C and B listed, however there is very limited intervisibility and effects on setting would be limited and not necessarily adverse. The proposed active travel information/ infrastructure improvements would have the potential for minor townscape improvements, including signage and paving, which could improve the setting of the Newburgh Conservation Area and listed buildings. The proposed improvements outside the settlement would have the potential to encourage more access which would increase the opportunity to appreciate cultural heritage assets in the area surrounding Newburgh. The proposals have the potential to affect as yet unknown archaeology, depending on location. Assuming suitable mitigation through site investigation, location and design there are unlikely to be significant effects on cultural heritage.

## Physical Fitness

- 4.2.41 Improvements between public transport and active travel routes between settlements has the potential to encourage modal shift with people preferring active travel and public transport to private vehicles. This would result in increased walking and cycling which would lead to improvements in physical fitness. Increased use of longer sections of route between settlements for both commuting and recreation may have a more significant effect for a small number of people.

## Climate Change

- 4.2.42 A large proportion of journeys made using the local road network and other routes are made by private cars. A shift away from vehicular based travel through the promotion of trains and walking and cycling which in turn will contribute to a reduction in and GHG emissions with the potential for a small beneficial impact on climate change.

## Summary

- 4.2.43 A station at Abernethy Road would require construction of significant infrastructure on the edge of Newburgh, with potential slight adverse environmental effects on noise/vibration, air quality, and biodiversity. However, the physical changes associated with active travel routes would be relatively minor. In operation, this option is anticipated to make a moderate positive contribution to runoff, townscape, visual amenity and physical fitness, and the potential for slight positive effects on the water environment and cultural heritage. Option 3a is therefore considered to provide a **minor benefit** to the Environment.

## Option 3c

## Noise and Vibration

- 4.2.44 The indicative location of a new station is to the east of the town, on land south of the A913. The dominant noise source at present is likely to be road and traffic noise from vehicles using the A913. The study area already is influenced by the residential area of Newburgh, the A913 road and existing rail infrastructure, with further housing and employment development (NEB001) allocated in the vicinity of the location in the LDP. The nearest noise sensitive receptors have been identified as dwellings and commercial premises on the A913 and also local dwellings adjacent to the site. Newburgh Primary School is north of the indicative location and located on the A913. The scale and extent of potential construction noise and vibration impacts will be dependent on proposed methods and activities, which is yet to be determined. There is potential for changes in noise levels at existing noise sensitive receptors as a result of increased flows and/or re-routing of private cars along existing routes. This option may change traffic volumes into Newburgh via private car and promote modal shift to train connections. During operation, the proposal would draw additional traffic to the area with the potential of increasing noise levels however, it is unlikely to lead to a significant increase in ambient noise levels due to the acoustic environment likely to be dominated by existing road traffic on Abernethy Road. Vehicle noise impacts may also be mitigated in the option results in a modal shift from cars to trains. The magnitude of any potential noise impact will depend on changes in traffic flow / speed.

## Global Air Quality (CO<sub>2</sub>)

- 4.2.45 Fife Council has declared a state of Climate Emergency and has committed to take action to reduce carbon emissions across Fife Council area. The Fife Action on Climate Change (2019) has established a target to achieve net-zero carbon status by 2045. National Atmospheric Emissions Data for Fife identifies total CO<sub>2</sub> emissions of 586 (kt) across transport (2019). Within this, 276 kt of CO<sub>2</sub> emissions are from road transport on A-class roads and 225 kt of CO<sub>2</sub> from road transport on minor roads and 71 kt from motorways. The dominant CO<sub>2</sub> source at present is road traffic movements from vehicles using the A913 and the existing railway line. The addition of a new station would not appreciably alter CO<sub>2</sub> emissions. The development of a new railway station would likely redirect / displace vehicle traffic from

current preferred routes, but the works themselves would not lead an increase in overall traffic levels within Fife. Overall, provision of sustainable transport modes and increasing their modal share will have a minor beneficial impact on global air quality.

#### Local Air Quality (PM<sub>10</sub> and NO<sub>2</sub>)

- 4.2.46 Fife 2020 Air Quality Progress Report identifies that the main air quality issues for the Council area relate to traffic congestion at Cupar and Dunfermline. The nearest sensitive receptors have been identified as dwelling and commercial premises on A913 and also local dwellings adjacent to the site. The development of a new railway station would likely redirect / displace vehicle traffic from current preferred routes, but the works themselves would not lead an increase in overall traffic levels within Fife. This option may result in a modal shift from private cars to trains, which could lead to a reduction in the overall vehicular emissions along the proposed route. Overall, provision of sustainable transport modes and increasing their modal share will have a minor beneficial impact on local air quality.

#### Water Quality, Drainage and Flood Defence

- 4.2.47 See comments for Option 3a. No significant effects on water environments are anticipated for this option, although a consequent reduction in private vehicular traffic may result in the potential for very small improvement of water runoff.

#### Geology

- 4.2.48 Superficial geology is noted as Till and likely to comprise glacial clays, sand and gravel and potentially alluvium. Bedrock geology is composed of pyroxene andesite and olivine basalt lavas and rhyodacite of the Ochil Volcanic Formation. An inferred fault with unknown displacement runs broadly south-north adjacent to the site. No geological SSSIs or other designated sites of geological value have been identified in the area. The indicative location is not associated with coal or other mineral mining according to the BGS non coal mining plans in the past and as such the Coal Authority search did not identify any mining in the area. Economic mineral resources may be present on site, although these are currently being worked to the east at Clatchard Quarry. Therefore it is not anticipated that the opening of a station at the east end of Newburgh would cause significant impacts on geology.

#### Biodiversity and Habitats

- 4.2.49 The proposed site is brownfield with a NWSS lowland mixed deciduous woodland (SCPTDATA 950150854) is approx. 350m west of the indicative location.
- 4.2.50 Designated sites within 5 Km of the indicative location include:
- Firth of Tay and Eden Estuary SSSI (Site Code 135198 approx. 1.2 km northwest)
  - Firth of Tay and Eden Estuary SPA (Site Code 8501 approx. 1.2 km northwest)
  - Inner Tay Estuary SAC (Site Code 8257 approx. 1.2km northwest)
  - Lochmill Loch SSSI (site code 135413 approx. 2.66 km southwest)
  - Lindores Loch SSSI (Site code 135348 approx. 2.55 km southeast)
- 4.2.51 Available desk – top data (NBN Gateway) indicates the site and surrounds support a breeding bird, including Lesser redpoll, Sparrowhawk, Skylark, Kingfisher Short eared Owl (red list). From the desk study it has been established bat species occur within the site and include pipistrelle soprano pipistrelle (*P. pygmaeus*). Otter, red squirrel, and hedgehog also occur

within a 2 km radius of the study area. Impacts on designated sites are considered unlikely. There would be a level of habitat loss as a result of any new infrastructure. Further location specific desk study plus single site walkover will be undertaken. It is assumed that appropriate detailed surveys (Extended Phase 1 / Protected Species) for habitats and protected species would thereafter be undertaken as part of detailed station design and recommended mitigation integrated into the implementation. With adequate mitigation in place, it is anticipated that reopening of a disused station is considered likely to present fewer potential impacts on important habitats and priority species than the construction of a brand-new station.

## Landscape

- 4.2.52 The potential station site on the eastern edge of Newburgh is located on a steep slope: a large field to the north sloping away from the railway line with mature woodland above the line on a steeper slope on the south side. Development of a station with vehicular access across the field slope as well as potentially platforms, bridge, shelters, car parking and lighting is likely to lead to some loss or fragmentation of rural fringe character in the Foothills - Fife LCT and affect the setting of the settlement, but have little effect on the adjacent dispersed suburban townscape. The established woodland backdrop could be incorporated into planting and landform measures to improve landscape integration. The proposed active travel information/ infrastructure improvements would have the potential for minor improvements in townscape in Newburgh, including improved signage and paving and improvements to core paths and cycle routes outside the settlement, including surfacing, gates and signage. This would compensate for some of the effects of the station itself.

## Visual Amenity

- 4.2.53 The site is overlooked by houses on higher ground on the eastern edge of Newburgh and overlooks houses on lower ground to the north, as well as being partially visible from the A913. The development of the site may adversely affect visual amenity for some residents due to loss of existing trees, visibility of earthworks and structures as well as night time lighting and vehicle movements across the lower slope. The proposed active travel information/ infrastructure improvements would have the potential for minor improvements in townscape in Newburgh, including improved signage and paving, minor visual improvements in the fabric of the area outside the settlement, including surfacing, gates and signage on routes as well as encouraging people's appreciation of the landscape through increased access to the countryside. This would compensate for some of the effects of the station itself.

## Agriculture and Soil

- 4.2.54 Potential for impacts on soils may result from the historic and current agricultural land and transportation uses around the periphery. The likely significant effect from the development comprises of the loss of agricultural land (Class 3.1 'Land capable of producing consistently high yields of a narrow range of crops and/ or moderate yields of a wider range. Short grass leys are common') and sterilisation of the ground which cannot be mitigated against. It is noted that the proposed station site lies in close proximity to a mixed-use site NEB001 allocated in the Fife LDP. The wider development here will result in the loss of potential agricultural land, however, given scale of agricultural land in the area and the scale of the development, the overall impact is considered to be small. The 2016 Carbon and Peatland Map does not record any peatland vegetation and the soils are noted as mineral soils. Potential for impacts related to contamination are capable of mitigation through detailed

technical studies including Geo-technical and, and the CEMP. The potential for significant land contamination issues associated with past and present agricultural land uses are considered to be low, however, possible sources of contamination include pesticides and herbicides. Made ground may also be present resulting from the construction of the railway line. Mitigation includes careful handling and reuse of topsoil on site where possible and minimisation of earthworks, as well as SUDS to limit sedimentation and adherence to construction best practice. With adequate mitigation in place, it is anticipated that the construction of a rail station at the east end of Newburgh would have a slight negative impact on soils, primarily due to the cost of site investigations. However these would be required for all new station options.

#### Cultural Heritage

- 4.2.55 There are no nationally listed sites or buildings on or close the site. The Newburgh Conservation Area lies to the north and east and has many listed buildings, being mainly C and B listed, however there is very limited intervisibility and effects on setting would be very limited. Four listed buildings lie closer to the site but are partly screened by other properties. The proposed active travel information/ infrastructure improvements would have the potential for minor townscape improvements, including signage and paving, which could improve the setting of the Newburgh Conservation Area and listed buildings. The proposed active travel information/ infrastructure improvements outside the settlement would have the potential to encourage more access, which would increase the opportunity to appreciate cultural heritage assets in the area surrounding Newburgh. Physical proposals have the potential to affect as yet unknown archaeology, depending on location. Assuming suitable mitigation through site investigation, location and design there are unlikely to be significant effects on cultural heritage.

#### Physical Fitness

- 4.2.56 Improvements between public transport and active travel routes between settlements has the potential to encourage modal shift with people preferring active travel and public transport to private vehicles. This would result in increased walking and cycling which would lead to improvements in physical fitness. Increased use of longer sections of route between settlements for both commuting and recreation may have a more significant effect for a small number of people.

#### Climate Change

- 4.2.57 A large proportion of journeys made using the local road network and other routes (such as the A912 and A913) are made by private cars. A shift away from vehicular based travel through the promotion of trains and walking and cycling which in turn will contribute to a reduction in and GHG emissions with the potential for a small beneficial impact.

#### Summary

- 4.2.58 A station at the east end of Newburgh would require construction of significant infrastructure on the edge of the settlement. As the site is greenfield and sloping with nearby housing, there would be potential for moderate adverse environmental effects on landscape and visual amenity. Slight adverse impacts are anticipated on geology, biodiversity, agriculture and cultural heritage, although with some potential to avoid and/or mitigate most adverse environmental effects. It is also noted that the site and surrounding greenfield land is

designated for Mixed Use Development in the Fife LDP. In respect of operation, assuming decreased use of private cars in favour of a more sustainable form of transport, there could be slight positive impacts on noise and vibration, air quality and physical fitness. Overall, Option 3c is considered to provide a **neutral impact** to the Environment.

### Option 3d

#### Noise and Vibration

- 4.2.59 The reopening of a former station, hardstanding, and associated infrastructure at Clatchard Quarry. Clatchard Quarry is within 1km of the indicative location and may have an existing impact on local noise and vibration impacts. The study area already is influenced by the residential area of Newburgh, the A913 road and existing rail infrastructure, with further housing and employment development (NEB001) allocated in the vicinity of the location in the LDP. The dominant noise source at present is likely to be Clatchard Quarry, road and rail noise from vehicles using the local transport network. The nearest sensitive receptors have been identified as dwellings at Burnside located on the A913. Newburgh Primary School is northwest of the indicative location and located on the A913. The scale and extent and extent of potential construction noise and vibration impacts will be dependent on proposed methods and activities, which is yet to be determined. There is potential for changes in noise levels at existing noise sensitive receptors as a result of increased flows and/or re-routing of private cars along existing routes. This option would change traffic volumes into the east end of Newburgh via private car, promote modal shift to train connections and reduce congestion. During operation, the proposal would draw additional traffic to the area with the potential of increasing noise levels however, it is unlikely to lead to a significant increase in ambient noise levels due to the acoustic environment likely to be dominated by existing road and train transport network. Vehicle noise impacts may also be mitigated if the option results in a modal shift from cars to trains. The magnitude of any potential noise impact will depend on changes in traffic flow / speed.

#### Global Air Quality (CO<sub>2</sub>)

- 4.2.60 Fife Council has declared a state of Climate Emergency and has committed to take action to reduce carbon emissions across Fife Council area. The Fife Action on Climate Change (2019) has established a target to achieve net-zero carbon status by 2045. National Atmospheric Emissions Data for Fife identifies total CO<sub>2</sub> emissions of 586 (kt) across transport (2019). Within this, 276 kt of CO<sub>2</sub> emissions are from road transport on A-class roads and 225 kt of CO<sub>2</sub> from road transport on minor roads and 71 kt from motorways. Overall, provision of sustainable transport, increasing the modal share and active travel will have a minor Improvement impact on global air quality. The study area already is influenced by the A913 road and existing rail infrastructure. The dominant CO<sub>2</sub> sources at present, are likely to be emissions from vehicles using the local road and rail network. The development of a new railway station would likely redirect / displace vehicle traffic from current preferred routes, but the works themselves would not lead an increase in overall traffic levels within Fife. Overall, provision of sustainable transport modes and increasing their modal share will have a minor beneficial impact on global air quality.

#### Local Air Quality (PM<sub>10</sub> and NO<sub>2</sub>)

- 4.2.61 Fife 2020 Air Quality Progress Report identifies that the main air quality issues for the Council area relate to traffic congestion at Cupar and Dunfermline. Clatchard Quarry is within 1km of the indicative location and may have an existing impact on local air quality. The study area

already is influenced by the residential area of Newburgh, the A913 road and existing rail infrastructure, with further housing and employment development (NEB001) allocated in the vicinity of the location in the LDP. The nearest sensitive receptors have been identified as dwellings at Burnside located on the A913. Newburgh Primary School is northwest of the indicative location and located on the A913. The development of a new railway station would likely redirect / displace vehicle traffic from current preferred routes, but the works themselves would not lead an increase in overall traffic levels within Fife. This option may result in a modal shift from private cars to trains, which could lead to a reduction in the overall vehicular emissions along the proposed route. Overall, provision of sustainable transport modes and increasing their modal share will have a minor beneficial impact on local air quality.

#### Water Quality, Drainage and Flood Defence

- 4.2.62 The nearest surface water body is an unclassified tributary to the Pow of Lindores flowing south to north adjacent to the site. The site is not within a surface water drinking water protected area. The bedrock groundwater body beneath the site is recorded on the SEPA Water Classification Hub as Wormit (ID: 150595). This waterbody was given an overall status of 'Poor' by SEPA in 2019 due to its chemical status. According to SEPA flood maps, the indicative location is not within an area that is susceptible to coastal or surface water flooding, although lies in relative close proximity to an area at risk from river flooding, and more detailed assessment is likely to be required. The study area already is influenced by the residential area of Newburgh and existing rail infrastructure, it is noted that the proposed station site lies within the vicinity of a mixed-use site NEB001 allocated in the Fife LDP. With appropriate design and associated mitigation/ compliance with SEPA and Scottish Water guidance and authorisations, reopening the former rail station at the Clatchard Quarry site is unlikely to have a significant adverse effect on water quality, drainage, and flooding. No significant effects on water environments are anticipated for this option, although a consequent reduction in private vehicular traffic may result in the potential for very small improvement of water runoff. As noted above, a flood risk assessment is likely to be required to support the design, should this option be taken forward. Taking all of the above into account, the overall significance of impact is considered neutral..

#### Geology

- 4.2.63 Superficial geology is noted as Till and likely to comprise glacial clays, sand, and gravel and potentially alluvium. Bedrock geology is composed of pyroxene andesite, olivine basalt lavas and rhyodacite of the Ochil Volcanic Formation and the rock is being extracted at the adjacent Clatchard Quarry. No published BGS borehole data is available on site however the closest deep borehole (NO21NW15) records shallow bedrock at 2mbgl, which is to be anticipated in proximity to a quarry. No geological SSSIs or other designated sites of geological value have been identified in the area. The indicative location has not been associated with coal or other mineral mining according to the BGS non coal mining plans in the past and as such the Coal Authority search did not identify any mining in the area. Reopening of the station at this location will remove the ability to extract minerals here, although this is not considered to be significant given the existing quarry is operational and other mineral resources are present in the wider area. Overall, the impact on geology from reopening the station at this location is considered to be neutral.

#### Biodiversity and Habitats

- 4.2.64 The proposed site is brownfield with a NWSS lowland mixed deciduous woodland (SCPTDATA 950150854) neighbours the southern boundary of the indicative location.
- 4.2.65 Designated sites within 5 Km of the indicative location include:
- Firth of Tay and Eden Estuary SSSI (Site Code 135198 approx. 1000m north)
  - Firth of Tay and Eden Estuary SPA (Site Code 8501 approx. 1000m north)
  - Inner Tay Estuary SAC (Site Code 8257 approx. 1000m north)
  - Lindores Loch SSSI (Site code 135348 approx. 3.1 km southeast)
- 4.2.66 Available desktop data (NBN Gateway) indicates the site and surrounds support a breeding bird, including Lesser redpoll, Sparrowhawk, Skylark, Kingfisher Short eared Owl (red list). From the desk study it has been established bat species occur within the site and include pipistrelle soprano pipistrelle (*P. pygmaeus*). Otter, red squirrel, and hedgehog also occur within a 2 km radius of the study area. Impacts on designated sites are considered unlikely. There would be a level of habitat loss as a result of any new infrastructure. Further location specific desk study plus single site walkover will be undertaken. It is assumed that appropriate detailed surveys (Extended Phase 1 / Protected Species) for habitats and protected species would thereafter be undertaken as part of detailed station design and recommended mitigation integrated into the implementation. With adequate mitigation in place, it is anticipated that reopening of a disused station is considered likely to present fewer potential impacts on important habitats and priority species than the construction of a brand-new station.

#### Landscape

- 4.2.67 The potential station site at Clatchard Quarry lies well to the east of Newburgh near the small settlement of Burnside and Craigmill and an operating quarry. It is located on sloping wooded ground between the settlement and railway, or possibly less steep ground to the south currently occupied by yard space. Development of a station with vehicular access across the slope as well as platforms, shelters, car parking and lighting is likely to lead to some loss or fragmentation of rural fringe character in the Foothills - Fife and/or Lowland Valley - Fife LCTs and the setting of the small settlement, with the effect varying according to precise location. Depending on location, the established woodland could be incorporated into planting and landform measures to improve landscape integration. The proposed active travel information/ infrastructure improvements would have the potential for minor improvements in townscape in Newburgh, including improved signage and paving as well as improvements outside the settlement to core paths and cycle routes, including surfacing, gates and signage. This would compensate for some of the effects of the station itself.

#### Visual Amenity

- 4.2.68 The site overlooks houses to the northeast, as well as being partially visible from the A913. The development of the site may adversely affect visual amenity for some residents due to loss of existing trees, visibility of earthworks and structures as well as night time lighting and vehicle movements between the road and station. The proposed active travel information/ infrastructure improvements would have the potential for minor improvements in visual amenity in Newburgh, including signage and paving, and outside the settlement improvements to core paths and cycle routes, including surfacing, gates and signage. This would compensate for some of the effects of the station itself.

#### Agriculture and Soil

- 4.2.69 Potential for impacts on soils may result from the historic and current agricultural land and transportation uses around the periphery. Land Capability for Agricultural data from the MacAulay Land Use Research Institute suggests that the site comprises Class 3.1 agricultural land, which is "land capable of producing consistently high yields of a narrow range of crops and/ or moderate yields of a wider range", however this is likely due to the sensitivity of the mapping since the site is known to be brownfield and is not used for agricultural purposes. The overall impact on agricultural land is therefore considered to be negligible. The 2016 Carbon and Peatland Map does not record any peatland vegetation and the soils are noted as mineral soils. Made ground likely to be present due to the former development of the disused station and quarrying activities. It is noted that the proposed station site lies within close proximity to the mixed-use development NEB001 proposed in the Fife LDP. With adequate mitigation in place, it is anticipated that the construction of a station here would not have significant adverse effects on soils. However, the brownfield nature of the site means that a comprehensive site investigation will be required to inform on ground conditions relating to contamination and allow detailed geotechnical design, potentially leading to a requirement for remedial action. Impacts related to contamination are capable of mitigation through detailed technical studies including desk study and site investigation and adherence to any remediation recommended alongside the production of a CEMP. Mitigation includes careful handling and reuse of topsoil on site where possible and minimisation of earthworks, as well as SUDS to limit sedimentation and adherence to construction best practice. With adequate mitigation in place, it is anticipated that the reopening of a former rail station at Clatchard Quarry would have a slight negative impact on soils and geology, primarily due to the cost of site investigations. However these would be required for all new station options. It should be noted that costs could rise if significant contamination requiring remediation is encountered, although remediation of soils would also represent an environmental improvement.

#### Cultural Heritage

- 4.2.70 The scheduled monument of Denmylne Castle and two B listed buildings lie close to the site. Their setting may potentially be affected depending on the precise location. The Newburgh Conservation Area lies well to the northwest and effects on setting would be unlikely. The proposed active travel information/ infrastructure improvements would have the potential for minor townscape improvements, including signage and paving, which could improve the setting of the Newburgh Conservation Area and listed buildings. The proposed improvements outside the settlement would have the potential to encourage more access which would increase the opportunity to appreciate cultural heritage assets in the area surrounding Newburgh. The proposals have the potential to affect as yet unknown archaeology, depending on location. Assuming suitable mitigation through site investigation, location and design there are unlikely to be significant effects on unknown cultural heritage.

#### Physical Fitness

- 4.2.71 Improvements between public transport and active travel routes between settlements has the potential to encourage modal shift with people preferring active travel and public transport to private vehicles. This would result in increased walking and cycling which would lead to improvements in physical fitness. Increased use of longer sections of route between settlements for both commuting and recreation may have a more significant effect for a small number of people.

#### Climate Change

- 4.2.72 A large proportion of journeys made using the local road network and other routes are made by private cars. A shift away from vehicular based travel through the promotion of trains and walking and cycling which in turn will contribute to a reduction in and GHG emissions with the potential for a small beneficial impact..

### Summary

- 4.2.73 A station Clatchard Quarry would require construction of significant infrastructure. The site is sloping wooded ground between Newburgh and the railway. There would be potential for slight adverse environmental effects on landscape and visual amenity. Potential for slight adverse impacts with regards to cultural heritage as Dlenmylne Castle and two listed B buildings are in the vicinity of the site. Overall impacts on Landscape, visual amenity and cultural heritage would depend on precise siting and final design. Slight adverse impacts are also anticipated for agricultural and soils due to the brownfield nature of the site. Therefore, the reopening of the former station may require remediation if contamination is encountered, however this would also represent an environmental improvement. Overall, the cumulative impact of this option has some potential to avoid and/or mitigate most adverse environmental effects. It is also noted that the site and surrounding land is designated for Mixed Use Development in the Fife LDP. In respect of operation, assuming decreased use of private cars in favour of a more sustainable form of transport, there could be slight positive impacts on noise and vibration, air quality GHG emissions and physical fitness. Overall, Option 3c is considered to provide a **neutral impact** to the Environment.

### Option 3e

- 4.2.74 Environmental appraisal of a modular station was undertaken on a non-site specific basis and many of the impacts of the permanent sites considered above are also applicable to a modular station. The impacts on the Noise and Vibration, Global Air Quality, Location Air Quality, Physical Fitness, Cultural Heritage and Climate Change sub-criteria are considered to be similar. The impact on the remaining sub criteria is set out below.

### Water Quality, Drainage and Flood Defence

- 4.2.75 With appropriate SUDS design and associated mitigation/ compliance with SEPA and Scottish Water guidance and authorisations, the construction of a modular station is unlikely to have significant adverse effects on water quality and drainage. However depending on the design of the station, surface water run-off and drainage may require further consideration in the event that a permanent SUDS design is unlikely to be implemented. Discussion with SEPA and the application for appropriate authorisations would be required..

### Geology

- 4.2.76 No significant effects on geology or geological/ material resources are predicted for this option. Impacts from a modular station will depend on method of construction. With adequate mitigation in place it is anticipated that the construction of a modular station would not have significant adverse effects on geology and mineral resources.

### Biodiversity and Habitats

- 4.2.77 As with other option variants, there would be a level of habitat loss as a result of any new infrastructure but it would be expected any impacts would be on a smaller scale than a permanent station. It is assumed that appropriate detailed surveys (Extended Phase 1 /

Protected Species) for habitats and protected species would be undertaken as part of detailed station design and recommended mitigation integrated into the detailed design such that potential impacts would be reduced to an acceptable level.

#### Landscape and Visual Amenity

- 4.2.78 Assuming as a minimum the modular train stations will include a gravel carpark and a short platform with planting to screen and integrate the various elements, impacts will largely be mitigated, and be less than the equivalent permanent station.

#### Agriculture and Soil

- 4.2.79 Impacts on agriculture are anticipated to be negligible. As with the permanent station options, site investigation will be required to inform on ground conditions relating to contamination and allow detailed geotechnical design, potentially leading to a requirement for remedial action. The temporary nature of a modular station means impacts to soils are likely to be less than during the construction of a permanent station.

#### Summary

- 4.2.80 Overall impacts will depend on specific location of the proposed modular station but in general the environmental impacts are anticipated to be the same or less than the corresponding permanent option with the option providing a **minor positive to neutral impact** on the Environment, depending on location.

#### Option 4

#### Noise and Vibration

- 4.2.81 No significant effects on noise and vibration are predicted for this option.

#### Global Air Quality (CO<sub>2</sub>)

- 4.2.82 Increased car sharing could potentially reduce emissions of CO<sub>2</sub>, leading to a minor improvement in global air quality.

#### Local Air Quality (PM<sub>10</sub> and NO<sub>2</sub>)

- 4.2.83 Increased car sharing could reduce local emissions of PM<sub>10</sub>, PM<sub>2.5</sub> and NO<sub>2</sub>, leading to a minor improvement in local air quality.

#### Water Quality, Drainage and Flood Defence

- 4.2.84 Encouraging car sharing may result in a decrease in the overall use of private cars, resulting in the potential for very small improvement of water runoff quality from roads and urban areas.

#### Geology

- 4.2.85 No significant effects on geology or geological/ material resources are predicted for this option.

#### Biodiversity and Habitats

- 4.2.86 No significant effects on biodiversity or habitats are predicted for this option.

#### Landscape

- 4.2.87 No significant effects on landscape s are predicted for this option.

#### Visual Amenity

- 4.2.88 No significant effects on visual amenity are predicted for this option.

#### Agriculture and Soil

- 4.2.89 No significant effects on agriculture and soils are predicted for this option.

#### Cultural Heritage

- 4.2.90 No significant effects on cultural heritage are predicted for this option.

#### Physical Fitness

- 4.2.91 As car sharing is unlikely to result in more active forms of travel this option will have no effect on physical fitness.

#### Climate Change

- 4.2.92 No significant impacts on climate change are predicted for this option.

#### Summary

- 4.2.93 No tangible effects from physical infrastructure changes are associated with this option and no significant impacts are anticipate amongst environmental themes from this option. Overall, Option 3c is considered to provide a **neutral impact** to the Environment.

#### Summary of Environmental Appraisal

- 4.2.94 Table 4.1 below summarises the Environmental Appraisal for all options.

**Table 4.1 : Environmental Appraisal Summary**

Option	Description	Appraisal Score
1	Improved (Existing) Bus Services	✓
2	(New) Express Bus Service	✓
3a & 3e	Train station Abernethy Rd	✓
3c & 3e	Train station East of Town	—
3d & 3e	Train station Clatchard Quarry	—
4	Car Sharing	—

## 4.3 Safety

4.3.1 The Safety criteria covers two sub-criteria:

- Accidents - relate to those taking place on all modes, but the advice set out in STAG only effectively requires consideration of accidents taking place on the road network; and
- Security - relates to how safe the transport system is for users, and takes into account the impact of such initiatives as CCTV, help points, lighting, etc.

### Accidents

4.3.2 As part of the Safety criteria the impact of an option on the number of transport related accidents and/or severity should be considered. The specialist modelling tool COBALT was used to understand the impact on accidents for a cordon around the Newburgh area for the period from 2027 to 2042 (15 years) for Option1, Option 2 and Option 3a/c/d. Volumes by link and junction, alongside link and junction types were used to establish the change in accidents presented in Table 4.2 The outputs show that there are minor positive impacts on accidents in the area for all options, primarily driven by the slightly reduced road mode share across all options.

**Table 4.2 : Accident savings, Newburgh Area, 15 years (2027-42)**

Total for all years	Accident Costs Without-Scheme (£000s)	Accident Costs With-Scheme (£000s)	Benefit of Scheme (%)	Benefit of Scheme (Change in Accidents)
Option 1	3,535	3,529	0.2%	6.1
Option 2	3,535	3,522	0.4%	12.7
Option 3a/c/d	3,535	3,531	0.1%	3.9

### Security

4.3.3 The aim of the Security sub-criterion is to assess and reflect changes in security arising from a particular transport option and the likely number of users affected.

4.3.4 STAG Table 8.1<sup>16</sup> identifies the security indicators for public transport passengers as:

- Site perimeters, entrances and exits;
- Formal surveillance;
- Informal surveillance;
- Landscaping;

<sup>16</sup> <https://www.transport.gov.scot/publication/stag-technical-database/section-8/>

- Lighting and visibility; and
- Emergency call (facilities).

4.3.5 Table 8.3<sup>17</sup> in STAG identifies the security indicators for walking and cycling:

- Formal surveillance;
- Informal surveillance;
- Landscaping;
- Lighting and visibility; and
- Emergency call.

4.3.6 All of the security indicators are identified as being of high relative importance and the vulnerable groups of society affected have been identified as children, elderly, women travelling alone, disabled persons and cyclists. These factors have been considered in the qualitative assessment of this sub-criteria.

#### Option 1

4.3.7 Option 1 is a bus service improvements option with no infrastructure changes and likely to have no security enhancements that could result in real and perceived improvements to security other than potentially increased natural surveillance from increased passenger numbers on-board and at stops. Option 1 therefore provides a **neutral impact** on security

#### Option 2

4.3.8 Likewise, Option 2 is a bus service improvements option with no infrastructure changes and likely to have no security enhancements that could result in real and perceived improvements to security other than potentially increased natural surveillance from increased passenger numbers on-board and at stops. Option 2 therefore provides a **neutral impact** on security

#### Option 3

4.3.9 The provision of new rail station facilities (all option variants) is likely to improve security for public transport users as these would comply with at least the minimum security standards, for example for site perimeters, entrances and exits, and lighting. A station would also include formal surveillance (CCTV) and on-platform emergency call / information facilities. This assumption is the same for a modular station that would be designed to at least minimum security standards and so there is unlikely to be any reduced security impact compared to a permanent solution. Option 3 therefore provides a **moderate benefit** to the security sub criteria.

#### Option 4

4.3.10 There are some potential security issues around car share schemes in relation to sharing a vehicle with a relative stranger; however, well managed schemes seek to minimise these and therefore Option 4 returns a **neutral impact** on security.

### Summary of Safety Appraisal

4.3.11 Table 4.3 below summarises the Safety Appraisal for all options.

<sup>17</sup> <https://www.transport.gov.scot/publication/stag-technical-database/section-8/>

**Table 4.3 : Safety Appraisal Summary**

Option	Description	Accident	Security	Overall Appraisal
1	Improved (Existing) Bus Services	✓	—	✓
2	(New) Express Bus Service	✓	—	✓
3a & 3e	Train station Abernethy Rd	✓	✓✓	✓✓
3c & 3e	Train station East of Town	✓	✓✓	✓✓
3d & 3e	Train station Clatchard Quarry	✓	✓✓	✓✓
4	Car Sharing	—	—	—

## 4.4 Economy

4.4.1 In accordance with STAG, assessment of the economic impact takes into consideration:

- Transport Economic Efficiency (TEE) – the benefits ordinarily captured by standard cost-benefit analysis – the transport impacts of a proposal;
- Wider Economic Impacts – impacts which are not captured by the TEE but are of importance from a policy or distributional perspective. They relate to the notion of wider economic benefits derived from the impact of transport upon agglomeration, and the underlying relationship of impacts of agglomeration upon productivity. Given the scale of patronage and relatively localised benefits associated with the interventions it is considered that there would be no significant wider economic impacts and the TEE captures the economic impacts.

### Transport Economic Efficiency

4.4.2 Transport Economic Efficiency (TEE) takes into account the economic impacts in terms of transport benefits from the investment in a particular option, in 2010 prices, as per STAG guidelines.

4.4.3 The economic assessment was undertaken using the Transport User Benefits Appraisal tool (TUBA, version 1.9.17 released on 20/12/2021) which reflects the latest WebTAG economic appraisal guidance. The WebTAG GDP Deflator has been used to convert all monetised costs and benefits into a common 2010 price base year. The GDP deflator value for 2010 is 124.41.

4.4.4 TUBA inputs for the roads-based assessment are zone-to-zone trips, journey times and travel distances for the Do-Minimum and Do-Something Option scenarios taken from the TCRTM outputs. Similarly, for the public transport assessment, the TUBA inputs are zone-to-zone trips, journey times, travel distances and fares.

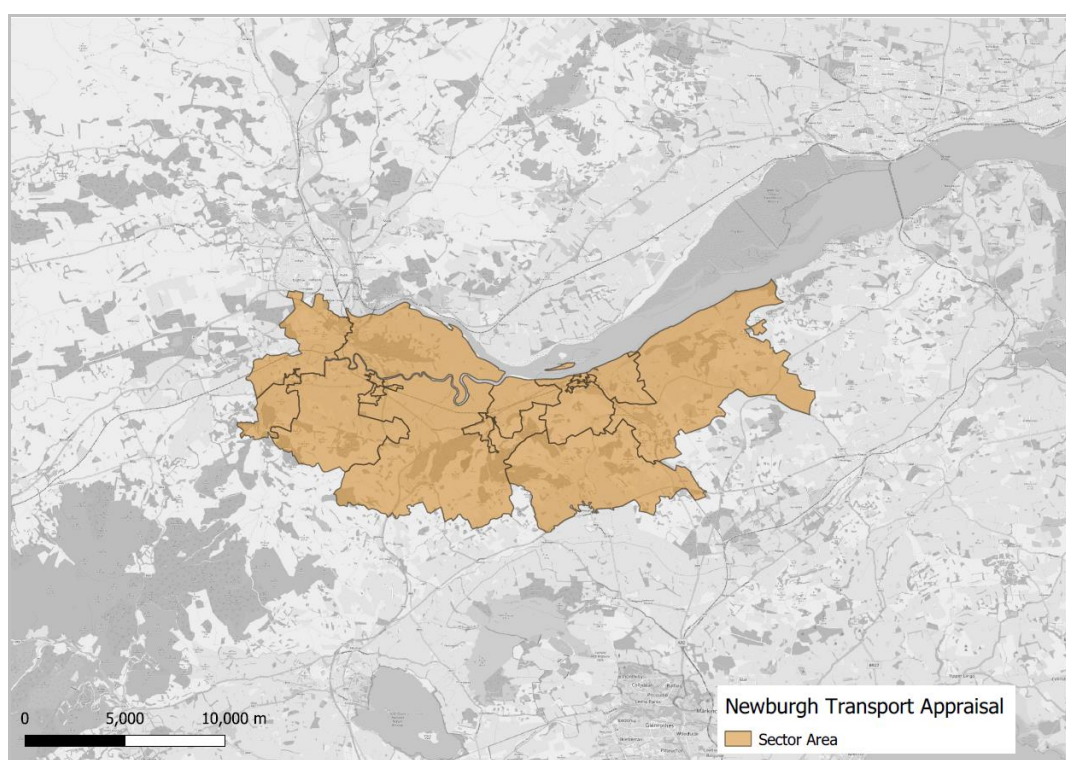
4.4.5 The TCRTM AM Peak, Inter-Peak and PM Peak time period transport model outputs have been factored to represent a full year of travel, as required by TUBA. The annualisation factors utilised are shown in Table 4.4.

**Table 4.4 : TCRTM Annualisation Factors**

AM Peak Hour to Annual		Interpeak Hour to Annual		PM Peak Hour to Annual	
Car Driver	Public Transport	Car Driver	Public Transport	Car Driver	Public Transport
600	500	3,500	2,700	690	710

4.4.6 A ‘fixed travel demand’ approach has been adopted based on the “high growth” land use scenario in TCRTM for testing Option 2, Options 3a/c/d and Option 4. This ‘fixed’ approach is appropriate as these options do not generate a significant level of induced travel demand.

- 4.4.7 For Option 3 only one station location scenario was modelled and changing the location of the station locally in Newburgh would not result in different model outcomes. The difference between the variants of Option 3 are in costs, as detailed in Chapter 4.7. In this section, analysis of the modular station (3e) is not undertaken but looked at in further detail in Chapter 4.7.
- 4.4.8 Option 1 cannot be explicitly modelled in TCRTM as the model simulates the time period 07:00-19:00 (option 1 looks to extend bus operations outside these model hours). However, post processing of TCRTM inputs/TUBA outputs allows the economic benefits of the option to be assessed.
- 4.4.9 The economic assessment framework including assumptions made is included in Appendix D.
- 4.4.10 Given the scale of TCRTM (covering Fife, Angus, Perth and Dundee) the inputs were sectored to ensure only benefits associated with the options were captured. Through this approach only trips passing through the Newburgh sector were identified and considered as part of the appraisal (Figure 4.1).



**Figure 4.1 : Newburgh TCRTM/TUBA Sectors**

- 4.4.11 The results of the economic assessment for each of the Options, in terms of the net present value of option benefits, for the 60-year appraisal period are outlined in Table 4.5 below.

**Table 4.5 : Summary of Present Value of Benefits (£m), 60 year appraisal**

Impacts	Option 1	Option 2	Option 3a	Option 3c/d	Option 4
Economic Efficiency: Consumer Users (Commuting)	2.7	31.4	51.8	51.8	0.2
Economic Efficiency: Consumer Users (Other)	9.4	46.6	28.5	28.5	1.8
Economic Efficiency: Business Users and Providers	0.9	-0.4	0.9	0.9	0.4
Revenues	0.3	0.4	1.7	1.7	-0.1
Wider Public Finances (Indirect Taxation Revenues)	0.2	-0.2	-0.3	-0.3	-1.1
Present Value of Benefits (PVB, £m)	13.3	78.1	82.9	82.9	2.3
Present Value of Costs (PVC, £m)	6.2	21.0	10.0	13.7	0.0

### Option 1

- 4.4.12 Option 1 generates Present Value of Benefits (PVB) of £13.3m with the majority of this benefit generated from Other Purposes, rather than commuting, and this reflects the nature of the Option in providing additional bus services outside 07:00-19:00.

### Option 2

- 4.4.13 Option 2 generates Present Value of Benefits (PVB) of £78.1m. The significant benefit associated with this options is related to the considerable journey time saving accrued over the 60-year appraisal period as a result of introducing an express bus service to the area and reducing the need to interchange. The majority of this benefit is generated from Other Purposes and this reflects the provision of the hourly express service throughout the day.

### Option 3

- 4.4.14 Option 3, the proposed rail option, generates the greatest Present Value of Benefits (PVB) at £82.9 million. The significant benefit associated with this option is related to the considerable journey time saving during the inter-peak for those travelling to Edinburgh. For those travelling southbound to Fife and Edinburgh there is no longer the requirement to travel to Ladybank or Perth and then interchange. This significant journey time saving generates a high level of journey time benefits associated with the option and in particular the peak-time travel. This is reflected in the majority of the benefits (£51.8 million) being generated for Commuting. The option does also deliver a high level of benefits for the inter-peak users, as reflected in the benefits (£28.5 million) for Other Purposes.

### Option 4

Option 4 shows low levels of benefits in comparison to other options with PVB of £2.3 million, reflecting the overall limited impact of an informal car share option as identified throughout the appraisal.

## 4.5 Integration

- 4.5.1 This section considers the appraisal of each of the options against the Integration criteria. The Integration sub-criteria are:

- Transport integration - consideration of options in terms of services and ticketing, infrastructure and information;
- Transport and land-use integration - an assessment of the impact of options on proposed or existing land-use developments; and
- Policy integration - a check of options against national policy, and also specific accessibility issues such as disability, health, rural affairs and social inclusion.

4.5.2 A key aspect of the of the Integration appraisal is ensuring each option is cognisant of existing national, regional and local policies, plans or strategies (PPS). A full Policy Review was undertaken in the Case for Change and this has been reviewed and, where necessary updated, to assist with the detailed appraisal of the options. The updated Policy Review is provided in Appendix E and includes the following PPS:

#### National Policies and Plans:

- National Planning Framework 4, 2021
- Scottish Planning Policy, 2020
- National Transport Strategy 2, 2019
- Infrastructure Investment Plan, 2021
- Scottish Government Economic Strategy, 2015
- Strategic Transport Projects Review 2, 2022
- Scotland Route Study, Network Rail, 2016

#### Regional Policies and Plans:

- TAYPlan Strategic Development Plan, 2017
- SEStran Regional Transport Strategy Refresh 2015 – 2025
- Tay Cities Deal, 2020

#### Local Policies and Plans:

- Fife Local Development Plan, 2017
- Local Transport Strategy for Fife, 2006-2026
- Shaping Perth's Transport Future, 2011
- Perth West Masterplan, 2015

### Transport Integration

#### Option 1

4.5.3 The option is likely to achieve some minor benefit to the integration with other transport services, through greater combined frequency of service and the potential to link journeys / access to onward transport services. No notable change is expected to be made to ticketing, infrastructure, or how the information is provided (e.g. Real Time Information). Option 1 is deemed therefore to provide a **minor benefit** for Transport Integration.

#### Option 2

4.5.4 There are likely to be some minor benefit to the integration with other transport services, through greater combined frequency of service and the potential to link journeys / access to onward services. No notable change is expected to be made to ticketing, infrastructure, or how the information is provided (e.g. Real Time Information). Option 2 is therefore expected to provide a **minor benefit** for Transport Integration.

#### Option 3

- 4.5.5 The option would provide a new transport mode in Newburgh and improve the integration of the transport network by linking active, bus and car travel. The additional mode would also add new ticketing options for public transport at Newburgh such as smartcard ticketing and rail season tickets. Information boards on the station platform would enhance public transport user information. The specific impact on transport integration differs depending on the location option of a proposed station as follows.
- 4.5.6 **Option 3a:** Although active travel integration may be weakened for some due to the location being towards the town's edge compared to a more central location, the station would still be within the 800m distance (generally considered appropriate for walking access to rail) of many parts of Newburgh, including the new housing development at Banklands. In addition there are existing car parks, a bus stop, bus turning circle, and other facilities that would aid integration with other transport modes. Option 3a is therefore expected to provide a **major benefit** for Transport Integration.
- 4.5.7 **Option 3c:** The location would be within 300-500m walking distance of the existing bus services, depending on the exact location. Active travel integration may be weakened for some due to the location being towards the town's edge compared to a more central location, however the location would still be within the 800m distance of many parts of Newburgh, including the proposed 12ha mixed used development site. Option 3c is therefore expected to provide a **major benefit** for Transport Integration.
- 4.5.8 **Option 3d:** The existing bus routes run along the A913, and walking routes and new bus stops would need to be considered for integration purposes. Active travel integration would also be weakened due to the location being outside of the town compared to a more central location. Option 3d is therefore expected to provide a **minor benefit** for Transport Integration.
- 4.5.9 **Option 3e:** The modular nature of the station is likely to have the same benefits as a permanent location, although there would be variations of the benefits depending on the station location described above.
- Option 4**
- 4.5.10 The option is likely to bring some integration with other transport modes by tying lift sharing and/or car club facility with access to other modes i.e. public transport, walking and cycling. Option 4 is deemed therefore to provide a **minor benefit** for Transport Integration.

#### Transport and land-use integration

- 4.5.11 The transport and land use sub-objective considers whether:
- Any land required for the proposal is preserved for uses which are incompatible with transport
  - The proposal fits with the general policies of all authorities at all levels concerning transport and land use
  - The proposal conflicts with any other existing or planned development
- 4.5.12 National planning policy advocates a well-connected and integrated approach. This is underpinned by the Nation Planning Framework<sup>18</sup> and Scottish Planning Policy<sup>19</sup>. SPP promotes patterns of development which:

<sup>18</sup> <https://www.gov.scot/publications/scotland-2045-fourth-national-planning-framework-draft/documents/>

<sup>19</sup> <https://www.gov.scot/publications/scottish-planning-policy/documents/>

- Optimise the use of existing infrastructure
- Reduce the need to travel
- Provide safe and convenient transport opportunities for walking and cycling for both active travel and recreation, and facilitate travel by public transport
- Enable the integration of transport modes

4.5.13 Appendix E provides a detailed policy review, including the above national plans to assisting the appraisal against the transport and land-use integration criteria.

#### Option 1

Improved local bus services require no infrastructure changes which would impact on land use planning, however, they will positively contribute to integration between transport and land-use by providing enhanced public transport connections between existing and planned development in Newburgh and key locations. Option 1 represents a **minor benefit** for transport and land-use integration.

#### Option 2

This option required no infrastructure changes which would impact on land use planning, however, they will positively contribute to integration between transport and land-use by providing enhanced public transport connections between existing and planned development in Newburgh and key locations. Option 2 represents a **minor benefit** for transport and land-use integration.

#### Option 3

4.5.14 The option fits well with local and regional land use policy, and would provide improved sustainable transport access for both existing and future travellers to/from Newburgh, including proposed development sites in the town. The specific impact on transport integration differs depending on the location option of a proposed station as follows.

4.5.15 **Option 3a:** The site is within 800m distance of many residential parts of Newburgh, including the new housing development sites. It lies approximately 1-1.5km from the 12ha mixed used development site proposed in the LDP, and at the far end of Lindores Abbey Distillery, an employment and visitor destination. The site itself is safeguarded in the LDP. Option 3a is therefore expected to provide a **moderate benefit** for Transport and Land-Use Integration.

4.5.16 **Option 3c:** The option fits well with local and regional land use policy, and will provide improved sustainable transport access to developments in Newburgh for residents, businesses, and visitors. The site is within 800m distance of many residential parts of Newburgh and would serve the proposed LDP development sites at the east end of the town particularly well. Option 3c is therefore expected to provide a **moderate benefit** for Transport and Land-Use Integration.

4.5.17 **Option 3d:** The option generally aligns with local and regional land use policy and will provide improved sustainable transport access to developments in Newburgh for residents, businesses, and visitors. However, the site is located outside of the town and as such is not as well integrated with development as the other station options considered. While some users may be willing and able to walk or cycle to this site, journeys by other motorised mode may be needed, limiting environmental and accessibility benefits and limiting the potential for modal shift. Option 3d is therefore expected to provide a **minor benefit** for Transport and Land-Use Integration.

- 4.5.18 **Option 3e:** The modular station is likely to have the same benefits as a permanent location, although there would be variations of the benefits depending on the station location described above.

#### Option 4

- 4.5.19 The option aligns well with land-use by enhancing access to both existing and new developments in Newburgh for residents, businesses and visitors and is expected to provide a **minor benefit** for Transport and Land-Use Integration.

#### Policy Integration

- 4.5.20 The policy integration sub-criterion considers the options in the wider Scottish policy context. This includes consideration of the contribution of the options to meeting the Government's purpose and national transport policy objectives. A full Policy Review has been undertaken to reflect the recent significant changes in the policy landscape and incorporates Scotland's response to the Climate Emergency and the updated National Transport Strategy 2 and Strategic Transport Projects Review 2.
- 4.5.21 Each of the options identified would encourage and support sustainable transport choices which would align with national, regional and local policies. The impact of the options on each of the objectives would be dependent on the success in encouraging modal shift to sustainable travel and to deliver the outcomes identified it is considered that they would require further interventions, potentially at a national level. As identified in the Transport Planning Objectives appraisal the options also support NTS2 priorities to reduce inequalities and improve health and wellbeing through improved access to services and opportunities, to varying degrees.
- 4.5.22 Options 1, 2 and 3 are therefore each considered to be a **moderate benefit** for policy integration. The options align well with transport policy from national to local level, especially in terms of the promotion of sustainable travel, improved accessibility through wider travel choices, improved access to opportunities, inclusiveness and benefits for health and the environment. The options do not return a major benefit as they do not fully align with all transport policy such as smart ticketing and real time information. Option 3 introduces an extra rail stop between Perth and Edinburgh and may impact on the Scottish Government policy to reduce intercity journey times and stops on intercity services.
- 4.5.23 While Option 4 aligns with transport policy from national to local level, particularly with regard to promotion of sustainable travel, reduced single occupancy private car use, improved accessibility through widened travel choices, improved access to opportunities and benefits to the environment, it is considered to have a **minor benefit** due to the potential slight negative impact on the competitiveness of public transport compared to car.

#### Summary of Integration Appraisal

- 4.5.24 Table 4.6 summarises the integration appraisal for all options

**Table 4.6 : Integration Appraisal Summary**

Option	Description	Transport	Transport & land-use	Policy	Overall Appraisal
1	Improved (Existing) Bus Services	✓	✓	✓✓	✓
2	(New) Express Bus Service	✓	✓	✓✓	✓
3a/e	Reopened/New Train Station	✓✓✓	✓✓	✓✓	✓✓
3c/e	Reopened/New Train Station	✓✓✓	✓✓	✓✓	✓✓
3d/e	Reopened/New Train Station	✓	✓	✓✓	✓
4	Car Sharing	✓	✓	✓	✓

## 4.6 Accessibility and Social Inclusion

4.6.1 The Accessibility and Social Inclusion objective covers the following two sub-objectives:

- Community Accessibility - includes consideration of the public transport network coverage and also local accessibility, which is essentially opportunities to walk or cycle to services or facilities; and
- Comparative Accessibility - includes consideration of people groups and the needs of any socially excluded groups, and also geographic consideration of locations relative to proposed interventions.

4.6.2 To inform the Accessibility and Social Inclusion assessment an Equality Impact Assessment has been undertaken to methodically consider the impacts of the options on race, disability and gender issues. This EQIA is included as Appendix F.

### Community Accessibility

4.6.3 Community accessibility considers any improvements to the public transport network which improve access to services. As described in Chapter Table 4.7, TRACC has been used to understand the change in public transport network coverage and the impact on journey times. A walk distance of 1,500m has been used to assess the accessibility, however, it should be acknowledged that this represents the upper limit of acceptable walk distances and may not be suitable/possible for all members of the community. The results below, inform the appraisal of the community accessibility sub-criteria.

4.6.4 Table 4.7 shows average journey times from all Newburgh households to selected regional train stations between 07:00am – 09:00am. This includes 1500m walk time and any required interchanges.

**Table 4.7 : Average Public Transport Journey Time from Newburgh to Regional Train Station**

Destination	PT Journey time (hh:mm)					
	Base	Option 1	Option 2	Option 3a	Option 3c	Option 3d
Perth Train Station	00:41	00:41	00:21	00:27	00:27	00:20
Edinburgh Waverley	02:06	02:06	02:05	01:25	01:17	01:59
Cupar Train Station	00:46	00:46	00:33	00:46	00:46	00:46
Dundee Train Station	01:16	01:16	01:07	01:07	01:08	01:16

4.6.5 Table 4.8 shows average journey times from all Newburgh households to selected regional hospitals/health centres between 10:00am – 12:00 noon. This includes 1,500m walk time and

any required interchanges. The n/a cells are a results of TRACC finding no viable public transport route between Newburgh and a destination in the specified timeframe.

**Table 4.8 : Average Public Transport Journey Time from Newburgh to Regional Hospitals/Health Centres**

Destination	PT Journey time (hh:mm)					
	Base	Option 1	Option 2	Option 3a	Option 3c	Option 3d
Adamson Hospital Cupar	01:06	01:06	00:39	01:05	01:06	01:06
The Royal Infirmary Perth	00:53	00:53	00:29	00:53	00:53	00:53
Victoria Hospital Kirkcaldy	n/a	n/a	01:23	01:03	00:56	01:12
Glenrothes Hospital	00:46	00:46	00:46	00:46	00:46	00:46
St Andrews Community Hospital	01:31	01:31	01:18	01:31	01:31	01:31
Ninewell Hospital Dundee	01:27	01:27	01:17	01:27	01:27	01:27
Queen Margaret Hospital Dunfermline	n/a	n/a	01:19	01:25	01:25	n/a

- 4.6.6 Table 4.9 shows average journey times from all Newburgh households to selected schools and higher education sites in the region between 07:00am – 09:00am. Note than Bell Baxter High School in Cupar is not listed in the above analysis as Newburgh is in the school catchment area and pupils from Newburgh have access to a school bus service. Again, this includes 1500m walk time and any required interchanges.

**Table 4.9 : Average Public Transport Journey Time from Newburgh to Education**

Destination	PT Journey time (hh:mm)					
	Base	Option 1	Option 2	Option 3a	Option 3c	Option 3d
Dundee University	n/a	01:21	n/a	01:08	01:07	01:13
St Andrews University	n/a	01:14	n/a	01:35	01:36	n/a
Perth Academy	00:54	00:54	00:28	00:54	00:54	00:54
Perth Grammar	01:02	01:02	00:59	01:02	01:02	01:02
Perth High	01:01	01:01	00:29	01:01	01:01	01:01
St John's RC	01:03	01:19	00:51	01:12	01:12	01:05

### Option 1

- 4.6.7 Option 1 looks to provide enhanced bus service provision to Perth, Cupar and Ladybank to enable public transport access to key services and markets i.e. employment, places of study, and wider health care and leisure facilities, and to help increase public transport choice. The option includes the provision of greater frequencies of bus services and extended hours of operation, as well as improving connectivity with train services to help facilitate onward travel.
- 4.6.8 These changes would increase the opportunities, services and markets that Newburgh residents could access early in the day (before 07:00am), late in the evening (after 19:00pm) and on weekends.
- 4.6.9 The TRACC analysis above in general shows no improvement to public transport journey times. Importantly however, is the increased ability to access locations before 09:00am (i.e.

before most employment/education starts) and after 19:00pm (when shift work may begin/end). For example, the proposed timetable changes would provide a viable public transport option for accessing both further education in Dundee and St Andrews, where the n/a value for the Base shows this is not possible under current provision.

- 4.6.10 While this improved access to education is highlighted in TRACC, other improvements are not shown due to the timeframe analysed. For example, Option 1 proposals would help address key problems identified in earlier stage of the appraisal process such as providing an evening bus service and improving the suitability of bus time. The introduction of evening services, particularly to Perth, would open up opportunities for leisure and social activities without the need for car access. While journey time may not be shown to improve for example to health care locations, the option does open up the possibility to access such services for a longer period each day.
- 4.6.11 While the option is unlikely to improve journey times, a key consequence of the option will be to open up access times to key services and facilities and therefore the options is considered to bring **minor benefit** to community accessibility.

### Option 2

- 4.6.12 Option 2 proposes a new express bus service between Cupar and Perth, providing an hourly service in both directions from approximately 06:40am to 23:20pm. As reflected in the TPO appraisal and TRACC analysis above, journey times improve to regional centres, services and amenities with the option also providing extended operating hours. The proposed timetable of the new services has been designed to complement existing bus services serving Newburgh such that the area is served with an improved half-hourly frequency all day (currently approximately hourly with shorter operating hours).
- 4.6.13 The option will also provide increased active travel facilities and links, helping facilitate non-car access to the public transport network. Together with increasing the public transport offering in Newburgh, the option will have **moderate benefit** on community accessibility.

### Option 3a/c/d/e

- 4.6.14 All four option variants for Option 3 provide benefits in terms of public transport network coverage for many residents in Newburgh and the surrounding local area. The actual location of a train station in Newburgh does impact the overall benefit to community accessibility.
- 4.6.15 As noted in the TPO appraisal, consideration of the walking catchments of 400m, 800m and 1500m for each proposed station location shows that the catchments for Option 3a (Abernethy Road) and 3c (East of town) encompass a larger proportion of the local population than Option 3d (Clatchard Quarry). Total population walking catchments are shown in Table 4.10 (Note the numbers are cumulative i.e. those captured in 400m are also included in 800m and 1500m).

**Table 4.10 : Option 3 – Proposed Station Location Population Catchments**

Option	Location	Population Catchments (no.of people)		
		400m	800m	1500m
Option 3a	Abernethy Road	518	1292	2262
Option 3c	East end of town	308	1649	2322
Option 3d	Clatchard Quarry	97	178	1511

- 4.6.16 Option 3a on Abernethy Road currently has excellent walking and cycling links with pavement access and off-road access from the Fife Coastal Path. The option proposes providing improvements to this active travel provision and together with its large population catchment it is likely to bring noticeable improvements to community accessibility.

- 4.6.17 Option 3c offers a comparable walking catchment and it will provide pavement access on residential streets; however, it is situated on a steep hillside and walking or cycling to the station may not be possible for all users.
- 4.6.18 Option 3d does not have as large a walking catchment and as shown in the TPO appraisal, a large proportion of western Newburgh is situated over 1500m from the proposed site. The proposed location is on a hillside and even for those residents inside 1500m, walking or cycling may not be a viable option.
- 4.6.19 With Accessibility and Social Inclusion influenced by location, the modular station Option 3e will share the same characteristics as the three permanent locations above.
- 4.6.20 For all proposed station locations, it is likely the service would attract users from wider catchments including those that choose to walk or cycle and those that choose to drive to the station. For example, those living in Newburgh and surrounding areas over 1500m away that have access to a car may consider the station at Clatchard Quarry an improved public transport option.
- 4.6.21 As shown in Table 4.10, journey times to and from Edinburgh, Perth and Dundee improve from this option. The journey time savings to and from Edinburgh are particularly significant and represent an opportunity for residents in Newburgh to access wider employment, social, leisure and education opportunities as well as providing a quicker link by public transport to the wider transport network such as to Edinburgh Airport or train links to England.
- 4.6.22 On consideration of the above, Option 3a will provide **major benefit** to community accessibility. Option 3c will provide **moderate benefit** due to its access restrictions on a steep hillside. Option 3d will provide **minor benefit** to community accessibility due to its reduced population catchment and location on a hillside on the edge of town. Option 3e will share benefits with the permanent site locations.

#### Option 4

- 4.6.23 Option 4 looks to provide informal car-sharing between those travelling to and from Newburgh. The option has the potential to encourage car sharing, limit the impact of individual car travel, and help address perceived high public transport fares. It also helps to widen travel choice. However, access for those without a car, who would benefit from the increased accessibility the most (car owners already have this access), is dependent on others being willing and able to provide lift-sharing services.
- 4.6.24 However, on consideration of the likely operation of a car share scheme (as outlined in the TPO appraisal) the restricted ability or opportunities to car share is unlikely to have a notable impact on journey times or public transport connectivity for residents, businesses and visitors and therefore against Community Accessibility the option scores **neutrally**.

#### Comparative Accessibility

- 4.6.25 Comparative accessibility is the distribution of accessibility impacts and recognises that some options may discriminate against particular groups in society, and that the geographical distribution of transport investment has not always reflected policy aims such as regeneration or rural development. This section identifies those who stand to benefit from an individual transport project and policy and any potential disbenefits for some people or areas.
- 4.6.26 The Case for Change identified that the study area has a number of socio-economic characteristics which should be taken into consideration at this stage of the appraisal including the following:

- SIMD shows the location of Scotland's most deprived areas across seven different domains of deprivation. The domains are measured using a number of indicators to form ranks for each domain and presented at a datazone level. Each of the seven domain ranks are then combined to form the overall SIMD. Using a quintile ranking, which splits Scotland's datazones into 5 groups, the data shows that Newburgh has an average overall rank of 3. This means that it is roughly in the middle between the most deprived and the least deprived of Scotland's datazones<sup>20</sup>.
- The data also shows that one datazone within Newburgh (Flisk, Lindores and Luthrie) is within 20% of Scotland's most deprived datazones in terms of Geographic access.
- A decline in local jobs opportunities and limited community facilities available in Newburgh mean that Newburgh residents have to travel further afield to access jobs, secondary school, higher education, and wider health care and leisure facilities. These services and facilities are considerable distances away, with evidence showing that Newburgh residents travel above average distances to places of work and education when compared to Fife and Scotland as a whole. The main destinations include Perth and Cupar, although people also travel to Dundee, Perthshire, Kirkcaldy, Glenrothes and further afield<sup>21</sup>.
- Newburgh has an above average proportion of households with two or more cars when compared to Fife and Scotland as a whole, yet 19% of Newburgh households do not have access to a car or van and are therefore reliant on travel alternatives<sup>22</sup>.

4.6.27 Similarly to Community Accessibility, all options provide improved accessibility to a greater or lesser degree. The Options were developed and refined following the development of the TPOs which aimed to address a range of identified problems including those listed above.

4.6.28 The analysis presented in Community Accessibility and also the TPO appraisal indicates how each Option contributes to improving Comparative Accessibility.

### Summary of Accessibility and Social Inclusion

4.6.29 Table 4.11 summarises the Accessibility and Social Inclusion appraisal for all options.

**Table 4.11 : Accessibility and Social Inclusion Summary**

Option	Description	Community Accessibility	Comparative Accessibility	Overall Appraisal
1	Improved (Existing) Bus Services	✓	✓	✓
2	(New) Express Bus Service	✓✓	✓✓	✓✓
3a & 3e	Train station Abernethy Rd	✓✓✓	✓✓✓	✓✓✓
3c & 3e	Train station East of Town	✓✓	✓✓	✓✓
3d & 3e	Train station Clatchard Quarry	✓	✓	✓
4	Car Sharing	—	—	—

## 4.7 STAG Appraisal Summary

4.7.1 Table 4.12 summarises the performance of each options against the STAG Criteria

<sup>20</sup> <https://www.gov.scot/collections/scottish-index-of-multiple-deprivation-2020/>

<sup>21</sup> <https://www.scotlandscensus.gov.uk/>

<sup>22</sup> <https://www.scotlandscensus.gov.uk/>

**Table 4.12 : STAG Criteria Appraisal Summary**

Option	Description	Safety	Environ- ment	Economy (PVB)	Integration	Accessibility & Social Inclusion
1	Improved Existing Bus Services	✓	✓	£13m	✓	✓
2	(New) Express Bus Service	✓	✓	£77.7m	✓	✓✓
3a & 3e	Train station Abernethy Rd	✓✓	✓	£81.2m	✓✓	✓✓✓
3c & 3e	Train station East of Town	✓✓	—	£81.2m	✓✓	✓✓
3d & 3e	Train station Clatchard Quarry	✓✓	—	£81.2m	✓	✓
4	Car Sharing	—	—	£2.4m	✓	—

- 4.7.2 **Appraisal of the options concludes that Option 3a (new permanent train station at Abernethy Road) and Option 3e (modular train station at Abernethy Road) are the best performing options against the STAG Criteria.** A station at Abernethy Road (either permanent or modular) is anticipated to bring major benefits to Accessibility and Social Inclusion and would integrate well with existing land-uses. Bringing significant economic benefit, in line with all station options, the Abernethy Road site is also expected to bring overall benefit to the wider environment.
- 4.7.3 Option 3d (Clatchard Quarry) would be expected to bring similar economic benefit but does not bring significant improvements to accessibility and social inclusion due to its location on the edge of the town. With an overall neutral impact, the site also has some impact on environmental sub-criteria such as landscape and biodiversity & habitats. While Option 3c (East of town) does bring moderate accessibility and social inclusion benefits it also shares similar impacts on environmental sub-criteria.
- 4.7.4 Both bus options (1 and 2) bring benefits across the STAG criteria but not to the same extent as the rail options. The Car Share option (4) has little impact either positively or negatively.

## 5. ANALYSIS OF COST TO GOVERNMENT AND VALUE FOR MONEY

### 5.1 Introduction

- 5.1.1 STAG requires that the net cost of an option is assessed from a public spending perspective; this is then compared with the total benefits to provide an overall value for money assessment. The Cost to Government includes all costs incurred by the public sector, net of any revenues.
- 5.1.2 Outline costs have been produced for each option and are provided in Table 5.1. It should be acknowledged that there are a number of unknown factors for each option that could have an impact on the costs. In particular those may include utilities and land ownership, therefore any costings should be treated with an appropriate level of caution and should not be used in funding applications or other budgetary considerations at this stage.
- 5.1.3 Where appropriate, full costing should be based upon more detailed engineering design, including full topographic survey, ground condition survey (if necessary) and an up-to-date public utility search with on-site verification. If a rail option is progressed further a more detailed costing of the options would be required as part of the rail industry's Governance for Railway Investment Projects (GRIP) process.
- 5.1.4 Appendix D provides a note of the sources and assumptions associated with each cost.
- 5.1.5 These costs do not have any allowance for public utilities, alteration or replacement structures, water course or ground contamination. A review of recent and planned station reopenings has been used to develop the costs as well as professional judgement and knowledge of bus operational finances. These costings are in 2020 prices and exclude VAT.
- 5.1.6 In line with STAG, all investment costs should be adjusted for "Optimism Bias". A 46% uplift for optimism bias has been applied to the investment costs for Option 2 (new express bus service) and a 56% uplift applied to the proposed rail station options, in line with the latest WebTAG guidance<sup>23</sup>. There is no investment cost associated with Option 1 or 4, as detailed below and therefore no optimism bias required.
- 5.1.7 A number of the options will result in an increase in maintenance and operational costs including the operation of stations, waiting facilities and bus operations. An indication of potential maintenance and operational costs has been included, where possible, however further detailed work would be required to determine the extent of the costs. For example, the bus service costs would be largely determined by the proposed service and subsidy costs, if any.

### 5.2 Cost Estimates

- 5.2.1 For the purposes of TUBA to develop the Present Value of Benefits and Benefit Cost Ratio, details of costs over a 60 year period are required for Capital Costs (preparation & construction) and operation and maintenance.
- 5.2.2 The estimated costs for the bus based options (Option 1 and Option 2) are shown in Table 5.1.

---

<sup>23</sup> [TAG Unit A1.2 – Scheme Costs](#). OB applied in line with Stage 1 (Table 7) Road and Rail Project Types (Table 8)  
Newburgh Transport Appraisal

**Table 5.1 : Estimated Costs (£m) for Option 1 and Option 2 in 2020 prices, excluding VAT (undiscounted)**

Cost Item	Option 1	Option 2
Capital cost	-	£2.7m
Optimism Bias (OB)	-	46%
Capital cost including OB	-	£3.9m
Operating & maintenance cost (per annum)	£0.2m	£0.6m
<b>Total 60 year costs</b>	<b>£12.5m</b>	<b>£39.9m</b>

- 5.2.3 Option 1 does not require any new buses to be purchased but instead existing provision will be utilised to extend the operating hours of current bus services. Operation and maintenance costs include items such as driver costs, fuel, vehicle maintenance, insurance and general maintenance of vehicle fleet.
- 5.2.4 Option 2 is a new express bus service and requires three new buses to be purchased in order to operate at the required frequency as outlined in the timetable assumptions in Appendix A. Introducing this service will require initial capital cost to purchase buses and a requirement to replace these buses every 10 to 15 years over the 60 year period under consideration. The cost to purchase all required buses over the 60 year period is reflected in the Capital costs listed above. Operation and maintenance costs include items such as driver costs (including new driver training), fuel, vehicle maintenance, insurance and general maintenance of vehicle fleet.
- 5.2.5 The estimated costs for the permanent rail station options are shown in Table 5.2, rounding applies.

**Table 5.2 : Estimated Costs (£m) for Option 3 in 2020 prices, excluding VAT (undiscounted)**

Cost Item	Option 3a	Option 3c	Option 3d
Capital cost	£5m	£8m	£8m
Optimism Bias (OB)	56%	56%	56%
Capital cost including OB	£7.8m	£12.4m	£12.4m
Operating & maintenance cost (per annum)	£0.1m	£0.1m	£0.1m
<b>Total 60 year costs</b>	<b>£15.1m</b>	<b>£19.8m</b>	<b>£19.8m</b>

- 5.2.6 Option 3 proposes a new rail station with three possible locations. The cost estimates were derived from a review of recent and planned station reopenings as detailed in Appendix D. Based on this analysis and uncertainty over the final location of the stations (which would impact on access, land acquisition, station car park and signalling costs), indicative costs have been derived for each option variant as follows:

- Option 3a proposes a new station at Abernethy Road, at the site close to the previous station. Here the land is relatively flat and has good access for preparation and construction. For this option, an average cost from the station cost review was assumed.
- Option 3c (East of town) and Option 3d (Clatchard Quarry) are situated on sloping ground with narrow or restricted access and it is anticipated that construction of a station at these locations would be more challenging and therefore the cost estimates are based on the maximum cost identified in the station cost review.

5.2.7 The estimated costs for a modular short platform (Option 3e) is £600,000, based on an example of a 10m station built in Scotland (Conon Bridge) and utilising current industry standards<sup>24</sup> and SYSTRA's inhouse knowledge of modular platform construction<sup>25</sup>. Current industry standards aim to deliver a modular type station platform built to last for 60 years while the original concept for this option was to build a temporary modular platform that would last a defined number of years and be replaced with another modular station.

5.2.8 For the purposes of economic assessment a range of cost estimates are therefore provided to account for the possible lifespan of a modular station, as shown in Table 5.3. Over the 60 year appraisal period, costs are derived for a modular station being replaced (by another modular station) every, 10, 15 and 20 years where it is assumed that the modular type of station is of a suitable standard to last for the required time period. Costs are also derived for a modular station that does not require replacement (over 60 years). The capital costs presented in the first row of Table 5.3 are the estimated total costs for 60 years i.e. 10 year replacement requires 6 new modular platforms over 60 years (£600,000 x 6).

**Table 5.3 : Range of estimated costs (£m) for Option 3e in 2020 prices, excluding VAT (undiscounted)**

Cost Item	Option 3e (10 year replacement)	Option 3e (15 year replacement)	Option 3e (20 year replacement)	Option 3e (no replacement required)
Capital cost (full 60 year)	£3.6m	£2.4m	£1.8m	£ 600,000
Optimism Bias (OB)	56%	56%	56%	56%
Capital cost including OB	£5.6m	£3.7m	£2.8m	£ 936,000
Operating & maintenance cost (per annum)	£0.01m	£0.01m	£0.01m	£0.01m
<b>Total 60 year costs</b>	<b>£6.2m</b>	<b>£4.3m</b>	<b>£3.4m</b>	<b>£1.5m</b>

5.2.9 As noted above, full costing should be based upon more detailed engineering design, however, for the purposes of this appraisal the costs are considered appropriate for TUBA analysis and adjusted for optimism bias. In addition, a set of sensitivity tests on a range of cost estimates are undertaken and described in in the Risk and Uncertainty chapter (Chapter 6) to understand the impact of variations in cost on the value of benefits, including the impact of a potential lower cost modular station structure.

5.2.10 Operating and maintenance costs in Table 5.2 and Table 5.3 are derived from information provided by ScotRail and detailed in Appendix D.

5.2.11 Both Option 2 and Option 3a/c/d/e include the assumed active travel improvements.

<sup>24</sup> <https://www.duracomposites.com/grp-products/rail-station-platforms/>

<sup>25</sup> <https://www.systra.co.uk/en/services/article/modular-platforms>

- 5.2.12 No costs have been attributed to Option 4. As described in previous chapters, a car sharing scheme in Newburgh will be informal, likely organised by the community and will have no capital costs or additional ongoing operating or maintenance costs (over and above existing personal car maintenance costs).
- 5.2.13 Full details of the option assumptions are provided in Appendix D.

### 5.3 Cost Benefit Analysis

- 5.3.1 Using the PVBs from the Economy appraisal (Chapter4 ) and the costs discussed above, Table 5.4 and
- 5.3.2 Table 5.5 presents a summary of the cost-benefit performance of all the options tested.

**Table 5.4 : Summary of Cost-Benefit Analysis<sup>26</sup>**

Impacts	Option 1	Option 2	Option 3a	Option 3c/d	Option 4
Economic Efficiency: Consumer Users (Commuting)	2.7	31.4	51.8	51.8	0.2
Economic Efficiency: Consumer Users (Other)	9.4	46.6	28.5	28.5	1.8
Economic Efficiency: Business Users and Providers	0.9	-0.4	0.9	0.9	0.4
Revenues	0.3	0.4	1.7	1.7	-0.1
Wider Public Finances (Indirect Taxation Revenues)	0.2	-0.2	-0.3	-0.3	-1.1
Present Value of Benefits (PVB, £m)	13.3	78.1	82.9	82.9	2.3
Present Value of Costs (PVC, £m)	6.2	21.0	10.0	13.7	0.0
OVERALL IMPACTS					
Net Present Value (NPV, £m)	7.1	57.1	73.0	69.2	2.3
<b>Benefit to Cost Ratio (BCR)</b>	<b>2.1</b>	<b>3.7</b>	<b>8.3</b>	<b>6.0</b>	<b>n/a</b>

<sup>26</sup> PVB – present value of benefits

PVC - present value of costs

NPV - net present value (PVB - PVC)

BCR – benefit: cost ratio (PVB / PVC)

**Table 5.5 : Summary of Cost-Benefit Analysis (Modular Station)**

Impacts	Option 3e (10 year lifespan)	Option 3e (15 year lifespan)	Option 3e (20 year lifespan)	Option 3e (no replacement required)
Economic Efficiency: Consumer Users (Commuting)	51.8	51.8	51.8	51.8
Economic Efficiency: Consumer Users (Other)	28.5	28.5	28.5	28.5
Economic Efficiency: Business Users and Providers	0.9	0.9	0.9	0.9
Revenue	1.7	1.7	1.7	1.7
Wider Public Finances (Indirect Taxation Revenues)	-0.3	-0.3	-0.3	-0.3
Present Value of Benefits (PVB, £m)	82.9	82.9	82.9	82.9
Present Value of Costs (PVC, £m)	4.8	3.3	2.6	1.1
OVERALL IMPACTS				
Net Present Value (NPV, £m)	78.1	79.6	80.3	81.9
<b>Benefit to Cost Ratio (BCR)</b>	<b>17.2</b>	<b>25.0</b>	<b>32.4</b>	<b>78.8</b>

- 5.3.3 As discussed in the Economy section, the Rail option (3) generates the greatest PVB, generating £82.9 million of benefits. The significant benefit associated with this option is related to the considerable journey time saving during, particularly for those travelling to Edinburgh. Of the permanent station options, Option 3a has lower PVC and therefore achieves the highest Benefit-Cost Ratio (BCR) of 8.3. Options 3c and 3d, with higher assumed construction costs, achieve a BCR of 6.0.
- 5.3.4 Table 5.5 shows the modular station options retain the same levels of benefits (£82.9 million PVB) but with lower PVC, each option achieves a higher BCR, ranging from 17.2 to 78.8 depending on the assumed lifespan of the modular platform. It can be clearly seen that if a modular station is feasible, it would represent the best value for money option
- 5.3.5 Option 2 is also shown to generate significant levels of benefit (£78.1 million PVB) but the higher costs of the option, as outlined above, sees the option achieve a BCR of 3.7.
- 5.3.6 Option 1 achieves a BCR of 2.1 and while the level of benefits is not comparably as large as the other bus and rail options (£13.3 million PVB) the low cost of the option returns a positive value for money option.
- 5.3.7 For Option 4 it is not possible to calculate a BCR as no costs (capital or operating) are associated with the informal car share option. As noted in the Economy section, the option does achieve some small benefits (£2.3 million PVB) through minor savings in journey times across all users.
- 5.3.8 Transport Scotland's STAG recognises the cost benefit analysis does not capture or monetise all benefits (including Safety, Accessibility and Environment) and the other benefits discussed under the STAG criteria should be taken into consideration together as part of the appraisal.

## 6. ANALYSIS OF RISK AND UNCERTAINTY

### 6.1 Introduction

6.1.1 Risk and uncertainty should be taken into account as part of the appraisal. This helps to ensure that the best possible estimate of the costs and benefits associated with each option is presented. To capture all aspects of risk and uncertainty this chapter includes the following sections:

- Feasibility, affordability and public acceptability – to inform the Risk Register
- Uncertainty Analysis – including the impact of COVID-19
- Risk Register

### 6.2 Feasibility, Affordability and Public Acceptability

6.2.1 Feasibility, affordability and public acceptability considerations are identified as part of the Preliminary Appraisal. A number of major considerations were identified at that stage and have been presented below to inform the Risk Register.

#### Feasibility

##### Option 1

6.2.2 Technical: There are no known technical feasibility issues associated with this option. The option would be using existing infrastructure (i.e. bus stops and roads), and an established mode/technology.

6.2.3 Operational: The option would require reconfiguration of existing timetables but no additional vehicles. Enhancements to frequency and operational hours would incur additional operational cost as noted above. The option would require agreement and negotiations with Fife Council, Perth and Kinross Council and bus operators regarding service provision.

##### Option 2

6.2.4 Technical: There are no known technical feasibility issues with this option. The option would predominately be using existing infrastructure (i.e. bus stops and road) and an established mode/technology. There may be a need or desire to formalise bus stopping arrangements for sections of the proposed route, particularly between Lindores and Parbroath crossroads and Cupar.

6.2.5 Operational: An example timetable is provided in Appendix A where it is proposed the new service would require three new buses to operate an hourly service between Cupar and Perth. Clearly this new service would cause additional operational cost, as noted in the Chapter above. There may also be impacts on wider timetabling and the example timetable has been derived to complement existing provision in Newburgh such that the area is served with a half-hourly bus service. There would be a requirement to work with bus operators to develop the new route, source additional bus fleet and market the new services. In addition, the option would require agreement and negotiations with Fife Council, Perth and Kinross Council and bus operators regarding service provision.

##### Option 3

6.2.6 Technical: There could be technical challenges to build a new station on the existing line, however these will be understood and expected from recent station openings in Scotland and

therefore the option is considered technically feasible. Option 3 proposes three possible station locations that impact the feasibility of the option.

- 6.2.7 Site **3a** (Abernethy Road) has a number of facilities which may ease delivery, including being safeguarded in the LDP, a nearby car park, and a bus stop. As noted in the environmental appraisal, the land is relatively flat and would provide good access for construction with minimal disruption expected to the local road network or community areas.
- 6.2.8 Both site **3c** (East of Town) and site **3d** (Clatchard Quarry) are located on constrained land areas and purchasing of third party land may need to be considered for these options, making them less feasible and more costly. As noted in the environmental appraisal, both sites are situated on sloping land with constrained access meaning site construction is likely to be more challenging than Option 3a. While both 3c and 3d are considered technically feasible at this stage, significant preparatory work would need to be undertaken to ensure their suitability as locations for a new train station.
- 6.2.9 At all sites, a modular station and platform would involve a shorter development period initially with a basic amount of groundwork and a shorter construction phase, resulting in less disruption to the local road and rail network and community areas. A 10m modular station platform represents an option that deviates from standard platform design length. If a modular option is to progress, further feasibility discussion would be required with key stakeholders, including Network Rail. As noted in the cost estimates in Chapter 4.7, a 10m platform was constructed at Conon Bridge in 2013 providing evidence a short platform is feasible. In addition, new technologies allow for modular stations to be built in shorter timeframes and with minimal disruption to live lines, as seen in the construction of Robroyston Station<sup>27</sup>.
- 6.2.10 Operational: Physical operation is feasible, as the line is active; however, there would be timetable impacts on users along the line from the additional stop, and ScotRail/Abellio have noted that the current single line section through Newburgh is a constraint and that an extra call would need to be reviewed for impact. In particular, the possibility of delivering the service without negatively impacting on the timetabling of existing services and increasing journey times would require investigation. To understand journey times and journey time penalties on the line resulting from an additional stop, Railsys modelling (as supplied by Network Rail) was undertaken and outcomes provided in Appendix A. This suggests that the introduction of an additional stop would result in a journey time increase between Ladybank and Hilton Junction of up to 2 minutes 30 seconds. Discussions with ScotRail/Abellio would be required to understand the impact of this increase on wider timetabling.
- 6.2.11 In addition to this consideration, the ScotRail Fit for the Future<sup>28</sup> proposed timetable changes will focus on improved punctuality and reliability of services as well as introducing new methods of analysis developed during COVID-19 to refine and improve the service offer as the operator learns more about how customer travel behaviours are changing. Due to the evolving nature of timetables and the timescale for station delivery, detailed timetabling has not been undertaken but a high-level timetable is provided in Appendix A. The uncertainty around the proposed new timetable explored below (Section 6.4).
- 6.2.12 A further consideration relates to the parallel Local Rail Development Fund study being undertaken for Bridge of Earn/Oudenarde. The addition of two stations on the line would lead to further timetabling considerations, including conflicts on the single track line, and increased disbenefits to existing passengers due to longer journey times.

<sup>27</sup> [Dura Rail Platform at Robroyston Station \(Page 23\)](#)

<sup>28</sup> <https://www.scotrail.co.uk/about-scotrail/fit-future>

#### Option 4

- 6.2.13 Technical: Setting up a car sharing scheme would be feasible from a technical perspective. There are well established lift and car sharing schemes operating across Scotland, which could provide good understanding of requirements.
- 6.2.14 Operational: One of the main issues to consider from an operational perspective will be to ensure there are enough users of the scheme to make it feasible. As car sharing relies on people being willing to share lifts as well as being able to make their journeys at the same time and to the same destinations, there needs to be enough users signed up to the service for trips to be matched. Evidence shows many Newburgh residents are employed in industries that require shift work, and include an above average number of part time workers and self-employed, who all require varying flexibility of access to the transport network and times needed to travel. This will likely reduce the opportunities for the same journeys to be matched. Similarly, viability of a car club depends on having sufficient number of members using the scheme. As these schemes typically exist in higher density, larger population areas, there may be some commercial viability issues with a car club scheme in Newburgh, which is classed as a rural area and therefore low density.

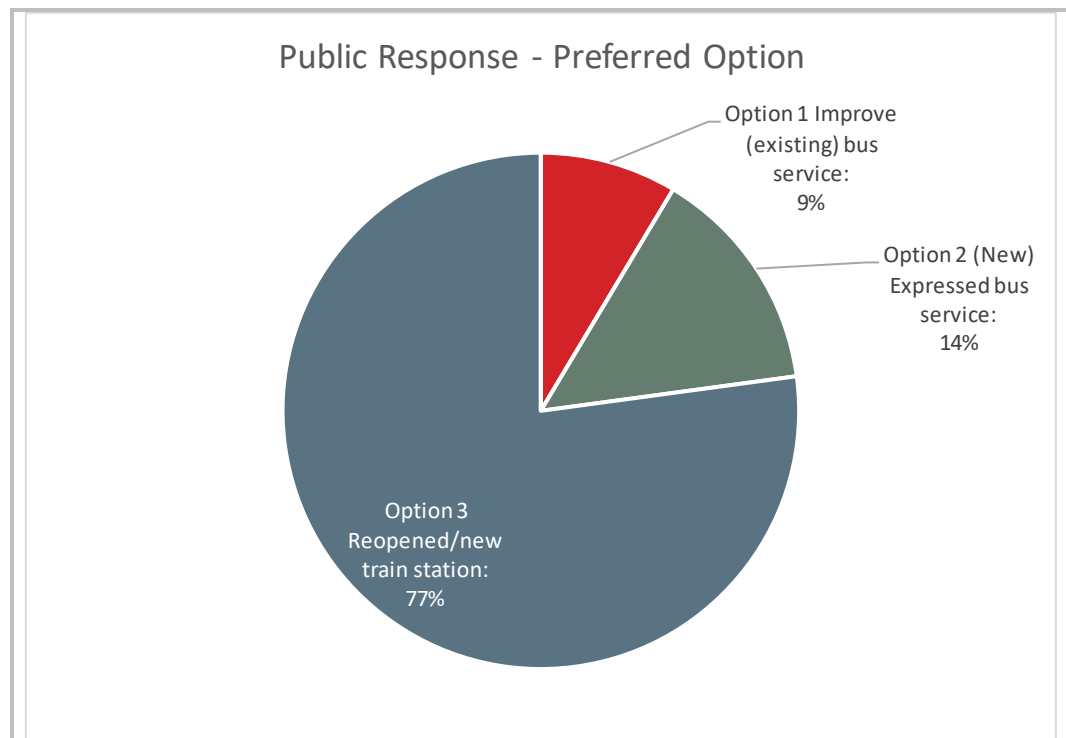
#### Affordability

- 6.2.15 The preceding chapter identifies the costs to be considered as part of the options in relation to Cost to Government. In addition to this information it is relevant to include an understanding of the commercial viability and potential requirement for public subsidy to support the services from an ongoing operating and maintenance perspective.
- 6.2.16 This is particularly relevant for Option 1 and Option 2, introducing increased bus services to the area. The patronage associated with these options is expected to be moderate at the outset, with comparably low operating revenue, but modelling does suggest good longer-term potential and increased public transport usage in future year models. This option, therefore, may be reliant on initial ‘kick-start’ public sector revenue funding as it may not be commercially viable to offer such a service in its early years. This public sector revenue funding may be in the form of funding to initiate the service prior to developing a customer base and its associated operating revenue. Discussions with Fife Council highlight that there is no additional funding presently available from the Council to subsidise the enhancement of any existing services (Option 1) or any new service (Option 2).
- 6.2.17 Fife Council provide financial support for existing bus provision in Newburgh and the Council advised that any new service (Option 2) competing with a supported service would highly likely see this existing funding resource directed elsewhere as the gap in service / service provision would no longer exist in Newburgh. There is also the possibility of abstraction from commercial services against a supported service.
- 6.2.18 Consideration of the above difficulties in financial support may suggest Option 1 and Option 2 are difficult to progress. As seen throughout the appraisal both options can bring wider benefits against the TPOs and STAG criteria but careful consideration must be given to the long-term fundability of these options.
- 6.2.19 Incorporating rail station calls at a new station in Newburgh can be contained within existing operating diagrams (i.e. do not result in less efficient use of rolling-stock and train crews) and therefore the additional operating cost for rail services at Newburgh will be relatively small and counterbalanced by the additional revenue generated.
- 6.2.20 As noted in the preceding chapter, there are no costs associated with Option 4 where a car sharing scheme in Newburgh would be informal, likely organised by the community and will

have no capital costs or additional ongoing operating or maintenance costs. If successful uptake of local participants results then it may be likely that there are some minor cost savings for individuals who share fuel costs and save on public transport fares. This may have a small impact on patronage figures on public transport but as shown in Chapter 3, there is negligible mode shift from public transport as a result of this option when modelled in TCRTM.

### Public Acceptability

- 6.2.21 Following the extensive stakeholder engagement during the previous stages of the Newburgh transport appraisal, stakeholder discussions and liaison continued throughout the Detailed Appraisal stage.
- 6.2.22 The purpose was to ensure that:
- Stakeholders were updated on the development of the project;
  - Those affected by the proposals were aware of them, understood them; and had the opportunity to provide feedback;
  - Specific information was gathered from relevant stakeholders to help quantify the detailed appraisal of options; and
  - Any implementation risks arising from stakeholder concerns relating to the proposals were minimised.
- 6.2.23 Due to the COVID-19 travel restrictions, which limited the opportunities to engage with stakeholders face to face, the engagement was undertaken through:
- An online survey hosted through the project website, providing the opportunity for stakeholders and members of the public to provide feedback;
  - Direct emails to stakeholders;
  - Telephone/on-line calls, as required;
  - Industry and community networks, including their websites and social media (including a local Courier article); and
  - Presentations, including at a Rail User group meeting and to a local MSP.
- 6.2.24 The online survey generated 30 responses where members of the public could give their opinions on each of the options presented for detailed appraisal. The project website gave suitable details of each option to allow those responding to do so in an informed manner. Each response was reviewed and a preferred option or options was noted. 29 of the 30 responders stated a preferred option/options, with the collated results shown in Figure 6.1.



**Figure 6.1 : Public Response – Preferred Option**

- 6.2.25 Option 3 has significant public support from those that responded and has received considerable support from residents and businesses throughout the appraisal process. The establishment of a local campaign group, the Newburgh Train Station Group, indicates a long running level of support in the community for a rail station in Newburgh. From the information gathered and views expressed during the full appraisal process, the local community would strongly support this option.
- 6.2.26 Clearly, there is a majority of support for Option 3 but there is also some support for the bus improvement Options 1 and 2 and if introduced they would likely receive some level of local community.
- 6.2.27 No respondent expressed support for the car sharing option (Option 4) and therefore it is not possible to draw any conclusions on the option's acceptability. The success of any car sharing option would be dependent on public support and community setup and without it, it is unlikely that this option would be effective.

## **6.3 Risk Management**

- 6.3.1 Risk management is a structured approach to identifying, assessing, and controlling risks that emerge during the course of an option. This helps to develop a more thorough understanding of the risks inherent within an option and their likely impact, in turn supporting better decision-making. Risk management involves:
- Identifying risks in advance;
  - Assessing their likelihood of occurring and scale of impact, to ascertain the overall significance of each risk;
  - Identifying and putting in place potential mechanisms to mitigate each risk; and
  - Ongoing monitoring and review to identify potential new risks and also where risks may have been successfully mitigated and therefore are no longer a concern requiring consideration.

- 6.3.2 A proactive approach to risk management from the outset helps facilitate bringing more certainty to a project at an earlier stage. This, in turn, can help to provide greater confidence and reduced requirement for optimism bias to address potential under-estimation of costs and delivery timeframe, and over-statement of benefits.
- 6.3.3 The Risk Management process has been informed by consultation with key stakeholders, previous professional experience within the project team and the preceding feasibility, affordability and public acceptability section. Table 6.1 sets out key risks that will need to be considered and managed if option(s) are progressed to the next stage.

**Table 6.1 : Risk Management**

Risk	Mitigation
<p><b><u>Affordability of Rail fares</u></b></p> <p>Throughout the gathering of evidence and data for the study, public transport affordability was an issue expressed by stakeholders and the public. Analysis of public transport fares in the Case for Change shows that travel by public transport is more expensive than travel by car, although only for shorter journeys (i.e. up to 10km). The costs tend to be similar for the 10-20km destination range, which include Perth and Cupar, and cheaper for longer distance destinations (e.g. to Edinburgh).</p> <p>TRACC and TCRTM shows the benefits to journey times from a new rail station in Newburgh, however, the analysis cannot determine if the transport is 'affordable' to people from a specific location. Therefore, there is a risk that the rail option is not affordable to use, hence forecast usage could be currently overestimated.</p>	<p>Current rail fares between Perth/Ladybank and all onwards stations can be calculated. Discounts offered through rail cards and MYFife travel can make rail travel more affordable.</p> <p>The Rail Delivery Group has recently consulted with passengers on the approach to fare setting among rail franchisees. Transport Scotland will consider RDG's recommendations alongside the reviewed NTS to determine the best approach to fare setting in future at a national level, encompassing Fife and the rest of Scotland, rather than changing fares on individual routes in isolation.</p>
<p><b><u>Funding of study</u></b></p> <p>Progressing the options beyond STAG will require further funding from SESTran/Fife Council. Uncertainty over future budgets may impact on and delay study progression</p>	<p>Following the acceptance of this report by Transport Scotland, decision makers will consider which options to progress and discuss potential funding arrangements with SESTran, Fife Council and Transport Scotland</p>

<p><b><u>Viability of local bus services resulting from new rail station</u></b></p> <p>The introduction of a new rail station or an express bus service may lead to shift from existing bus as well as cars. Reduced demand on local bus services (as witnessed in the Borders following the opening of the Borders Rail line) has the potential to adversely impact on the commercial viability of existing local and regional bus routes / services. Thus, depending on the nature of the impact, there could be greater requirements for increased subsidy in order to keep services in operation.</p>	<p>The existing bus fleet serves a different area/purpose than rail will offer and is likely to still be an attractive option for many.</p> <p>If Option 2, the express bus service, is introduced, this service would offer a direct route to Cupar and connecting locations, again different from existing bus and proposed rail provision and it may complement existing services.</p> <p>Issue of declining bus service provision is recognised in the NTS2. Transport Bill – key provisions for bus service improvements including greater powers for local authorities.</p>
<p><b><u>Cost of local bus improvements</u></b></p> <p>The bus improvements proposed in Option 1 increase operating hours and do not include any significant capital costs. Transport Scotland does not have any routes to provide revenue funding and Fife Council currently provide significant subsidy to bus operators. Financial support to ensure provision of an expanded bus services will need to be explored in further detail. Option 2 requires a new set of buses and alongside revenue challenges noted above, would require initial capital costs and ongoing capital as buses are replaced and end of life.</p>	<p>Discussions with Fife Council highlight that there is no additional funding presently available from the Council to subsidise the enhancement of any existing services (Option 1) or any new service (Option 2).</p> <p><b>This identifies both options as high risk.</b></p> <p>Should the options progress, funding streams will need to be investigated.</p>

## 6.4 Uncertainty Analysis

6.4.1 Uncertainty analysis is a routine part of appraisal and modelling and is used to test the vulnerability of the options to future uncertainties which are unavoidable. Through analysing the range of inputs and the values that key variables may take, uncertainty analysis allows any resultant effects on the associated impacts of options to be examined. For the purposes of this study, the following scenario and sensitivity tests were developed:

- Low Growth (Covid-19) Scenario
- Cost Sensitivity
- Alternate Timetable scenario for Option 3

Low Growth (Covid-19) Scenario

- 6.4.2 Given uncertainty related to transport growth in response to COVID-19, supplementary forecast scenarios have been developed to account for uncertainty. The scenario used for the core appraisal has been considered the 'High Growth' Scenario. This scenario utilises the currently available forecasts within TCRTM which represent the typical growth that would be represented in historical forecasts with an increase in employment, population and the outturn trip making. This represents a scenario where congestion and the increased cost of road travel also drives passengers onto public transport.
- 6.4.3 For the uncertainty analysis, a 'Lower Growth' Scenario has been developed and applied to options. The DfT Forecasting and Uncertainty Guidance (TAG Unit M4, published May 2019) sets out a methodology for taking account of uncertainty within forecasting. This suggests reducing road travel demand by -2.5% of the model Base Year demand for each additional forecast year to create a 'lower growth' scenario (with proportional reductions for later forecast years).
- 6.4.4 Guidance for public transport is more limited, but suggests reduction figures of -1.5% per annum for bus patronage and -2.0% for rail demand. Note that the guidance suggests the uncertainty ranges for public transport should be lower than car travel, as public transport usage is less sensitive to both fuel price and income than car travel. As this guidance precedes the Covid-19 pandemic, this relationship may now be less relevant, however current fuel price and cost of living increases may also have a role to play in travel demand reduction.
- 6.4.5 The Newburgh appraisal includes rail station options which require passengers to interchange and be 'car available' to access the station. Furthermore, the longer term impacts of Covid-19 could potentially bring larger uncertainty to future levels of PT travel demand. Therefore, it is proposed to apply the -2.5% reduction figure to generate a 'low growth' scenario for **both** road and public transport travel demand. This proposed reduction methodology has been agreed with Transport Scotland.
- 6.4.6 The relevant calculated reductions in road and PT travel demand for the TCRTM 2027 and 2037 forecast year lower growth would therefore be **-8% and -11%** respectively.
- 6.4.7 The actual level of travel demand reduced would be calculated from the 2017 Base Year and applied to the forecast matrices. This method therefore ensures that the forecasting takes account of the distribution of new development and population change, and mode and destination choice impacts.
- 6.4.8 The outputs of the Low Growth scenario are presented in Table 6.2 and show benefits which are approximately 8-11% lower than the core scenario across all options. The reduction in demand and benefits however has not significantly altered any of the BCRs (e.g. a positive NPV has not changed to a negative NPV) and the analysis shows that even at lower growth, Options 1, 2 and 3a/c/d will represent value for money and be low risk options.

**Table 6.2 : Low Growth Sensitivity – Summary of Cost Benefit Analysis (£million)**

Impacts	Option 1	Option 2	Option 3a	Option 3c/d	Option 4
Economic Efficiency: Consumer Users (Commuting)	2.5	28.2	46.3	46.3	0.2
Economic Efficiency: Consumer Users (Other)	8.4	41.8	25.5	25.5	1.6
Economic Efficiency: Business Users and Providers	0.8	-0.3	0.8	0.8	0.3
Revenues	0.2	0.3	1.5	1.5	-0.1
Wider Public Finances (Indirect Taxation Revenues)	0.1	-5.0	-0.3	-0.2	-1.0
Present Value of Benefits (PVB, £m)	11.8	65.2	74.0	74.1	2.1
Present Value of Costs (PVC, £m)	6.2	21.0	10.0	13.7	0.0
OVERALL IMPACTS					
Net Present Value (NPV)	5.6	44.1	64.1	60.4	2.1
<b>Benefit to Cost Ratio (BCR)</b>	<b>1.9</b>	<b>3.1</b>	<b>7.4</b>	<b>5.4</b>	<b>n/a</b>

#### Cost Sensitivity Tests

- 6.4.9 As discussed in Chapter 4.7, the costs developed as part of this study are indicative and based on recent rail station openings and industry experience. Capital costs can vary significantly based on the final location of a site including access arrangements, construction materials, or signalling and it is therefore prudent to consider the impact of varying costs for the option which require construction costs.
- 6.4.10 In Option 2 and all Option 3 variants, the impact on the BCR of a doubling of Capital costs is set out in Table 6.3.

**Table 6.3 : High Cost Sensitivity – Summary of Cost Benefit Analysis (£million)**

Impacts	Option 2	Option 3a	Option 3c/d
Economic Efficiency: Consumer Users (Commuting)	31.4	51.8	51.8
Economic Efficiency: Consumer Users (Other)	46.6	28.5	28.5
Economic Efficiency: Business Users and Providers	-0.4	0.9	0.9
Revenues	0.4	1.7	1.7
Wider Public Finances (Indirect Taxation Revenues)	-0.2	-0.3	-0.3
Present Value of Benefits (PVB, £m)	78.1	82.9	82.9
Present Value of Costs (PVC, £m)	24.2	16.2	23.8
<b>OVERALL IMPACTS</b>			
Net Present Value (NPV, £m)	53.9	66.7	59.1
<b>Benefit to Cost Ratio (BCR)</b>	<b>3.2</b>	<b>5.1</b>	<b>3.5</b>

- 6.4.11 As expected, the BCRs for all options reduce but even with a significant increase in Capital Costs, all options retain their potential value for money and low risk.

#### Alternative Timetable

- 6.4.12 ScotRail is introducing Fit for the Future<sup>29</sup> timetable changes that focus on improved punctuality and reliability of services as well as introducing new methods of analysis developed during COVID-19 to refine and improve the service offer.
- 6.4.13 Initially published for consultation in 2021, the new timetable proposed Edinburgh to Perth services would route via Dunfermline, instead of Kirkcaldy, and the Edinburgh to Inverness service would route via Stirling and therefore be removed from the line through Newburgh. These proposed changes to rail timetables were run in TCRTM and sensitivity testing was planned to be undertaken.
- 6.4.14 However, following consultation, ScotRail's final proposals are to operate the Perth to Edinburgh service via Kirkcaldy, as a local service, and this is anticipated to reduce the average journey time between Perth, Ladybank, Markinch, and Edinburgh and will also maintain a direct service between Perth and Kirkcaldy. The Edinburgh to Inverness service is still proposed to operate via Stirling. The removal of the inter-city service from the line reduces the conflict of Option 3 with Scottish Government policy to not increase inter-city journey times. Conflicts on the line from a timetabling perspective may also be reduced given this proposed change. This is a significant, potentially positive, change to this opportunity.

<sup>29</sup> <https://www.scotrail.co.uk/about-scotrail/fit-future>

- 6.4.15 Following these new proposals, and due to the timescales of this commission, no sensitivity testing of the final timetable changes is undertaken. The journey time saving benefits captured in the core analysis of Option 3 would be maintained with the new timetable and therefore the overall benefits are anticipated to be in line with those discussed in Chapter 4.7.

## 7. SUMMARY AND CONCLUSIONS OF DETAILED OPTIONS APPRAISAL

### 7.1 Introduction

- 7.1.1 Following the STAG process, the performance of each of the options has been appraised against the Transport Planning Objectives, five STAG criteria and an analysis of the costs, benefit, risks and uncertainties.
- 7.1.2 The findings of the Detailed Options Appraisal are summarised below and in Table 7.1, with study conclusions presented in Section 7.2.

### 7.2 Summary

#### **Option 1 – Improve (Existing) bus services to/from Newburgh**

- 7.2.1 Option 1 would provide enhanced bus service provision to Perth, Cupar and Ladybank to enable public transport access to key services and markets i.e. employment, places of study, and wider health care and leisure facilities, and to help increase public transport choice.
- 7.2.2 TRACC analysis shows Option 1 does not improve journey times. Importantly however, is the increased ability to access locations before 09:00am (i.e. before most employment/education starts) and after 19:00pm (when shift work may begin/end). For example, the proposed timetable changes would provide two bus services to St. Andrews that arrive before 09:00am, opening up possible further education opportunities at the University of St. Andrews.
- 7.2.3 By providing additional bus services outside 07:00am and 19:00pm, Option 1 provides a moderate benefit against TPO1, improving transport access. While there are no expected benefits to public transport journey times the proposal will increase accessibility to other transport interchanges thereby positively influencing transport connectivity and providing a minor benefit against TPO2. With increased flexibility around travel times, it is reasonable to conclude that the option may positively impact sustainable travel to and from Newburgh and this results in a minor benefit against TPO3.
- 7.2.1 Against the STAG criteria Option 1 is considered to have a minor positive impact on the environment - there are no tangible adverse impacts from physical infrastructure changes associated with this option and the potential for modal shift to bus usage (as a means of more sustainable transport) to improve global and local air quality. Regarding Safety, Option 1 is neutral due to minimal change in accidents or security facilities.
- 7.2.2 Option 1 brings minor benefit for Integration relating to the option positively contributing to integration between transport and land-use by providing improved connections to existing key employment sites and aligning with local, regional and national transport policies. Option 1 brings also minor benefit for Accessibility and Social Inclusion relating to the improved frequency and transport network coverage associated with the option, albeit only at restricted times of the day.
- 7.2.3 In terms of economic viability and technical feasibility, Option 1 has a BCR of 2.1 and PVB of £13m (over 60 years, 2010 prices), however, it should be noted that not all benefits have been monetised and incorporated into this BCR calculation and the wider benefits discussed in section 5 should also be considered. From a feasibility perspective, this option does not require any construction, however operational feasibility will require close coordination with bus operators, Fife Council and potentially subsidies to support any services.

## **Option 2 – New express bus service between Newburgh, Perth and Cupar.**

- 7.2.4 The option proposes a new express bus service between Cupar and Perth, providing an hourly service in both directions from approximately.
- 7.2.5 TRACC analysis concludes the Option 2 will help reduce journey times to key transport interchanges and services such as regional hospitals and retail centres. By providing an express bus service to complement existing bus services, Option 2 provides benefits to public transport journey times and increases accessibility to key services and other transport interchanges, thereby positively influencing transport connectivity. Option 2 therefore brings moderate benefit against TPO1 and TPO2. TCRTM model analysis shows there to be a small increase in travel by sustainable modes and in turn minor benefits for Option 2 against TPO3.
- 7.2.6 Against the STAG criteria, Option 2 is considered to have a minor positive impact on the environment, related to minimal impacts from physical infrastructure changes associated with this option and the potential for modal shift to bus usage (as a means of more sustainable transport) to improve global and local air quality. Regarding Safety, Option 2 is neutral due to minimal change in accidents or security facilities.
- 7.2.7 Option 2 is considered a minor benefit for Integration relating to the option positively contributing to integration between transport and land-use through greater combined frequency and speed of service and the potential to link journeys / access to onward services, and alignment with local, regional and national transport policies. In terms of Accessibility and Social Inclusion, Option 2 is considered to bring moderate positive benefits, again through greater combined frequency and speed of service and the potential to link journeys / access to onward services, and bringing improved access to opportunities in Fife and Edinburgh.
- 7.2.8 In terms of economic viability and technical feasibility, Option 2 has a BCR of 3.7 and PVB of £13m (over 60 years, 2010 prices); however, it should be noted that not all benefits have been monetised and incorporated into this BCR calculation and the wider benefits discussed in section 5 should also be considered. Option 2 is the highest cost option, compared to all options under consideration. From a feasibility perspective, this option does not require any construction, however operational feasibility will require close coordination with bus operators, Fife Council and potentially subsidies to support any services. Fife Council provide financial support for existing bus provision in Newburgh, and the Council advised that any new service (Option 2) competing with a supported service would highly likely see this existing funding resource directed elsewhere as the current gap in service / service provision would no longer exist in Newburgh. There is also the possibility of abstraction from commercial services against a supported service. The option is therefore only likely to be realised if an additional funding source is provided, for example if the operator Stagecoach commercially funds the option.

## **Option 3a/c/d/e – New train station in Newburgh**

- 7.2.9 Option 3 proposes a new train station in Newburgh in order to help increase public transport choice for trips to and from Newburgh, increase connectivity, and help facilitate access to key services and markets. The option considers the opening of the rail station as both a permanent and a modular structure. It also considers multimodal access to the stations. The option considers three possible locations as follows<sup>30</sup>:
- 3a: Reopening of a former rail station at Abernethy Road
  - 3c: Opening a new station at the east end of the town
  - 3d: Reopening of a former railway station at Clatchard Quarry
  - 3e: Modular station (at any location)

<sup>30</sup> Note: Option 3b removed as a possible option at Preliminary Appraisal Stage ([Report, SYSTRA, 2020](#))

- 7.2.10 The three proposed locations and option of a modular station provide differing benefits, and this has been captured throughout this detailed appraisal process.
- 7.2.11 By providing a new train station in Newburgh, Option 3 is shown to improve public transport access to key services and improve public transport journey times to regional centres and in turn improve connectivity. The actual location of the station impacts the scale of this improvement, with Option 3a (Abernethy Road) and Option 3c (East end of town) shown to be located inside 1500m walk for most of the town's population. Option 3d (Clatchard Quarry) is located more than 1500m from the western extent of the town. For those inside the walking catchment, there are significant journey time savings to Edinburgh of between 40 minutes and 50 minutes for Options 3a and 3c. Option 3a and Option 3c bring moderate benefit against TPO1, TPO2 TPO3. The impacts and benefits seen for Option 3d are not as significant because of the smaller walking catchment area and, for example, smaller journey time savings seen between Newburgh and Edinburgh. However a station located at Clatchard Quarry will still bring minor benefits to the Newburgh against the TPOs. Option 3e would realise the same benefits as each permanent station location.
- 7.2.12 Against the STAG criteria, all option locations would require the construction of infrastructure, with potential slight adverse environmental effects on noise/vibration, air quality, and biodiversity. Option 3a is anticipated to make a positive contribution to runoff, townscape, visual amenity and physical fitness, water environment and cultural heritage and overall, Option 3a is therefore considered to provide a minor benefit to the Environment. For Options 3c and 3d however, adverse impacts are anticipated on geology, biodiversity, agriculture and cultural heritage which brings an overall neutral impact on the environment for these Options. It is anticipated that Option 3e would incur less construction impacts but in general realise the same benefits/impacts as each permanent location.
- 7.2.13 Regarding Safety, Option 3a/c/d/e is neutral due to minimal change in accidents or security facilities.
- 7.2.14 Options 3a and 3c are considered to bring moderate benefit for Integration, relating to these options positively contributing to integration between transport and land-use through greater provision of transport options and speed of service and the potential to link journeys / access to onward services, and by aligning with local, regional and national transport policies. While Option 3d brings similar types of benefits, these are anticipated to be lower due to the locations at the edge of Newburgh and therefore the options variant brings a minor benefit against the STAG criteria.
- 7.2.15 In terms of Accessibility and Social Inclusion, Option 3a is considered to bring major positive benefits, again through greater provision of transport facilities at a location highly accessible for much of Newburgh's residents. Option 3c offers similar types of benefits but its location on a steep hillside limits its overall impact and therefore provides a moderate benefit. Option 3d is not located within accepted walking catchment distance for much of Newburgh and with the proposed location on a steep hillside meaning access may be difficult for some, Option 3d brings minor benefit against the criteria.
- 7.2.16 In terms of economic viability Option 3a has a BCR of 8.2 and PVB of £81.2m (over 60 years, 2010 prices). With higher PVC, Options 3c and 3d have a BCR of 5.9, with the same PVB of £81.2m. Again, it should be noted that not all benefits have been monetised and incorporated into this BCR calculation and the wider benefits discussed in section 5 should also be considered. The economic appraisal of Option 3e was undertaken on a range of modular station lifespans. At a significantly lower cost, a modular station is expected to achieve a BCR of between 16.8 to 78.8 depending on the frequency of a replacement platform being needed.

- 7.2.17 From a feasibility perspective, Option 3a is located on relatively flat land and would provide good access for construction with minimal disruption expected to the local road network or community areas. Both option 3c (East of Town) and option 3d (Clatchard Quarry) are located on constrained land areas and purchasing of third party land may need to be considered for these options, making them less feasible and more costly. As noted above, both sites are situated on sloping land with constrained access meaning that site construction is likely to be more challenging than Option 3a. While both 3c and 3d are considered technically feasible at this stage, significant preparatory work would need to be undertaken to ensure their suitability as locations for a new train station.
- 7.2.18 A modular (Option 3e) platform would involve a faster development period initially with a basic amount of groundwork and a shorter construction phase, resulting in less disruption to the local road and rail network and community areas. However, a 10m modular station platform represents an option that deviates from standard platform design. If a modular option is to progress, further feasibility discussion would be required with key stakeholders, including Network Rail. As noted in the cost estimates in Chapter 4.7, a 10m platform was constructed at Beaulieu in 2002 and Conon Bridge in 2013 providing evidence a short platform is feasible.

#### **Option 4 – Car share scheme**

- 7.2.19 Option 4 looks to increase car sharing to and from Newburgh by the setting up of an informal car-sharing scheme between those travelling to and from Newburgh.
- 7.2.20 Discussions with relevant stakeholders (TACTRAN, SEStran and Fife Council) highlighted that the only current viable option open to appraisal at this stage is informal car-sharing between those travelling to and from Newburgh. Given the lack of options for hosting, funding or publicising a car share scheme, the success of this option would likely depend on the community taking on responsibility, for example creating a social media group where those looking to participate could make arrangements to car share.
- 7.2.21 Analysis of the Option against the TPOs concluded that the restricted ability or opportunities to car share is unlikely to have a notable impact on journey times or public transport connectivity for residents, businesses and visitors and therefore the option scores neutrally against TPO 1 and TPO2. If implemented successfully, however, the option would be expected to increase sustainable travel through car sharing rather than increased public transport or active travel use, and would provide minor benefit against TPO3.
- 7.2.22 Against the STAG criteria, no significant impacts are anticipated against Environment, Safety or Accessibility and Social Inclusion, and the option therefore scores neutrally against these criteria. The option aligns with transport policy such as the promotion of sustainable travel, and reduced single occupancy private car use and brings minor benefit against the Integration Criteria.
- 7.2.23 In terms of economic viability a BCR for Option 4 cannot be calculated as no costs are associated with this informal car share option. However, a small PVB of £2.4m (over 60 years, 2010 prices) is noted. While not all benefits can be monetised, there are anticipated to be negligible wider benefits that be considered in the overall appraisal. While the options is feasible, one of the main issues to consider from an operational perspective will be to ensure there are enough users of the scheme to ensure its long-term viability.

Table 7.1 : Summary of Appraisal

Appraisal against:		Option						
		1	2	3a	3c	3d	3e	4
		Improved (Existing) Bus Services	(New) Express Bus Service	New Train Station in Newburgh (Abernethy Road)	New Train Station in Newburgh (East of town)	New Train Station in Newburgh (Clatchard Quarry)	Train Station in Newburgh (Modular Platform)	Car Sharing
TPOs	TPO1 - Improve transport access	✓✓	✓✓	✓✓	✓✓	✓	✓ to ✓✓	—
	TPO2 - Improve transport connectivity	✓	✓✓	✓✓	✓✓	✓	✓ to ✓✓	—
	TPO3 - Increase sustain-able travel	✓	✓	✓✓	✓✓	✓	✓ to ✓✓	✓
STAG Criteria	Environment	✓	✓	✓	—	—	— to ✓	—
	Safety	✓	✓	✓✓	✓✓	✓✓	✓✓	—
	Economy	£13.0m	£77.7m	£81.2m	£81.2m	£81.2m	~£81.2m	2.4m
	Integration	✓	✓	✓✓	✓✓	✓	✓ to ✓✓	✓
	Accessibility & Social Inclusion	✓	✓✓	✓✓✓	✓✓	✓	✓ to ✓✓✓	—
Cost to Govt.	BCR	2.1	3.7	8.2	5.9	5.9	16.8 to 78.8	n/a

## 7.3 Conclusions

7.3.1 This appraisal has reviewed the performance of four options against the TPOs, the STAG Criteria, feasibility, affordability and the Cost to Government. The outputs of the study have highlighted that each of the options offers varying benefits measured against the STAG criteria and Transport Planning Objectives.

- 7.3.2 On consideration of all appraisal criteria, Option 3a (new rail station at Abernethy Road) is the best performing option, providing the highest BCR and appraisal scores against the TPOs and STAG criteria. It is also considered the most feasible of all rail options from a construction and accessibility perspective.
- 7.3.3 If a modular platform was constructed as an alternative at the Abernethy Road site, this Option (3e) would realise the same benefits as 3a but at significantly lower costs. A short modular station platform would represent a deviation from standard platform design and would require further feasibility assessment should it progress. Recent short-length station reopenings in Scotland do show however that such an option is possible.
- 7.3.4 Option 3c (new rail station at east of Town) also achieves a positive BCR and generally performs well against the TPOs and STAG criteria. However, while overall positive, the strengths of these benefits is lower than Option 3a. Crucially, the construction of a station at this site is likely to be significantly more challenging than Option 3a and cost therefore may be higher than those indicated in the BCR calculations, including the high-cost uncertainty analysis. A similar outcome is seen in Option 3d (new station at Clatchard Quarry), however the option does not perform as well as Options 3a or 3c against the TPOs or STAG criteria, particularly Integration and Accessibility and Social Inclusion given its less convenient location. Any modular station at these locations would again realise the same benefits and disbenefits as the permanent options, albeit at significantly lower cost.
- 7.3.5 Following detailed appraisal of three possible locations for a new permanent or modular train station in Newburgh, it can be reasonably concluded that Option 3c and Option 3d should not be progressed in favour of Option 3a at Abernethy Road.
- 7.3.6 Option 1 is a relatively low cost option which has generated a positive BCR and overall is considered to bring minor positive benefits against STAG criteria and TPOs. Further discussions could be undertaken with local bus operators to discuss the feasibility of this option going forward whilst recognising the challenging situation for bus operators and local government finance currently. Crucially however, discussions with Fife Council highlighted that there is no additional funding presently available from the Council to subsidise the enhancement of any existing services. While it may be desirable to further consider this option and explore other funding mechanisms, the feasibility of realising this option for comparatively lower benefits mean it is unlikely to merit further consideration.
- 7.3.7 Option 2 is the highest cost option, with capital costs anticipated to be significantly higher than the other options under consideration in this appraisal due to the requirement for regular bus fleet renewal. In order to be successful, the option will require close coordination with bus operators, Fife Council and potentially subsidies to support any services. Fife Council however have advised that any new service competing with existing supported services would be highly likely to mean existing funding resource was directed elsewhere, as the existing gap in service / service provision would no longer exist in Newburgh. There is also the possibility of abstraction from commercial services by the new, supported service. As in Option 1, discussions with Fife Council highlight that there is no additional funding presently available from the Council to subsidise any new service. The option is therefore only likely to be realised if alternative funding sources are identified (e.g. the operator Stagecoach commercially funds the option). While it may be desirable to further consider this option and explore other funding mechanisms, particularly following high appraisal performance in this report, the significant cost and associated risk of the option need to be taken onto account by decision-makers.
- 7.3.8 There are no costs associated with Option 4 where a car sharing scheme in Newburgh would be informal, likely organised by the community and will have no capital costs or additional ongoing operating or maintenance costs. Although the costs are negligible, there are very few

benefits associated with this option, and its feasibility would be challenging (absence of critical mass of users to make it attractive, and reliance on community volunteers to manage it). For these reasons, it is not recommended that this option is considered further.

- 7.3.9 **It can be concluded therefore that Option 3a is the most suitable solution to meet all of the study objectives and therefore meet the needs of people and business in Newburgh and the surrounding areas. It can also be concluded that if a 10m modular station is feasible following further exploration, Option 3e would represent the best value for money option, and it should be situated at the Abernethy Road site. It is therefore recommended that these two options are worthy of further consideration by Transport Scotland.**

## APPENDIX A – OPTION ASSUMPTIONS

### Option 1 – Improved (Existing) Bus Services to/from Newburgh

This option includes enhanced bus service provision to Perth, Cupar, and Ladybank. It includes the provision of greater frequencies of bus services; extended hours of operation; and improved connectivity with train services for onward travel.

The option proposes to extend the service running times of Stagecoach services 36 and 94, with routes shown in Figure A.1.

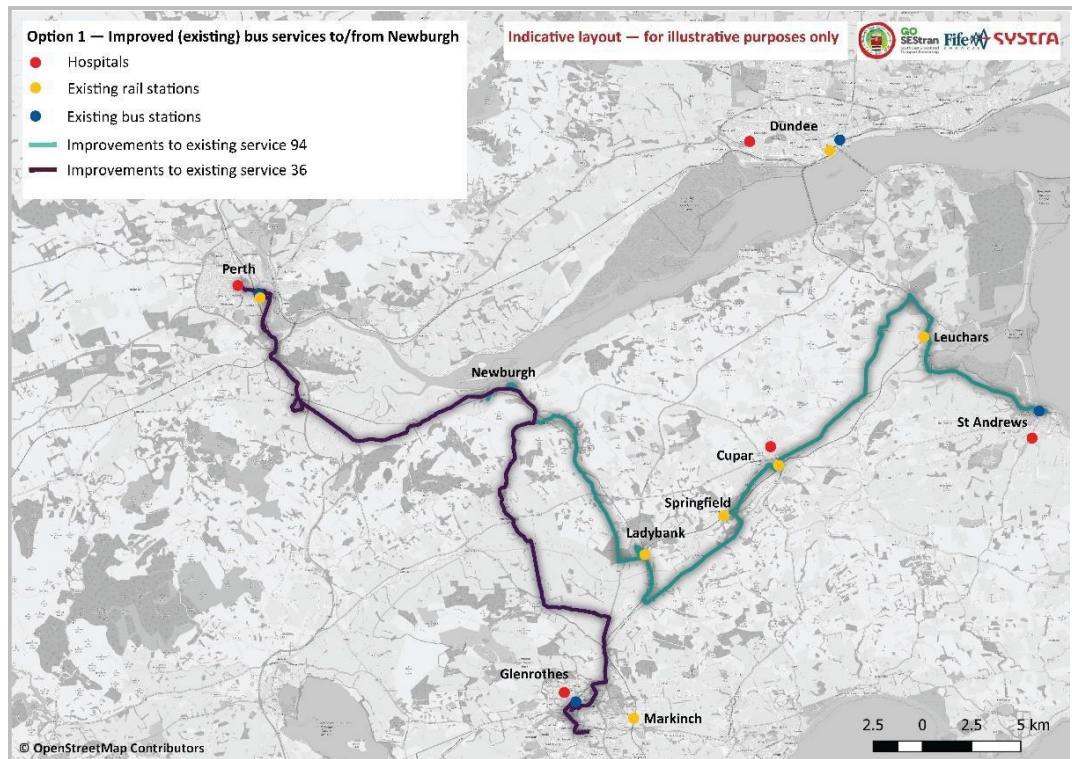


Figure A.1 : Option 1 Existing Bus Routes

In terms of bus service 36 between Perth and Glenrothes this means:

- Adding 4 evening journeys Mon-Sat (in each direction) to provide an hourly service from circa 19:00; and
- Adding 3 journeys on Sunday (in each direction) to provide approx. 2-hourly services throughout the day.

In terms of bus service 94 between St Andrews and Newburgh this means:

- Adding 1 morning (Mon-Sat) journey (in each direction); and
- Adding 7 journeys on Sunday (in each direction) to provide approximately 2-hourly service throughout the day.

A preliminary examination of the existing timetable and the possible extension to these timetables is shown in below Figure A.2, Figure A.3 and Figure A.4. Proposed new service times are shown in red.

Service 36																			
Monday to Friday			Glenrothes to Perth																
Glenrothes bus station 15	05:35	06:35	07:15	08:40	09:40	10:40	11:40	12:40	13:40	14:40	15:40	16:40	17:40	18:45	19:40	20:40	21:45		
Glenrothes Hospital	05:42	06:42	07:22	08:47	09:47	10:47	11:47	12:47	13:47	14:47	15:47	16:47	17:47	18:52	19:47	20:47	21:52		
Cadham Shopping Centre	05:45	06:45	07:25	08:50	09:50	10:50	11:50	12:50	13:50	14:50	15:50	16:50	17:50	18:55	19:50	20:50	21:55		
Freuchie primary school	05:53	06:53	07:33	08:58	09:58	10:58	11:58	12:58	13:58	14:58	15:58	16:58	17:58	19:03	19:58	20:58	22:03		
Falkland New Road	05:58	06:58	07:38	09:03	10:03	11:03	12:03	13:03	14:03	15:03	16:03	17:03	18:03	19:08	20:03	21:03	22:08		
Auchtermuchty Burnside	06:05	07:05	07:45	09:10	10:10	11:10	12:10	13:10	14:10	15:10	16:10	17:10	18:10	19:15	20:10	21:10	22:15		
Newburgh High Street	06:20	07:20	08:00	09:25	10:25	11:25	12:25	13:25	14:25	15:25	16:25	17:25	18:25	19:30	20:25	21:25	22:30		
Abernethy Corn Kist	06:29	07:29	08:10	09:34	10:34	11:34	12:34	13:34	14:34	15:34	16:34	17:34	18:34	19:39	20:34	21:34	22:39		
Kintillo Road Paradise Avenue	06:38	07:38	08:19	09:43	10:43	11:43	12:43	13:43	14:43	15:43	16:43	17:43	18:43	19:48	20:43	21:43	22:48		
Bridge of Earn opp Side Street	06:41	07:41	08:22	09:46	10:46	11:46	12:46	13:46	14:46	15:46	16:46	17:46	18:46	19:51	20:46	21:46	22:51		
Perth Canal Street ZP	06:53	07:55	08:38	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:05	21:00	22:00	23:05		
Perth bus station		07:57	08:40	10:02	11:02	12:02	13:02	14:02	15:02	16:02	17:02	18:02	19:02	20:07	21:02	22:02	23:07		
opp Perth Royal Infirmary	06:59																		
Monday to Friday			Perth to Glenrothes																
opp Perth Royal Infirmary		07:00																	
Perth bus station 1			08:07	09:07	10:07	11:07	12:07	13:07	14:07	15:07	16:07	17:10	18:07	19:07	20:12	21:07	22:07	23:12	
Perth Scott Street X		07:10	08:15	09:15	10:15	11:15	12:15	13:15	14:15	15:15	16:15	17:18	18:15	19:15	20:20	21:15	22:15	23:20	
Bridge of Earn Side Street		07:21	08:26	09:26	10:26	11:26	12:26	13:26	14:26	15:26	16:26	17:29	18:26	19:26	20:31	21:26	22:26	23:31	
Kintillo Road Paradise Avenue		07:25	08:30	09:30	10:30	11:30	12:30	13:30	14:30	15:30	16:30	17:33	18:30	19:30	20:35	21:30	22:30	23:35	
Abernethy opp Corn Kist		07:35	08:40	09:40	10:40	11:40	12:40	13:40	14:40	15:40	16:40	17:43	18:40	19:40	20:45	21:40	22:40	23:45	
Newburgh High Street	06:25	07:44	08:49	09:49	10:49	11:49	12:49	13:49	14:49	15:49	16:49	17:52	18:49	19:49	20:54	21:49	22:49	23:54	
Auchtermuchty Burnside	06:41	08:00	09:05	10:05	11:05	12:05	13:05	14:05	15:05	16:05	17:05	18:08	19:05	20:05	21:10	22:05	23:05	00:10	
Falkland New Road	06:48	08:07	09:12	10:12	11:12	12:12	13:12	14:12	15:12	16:12	17:12	18:15	19:12	20:12	21:17	22:12	23:12	00:17	
Freuchie opp Muir Road	06:54	08:13	09:18	10:18	11:18	12:18	13:18	14:18	15:18	16:18	17:18	18:21	19:18	20:18	21:23	22:18	23:18	00:23	
Cadham opp Shopping Centre	07:02	08:23	09:26	10:26	11:26	12:26	13:26	14:26	15:26	16:26	17:26	18:29	19:26	20:26	21:31	22:26	23:26	00:31	
Glenrothes Hospital	07:05	08:26	09:29	10:29	11:29	12:29	13:29	14:29	15:29	16:29	17:29	18:32	19:29	20:29	21:34	22:29	23:29	00:34	
Glenrothes bus station	07:11	08:32	09:35	10:35	11:35	12:35	13:35	14:35	15:35	16:35	17:35	18:38	19:35	20:35	21:40	22:35	23:35	00:40	
Saturday			Perth to Glenrothes																
Glenrothes bus station 15		06:35	07:30	08:40	09:40	10:40	11:40	12:40	13:40	14:40	15:40	16:40	17:40	18:45	19:40	20:40	21:45		
Glenrothes Hospital		06:42	07:37	08:47	09:47	10:47	11:47	12:47	13:47	14:47	15:47	16:47	17:47	18:52	19:47	20:47	21:52		
Cadham Shopping Centre		06:45	07:40	08:50	09:50	10:50	11:50	12:50	13:50	14:50	15:50	16:50	17:50	18:55	19:50	20:50	21:55		
Freuchie primary school		06:53	07:48	08:58	09:58	10:58	11:58	12:58	13:58	14:58	15:58	16:58	17:58	19:03	19:58	20:58	22:03		
Falkland New Road		06:58	07:53	09:03	10:03	11:03	12:03	13:03	14:03	15:03	16:03	17:03	18:03	19:08	20:03	21:03	22:08		
Auchtermuchty Burnside		07:05	08:00	09:10	10:10	11:10	12:10	13:10	14:10	15:10	16:10	17:10	18:10	19:15	20:10	21:10	22:15		
Newburgh High Street		07:20	08:15	09:25	10:25	11:25	12:25	13:25	14:25	15:25	16:25	17:25	18:25	19:30	20:25	21:25	22:30		
Abernethy Corn Kist		07:29	08:24	09:34	10:34	11:34	12:34	13:34	14:34	15:34	16:34	17:34	18:34	19:39	20:34	21:34	22:39		
Kintillo Road Paradise Avenue		07:38	08:33	09:43	10:43	11:43	12:43	13:43	14:43	15:43	16:43	17:43	18:43	19:48	20:43	21:43	22:48		
Bridge of Earn opp Side Street		07:41	08:36	09:46	10:46	11:46	12:46	13:46	14:46	15:46	16:46	17:46	18:46	19:51	20:46	21:46	22:51		
Perth Canal Street ZP		07:55	08:50	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:05	21:00	22:00	23:05		
Perth bus station		07:57	08:52	10:02	11:02	12:02	13:02	14:02	15:02	16:02	17:02	18:02	19:02	20:07	21:02	22:02	23:07		
opp Perth Royal Infirmary																			
Saturday			Perth to Glenrothes																
opp Perth Royal Infirmary																			
Perth bus station 1			08:07	09:07	10:07	11:07	12:07	13:07	14:07	15:07	16:07	17:10	18:07	19:07	20:12	21:07	22:07	23:12	
Perth Scott Street X			08:15	09:15	10:15	11:15	12:15	13:15	14:15	15:15	16:15	17:15	18:15	19:15	20:17	21:15	22:15	23:17	
Bridge of Earn Side Street			08:26	09:26	10:26	11:26	12:26	13:26	14:26	15:26	16:26	17:29	18:26	19:26	20:31	21:26	22:26	23:31	
Kintillo Road Paradise Avenue			08:30	09:30	10:30	11:30	12:30	13:30	14:30	15:30	16:30	17:33	18:30	19:30	20:35	21:30	22:30	23:35	
Abernethy opp Corn Kist			08:40	09:40	10:40	11:40	12:40	13:40	14:40	15:40	16:40	17:43	18:40	19:40	20:45	21:40	22:40	23:45	
Newburgh High Street		07:49	08:49	09:49	10:49	11:49	12:49	13:49	14:49	15:49	16:49	17:52	18:49	19:49	20:54	21:49	22:49	23:54	
Auchtermuchty Burnside		08:05	09:05	10:05	11:05	12:05	13:05	14:05	15:05	16:05	17:05	18:08	19:05	20:05	21:10	22:05	23:05	00:10	
Falkland New Road		08:12	09:12	10:12	11:12	12:12	13:12	14:12	15:12	16:12	17:12	18:15	19:12	20:12	21:17	22:12	23:12	00:17	
Freuchie opp Muir Road		08:18	09:18	10:18	11:18	12:18	13:18	14:18	15:18	16:18	17:18	18:21	19:18	20:18	21:23	22:18	23:18	00:23	
Cadham opp Shopping Centre		08:26	09:26	10:26	11:26	12:26	13:26	14:26	15:26	16:26	17:26	18:29	19:26	20:26	21:31	22:26	23:26	00:31	
Glenrothes Hospital		08:29	09:29	10:29	11:29	12:29	13:29	14:29	15:29	16:29	17:29	18:32	19:29	20:29	21:34	22:29	23:29	00:34	
Glenrothes bus station		08:35	09:35	10:35	11:35	12:35	13:35	14:35	15:35	16:35	17:35	18:38	19:35	20:35	21:40	22:35	23:35	00:40	
Sunday			Glenrothes to Perth																
Glenrothes bus station 15			07:35		09:35		11:35		13:35		15:35		17:35		19:35				
Glenrothes Hospital																			
Cadham Shopping Centre			07:42		09:42		11:42		13:42		15:42		17:42		19:42				
Freuchie primary school			07:50		09:50		11:50		13:50		15:50		17:50		19:50				
Falkland New Road			07:55		09:55		11:55		13:55		15:55		17:55		19:55				
Auchtermuchty Burnside			08:02		10:02		12:02		14:02		16:02		18:02		20:02				
Newburgh High Street			08:17		10:17		12:17		14:17		16:17		18:17		20:17				
Abernethy Corn Kist			08:26		10:26		12:26		14:26		16:26		18:26		20:26				
Kintillo Road Paradise Avenue			08:35		10:35		12:35		14:35		16:35		18:35		20:35				
Bridge of Earn opp Side Street			08:38		10:38		12:38		14:38		16:38		18:38		20:38				
Perth Drummond Crescent			08:44		10:44		12:44		14:44		16:44		18:44		20:44				
Perth Canal Street ZP			08:52		10:52		12:52		14:52		16:52		18:52		20:52				
Perth bus station			08:54																

Service 94																		
Monday to Friday			Newburgh to St Andrews															
Newburgh High Street			06:52	06:25	07:29	08:25	09:29	10:25	11:29	12:25	13:29	14:25	15:29	16:25	17:29	18:25		
Newburgh Scotland Terrace			06:55	06:28	07:32		09:32		11:32		13:32		15:32		17:32			
Den of Lindores			06:59	06:32	07:36	08:29	09:36	10:29	11:36	12:29	13:36	14:29	15:36	16:29	17:36	18:29		
Grange of Lindores oppvillagehal			07:02	06:35		08:32		10:32		12:32		14:32		16:32		18:32		
Grange of Lindores village hall					07:39		09:39		11:39		13:39		15:39		17:39			
Lindores					07:42		09:42		11:42		13:42		15:42		17:42			
Auchtermuchty Burnside			07:12	06:45		08:42		10:42		12:42		14:42		16:42		18:42		
Ladybank rail station			07:24	06:57	07:54	08:54	09:54	10:54	11:54	12:54	13:54	14:54	15:54	16:54	17:54	18:54		
Ladybank rail station			07:25	06:58	07:55	08:55	09:55	10:55	11:55	12:55	13:55	14:55	15:55	16:55	17:55	18:55		
Kingskettle opp primary school			07:28	07:01	07:58	08:58	09:58	10:58	11:58	12:58	13:58	14:58	15:58	16:58	17:58	18:58		
Pitlessie Village Inn			07:34	07:07	08:04	09:04	10:04	11:04	12:04	13:04	14:04	15:04	16:04	17:04	18:04	19:04		
Cupar Muir			07:40	07:13	08:10	09:10	10:10	11:10	12:10	13:10	14:10	15:10	16:10	17:10	18:10	19:10		
Cupar Crossgate Central Cafe C			07:47	07:20	08:17	09:17	10:17	11:17	12:17	13:17	14:17	15:17	16:17	17:17	18:17	19:17		
Cupar off rail station																		
Dairsie Pitcairn Park			07:53	07:26	08:23	09:23	10:23	11:23	12:23	13:23	14:23	15:23	16:23	17:23	18:23	19:23		
Balmullo School Road			07:58	07:31	08:28	09:28	10:28	11:28	12:28	13:28	14:28	15:28	16:28	17:28	18:28	19:28		
St Michaels St Andrews Road			08:02	07:35	08:32	09:32	10:32	11:32	12:32	13:32	14:32	15:32	16:32	17:32	18:32	19:32		
Leuchars rail station			08:06	07:39	08:36	09:36	10:36	11:36	12:36	13:36	14:36	15:36	16:36	17:36	18:36	19:36		
Guardbridge Mill Clock			08:08	07:41	08:38	09:38	10:38	11:38	12:38	13:38	14:38	15:38	16:38	17:38	18:38	19:38		
St Andrews bus station			08:17	07:50	08:47	09:47	10:47	11:47	12:47	13:47	14:47	15:47	16:47	17:47	18:47	19:47		
Monday to Friday			St Andrews to Newburgh															
St Andrews Station Road 5			06:12	05:45	06:12	06:52	07:52	08:52	09:52	10:52	11:52	12:52	13:52	14:52	15:52	16:52	17:52	18:52
St Andrews Market Street						06:54	07:54	08:54	09:54	10:54	11:54	12:54	13:54	14:54	15:54	16:54	17:54	18:54
Guardbridge River Terrace			06:19	05:52	06:19	07:05	08:05	09:05	10:05	11:05	12:05	13:05	14:05	15:05	16:05	17:05	18:05	19:05
Leuchars rail station						07:07	08:07	09:07	10:07	11:07	12:07	13:07	14:07	15:07	16:07	17:07	18:07	19:07
St Michaels Cupar Road						07:11	08:11	09:11	10:11	11:11	12:11	13:11	14:11	15:11	16:11	17:11	18:11	19:11
Balmullo School Road						07:15	08:15	09:15	10:15	11:15	12:15	13:15	14:15	15:15	16:15	17:15	18:15	19:15
Dairsie Pitcairn Park			06:23	05:56	06:23	07:20	08:20	09:20	10:20	11:20	12:20	13:20	14:20	15:20	16:20	17:20	18:20	19:20
Cupar Crossgate WH Smith A						07:26	08:26	09:26	10:26	11:26	12:26	13:26	14:26	15:26	16:26	17:26	18:26	19:26
Cupar Muir					06:33	07:33	08:33	09:33	10:33	11:33	12:33	13:33	14:33	15:33	16:33	17:33	18:33	19:33
Cupar Bonnygate			06:29	06:02														
Pitlessie Village Inn					06:39	07:39	08:39	09:39	10:39	11:39	12:39	13:39	14:39	15:39	16:39	17:39	18:39	19:39
Kingskettle primary school					06:45	07:45	08:45	09:45	10:45	11:45	12:45	13:45	14:45	15:45	16:45	17:45	18:45	19:45
Ladybank opp rail station					06:48	07:48	08:48	09:48	10:48	11:48	12:48	13:48	14:48	15:48	16:48	17:48	18:48	19:48
Ladybank opp rail station					06:49	07:49	08:49	09:49	10:49	11:49	12:49	13:49	14:49	15:49	16:49	17:49	18:49	19:49
Auchtermuchty Burnside									11:01		13:01		15:01		17:01		19:01	
Lindores					07:01	08:01	09:01	10:01		12:01		14:01		16:01		18:01		20:01
Grange of Lindores oppvillagehal					07:04	08:04	09:04	10:04		12:04		14:04		16:04		18:04		20:04
Grange of Lindores village hall									11:11		13:11		15:11		17:11		19:11	
Den of Lindores			06:46	06:19	07:07	08:07	09:07	10:07	11:14	12:07	13:14	14:07	15:14	16:07	17:14	18:07	19:14	20:07
Newburgh Scotland Terrace					07:11	08:11	09:11	10:11		12:11		14:11		16:11		18:11		20:11
Newburgh High Street					07:14	08:14	09:14	10:14	11:18	12:14	13:18	14:14	15:18	16:14	17:18	18:14	19:18	20:14
Newburgh Banklands					07:17	08:17	09:17	10:17	11:21	12:17	13:21	14:17	15:21	16:17	17:21	18:17		
Newburgh High Street			06:50	06:23	07:20	08:20	09:20	10:20	11:24	12:20	13:24	14:20	15:24	16:20	17:24	18:20		
Saturday			Newburgh to St Andrews															
Newburgh High Street			06:52	06:25	07:29	08:25	09:29	10:25	11:29	12:25	13:29	14:25	15:29	16:25	17:29	18:25		
Newburgh Scotland Terrace			06:55	06:28	07:32		09:32		11:32		13:32		15:32		17:32			
Den of Lindores			06:59	06:32	07:36	08:29	09:36	10:29	11:36	12:29	13:36	14:29	15:36	16:29	17:36	18:29		
Grange of Lindores oppvillagehal			07:02	06:35		08:32		10:32		12:32		14:32		16:32		18:32		
Grange of Lindores village hall					07:39		09:39		11:39		13:39		15:39		17:39			
Lindores					07:42		09:42		11:42		13:42		15:42		17:42			
Auchtermuchty Burnside			07:12	06:45		08:42		10:42		12:42		14:42		16:42		18:42		
Ladybank rail station			07:24	06:57	07:54	08:54	09:54	10:54	11:54	12:54	13:54	14:54	15:54	16:54	17:54	18:54		
Ladybank rail station			07:25	06:58	07:55	08:55	09:55	10:55	11:55	12:55	13:55	14:55	15:55	16:55	17:55	18:55		
Kingskettle opp primary school			07:28	07:01	07:58	08:58	09:58	10:58	11:58	12:58	13:58	14:58	15:58	16:58	17:58	18:58		
Pitlessie Village Inn			07:34	07:07	08:04	09:04	10:04	11:04	12:04	13:04	14:04	15:04	16:04	17:04	18:04	19:04		
Cupar Muir			07:40	07:13	08:10	09:10	10:10	11:10	12:10	13:10	14:10	15:10	16:10	17:10	18:10	19:10		
Cupar Crossgate Central Cafe C			07:47	07:20	08:17	09:17	10:17	11:17	12:17	13:17	14:17	15:17	16:17	17:17	18:17	19:17		
Cupar opp rail station																		
Dairsie Pitcairn Park			07:53	07:26	08:23	09:23	10:23	11:23	12:23	13:23	14:23	15:23	16:23	17:23	18:23	19:23		
Balmullo School Road			07:58	07:31	08:28	09:28	10:28	11:28	12:28	13:28	14:28	15:28	16:28	17:28	18:28	19:28		
St Michaels St Andrews Road			08:02	07:35	08:32	09:32	10:32	11:32	12:32	13:32	14:32	15:32	16:32	17:32	18:32	19:32		
Leuchars rail station			08:06	07:39	08:36	09:36	10:36	11:36	12:36	13:36	14:36	15:36	16:36	17:36	18:36	19:36		
Guardbridge Mill Clock			08:08	07:41	08:38	09:38	10:38	11:38	12:38	13:38	14:38	15:38	16:38	17:38	18:38	19:38		
St Andrews bus station			08:17	07:50	08:47	09:47	10:47	11:47	12:47	13:47	14:47	15:47	16:47	17:47	18:47	19:47		
Saturday			St Andrews to Newburgh															
St Andrews Station Road 5			06:12	05:45	06:12	06:52	07:52	08:52	09:52	10:52	11:52	12:52	13:52	14:52	15:52	16:52	17:52	18:52
St Andrews Market Street						06:54	07:54	08:54	09:54	10:54	11:54	12:54	13:54	14:54	15:54	16:54	17:54	18:54
Guardbridge River Terrace			06:19	05:52	06:19	07:05	08:05	09:05	10:05	11:05	12:05	13:05	14:05	15:05	16:05	17:05	18:05	19:05
Leuchars rail station						07:07	08:07	09:07	10:07	11:07	12:07	13:07	14:07	15:07	16:07	17:07	18:07	19:07
St Michaels Cupar Road						07:11	08:11	09:11	10:11	11:11	12:11	13:11	14:11	15:11	16:11	17:11	18:11	19:11
Balmullo School Road						07:15	08:15	09:15	10:15	11:15	12:15	13:15	14:15	15:15	16:15	17:15	18:15	19:15
Dairsie Pitcairn Park			06:23	05:56	06:23	07:20	08:20	09:20	10:20	11:20	12:20	13:20	14:20	15:20	16:20	17:20	18:20	19:20
C																		

Service 94															
Sunday		Newburgh to St Andrews													
Newburgh High Street					08:25		10:25		12:25		14:25		16:25	18:25	
Newburgh Scotland Terrace															
Den of Lindores					08:29		10:29		12:29		14:29		16:29	18:29	
Grange of Lindores oppvillagehal					08:32		10:32		12:32		14:32		16:32	18:32	
Grange of Lindores village hall															
Lindores															
Auchtermuchty Burnside					08:42		10:42		12:42		14:42		16:42	18:42	
Ladybank rail station					08:54		10:54		12:54		14:54		16:54	18:54	
Ladybank rail station					08:55		10:55		12:55		14:55		16:55	18:55	
Kingskettle opp primary school					08:58		10:58		12:58		14:58		16:58	18:58	
Pitlessie Village Inn					09:04		11:04		13:04		15:04		17:04	19:04	
Cupar Muir					09:10		11:10		13:10		15:10		17:10	19:10	
Cupar Crossgate Central Cafe C					09:17		11:17		13:17		15:17		17:17	19:17	
Cupar opp rail station															
Dairsie Pitcairn Park					09:23		11:23		13:23		15:23		17:23	19:23	
Balmullo School Road					09:28		11:28		13:28		15:28		17:28	19:28	
St Michaels St Andrews Road					09:32		11:32		13:32		15:32		17:32	19:32	
Leuchars rail station					09:36		11:36		13:36		15:36		17:36	19:36	
Guardbridge Mill Clock					09:38		11:38		13:38		15:38		17:38	19:38	
St Andrews bus station					09:47		11:47		13:47		15:47		17:47	19:47	
Sunday		St Andrews to Newburgh													
St Andrews Station Road 5					06:52		08:52		10:52		13:52		15:52	17:52	19:52
St Andrews Market Street					06:54		08:54		10:54		13:54		15:54	17:54	19:54
Guardbridge River Terrace					07:05		09:05		11:05		14:05		16:05	18:05	20:05
Leuchars rail station					07:07		09:07		11:07		14:07		16:07	18:07	20:07
St Michaels Cupar Road					07:11		09:11		11:11		14:11		16:11	18:11	20:11
Balmullo School Road					07:15		09:15		11:15		14:15		16:15	18:15	20:15
Dairsie Pitcairn Park					07:20		09:20		11:20		14:20		16:20	18:20	20:20
Cupar Crossgate WH Smith A					07:26		09:26		11:26		14:26		16:26	18:26	20:26
Cupar Muir					07:33		09:33		11:33		14:33		16:33	18:33	20:33
Cupar Bonnygate															
Pitlessie Village Inn					07:39		09:39		11:39		14:39		16:39	18:39	20:39
Kingskettle primary school					07:45		09:45		11:45		14:45		16:45	18:45	20:45
Ladybank opp rail station					07:48		09:48		11:48		14:48		16:48	18:48	20:48
Ladybank opp rail station					07:49		09:49		11:49		14:49		16:49	18:49	20:49
Auchtermuchty Burnside											15:01		17:01	19:01	21:01
Lindores					08:01		10:01		12:01						
Grange of Lindores oppvillagehal					08:04		10:04		12:04						
Grange of Lindores village hall											15:11		17:11	19:11	21:11
Den of Lindores					08:07		10:07		12:07		15:14		17:14	19:14	21:14
Newburgh Scotland Terrace					08:11		10:11		12:11						
Newburgh High Street					08:14		10:14		12:14		15:18		17:18	19:18	21:18
Newburgh Banklands					08:17		10:17		12:17		15:21		17:21		
Newburgh High Street					08:20		10:20		12:20		15:24		17:24		

Figure A.4 : Option 1 Service 94 – Proposed Timetable Improvements (Sun)

The proposed timetable changes make use of the existing bus fleet with no new vehicles required to implement the option. Full operating and revenue cost assumptions are provided in Appendix D.

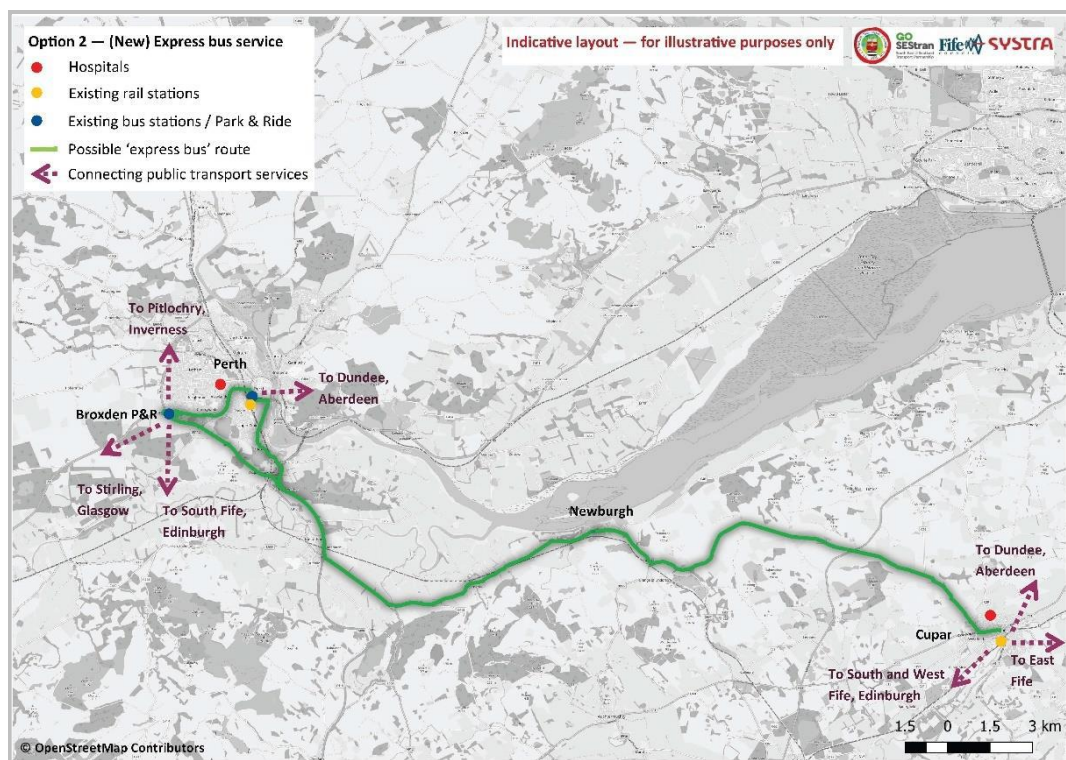
## Option 2 – New Express Bus Service

This option introduces a new Express bus service between Newburgh, Cupar, Perth, and Broxden Park and Ride and could include stops at Abernethy and Bridge of Earn. It is a fast and limited stop service; running hourly, to complement the existing services 36 and 94. In combination with these services it allows approximately half hourly services between Newburgh and Cupar and Newburgh and Perth.

This option includes Active Travel improvements, considered as Option 5 in the previous stages of the appraisal; specifically:

- Improved facilities and information at key bus stop in Newburgh in terms of improved links to/from the bus stop and the provision of safe and secure cycle parking at the bus stops; and
- Traffic free active travel route between Newburgh and Abernethy; and Newburgh and Lindores (Den, Grange).

The proposed route of the new bus services is shown in Figure A.5.



**Figure A.5 : Option 2 New Express Bus Route**

Introducing a new bus service requires a new set of buses to serve the route. A proposed timetable has been derived offering an hourly service in each direction that requires three buses to serve the Monday to Saturday timetable. Two buses are required to serve the proposed Sunday timetable. The proposed timetable for a new express service is shown in . Full capital, operating and revenue cost assumptions are provided in Appendix D.

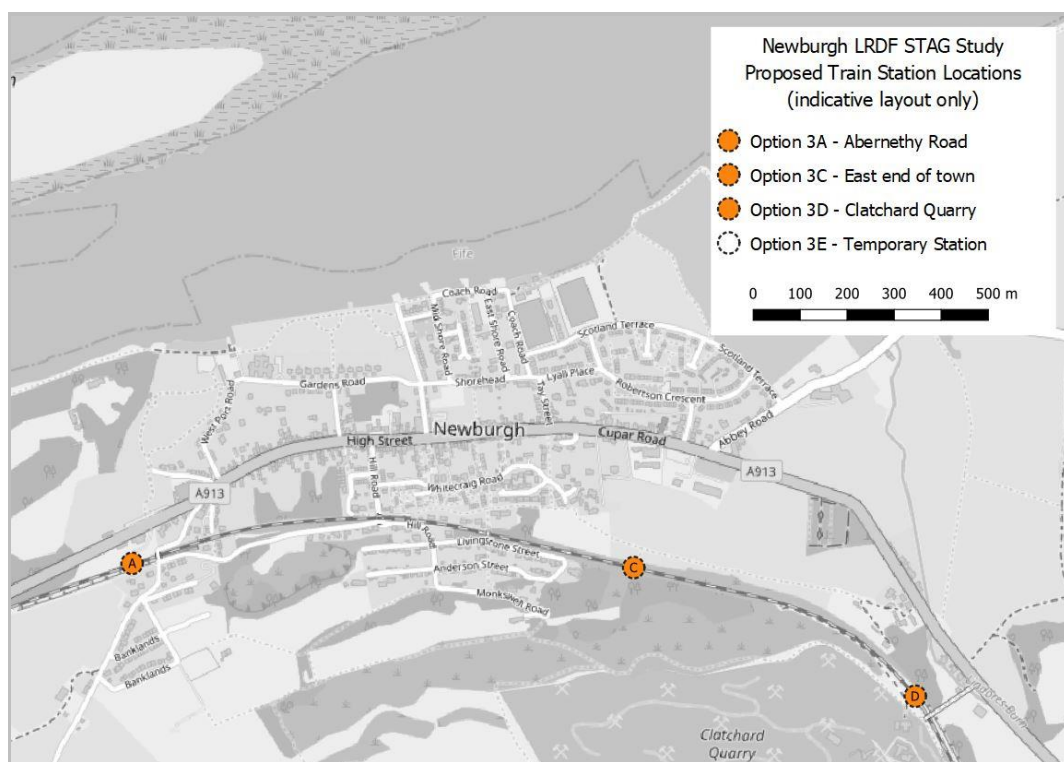
Proposed Express Service Cupar-Perth "Loop"																							
Monday-Saturday																							
Cupar dep	06:40	07:40	08:40	09:40	10:40	11:40	12:40	13:40	14:40	15:40	16:40	17:40	18:40	19:40	20:40	21:40	22:40						
Newburgh arr/dep	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00						
Broxden arr	07:20	08:20	09:20	10:20	11:20	12:20	13:20	14:20	15:20	16:20	17:20	18:20	19:20	20:20	21:20	22:20	23:20						
Broxden dep	07:23	08:23	09:23	10:23	11:23	12:23	13:23	14:23	15:23	16:23	17:23	18:23	19:23	20:23	21:23	22:23	23:23						
Perth bus stn arr	07:30	08:30	09:30	10:30	11:30	12:30	13:30	14:30	15:30	16:30	17:30	18:30	19:30	20:30	21:30	22:30	23:30						
Perth bus stn dep	07:33	08:33	09:33	10:33	11:33	12:33	13:33	14:33	15:33	16:33	17:33	18:33	19:33	20:33	21:33	22:33	23:33						
Newburgh arr/dep	07:53	08:53	09:53	10:53	11:53	12:53	13:53	14:53	15:53	16:53	17:53	18:53	19:53	20:53	21:53	22:53	23:53						
Cupar arr	08:13	09:13	10:13	11:13	12:13	13:13	14:13	15:13	16:13	17:13	18:13	19:13	20:13	21:13	22:13	23:13	00:13						
Monday-Saturday																							
Cupar dep		08:19	09:19	10:19	11:19	12:19	13:19	14:19	15:19	16:19	17:19	18:19	19:19	20:19	21:19	22:19	23:19						
Newburgh arr/dep		08:39	09:39	10:39	11:39	12:39	13:39	14:39	15:39	16:39	17:39	18:39	19:39	20:39	21:39	22:39	23:39						
Broxden arr		08:42	09:42	10:42	11:42	12:42	13:42	14:42	15:42	16:42	17:42	18:42	19:42	20:42	21:42	22:42	23:42						
Broxden dep		08:45	09:45	10:45	11:45	12:45	13:45	14:45	15:45	16:45	17:45	18:45	19:45	20:45	21:45	22:45	23:45						
Perth bus stn arr		08:52	09:52	10:52	11:52	12:52	13:52	14:52	15:52	16:52	17:52	18:52	19:52	20:52	21:52	22:52	23:52						
Perth bus stn dep		08:55	09:55	10:55	11:55	12:55	13:55	14:55	15:55	16:55	17:55	18:55	19:55	20:55	21:55	22:55	23:55						
Newburgh arr/dep		09:15	10:15	11:15	12:15	13:15	14:08	15:08	16:08	17:08	18:08	19:08	20:08	21:08	22:08	23:08	00:08						
Cupar arr		09:35	10:35	11:35	12:35	13:33	14:08	15:08	16:08	17:08	18:08	19:08	20:08	21:08	22:08	23:08	00:08						
Sunday																							
Cupar dep		07:40	08:40		10:40	11:40		13:40	14:40		16:40	17:40		19:40	20:40								
Newburgh arr/dep		08:00	09:00		11:00	12:00		14:00	15:00		17:00	18:00		20:00	21:00								
Broxden arr		08:20	09:20		11:20	12:20		14:20	15:20		17:20	18:20		20:20	21:20								
Broxden dep		08:23	09:23		11:23	12:23		14:23	15:23		17:23	18:23		20:23	21:23								
Perth bus stn arr		08:30	09:30		11:30	12:30		14:30	15:30		17:30	18:30		20:30	21:30								
Perth bus stn dep		08:33	09:33		11:33	12:33		14:33	15:33		17:33	18:33		20:33	21:33								
Newburgh arr/dep		08:53	09:53		11:53	12:53		14:53	15:53		17:53	18:53		20:53	21:53								
Cupar arr		09:13	10:13		12:13	13:13		15:13	16:13		18:13	19:13		21:13	22:13								
Sunday																							
Cupar dep			09:19	10:19		12:19	13:19		15:19	16:19		18:19	19:19		21:19	22:19							
Newburgh arr/dep			09:39	10:39		12:39	13:39		15:39	16:39		18:39	19:39		21:39	22:39							
Broxden arr			09:42	10:42		12:42	13:42		15:42	16:42		18:42	19:42		21:42	22:42							
Broxden dep			09:45	10:45		12:45	13:45		15:45	16:45		18:45	19:45		21:45	22:45							
Perth bus stn arr			09:52	10:52		12:52	13:45		15:45	16:45		18:45	19:45		21:45	22:45							
Perth bus stn dep			09:55	10:55		12:55	13:48		15:48	16:48		18:48	19:48		21:48	22:48							
Newburgh arr/dep			10:15	11:15		13:15	14:08		16:08	17:08		19:08	20:08		22:08	23:08							
Cupar arr			10:35	11:35		13:33	14:08		16:08	17:08		19:08	20:08		22:08	23:08							

Figure A.6 : Option 2 New Express Bus Service – Proposed Timetable Improvements (3 buses)

### Option 3 – Reopened/New Train Station in Newburgh

Option 3 proposes a new train station in Newburgh and considers the opening of the rail station as both a permanent and a modular platform structure. The option considers three possible locations as follows, with locations shown in Figure A.7:

- **3a:** Reopening of a former rail station at Abernethy Road; or
- **3c:** Opening a new station at the east end of the town; or
- **3d:** Reopening of a former railway station at Clatchard Quarry; and in each case
- **3e:** Opening of the station as a modular or 'pop-up' structure (to test user demand for the service).



**Figure A.7 : Option 3 – Proposed Train Station Locations**

The proposed site at Abernethy Road (3a) is the site of a former rail station, with a site entrance opposite an existing car park, which includes a bus turning circle. Whilst the former station yard is owned by a private company, the access to the old station site has been reserved by Network Rail.

The proposed site at the East end of town (3c) is situated behind Newburgh primary school on a sloping hillside. This is an entirely new site, with nearby land proposed for 12ha mixed use housing and employment development.

The proposed site at Clatchard Quarry (3d) lies to the south east of Newburgh and is also the site of a former rail station. The site lies on a hillside and the option would require the purchase of third-party land from the Quarry.

The location of each site has implications on the overall detailed appraisal outcomes, for example on environmental, economic, feasibility and accessibility factors, as detailed throughout the main body of this report.

For each site, a permanent and modular structure is considered. The current rail line is single track and a station will therefore only require one platform, with cross-track pedestrian access not required. At this stage, a single platform of 150m is assumed for the permanent station options and a 10m platform is assumed for the modular station option, in order to estimate cost of construction. Full detailed design of the platform and station will be required should this option be progressed.

A modular platform structure would provide a lower cost option in providing a station in Newburgh. A Modular Platform System<sup>31</sup> is designed to be quickly and easily installed with minimal construction work or disruption to running/live rail lines. While a 10m platform is not expected to meet current Network Rail standards for new stations, there are recent station reopenings in Scotland (at Beaulieu and Conon Bridge) where shorter than standard length

<sup>31</sup> <https://www.systra.co.uk/en/services/article/modular-platforms>

platforms are in operation which demonstrate that such an option is possible and acceptable. Should it progress as an option, will required further consultation to examine its viability in full.

It is assumed a station will be served with a car park. Option 3a is situated adjacent to an existing car park and would have to be investigated for standard compliance and space provision. Options 3c and 3d would require a new car park to be constructed.

In line with recent station openings, it is assumed that a new station will be served with waiting shelters, ticket machine(s), customer information points and CCTV. An in-person ticket office is not considered at this station.

Cost assumptions to construct, maintain and operate a new station in Newburgh is provided in Appendix D.

Consideration of the existing timetable provision and journey times between Markinch/Ladybank and Perth allowed for an indicative rail timetable to be derived, as shown in Figure A.8. The proposed timetable includes a two to three minute journey time increase to existing services. This journey time penalty was calculated using Network Rail's RailSys programme, as outlined below.

<b>Monday - Friday</b>																		
Departing Station	EDB	EDB	EDB	EDB	EDB	EDB	EDB	EDB	EDB	EDB	EDB	EDB	EDB	EDB	EDB	EDB	EDB	EDB
Departure time	06:29	07:32	08:35	09:36	10:37	11:38	12:37	13:33	14:38	15:35	16:35	18:43	19:41	20:41	21:48	22:36	23:19	
Newburgh arrive	07:36	08:42	09:38	10:41		12:43	13:42		15:43	16:41	17:45	19:54		21:45	23:23	23:45	00:46	
Newburgh depart	07:37	08:43	09:39	10:42		12:44	13:43		15:44	16:42	17:46	19:55		21:46	23:24	23:46	00:47	
Arriving Station	DEE	PTH	PTH	PTH	INV	PTH	PTH	INV	PTH	PTH	PTH	PTH	INV	PTH	PTH	PTH	PTH	
Arriving time (note: add 2 mins on existing time)	08:15	08:55	09:51	10:54	14:11	12:56	13:55	16:54	15:56	16:54	17:58	20:07	23:16	21:58	23:36	00:04	00:59	
Time at PTH Station	7:49	08:55	09:51	10:54	11:54	12:56	13:55	14:50	15:56	16:54	17:58	20:07	20:58	21:58	23:36	00:04	00:59	
<b>Monday - Friday</b>																		
Departing Station	PTH	INV	PTH	INV	PTH	PTH	PTH	INV	PTH	INV	PTH	PTH	PTH	PTH	PTH	PTH	PTH	PTH
Departure time	05:12	05:36	06:18	06:48	07:01	08:49	10:03	10:46	11:00	12:49	12:55	13:59	15:02	16:06	17:03	19:11	20:03	22:48
Newburgh arr	05:25		06:31		07:14	09:02	10:16		11:13		13:08	14:12	15:15	16:19	17:16	19:24	20:16	23:01
Newburgh dep	05:26		06:32		07:15	09:03	10:17		11:14		13:09	14:13	15:16	16:20	17:17	19:25	20:17	23:02
Arriving Station	EDB	PTH	EDB	EDB	EDB	EDB	EDB	EDB	EDB	EDB	EDB	EDB	EDB	EDB	EDB	EDB	EDB	EDB
Arriving time (note: add 2 mins on existing time)	06:49	07:56	08:01	10:03	08:30	10:03	11:29	14:25	12:22	16:31	14:25	15:31	16:31	17:37	18:27	20:33	21:21	22:24
Time at PTH Station	05:12	07:56	06:18	08:49	07:01	08:49	10:03	13:02	11:00	15:02	12:55	13:59	15:02	16:06	17:03	19:11	20:03	22:48
<b>Saturday</b>																		
Departing Station	EDB	EDB	EDB	EDB	EDB	EDB	EDB	EDB	EDB	EDB	EDB	EDB	EDB	EDB	EDB	EDB	EDB	EDB
Departure time	06:28	07:33	08:32	09:38	10:35	11:34	12:36	13:33	14:37	15:35	16:40	18:43	19:39	20:38	21:51	22:37	23:19	
Newburgh arr	07:36	08:42	09:37	10:43		12:43	13:39		15:43	16:41	17:45	19:49		21:45	23:23	23:45	00:43	
Newburgh dep	07:37	08:43	09:38	10:44		12:44	13:40		15:44	16:42	17:46	19:50		21:46	23:24	23:46	00:44	
Arriving Station	DEE	PTH	INV	PTH	INV	PTH	PTH	INV	PTH	PTH	PTH	PTH	INV	PTH	PTH	PTH	PTH	
Arriving time (note: add 2 mins on existing time)	08:15	08:55	12:09	10:56	14:11	12:56	13:52	16:54	15:56	16:54	17:58	20:02	23:15	21:58	23:36	00:05	00:56	
Time at PTH Station	07:49	08:55	09:50	10:56	11:54	12:56	13:52	14:48	15:56	16:54	17:58	20:02	20:57	21:58	23:36	00:05	00:56	
<b>Saturday</b>																		
Departing Station	PTH	PTH	INV	INV	PTH	PTH	INV	PTH	INV	PTH	PTH	PTH	PTH	INV	PTH			
Departure time	05:35	07:01	05:36	06:48	10:05	11:02	10:46	13:59	12:49	16:06	17:03	19:11	20:03	18:50	22:48			
Newburgh arr	05:48	07:14			10:18	11:15		14:12		16:19	17:16	19:24		20:16				
Newburgh dep	05:49	07:15			10:19	11:16		14:13		16:20	17:17	19:25		20:17				
Arriving Station	EDB	EDB	EDB	EDB	EDB	EDB	EDB	EDB	EDB	EDB	EDB	EDB	EDB	EDB				
Arriving time (note: add 2 mins on existing time)	07:05	08:28	09:19	10:07	11:29	12:21	14:23	15:26	16:31	17:34	18:32	20:31	21:23	22:22	00:07			
Time at PTH Station	05:35	07:01	07:58	08:51	10:05	11:02	12:55	13:59	15:02	16:06	17:03	19:11	20:03	21:06	22:48			
<b>Sunday</b>																		
Departing Station	EDB	EDB	EDB	EDB	EDB	EDB	EDB											
Departure time	09:29	13:56	15:51	17:50	18:06	18:55	22:35											
Newburgh arr				18:53	19:28	20:22	23:47											
Newburgh dep				18:54	19:29	20:23	23:48											
Arriving Station	INV	INV	INV	PTH	PTH	PTH	PTH											
Arriving time (note: add 2 mins on existing time)	13:18	17:25	19:10	19:06	19:41	20:35	00:07											
Time at PTH Station	10:53	15:09	17:09	19:06	19:41	20:35	00:07											
<b>Sunday</b>																		
Departing Station	PTH	PTH	PTH	INV	INV	INV	INV											
Departure time	08:50	09:36	10:10	10:53	13:26	15:22	18:52											
Newburgh arr	09:03	09:49	10:23															
Newburgh dep	09:04	09:50	10:24															
Arriving Station	EDB	EDB	EDB	EDB	EDB	EDB	EDB											
Arriving time (note: add 2 mins on existing time)	10:23	11:18	11:40	14:13	16:52	18:42	22:23											
Time at PTH Station	08:50	09:36	10:10	12:55	15:27	17:21	21:06											

Figure A.8 : Option 3 Proposed Rail Timetable serving Newburgh

## Newburgh New Station Journey Time Penalties (RailSys Analysis)

### Route Description

Each of the proposed sites is on a rising gradient in the Up direction (towards Ladybank). The route has a speed restriction due to signal sighting through the Newburgh area. In the Up direction, when combined with the climbing gradient towards Ladybank, this means that the balancing speed of the Class 158 and Class 170 trains is reached as they breast the summit about 5km towards Ladybank.

## Running Times

To assess running times, four train types were used (class 158, Class 170, Class 220 and Class 385). The Class 158 and Class 170 trains currently form the trains that use the line. As a comparison, the Class 220 was used as this type of train is accepted as having faster acceleration and braking. The Class 385 has been used to indicate the values that could be achieved with electrification. The current line has a higher differential speed restriction for HST type trains. The classes of train above are all able use this.

The RailSys model as supplied by Network Rail was used to calculate journey times and journey time penalties between Ladybank station Hilton Junction, which lies 3.5k south of Perth station. The infrastructure was checked for gradients and speeds, but was otherwise assumed to be accurate.

The times presented in the tables below are to the nearest second and should not be used as a sectional running time for timetabling purposes. A station dwell time of one minute was added to the running times below as applicable.

**Table A.1 : Journey time summary table Ladybank to Hilton Junction**

Intermediate stop	Class 158	Class 170	Class 220	Class 385	rounded – run time	rounded with a stop	penalty
None (current journey time)	14mins 35secs	14mins 27secs	14mins 25secs	14mins 24secs	15min	15min	
Newburgh Clatchard Quarry	15mins 19secs	15mins 14secs	15mins 4secs	15mins 2secs	16min	17min	<b>+2min</b>
Newburgh East end of town	15mins 20secs	15mins 14secs	15mins 1sec	15mins 0secs	16min	17min	<b>+2min</b>
Newburgh Abernethy Road	15mins 37secs	15mins 29secs	15mins 6secs	15mins 3secs	16min	17min	<b>+2min</b>

**Table A.2 : Journey time summary table Hilton Junction to Ladybank**

Intermediate stop	Class 158	Class 170	Class 220	Class 385	rounded – run time	rounded with a stop	penalty
None (current journey time)	15mins 14secs	14mins 59secs	14mins 38secs	14mins 35secs	15min	15min	
Newburgh Clatchard Quarry	16mins 33secs	16mins 24secs	15mins 34secs	15mins 24secs	17min	18min	<b>+3min</b>
Newburgh East end of town	16mins 38secs	16mins 27secs	15mins 33secs	15mins 24secs	17min	18min	<b>+3min</b>
Newburgh Abernethy Road	16mins 44secs	16mins 30secs	15mins 33secs	15mins 26secs	17min	18min	<b>+3min</b>

The RailSys analysis concluded that journey time between Ladybank and Perth would increase by approximately two minutes and in the opposite direction between Perth and Ladybank by approximately three minutes. The increase is less towards Perth due to the Down Direction of the line towards the Hilton Junction.

## Option 4 – Car Sharing Scheme

Option 4 looks to introduce a car share scheme in Newburgh. As detailed in Chapter 2, discussions with relevant stakeholders (TACTRAN, SEStran and Fife Council) highlighted that the only current viable option open to appraisal at this stage is informal car-sharing between

those travelling to and from Newburgh. Given the lack of options for hosting, funding or publicising a car share scheme, the success of this option would likely depend on community responsibility.

## APPENDIX B – TRANSPORT MODELLING APPROACH

### Tay Cities Regional Transport Model (TCRTM)

The modelling assessment of the proposed options was undertaken using Tay Cities Regional Transport Model (TRTCM). The TCRTM is a strategic multi-modal transport model covering the main Road, Public Transport and Active Travel networks within Dundee, Perth and Kinross, Angus and Fife.

The TCRTM17 is a multi-modal 'tour-based' strategic transport model. It is calibrated to represent observed travel conditions during 2017, and interfaces with the Transport Model for Scotland (TMfS14/TMfS18) and the Transport Economic Land use Model of Scotland (TELMoS14/TELMoS18) to produce transport forecasts for a set of future year scenarios.

The model structure is designed to apply planning data forecasts from TELMoS14 to control 'internal travel growth', and TMfS14 road and public transport road link flows to control 'external travel growth' to, from and through the Tayside area.

The Do Minimum forecasts include committed interventions and a number of assumptions which seek to provide a representation of the future should the following circumstances arise:

- People's behaviour in the future remains the same as it is today;
- Only those interventions which are currently committed are delivered; and
- The assumptions about the economy, population, fuel prices, parking, fares, land-use etc. all materialise as described.

### Time Periods and Travel Modes

The TCRTM demand model requires 24 hour trip ends which are used to define travel movements for four different weekday time periods:

- AM (07:00 – 10:00);
- Inter Peak (10:00 – 16:00);
- PM (16:00 – 19:00); and
- Off-peak (19:00– 07:00).

These time periods are used to derive the overall demand for each assignment model. The TCRTM demand model contains a mode choice which considers five distinct modes:

- Car (drivers and passengers);
- Public Transport (rail and bus);
- Park and Ride (at bus-based sites and rail station car parks);
- Walk; and
- Cycle.

The travel demand for each mode are assigned within the respective assignment models.

### Forecasting

In forecast mode, the TCRTM Trip Generation and Demand models calculate predicted changes in travel demand and patterns from base-year (2017) conditions. The Trip Generation Model forecasts changes in goods vehicle movements, along with the main commuter, business, education, retired and other journey purpose trip ends.

The Demand model forecasts changes to the Road, Public Transport and Active Travel assignment matrices that arise through changes in forecast planning data (i.e. development/population changes) and/or changes in future transport costs (i.e. transport investments, policies and/or congestion). This process also represents changes associated with the price of parking, car park capacity and park and ride site / rail station accessibility.

In turn, the road and PT assignment models inform the demand model of changes in travel costs, which iterates between mode, destination and parking choice responses to generate forecast year outputs.

The TELMoS14 economic model provides planning development data (changes in households, population, and jobs) and goods commodity matrices at TCRTM zonal level to inform the base and future year Trip Generation Modelling.

The TMfS14 model provides external movements to inform the level and movement of TCRTM long distance trip making, informing the Trip Generation modelling and assignment matrices.

### **Forecast Years**

TCRTM17 future year assumptions have been developed based upon the assumptions previously applied in the development of the TMfS primary forecasts, the current status of the Tay Cities Deal and in consultation with the client group. For more detailed information, reference should be made to the Tay Cities Regional Transport Model Development - Do Minimum Forecasting Assumptions Report, 12 August 2020.

Four forecast years were developed for TCRTM for the future years of 2022, 2027, 2032 and 2037. In order to undertake the analysis of the proposed options, 2027 and 2037 Future Year scenarios were adopted as the basis of the assessment.

For some of the options, the TMfS model run was undertaken to provide external movements to inform the level and movement of TCRTM long distance trip making.

It was assumed that the currently available 2027 and 2037 forecasts within TCRTM represent a 'higher growth' scenario as they represent the typical growth that would be represented in historical forecasts with an increase in employment, population and the outturn trip making. The TCRTM Base year is 2017, and the 2027 and 2037 scenarios were utilised to represent higher growth.

The DfT Forecasting and Uncertainty Guidance (TAG Unit M4, published May 2019), sets out a methodology for taking account of uncertainty within forecasting. This suggests reducing road travel demand by -2.5% of the model Base Year demand for each additional forecast year to create a 'lower growth' scenario (with proportional reductions for later forecast years).

The relevant calculated reductions in road and PT travel demand for the TCRTM 2027 and 2037 forecast year lower growth would therefore be -8% and -11% respectively.

### **TCRTM and TMfS review**

SYSTRA is currently undertaking a parallel STAG detailed appraisal in Bridge of Earn where the same modelling methodology is applied. In the Bridge of Earn study, a review of the TCRTM and TMfS models was undertaken to establish that each appropriately reflects current 'real world' conditions in and around the sphere of influence of the Bridge of Earn area so that the

models did not unduly under/overestimate option benefits during the detailed appraisal stage. To be consistent with parallel Bridge of Earn Study, the updates detailed below were included in the Newburgh Reference Case models.

The initial modelling task consisted of reviewing the existing rail and bus services in TCRTM and TMfS which are relevant to the proposed options. For the rail service comparison, a review was undertaken on all services using Edinburgh - Perth rail lines. Likewise, bus services that pass via Newburgh were also reviewed. These bus and rail services were then compared to the 2021 timetables in terms of service frequencies and as set out below.

#### Rail service comparison

	Service Frequencies		
	AM	IP	PM
<b>2021 Time Tables</b>	7	13	4
<b>TCRTM DM27 and DM37</b>	7	13	7
<b>TMfS DM27 and DM37</b>	9	9	5

#### Bus Service comparison

	Service Frequencies								
	36			94			School buses		
	AM	IP	PM	AM	IP	PM	AM	IP	PM
<b>2021 Time Tables</b>	6	12	6	6	12	6	3	6	0
<b>TCRTM DM27</b>	6	12	6	6	12	6	3	3	0
<b>TCRTM DM37</b>	6	12	6	6	12	6	3	3	0

Rail services were lower in the TMfS model when compared to TCRTM and current time tables. These services were therefore updated as shown below.

#### Final Rail service comparison

	Service Frequencies		
	AM	IP	PM
<b>2021 Time Tables</b>	7	13	4
<b>TCRTM DM27 and DM37</b>	7	13	7
<b>TMfS DM27 and DM37</b>	7	13	7

Bus services in TCRTM model compared well to the current timetables and there were no further changes made to 2027 and 2037 TCRTM forecast models. However, to be consistent with parallel Bridge of Earn Study, the TMfS updates included the additional BoE X56 bus services which formed a 2027 and 2037 TMfS Reference Case that was same for both studies. TMfS models were then utilised to obtain external matrices for the 2027 and 2037 TCRTM Reference Case models.

### Proposed Options

The quantitative analysis and subsequent economic assessment required for the Newburgh STAG study considers 10 scenarios for high growth and the same number of scenarios for low growth:

- 2027 Reference Case
- 2027 Reference Case + Option 1 (improved local bus services)
- 2027 Reference Case + Option 2 (new express bus service; improved active travel link)
- 2027 Reference Case + Option 3 (new rail station; improved active travel links)
- 2027 Reference Case + Option 4 (car sharing)

- 2037 Reference Case
- 2037 Reference Case + Option 1 (improved local bus services)
- 2037 Reference Case + Option 2 (new express bus service; improved active travel link)
- 2037 Reference Case + Option 3 (new rail station; improved active travel links)
- 2037 Reference Case + Option 4 (car sharing).

### Option 1

7.3.10 This option includes enhanced bus service provision for Perth, Cupar and Ladybank. It includes the provision of greater frequencies of bus services; extended hours of operation; and improved connectivity with train services for onward travel.

7.3.11 From the modelling prospective this option provided a challenging task as the proposed changes included adding evening services from circa 19:00, outside the time periods represented in the model. An increase in the IP services of 50% was therefore applied to the following two services to replicate evening service improvements:

- 574\_36::SIF::FICO036
- 576\_36::SIF::FICO036

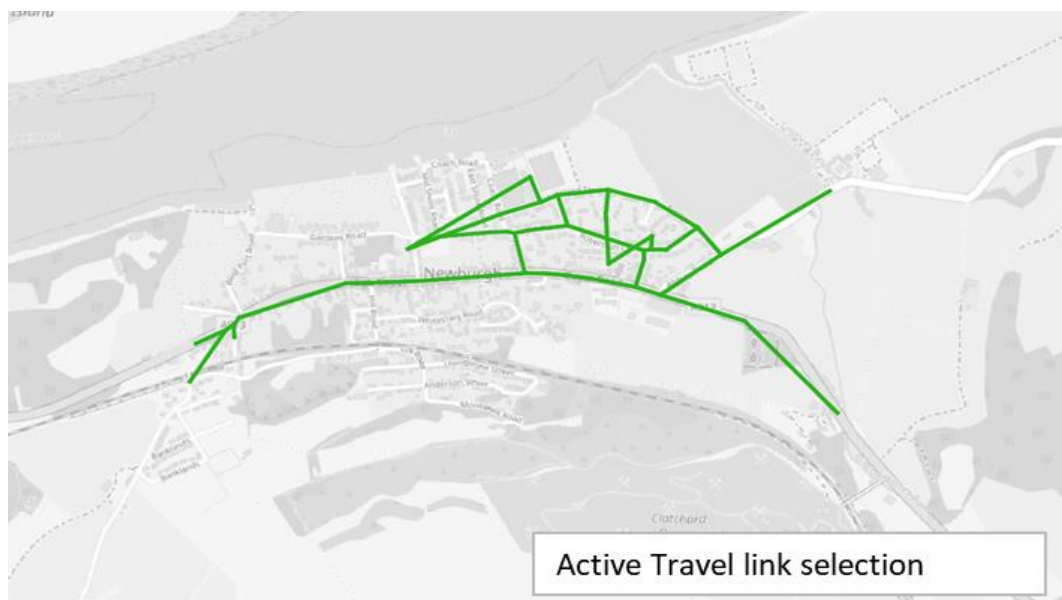
### Option 2

7.3.12 This option introduces a new Express bus service (555::SIF, 556::SIF) between Newburgh, Cupar, Perth and Broxden Park and Ride. It is a fast and limited stop service; running hourly, to complement the existing services 36 and 94. Details of the modelled timetables are shown in Appendix A.

7.3.13 This option also includes Active Travel improvements which was modelled in the following way:

- A selection of links from TCRTM model has been made to represent the main walking links within the town, as shown in Figure B1, and
- An 60% increase in the cycling and walking speed has been applied to link selection to represent the proposed active travel improvements.

**Figure B.1: Active travel link selection**



### Option 3

Option 3 proposes a new train station in Newburgh and considers the opening of the rail station as both a permanent and a temporary/pop-up structure to test user demand for the service. The option considers three possible locations as follows:

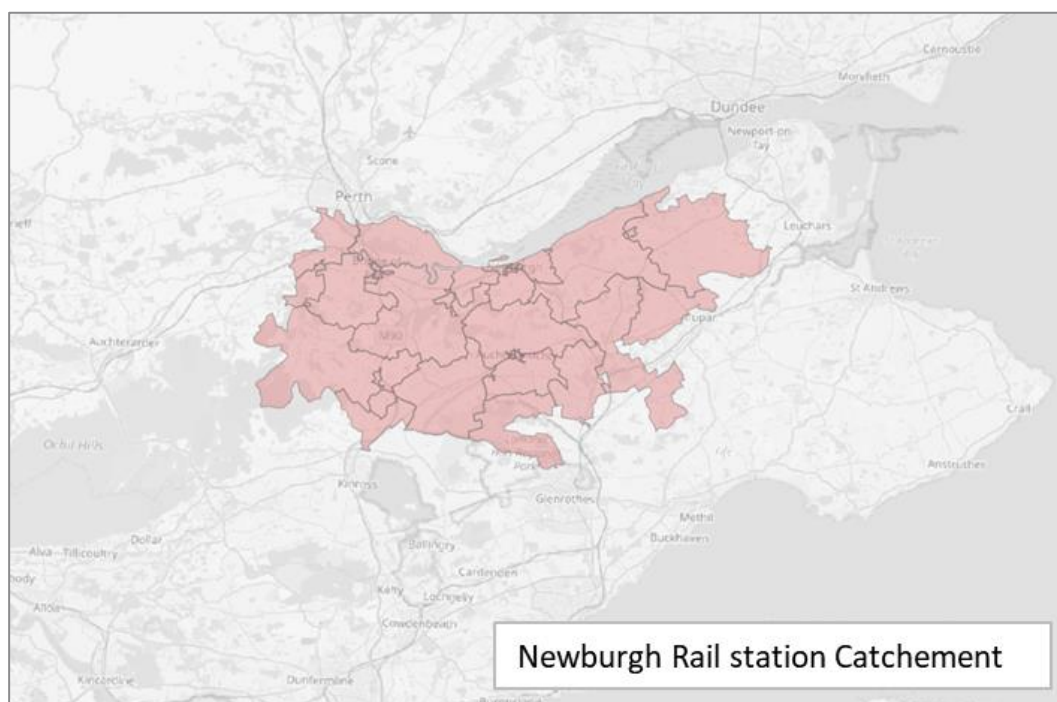
- 3a: Reopening of a former rail station at Abernethy Road
- 3c: Opening a new station at the east end of the town
- 3d: Reopening of a former railway station at Clatchard Quarry

For modelling purpose, it was assumed that the proposed site for train station is at Abernethy Road (3a) which is the site of a former rail station. Details of the modelled timetables are shown in Appendix A (Newburgh Detailed Options appraisal).

This option also includes Active Travel improvements which were modelled using the same method as for Option 2.

The 2 minute dwell time at the station has been added to the rail journey times. The parking zone located within the station is modelled as a Park and Ride site. The origin catchment for rail station parking zone is detailed in Figure 2. It was derived based on likely site usage from the other zones. The Park and Ride model enables the destination catchment to be the extent of the model.

**Figure B2: Newburgh Rail Station Catchment**



Attraction factors for the Park and Ride zone were derived using similar park and ride sites, in terms of geography and characteristics, within the model.

It is assumed that there wouldn't be a parking charge at the site and that the site will have up to a maximum of 37 spaces.

Additionally, a rail fare zone was added to the rail fares model to reflect station-station fare matrices which are used to apply fares by time period, and by travel purpose / ticket class for each station / fare zone pairing. The fares were calculate using the proportion of the distance between adjacent stations i.e. Ladybank and Perth.

As this option is likely to have an impact on long distance journeys, a TMfS run was undertaken to obtain the external matrices which were then used for running the 2027 and 2037 TCRTM models. This was integrated into the 'external' demand within this scenario.

#### **Option 4**

Option 4 introduces a car share scheme in Newburgh, examining an informal car-sharing between those travelling to and from Newburgh.

In terms of modelling approach, the car occupancy (Car Driver Car User (CDCU)) matrices for TCRTM were manipulated to emulate a car sharing option. The car occupancy matrices are used to convert person trips into vehicles for the road assignments.

The car occupancy values were increased by 50% to represent increased car occupancy for all trips to/from Newburgh (zones 734, 747, 750, 752).

## APPENDIX C – QUANTITATIVE APPRAISAL TOOLS

Appendix C provides details of other quantitative appraisal tools, in addition to TCRTM described in Appendix B above, used to assess the performance of each option against the Transport Planning Objectives (TPOs) and STAG criteria. This includes:

- Transport Users Benefit Appraisal (TUBA) – for the economic assessment.
- Costs and Benefits to Accidents Light Touch (COBALT) – for the safety assessment.
- TRACC – for the TPO assessment.

### Transport Users Benefit Appraisal (TUBA)

Transport Users Benefit Appraisal (TUBA) is a computer program developed by the Department for Transport (DfT). It is used to undertake an economic appraisal of a multi-modal transport study. The latest version (v1.9.17) was used.

TUBA undertakes a matrix-based appraisal with either fixed or variable trip matrices. TUBA calculates the user benefits in time, fuel vehicle operating costs (VOC), non-fuel VOC and charge; operator and government revenues; and the scheme costs, discounted to the present value year. Values calculated from input model data are interpolated and extrapolated to cover the full appraisal period as necessary. The output file contains all results for various degrees of disaggregation and presents the data in a series of summary tables (TEE) showing the economic efficiency of the transport system.

TUBA does not calculate the benefits associated with changes in accident costs. Accident benefits are calculated using the DfT's COBALT (Cost and Benefit to Accidents – Light Touch) software tool.

### Costs and Benefits to Accidents – Light Touch (COBALT)

COBALT (Cost and Benefit to Accidents – Light Touch) is a computer program developed by the DfT to undertake the analysis of the impact on accidents as part of economic appraisal for a road scheme. The latest version using COBALT v2.2 economic parameters was used. COBALT assesses the safety aspects of road schemes using detailed inputs of either (a) separate road links and road junctions that would be impacted by the scheme; or (b) combined links and junctions. The assessment is based on a comparison of accidents by severity and associated costs across an identified network in the 'Do-Minimum' and 'Do-Something' option forecasts, using details of link and junction characteristics, relevant accident rates and costs and forecast traffic volumes by link and junction.

### TRACC

TRACC is a GIS-based multimodal accessibility tool, developed by Basemap Ltd in conjunction with the DfT, local authorities and transport planners, which can calculate journey times from selected origin and destination points for public transport, cycling and walking using public transport timetable and road network data. The National Public Transport Data Repository (NPTDR) database is used which provides full service / route / trip information, showing arrival and departure times of the trip journey, for all transport modes. The data is updated every three months.

## APPENDIX D – ECONOMIC ASSESSMENT FRAMEWORK & COST ASSUMPTIONS

### Economic Assessment Framework

Economic appraisal was carried out for the four options using the 2027 forecast year as scheme implementation year and 2037 as the second forecast year. Each option was appraised for both the high growth (standard) model runs and low growth runs<sup>32</sup>.

Standard transport user benefits were appraised over a 60 year appraisal horizon, from 2022 as the current year, using the UK DfT TUBA software (version 1.9.17 released on 20/12/2021) and economic parameters from the TAG Data Book<sup>33</sup> v1.17 (November 2021).

A standalone Citilabs CUBE “TUBA Preparation” application was developed to take TCRTM model run outputs and separate Park and Ride car matrices from the remaining Highway (car) matrices. This also converted demand and cost matrices into comma-separated values (.csv) format files for the three main modes (Highway, Park and Ride, and PT) for input to TUBA. The application was also able to apply a mask so that non-zero demand would only be output for a subset of zone pairs (typically those lying within valid sector-pair combinations).

The TUBA economics input file was updated to include the Park and Ride mode (and associated vehicle types, charges and value of time allocation), and the additional TCRTM modelled purposes Education and Retired.

TUBA scheme files (“decks”) were created separately for the three main modes (Highway, Park and Ride, and PT) to contain the appropriate parameters, input file locations and mode-specific annualisation factors for each time period.

The standard TCRTM 8-sector geographical aggregation was revised to include a new Sector 9 focused on the area of interest surrounding Newburgh. A new TUBA zone to sector lookup file was created based on this system.

Initial TUBA runs for all options (high-growth scenario) were carried out unmasked with full sectorised outputs being produced for all sector pairs. Sensitivity test runs were then carried out to identify sector pair movements dominated by model noise. This led to the definition of a sector-pair based mask matrix to focus on those movements for which the annualised benefits or disbenefits from the option tests significantly exceeded the noise. This was also cross-checked against the flow difference plots for each option to ensure that the selected sector pairs did indeed represent movements likely to be impacted by the scheme.

The TUBA Preparation application was then re-run to ensure that demand was only non-zero for the selected sector-pair movements and TUBA re-run. This was necessary to obtain carbon emission impacts for the relevant movements only rather than all movements (these are only available from the TUBA output file as totals rather than for each sector-pair). The final outputs from these runs were then reported in the main document<sup>34</sup>.

Final Benefit to Cost Ratios (BCRs) were produced outside of TUBA in a standalone spreadsheet to combine the benefits output from the independent TUBA runs by mode (facilitating the incorporation of their separate annualization factors) together with scheme

<sup>32</sup> Carried out using Highway and PT assignments only with demand reductions of 8% in 2027 and 11% in 2037 (see Section 0).

<sup>33</sup> <https://www.gov.uk/government/publications/tag-data-book>

<sup>34</sup> *Bridge of Earn Detailed Appraisal Draft.docx*

costs for each option. Cost estimates are further described below. This included optimism bias and risk percentages, and implementation period. The spreadsheet discounted these costs to the 2010 appraisal year over the 60 year discounting period from 2022 using the methods and parameters from the latest TAG Data Book<sup>35</sup> v1.17.

Since some of the BCRs were unexpectedly large, given the relatively low flow changes, a sense-check was carried out using a thumbnail sketch calculation to obtain a ball-park estimate for the level of benefits which might be obtained from a scheme flow change of 50 persons in 12 hours (not dissimilar to many of the scheme impacts) with each saving 60 minutes (again not atypical for model cost change investigations for time savings for new PT services). Under some plausible assumptions this could lead to a discounted Present Value of Benefits of the order of £10m in 2010 prices and values. Again this level of benefits is not orders of magnitude from those generated by the schemes and associated TUBA/BCR analysis, thus providing some reassurance that the results were not outwith the bounds of plausibility.

Additional benefits due to accident reductions at local highway intersections proximate to the primary scheme locations were calculated using the DfT COBALT v2.2 spreadsheet-based approach.

### Indicative Option Costs

#### Option 1 – Improve Existing Bus Service

The option involves inserting additional off-peak journeys into the existing work of the bus(es) allocated to local Service 36 and 94. As such, there are no additional vehicles required outwith the existing fleet, but there will be additional costs associated with paying for more driving time (the biggest contributor to operating costs in the bus sector), extra fuel and other consumables, as well as more wear and tear on the buses involved.

The timetable set out in Appendix A was used to estimate the quantum of additional hours and miles associated with the extended operations, and we used our internal knowledge base of typical unit costs (e.g. drivers' wages, fuel consumption/cost, etc) to estimate expected annual operating costs of £100k per annum. Finally, we netted off the subsidy available to the extended operation through Bus Service Operators' Grant (BSOG).

#### Option 2 – New Express Bus Service

This option involves a new, more comprehensive and longer-distance express bus service, and as such cannot be accommodated within existing resources. Typically, bus operators fund the cost of investment through an annual depreciation of the additional assets over their lifecycle, and this is then used to fund replacement buses as they become life-expired. We assumed a maximum vehicle life of 15 years, and a cost per additional bus of £225k. With three buses required to be replaced every 15 years, this equates to a total capital cost of £2.7m.

Otherwise, the approach was similar to that for Option 1 – we estimated additional hours and miles associated with the new service, and applied our internal knowledge base of typical unit costs to produce an annual operating cost of circa £600k net of BSOG.

#### Option 3 – New Rail Station in Newburgh

<sup>35</sup> <https://www.gov.uk/government/publications/tag-data-book>

There are a number of cost drivers for new stations, all of which are likely to have site specific elements, which makes accurate costing, or even comparison based costing, difficult.

Some key features that are relevant to the costs are:

- Land costs, which have become a bigger component in recent schemes.
- Ground conditions and environmental issues.
- Access to public roads. This is not necessarily an issue for Newburgh with access directly from existing road network.
- Size of car parks, bus/taxi stances, pick up/set down space – which are proportional to their size. This depends on the likely catchment area and demand at the station. Some bus access will be required to permit the operation of rail replacement bus services and to provide access to the wider rural catchment through bus-rail integration.
- Length of platforms should be at least sufficient for a High Speed Train 5+2 configuration (6-carriage formations of Class 158 and 170 trains are 144m in length and therefore 150m adopted for longest train that may call).
- Cross-track, pedestrian access is not required for a Newburgh Station (for any sub-option), as the current rail line is single track.
- Most passenger facilities are similar at all new stations – waiting shelters, ticket issuing machines, Customer Information Systems, Public Address and Closed Circuit TV systems. The cost is partly driven by the number of platforms - Newburgh is on a single track line, therefore only one platform required. Ticket Machines would tend to be provided at a base level of one per station.
- Track Access for construction – the level of complexity driven by reduced working time due to the regular passage of trains drives costs up. The single track section will also impact on track access.
- There may be requirements to move signals and/or signalling equipment.
- Electrification – provision should be made for long term electrification aims although this does not factor into costs at this stage.

### **Presentation of comparative costs for construction of new rail station**

Table D.1 below is a summary of a number of stations that have recently reopened or are currently being planned or constructed. All of the cost information included here has been taken from public sources (E – estimate, B- budget, O – Outturn), so there are likely to be some variations and the costs may not be 100% comparable across the examples.

Outturn figures are taken to be on completion as current prices for the completion date. Estimates and Budget prices will be for earlier years than the anticipated completion dates.

Appendix A provides details on the assumption of any new station build. As noted, the single track rail line means no cross line pedestrian access is required (e.g. footbridge/underpass) and all required pedestrian access to the station will be to full Mobility Impaired Access standards. Car parking, access costs and extra engineering costs vary widely across the examples with some of the key drivers noted in the comments column below.

The first part of the table shows the costs of a number of simple single platform stations. The second and third sections show two platform stations and two platform stations on electrified lines, respectively, and these are provided for comparative purposes.

**Table D.1 : Station Cost Summary Table**

Station	Date	No. of platforms and length	Cost	Comment
<b>One Platform</b>				
Conon Bridge, Scotland	08-Feb-13	One 10m	£600k	Built in 11 months – short platform
Pye Corner, Wales	14-Dec-14	One 145m	£3.5m E	Built (not by Network Rail) in 8 months.
Newcourt, England	04-Jun-15	One 124m	£2.2m O	Estimate £1.44m increase due to extra signalling work
Bow Street, Wales	14-Feb-21	One 100m	£8m O	
<b>Two Platforms</b>				
Dalcross, Scotland	2021 in construction	Two 173m	£14m B	Includes car park
Bermuda Park and Coventry Arena, England	18-Jan-16	Two 75m (Coventry Arena Up side 149m)	£13.62m package	Part of a bigger package which included Bedworth platform lengthening & new platform at Coventry DfT Contribution to stations £4.75m
Ilkeston, England	02-Apr-17	Two	c£10m	Estimate 6.5m Much delayed by Great Crested Newts and flooding issues
Low Moor, England	May-17	Two 96m	£10.5 E	Ground conditions, due to mining, have added costs
Kenilworth, England	10-Dec-17	Two (100m)	£11.3m E	
Kintore, Scotland	15-Oct-20	Two 150m	£15m O	
<b>Electrified Routes</b>				
Apperley Bridge and Kirkstall Forge, England	13 Dec 2015 and 19 June 2016 respectively	Two 100m	£16.9 O	Estimate £15.9m for the pair. Park & Ride sites
Maghull North, England	2018	Two 132m	£13m E	Estimate was £7.37 Fully staffed station, ticket office, 3rd rail electrification
Robroyston, Scotland	16-Dec-19	Two 150m	£14m O	Major developer contribution £11k per house + more
East Linton, Scotland	2024	Two, expected 150m	£11.13m GRIP2	ELC planning approved Sept 2021
Reston, Scotland	2022	Two, sufficient for 10 carriages	£20m E	In construction

### Analysis of potential costs of the new stations and conclusions

From the table above it can be seen that there is a range of costs for the recently built or soon to be built new stations. The range of costs for a single platform station is wide – Conon Bridge (£0.6m) to Bow Street (£8m). Conon Bridge is exceptional with its short platform and proportionate facilities and is used in estimating the cost of a 10m modular station structure only.

Excluding Conon Bridge, three single platforms stations are listed. Construction on Bow Street was completed last year (2021) and is considered the most up to date single platform cost example, with both Pye Corner and New Court constructed over six years ago.

The basic cost for a two platform station being delivered now appears to be in the order of £10-20m but there are considerable variations including allowance for electrification futureproofing, accesses and facilities (station, parking etc).

### Recommendations

As noted in Appendix A, there are three proposed station locations with differing construction considerations. The proposed site on Abernethy Road is expected to present less challenging construction with some facilities already partly in place (e.g. site access, car parking) and therefore a rounded average cost from the three listed single platform stations is assumed.

The proposed sites located East of the Town and at Clatchard Quarry will present a more challenging construction project due to, for example, existing landscape, access and/or third

party land costs. It is therefore assumed that these options will result in higher costs and the highest example cost is used in the cost estimates.

The proposed cost estimates for the three station options with permanent platforms are therefore as follows:

- Option 3a Abernethy Road - £5m
- Option 3c East of Town - £8m
- Option 3d Clatchard Quarry - £8m

In the cost example for Conon Bridge, the estimated cost for building the 10m platform was £0.6m. While at Conon Bridge, the 10m platform is permanent and a modular platform may be lower cost, in the absence of further evidence, the Capital Cost for Option 3e is assumed to be the same as the Conon Bridge example at £0.6m. This cost has been assumed for all sites.

These costs are preliminary estimates and should be fully examined should any of the options progress. Clearly there is uncertainty around these cost and this uncertainty is assessed in Chapter 6 (Uncertainty Analysis).

### **Operating Costs**

ScotRail have shared operating costs for recent station openings (prices 2020) to provide an indication of annual operating costs for the new station. An average cost from all four examples of £122,330 per annum (2020 prices) is proposed to be used, as shown in Table D.2. A proportion (based on platform length) of the average operating cost of £10,000 has been adopted for the modular platform option.

Table D.2 : Station Operating Costs (2020 Prices)

Operating Costs	Armadale	Dyce	Robroyston	Kintore
<b>Rail Station Operating Costs</b>				
Long Term Charge	£52,902	£48,507	£24,513	£32,654.00
TVM tickets & Desktop tickets & Fingertip Maintenance	£3,982	£1,244	£3,982	£4,230
Pvalsx 2	£650	£650	£650	£650
Shelters x2	£5,500	£1,000	£5,500	£5,690
TVM Maintenance x1	£5,000	£10,003	£10,000	£5,000
Utility Costs	£5,100	£6,100	£8,400	£8,000
CCTV Maintenance per new Station	£3,146	£3,196	£4,500	£4,500
VS screen maintenance	£750	£1,500	£1,500	£1,500
Cleaning	£5,400	£4,600	£5,400	£5,400
Maintenance Costs (reactive/planned)	£7,200	£6,500	£7,000	£7,500
Vehicle Cost plus fuel	£3,500	£3,000	£4,000	£4,500
Gritting platforms	£2,100	£1,975	£2,100	£3,100
Insurance	£816	£748	£750	£800
Fibre Broadband	£3,096	£3,396	£9,480	£10,003
Public WIFI'	£0	£11,757	£5,550	£5,600
<b>Total Rail Operating Costs</b>	<b>£99,142.00</b>	<b>£104,176.00</b>	<b>£93,325.00</b>	<b>£99,127.00</b>
<b>Other running costs</b>				
Premises Repairs	£0	£0	£1,000	£1,000
Shelter Maintenance, Cleaning, Repair, etc	£3,000	£1,500	£3,500	£3,500
Mechanical/Electrical	£400	£400	£2,400	£2,400
Car Parking Equipment, Accreditation	£0	£0	£0	£0
<b>Total Car Park Costs</b>	<b>£3,400.00</b>	<b>£1,900.00</b>	<b>£6,900.00</b>	<b>£6,900.00</b>
<b>Other running costs</b>				
Total Electricity Station - EVP Only	£1,500	£1,500	£10,000	£10,000
Cleaning Materials & Insurance	£3,000	2000	£6,968	£7,200
Winter Maintenance & Landscaping	£6,500	6500	£7,500	£7,500
Ticket Printing and Promotion	£0	£0	£0	£0
Total CCTV and Security	£0	£0	£0	£0
Business Rates	£686	629	£1,500.00	£1,470.00
<b>Total Other Costs</b>	<b>£11,686</b>	<b>£10,629</b>	<b>£25,968</b>	<b>£26,170</b>
<b>TOTAL COST PER YEAR</b>	<b>£114,228</b>	<b>£116,705</b>	<b>£126,193</b>	<b>£132,197</b>
<b>AVERAGE COSTS PER YEAR</b>	<b>£122,331</b>			

#### Option 4 – Car Sharing Scheme

As detailed in Chapter 2, discussions with relevant stakeholders (TACTRAN, SEStran and Fife Council) highlighted that the only current viable option open to appraisal at this stage is informal car-sharing between those travelling to and from Newburgh. There is therefore no

capital or revenue costs associated with such a scheme that relies on existing personal vehicle access and existing costs.

## APPENDIX E – POLICY REVIEW

### Overview

There are a number of wider transport, planning, and economic policies and plans as well as existing studies that will inform the development of the transport appraisal. These include:

#### National Policies and Plans:

- National Planning Framework 4, 2021
- Scottish Planning Policy, 2020
- National Transport Strategy 2, 2019
- Infrastructure Investment Plan, 2021
- Scottish Government Economic Strategy, 2015
- Strategic Transport Projects Review 2, 2022
- Scotland Route Study, Network Rail, 2016

#### Regional Policies and Plans:

- TAYPlan Strategic Development Plan, 2017
- SEStran Regional Transport Strategy Refresh 2015 – 2025
- Tay Cities Deal, 2020

#### Local Policies and Plans:

- Fife Local Development Plan, 2017
- Local Transport Strategy for Fife, 2006-2026
- Shaping Perth's Transport Future, 2011
- Perth West Masterplan, 2015

### National Policies and Plans

#### National Planning Framework 3, 2014 & National Planning Framework 4, 2022

Scotland's *National Planning Framework 3* (NPF3) was laid in the Scottish Parliament on 23 June 2014 and spatially sets out the Scottish Government's Economic Strategy. It focuses on four outcomes:

- Creating a successful, sustainable place that supports sustainable economic growth and regeneration including the creation of well-designed places;
- Making Scotland a low carbon place, reducing carbon emissions and adapting to climate change;
- Ensuring that Scotland is a natural and resilient place, helping to protect and enhance its natural and cultural assets, facilitating sustainable use; and
- Making Scotland a connected place, supporting better transport and digital connectivity.

In terms of this study, NPF3 refers to the **north of Fife as a strategic growth area** with a focus for new housing and business development. This is largely because of the near proximity to Perth, which is considered to be a strategically important gateway to the north and north east of the country due to its central location within Scotland's road and

rail network. It is clear that any future development areas will need access to a suitable transport infrastructure to support their growth.

The National Planning Framework 4 (NPF4) is currently under development, with initial work suggesting a focus on achieving the target of net zero emissions by 2045, with a much greater focus on sustainable transport, health and wellbeing in planning processes and delivery. Of relevance for the City Centre Transformation Plan are discussions on the principle of the “20-minute neighbourhood/settlement” (having access to all goods and services we need within a twenty minute walk or cycle from home), and the possibility of requiring “Health Impact Assessments” for major developments.

The new spatial strategy will also support developments that help to maintain and strengthen strategic transport and digital connectivity. It notes that connectivity should be a shared priority from local, through regional to national levels.

The policies will also focus on the quality, functionality, usability, accessibility, inclusiveness and future maintenance of green space. Support will be strengthened for development in town centres and restricting out-of-town retail and leisure. This is in order to help make the transition away from car-dependent developments to those that enable walking, cycling, wheeling and public transport accessibility.

#### Scottish Planning Policy, 2014 (revised 2020)

Scottish Planning Policy (SPP) was published on 23 June 2014 and last updated in 2020. It sets out national planning policies which reflect Scottish Ministers’ priorities for the operation of the planning system and for the development and use of land. The SPP promotes consistency in the application of policy across Scotland while allowing sufficient flexibility to reflect local circumstances. It directly relates to:

- The preparation of development plans;
- The design of developments, from initial concept through to delivery;
- The determination of planning applications and appeals.

In relation to this study, the SPP identifies a **need to shift to more sustainable modes of transport** to help meet the Scottish Government’s greenhouse gas emission targets. Tackling congestion will also help support sustainable economic growth. The Policy requires that planning authorities should **support development that reduces the need to travel and facilitates travel by walking, cycling and public transport** and freight movement by rail and water.

#### National Transport Strategy, 2020

Published in February 2020, the NTS2 sets out a vision for transport system for the next 20 years, based on the following vision for Scotland:

*“We will have a sustainable, inclusive, safe and accessible transport system, helping deliver a healthier, fairer and more prosperous Scotland for communities, businesses and visitors.”*

Four priorities and associated outcomes develop the vision in more detail. These are:

- Reducing inequalities

- Will provide fair access to services we need
- Will be easy to use by all
- Will be affordable by all
- Taking climate action
  - Will help deliver our net zero target
  - Will adapt to the effects of climate change
  - Will promote greener, cleaner choices
- Helping deliver inclusive economic growth
  - Will get people and goods where they need to get to
  - Will be reliable, efficient and high quality
  - Will use beneficial innovation
- Improving our health and wellbeing
  - Will be safe and secure for all
  - Will enable us to make healthy travel choices
  - Will help make our communities great places to live

The NTS2 also places the sustainable travel hierarchy and investment at the heart of decision-making in transport.

This study will therefore need to take cognisance of the objectives and outcomes, and ensure it aligns with them.

### Infrastructure Investment Plan, 2021

The Scottish Government's Infrastructure Plan was published in early 2021 and sets out the priorities for investment in public infrastructure in Scotland. The plan has adopted the following vision: *Our infrastructure supports Scotland's resilience and enables inclusive, net zero and sustainable growth.*

In delivering this vision, the Infrastructure Investment Plan will focus on three core strategic themes for guiding investment decisions in Scotland:

- Enabling the transition to net zero emissions and environmental sustainability;
- Driving inclusive economic growth; and
- Building resilient and sustainable places.

Key Investments relevant to the study include:

- Over £550 million will be invested over 5 years in active travel, including £50 million dedicated to Active freeways;
- Over £1.2 billion to be invested in Rail Major Project Enhancements, including £550 million for dedicated rail decarbonisation projects, and £3.8 billion for rail passengers and rail freight and **investment in the rail infrastructure between Aberdeen and the Central belt**
- Investing £275 million to support community-led regeneration and town centre revitalisation as part of a new Place Based Investment Programme.

## Scottish Government Economic Strategy, 2015

Scotland's Economic Strategy focuses on *"the two mutually supportive goals of increasing competitiveness and tackling inequality"*. The Strategy outlines the following four priorities to support sustainable growth across the country, which this study will take cognisance of. The priorities include:

- **Investing in our people and our infrastructure in a sustainable way;**
- Fostering a culture of innovation and research and development;
- **Promoting inclusive growth** and creating opportunity through a fair and inclusive jobs market and regional cohesion; and
- Promoting Scotland on the international stage to boost our trade and investment, influence and networks.

## Strategic Transport Projects Review 2, 2021/22

The Strategic Transport Projects Review (STPR), published in December 2008, sets out the Scottish Government's 29 transport investment priorities over the period to 2032. Some of these priorities are likely to impact on this study, including recommendations for **rail capacity and service enhancements towards Central belt and north of Scotland**.

The second Strategic Transport Projects Review (STPR2) is a review of the strategic transport network across all transport modes in Scotland, which will inform the national transport investment for the next 20 years.

STPR2 will report in two phases - the Phase 1 recommendations for transport investment were published in February 2021; with Phase 2 recommendations reporting in Autumn 2021.

The Phase 1 process has resulted in 20 short term interventions being recommended, against eight themes. Those relevant to this study are

- Supporting smart and sustainable travel across Scotland
  - 1. Development and Delivery of Active Freeways
  - 2. Influencing travel choices
- Creating smart and sustainable towns and villages
  - 3. Transport's contribution to placemaking principles in neighbourhoods
- Improving accessibility in rural and peripheral areas and for vulnerable groups
  - 4. Investment in Demand Responsive Transport and Mobility as a Service
- Enhancing public transport provision
  - 5. Re-allocation of road space for buses
  - 6. Infrastructure to provide access for all at rail stations
- Supporting transition to low-carbon transport
  - 7. Investment in low carbon and alternative fuel systems
  - 8. Delivery of Rail Decarbonisation Programme (Phase 1)

Phase 2 was reported in January 2022 and informs the Scottish Government's medium and longer term (next 20 years) investment plans and spending reviews. Key recommendations relevant to this study include:

- Highland mainline rail corridor enhancements
- Perth-Dundee-Aberdeen rail corridor enhancements
- Improved public transport passenger interchange facilities
- Smart, integrated public transport ticketing

#### Scotland Route Study, Network Rail, 2016

The Scotland Route Study presents a vision of the railway in 2043, and sets out a strategy “for realising this vision in ways that are deliverable and likely to provide value-for-money for passengers and funders”.

The strategic objectives set in the study aim to enable economic growth by:

- **Improving connectivity:**
  - To/from the retail, leisure and tourism sectors of the economy
  - Business to business connectivity
  - Connecting communities
- **Improving accessibility:**
  - Improving access to workers for businesses
  - Access to employment and training opportunities
- **Reducing carbon and transport sector's impact on the environment**
- **Improving integration** across the transport network
- Reducing safety risks for the general public
- Improving affordability and value for money

Options that have been recommended for progression and of relevance to Newburgh include:

- **Central Belt to Inverness Enhancement;** and
- **Ladybank to Hilton Junction enhancement to improve capacity and journey times.**

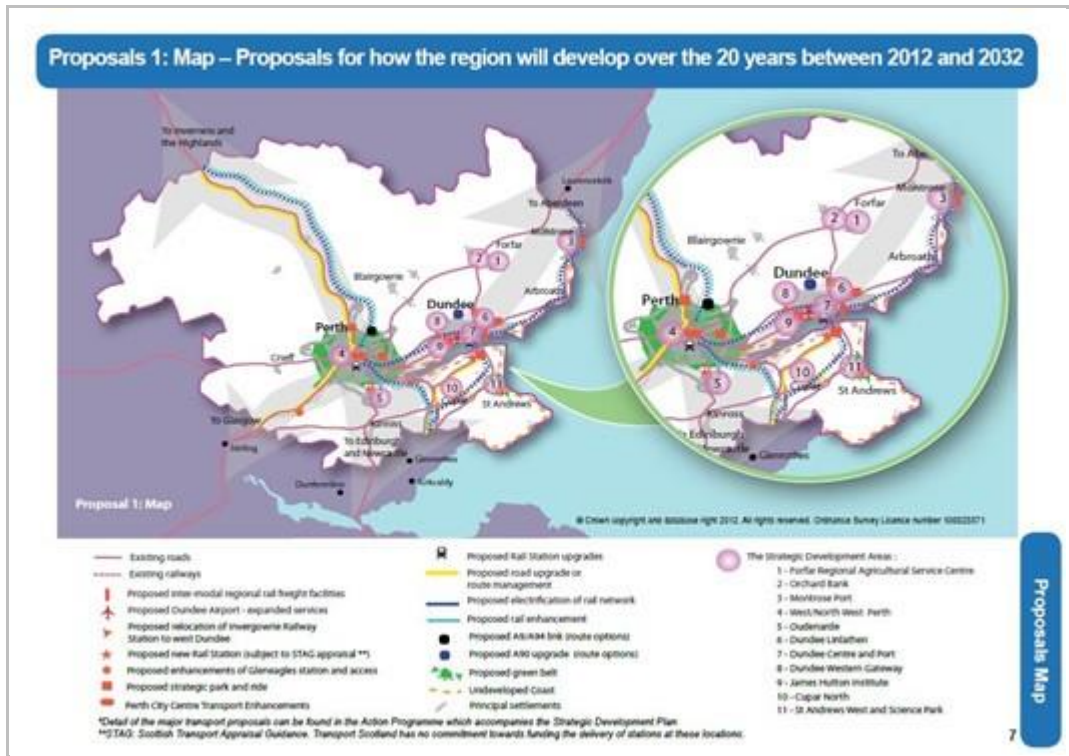
#### Regional Policies and Plans

#### TAYplan Strategic Development Plan, 2017

The TAYplan Strategic Development Plan (SDP) was approved in October 2017. It sets out land use planning policies to guide the location of development across the whole Dundee and Perth area, North Fife and parts of Angus and Perth and Kinross over the next 20 years up until 2036.

The Plan's vision centres on improving people's quality of life. It highlights that growing and strengthening the TAYplan economy is a key priority underpinned by **better connected places, new jobs, investment and strong community empowerment.**

**Newburgh** is listed as a Tier 3 settlement, which means it is **seen as having** a more modest role than that of some of the core areas but with **the potential to be important to the regional economy**.



**Figure F.1 : TAYPlan 20 Year Proposals (2012-2032)**

In terms of this study, the document details various proposals for achieving their vision and objectives, including **the potential for a new station at Newburgh** (subject to STAG appraisal) and the **enhancement and electrification of the rail line south from Perth via Newburgh**.

### SEStran Regional Transport Strategy, 2021

The SEStran Regional Transport Strategy (RTS) was published in 2008 and set out a vision and strategy for improving the region's transport infrastructure, services and other facilities, over the 15 years to 2023. In November 2021, SEStran published their updated draft RTS for consultation

The draft RTS sets SEStran's vision to deliver:

*"A South-East of Scotland integrated transport system that will be efficient connected and safe, creating inclusive, prosperous, and sustainable places to live, work and visit, affordable and accessible to all, enabling people to be healthier and delivering the region's contribution to net zero emissions targets."*

Of relevance to this study, are the Strategy's Main objective themes:

- Strategy Objective 1: Transitioning to a sustainable, post-carbon transport system
  - Climate Change and Net Zero
  - Air Quality Transformed
  - Equitable Access to Transport
- Strategy Objective 2: Facilitating healthier travel options
  - Improved Physical Health and Activity

- Increased Wellbeing
- Transformed Neighbourhoods
- Strategy Objective 3: Widening public transport connectivity and access across the region
  - Greater Equality of Opportunity
  - Travel Barriers Removed
  - Reduced Social Isolation
- Strategy Objective 4: Supporting safe, sustainable and efficient movement of people and freight across the region
  - Reduced Road Casualties
  - Inclusive Economic Growth
  - Improved Regional Competitiveness

### Tay Cities Deal, 2020

The aim of the Tay Cities Deal is to bring together public, private and voluntary organisations in council areas of Angus, Dundee City, Perth & Kinross and the North East area of Fife, aiming to create “a smarter and fairer region”. These local authorities and their Partners have negotiated with the UK and Scottish Governments and secured investment and greater local powers which will be used to encourage skills development and progress infrastructure such as roads, rail links, buildings and communications networks. The full deal document was signed in December 2020.

The investments include up to £150 million over 10-15 years, subject to final approval of robust business cases. It is believed that this investment has the potential to secure over 6,000 jobs and attract over £400 million in investment over the next 10-15 years.

In terms of this study, the investments mentioned which are relevant to Newburgh and North Fife area include:

- Up to £15 million in a **Perth Bus and Rail Interchange project** subject to detailed consideration of future plans for the rail infrastructure in and around Perth Station and completion and agreement of appropriate appraisal, business case and statutory processes.
- **Building on world-class locations such as St Andrews**, the Scottish Government will invest £37 million, subject to approval of a programme business case, to support a Regional Culture and Tourism Investment Programme that will invest in key economic assets in culture and tourism. The Programme will be developed in conjunction with the private sector and with national agencies and will be designed to maximise the use of public funds and leverage additional private sector investment. It will invest in a wide range of assets to ensure that the entire region can continue to develop its national and international visitor offer.

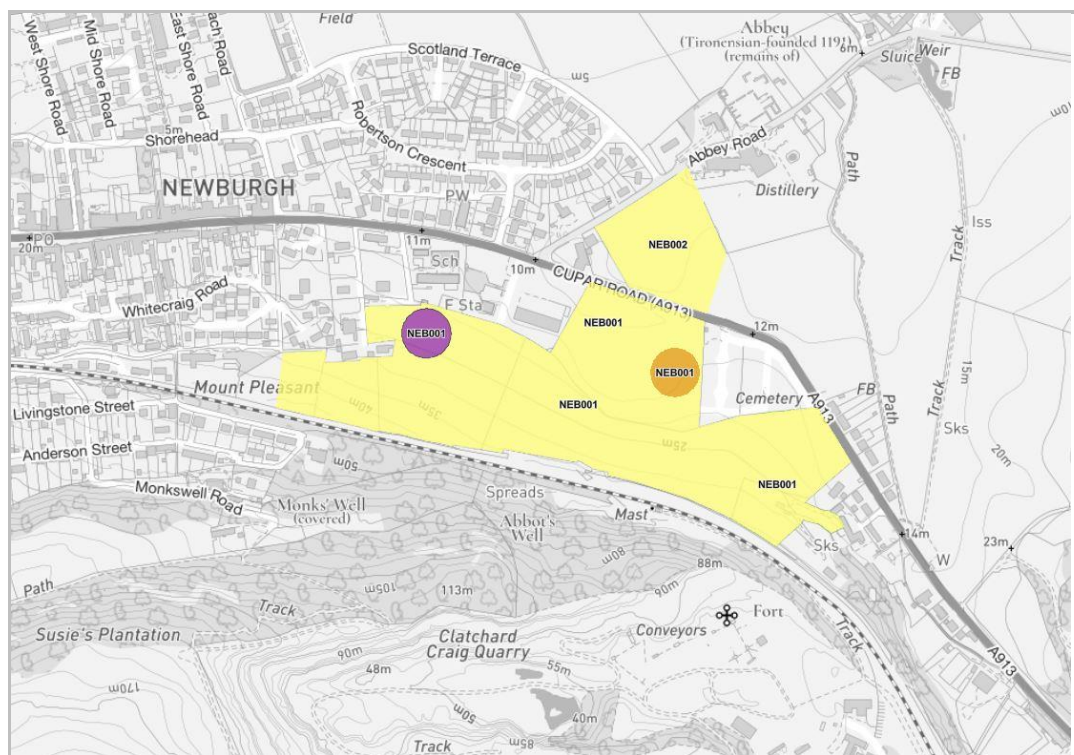
### Local Policies and Plans

There are a number of local policies and plans that give context to journeys to and from Newburgh, including the Fife Local Development Plan and the Local Transport Strategy for Fife. In addition, trips to and from Perth are included as being one of the main attractors for journeys from Newburgh. Any plans for Perth are therefore likely to impact on journeys to and from Newburgh.

The Fife Local Development Plan (FIFEPlan) was prepared in 2017 and details the status and specifications of new developments in Fife. Newburgh is considered as a Town Centre and “...the Local Development Plan strategy and policies support Fife’s town centres as hubs of activity which adapt to changes in their role so they can remain centres for commercial, community, and cultural activity.” In addition, a large part of **Newburgh is designated as an Area of Archaeological Regional Importance**.

There are two committed projects listed in Newburgh, which are shown in Figure F.2:

- **A development site south of Cupar Road.** The proposed development will consist of: 8.8ha (225 units) of housing, 1ha of employment, 0.6ha of primary school expansion and 1.2ha of cemetery expansion. The proposals will require the developer to prepare a transport assessment to determine necessary infrastructure improvements; and
- **A development on land north of Cupar Road.** The proposed development will consist of 1.9ha (50 units) of housing and a high-quality development frontage on to the A913 including tree planting and other features to reflect rural character. Again, a transport assessment supporting the development will be required.



**Figure F.2 : Newburgh Developments Mentioned in the Fife LDP**

The Fifeplan’s spatial strategy also proposes a significant number of **employment development areas** including in **Cupar, Glenrothes, Kirkcaldy, St Andrews, Levenmouth and south-west Fife**. These locations may provide further employment opportunities for Newburgh residents and are indicated in Figure F.3.

These opportunities will likely induce additional trip-making to destinations to the east of Newburgh.

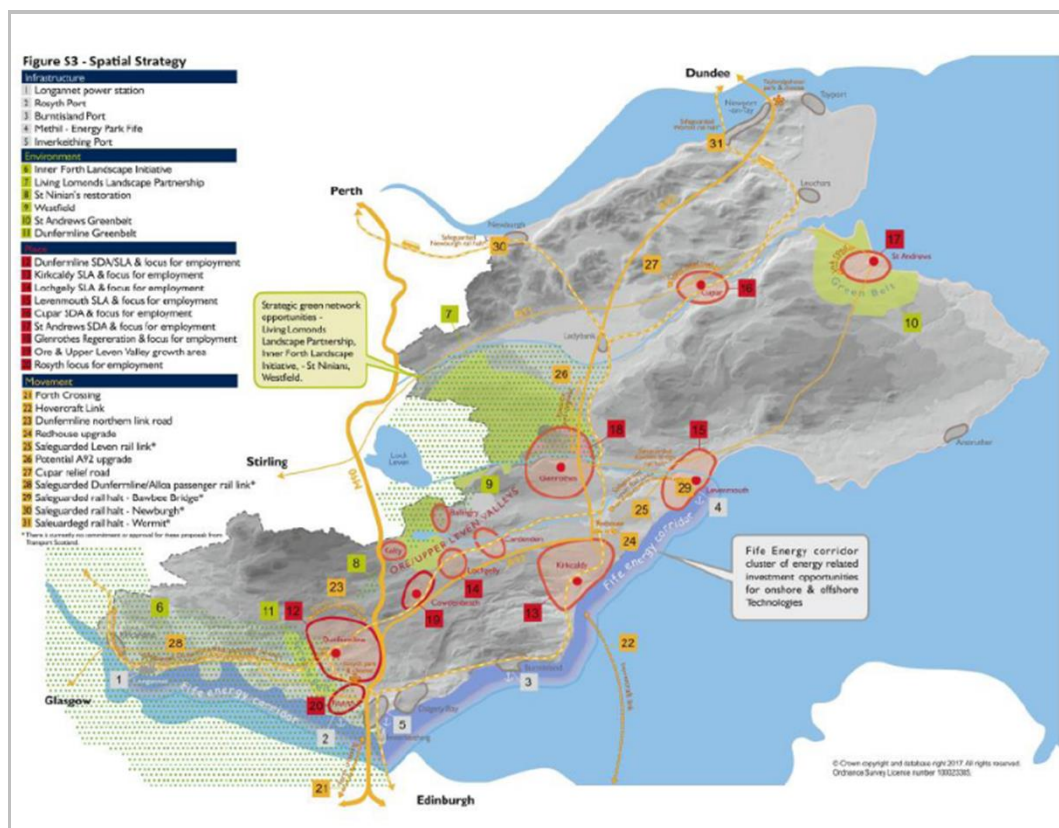


Figure F.3 : Fifeplan Spatial Strategy, Page 15

### Local Transport Strategy for Fife 2006-2026, 2006

The Local Transport Strategy (LTS) for Fife was prepared in 2006. It lists ten objectives, grouped into two themes, and divides the actions to achieve these into different time stages: Key Targets, 3-5 Year Targets and Longer Targets (10-20 Years). Figure F.4 gives details of the objectives.

Of relevance to this study, the Strategy recognises that whilst **car use is essential** and convenient for most, its use is **placing a significant strain on the Economy, Communities & Environment** because of increased congestion, community severance and pollution. It then highlights the **need to better balance people's travel choices** and promote a more sustainable approach to travel. **Access to health care services** is recognised as a **major issue** throughout Fife.

The Strategy also mentions a **potential new rail station at Newburgh** as part of a **longer-term target for investigation**. A high-level assessment of the project rates it as achieving a positive impact in a wide range of the LTS objectives. It also gives an outline cost estimate of £2.5m for the project.

TRANSPORT THEMES	TRAVEL CHOICES
<b>Access for All</b> <b>Objective:</b> To improve access to all key needs and services for all. (including employment, education, health and leisure opportunities).	<b>Walking and Cycling</b> <b>Objective:</b> To encourage walking and cycling for short trips and as part of an integrated journey to promote a healthier lifestyle.
<b>Travel Safety</b> <b>Objective:</b> To improve safety for all forms of transport.	<b>Passenger Transport</b> <b>Objective:</b> To work with passenger transport operators to develop an integrated public transport system.
<b>Changing Travel Habits</b> <b>Objective:</b> To limit the growth in the use of driver only car trips, especially for commuting, by encouraging more use of public transport, and car sharing.	<b>Freight Transport</b> <b>Objective:</b> To promote efficient movement of freight and encourage transfer of goods from road to rail, sea and pipeline.
<b>Management and Maintenance of Transport Infrastructure</b> <b>Objective:</b> To manage and maintain road networks in an acceptable, safe and sustainable condition.	<b>Cars, Motorcycles and Parking</b> <b>Objective:</b> To maintain access for essential private vehicle users, whilst restraining the capacity for driver only car commuting in congested locations.
<b>Transport and Land Use Planning</b> <b>Objective:</b> To encourage more sustainable travel for new and existing developments.	<p>The above objectives have been appraised against:</p> <ul style="list-style-type: none"> <li>the Scottish Executive's STAG objectives of Economy, Environment, Accessibility and Social Inclusion, Safety and Integration.</li> <li>the additional objectives of Fife's Community Plan</li> <li>the travel issues for disabled people, as identified within 'MACS Transport Strategies: Planning for Inclusion'</li> </ul>
<b>Integrated Transport Networks</b> <b>Objective:</b> To widen travel choice through the provision of integrated transport networks.	

Figure F.4 : Local Transport Strategy for Fife: List of Objectives

## Shaping Perth's Transport Future, 2011

Shaping Perth's Transport Future sets out the transport strategy for Perth and the wider region. It includes a vision for the region that aims to *"provide a transport system in and around Perth that will support sustainable economic growth, protect and improve the environment and improve social inclusion and accessibility."*

This vision is supported by strategic objectives, which this study will take cognisance of, and which include:

- To improve and maintain the efficiency of the strategic transport network;
- To improve and maintain the efficiency of the local transport network;
- To enable more effective management of incidents and events;
- To work towards meeting national air quality standards and prevent further breach/exceedance;
- To **reduce transport emissions** which contribute to climate change, in line with national guidance;
- To improve the safety of the strategic and local transport network;
- To increase the proportion of short trips by more sustainable modes; and

- To **improve accessibility** to key facilities (e.g. health, education, leisure facilities, key employment areas, the City Centre and tourist attractions).

Of relevance to this study are also the key transport problems identified within the document, and which may impact on trips to and from Newburgh. These include:

- **Walking and Cycling** – considered **unattractive due to heavily trafficked roads** in the city centre and on key routes leading to the centre;
- **Bus network** – **congestion at key junctions impacting on reliability of journey times** and compromising the operation of existing bus priority measures;
- **Local Road Network** – **congestion in the city centre**;
- **Air Quality** – Perth Air Quality Management Area designated in Perth city centre and wider city region in 2006 as a result of air quality being below the required standards with transport identified as a key contributing factor.

#### Perth West Masterplan, 2015

Of relevance to this study is also the proposed development to the west of Perth City, 'The Perth West Masterplan', which may provide employment opportunities for Newburgh residents. The site has been identified within the Perth and Kinross LDP as site H70 and is proposed for the development of 3,000+ residential units, 25ha of employment land, 2 primary schools and community facilities.

The employment opportunities brought forward as part of the Perth West proposals may encourage additional trip-making to and from Newburgh.

## APPENDIX F – EQUALITY IMPACT ASSESSMENT

### Introduction

This Equality and Fairness Impact Assessment is adapted from Fife Council and seeks to ensure that decision makers are fully informed, at a formative stage in the decision-making process of the impacts of various options on groups in the population.

### Information Gathering

As part of the information gathering stage of the study, data was gathered and processed to understand the socio-economic make-up of the study area. This included reviews of Census and SIMD data as set out in the Case for Change Report<sup>36</sup>. In addition, workshops were held with council officers and community councils to capture any wider issues not highlighted by the data gathering. In the Detailed Appraisal stage of the study a public consultation was undertaken to capture views of the proposed options and the impacts they may have on the community.

To understand how attitudes to options and travel varied for different groups, gender, age and mobility details were requested from respondents.

### Impacts of the Options

EQUALITY PROTECTED CHARACTERISTIC	SPECIFIC CHARACTERISTICS	IMPACT
Age	Older People (65+)	Access to essential services may be reduced if elderly people lose the ability to drive, with current public transport provision identified as having accessibility issues. The impact would vary depending on the option but each option could provide improved access to amenities, however a rail option may depend on the reliance of car for access.
	Younger People (16-64)	Improved access to employment and education opportunities through increased access to the strategic coach and rail network.
	Children (0-16)	The impact would vary depending on the option but may provide improved access to amenities, however rail may depend on the reliance of car to access the services.
	Looked After Children (Corporate Parenting)	Free bus travel for under 22s will increase accessibility for children impacted by the cost of public transport.
Disability	Physical Disability	The bus options will provide greater access to services and any new bus vehicles will be to current access standards. Reducing the need to interchange by joining the rail network closer to communities may make public transport more accessible for those with physical impairment.

<sup>36</sup> [Case for Change Report, SYSTRA, 2020](#)

EQUALITY PROTECTED CHARACTERISTIC	SPECIFIC CHARACTERISTICS	IMPACT
		Facilities at a rail station would meet DDA standards however the sites may not be staffed to support boarding and alighting.
	Sensory Impairment	The bus options will provide greater access to services and any new bus vehicles will be to current access standards. Reducing the need to interchange by joining the rail network closer to communities may make public transport more accessible for those with sensory impairment. A purpose built station would meet DDA standards including visual aids and audio where required, however the sites may not be staffed to support boarding and alighting.
	Mental Health / Learning Disability	Key difficulties experienced by people in this group in relation to travel are confidence issues and affordability. All options proposed would allow for improved routine and planning to support confidence to travel.
Gender Reassignment	Male transitioning to female	There is a potential for hate crimes to impact on this group but increased natural surveillance through increased use of services may increase confidence to use public transport.
	Female transitioning to male	
Marriage/Civil Partnership	Women	Women have generally lower access to cars so the options proposed would increase access to services through improved public transport. The rail station facilities would include help call buttons and CCTV to improve the sense of safety when using the facilities.
	Men	The options would improve access to services and amenities.
	Same Sex Couple (Male)	There is a potential for hate crimes to impact on this group but increased natural surveillance through increased use of services may increase confidence to use public transport.
	Same Sex Couple (Female)	
Pregnancy / Maternity/Paternity	Women	The new rail station would have facilities to improve access to services and benefit from reduced interchanges. The bus options will provide improved access to required services and where new buses are provided, these will be to current accessibility standards.
	Paternity	
Race	A list of categories used in the census is <a href="#">here</a>	Improved access to employment and education opportunities through increased destinations and also frequencies of services. There is a potential for hate crimes to impact on this group but increased natural surveillance through

EQUALITY PROTECTED CHARACTERISTIC	SPECIFIC CHARACTERISTICS	IMPACT
		increased use of services may increase confidence to use public transport.
Religion	A list of categories used in the census is <a href="#">here</a>	Improved access to employment and education opportunities through increased destinations and also frequencies of services. There is a potential for hate crimes to impact on this group but increased natural surveillance through increased use of services may increase confidence to use public transport.

### Summary

This Equalities Impact Assessment has not identified any group which would be unfairly impacted by the options proposed as part of this study and no recommended amendments have emerged from the process.

**APPENDIX G – APPRAISAL SUMMARY TABLES**

## Option 1 AST: Improved (Existing) Bus Services to/from Newburgh

### OPTION 1 – IMPROVED (EXISTING) BUS SERVICES TO/FROM NEWBURGH

#### Proposal Details

<b>Proposal Name:</b>	Improved (existing) bus services to/from Newburgh
<b>Proposal Description:</b>	Enhanced bus service provision to Perth, Cupar, and Ladybank to enable public transport access to key services and markets i.e. employment, places of study, and wider health care and leisure facilities, and to help increase public transport choice. The option includes the provision of greater frequencies of bus services and extended hours of operation, as well as improving connectivity with train services to help facilitate onward travel.
<b>Estimated Total Public Sector Funding Requirement</b>	£0m All costs of the proposed option are associated with operating and maintenance costs

#### Background Information

<b>Geographic Context:</b>	Newburgh is a rural town with a population of 2,899. It lies on the south bank of the Firth of Tay in Fife, approximately 19 km (12 miles) southeast of Perth and 17 km (11 miles) north west of Cupar. The proposal includes for improvements to the existing bus services to/from Newburgh, primarily towards Perth and Cupar, the key commuting destinations for Newburgh residents. The proposal also includes bus improvements to Ladybank, the nearest train station, to allow connections with rail services for onward travel. The proposal follows the existing alignment of the bus service number 36 from Glenrothes to Perth, passing settlements including Abernethy and Bridge of Earn; and bus service number 94 from Newburgh to St Andrews, via Ladybank and Cupar.
<b>Social Context:</b>	Newburgh has one of the lowest access to public transport network in Fife and its Flisk, Lindores and Luthrie area falls within 20% of the Scotland's most deprived datazones in terms of geographic access. There are limited community facilities available in Newburgh and residents need to travel further afield to access jobs, secondary school, higher education, and wider health care and leisure facilities. The evidence shows that Newburgh residents travel above average distances to places of work and education when compared to Fife and Scotland as a whole. The nearest hospital is 17 km (11 miles) away. Moreover, Newburgh's demographic make-up includes an above average population of over 65 years old in comparison to Fife and Scotland as a whole, which is predicted to increase, and an above average population of those whose daily activities are limited a little due to their health. These groups of population may need greater access to health care and hospital facilities, which are not available in Newburgh. In addition, Newburgh has an above average percentage of people with no qualifications and below average percentage of students when compared to Fife and Scotland as a whole. 19% of Newburgh households do not have access to a car and are therefore reliant on travel alternatives. The existing bus services have limitations for those accessing jobs, but also those wishing to travel for leisure purpose. There is no evening service and limited Sunday service between Newburgh and Perth, and there is a limited morning service and no Sunday service between Newburgh and Cupar. Travel by bus to these main destinations can also take considerably longer in comparison to car whilst the cost associated with bus versus car travel is comparable. Other commuting

## OPTION 1 – IMPROVED (EXISTING) BUS SERVICES TO/FROM NEWBURGH

destinations such as Dundee and Kirkcaldy require a bus or train interchange, incur long travel times and higher travel cost when compared to car travel. The nearest train station is Ladybank, 13 km (8 miles) away.

The proposal therefore aims to improve the frequency and times of operation of the existing bus services to help improve public transport access to the key services and markets; and help increase sustainable travel choices for Newburgh residents.

### Economic Context:

Newburgh has higher than average proportion of economically active population in comparison to Fife and Scotland as a whole, but the decline of the traditional manufacturing industries, that once provided the key employment opportunities in Newburgh, meant that people now have to travel further to access jobs. Using 2011 Census data, 65% of Newburgh residents commute outside of Newburgh for work, with the main destinations being Perth and Cupar, but people also travel further afield to Perthshire, Dundee, areas in and around Kirkcaldy, Glenrothes, Dunfermline, St Andrews and Edinburgh. 9% of Newburgh residents work within Newburgh (which is lower than 13% for Fife and 15% for Scotland – based on 2km commuting distance) and 14% work from home (again the proportion is higher than 10% for Fife and 11% for Scotland as a whole).

Newburgh has an above average percentage of self-employed and part time workers in comparison to Fife and Scotland as a whole. The key employment sectors for Newburgh residents are health and social work, wholesale/retail, construction and manufacturing, which often require shift working. All these groups of population require varying needs of access to the transport network and times needed to travel.

Newburgh has also above average proportion of households with two or more cars (when compared to Fife and Scotland as a whole) and the majority (75%) of trips to work are made by car, in particularly single occupancy car travel. This indicates there is a reliance on car travel to reach people's destinations. The area includes tourism attractions including Lindores Abbey whisky distillery, a recreational waterfront, the Ochills hills and the Fife Coastal Path. It also includes proposals for new 12ha mixed use housing and employment development, and mooring facilities off river Tay.

The proposal therefore aims to improve people's options to access job opportunities, but also to improve connectivity of Newburgh for both Newburgh residents and those travelling there for work, leisure and/or tourism.

### Planning Objectives:

Criteria	Score	Rationale
<b>TPO1</b> - Improve transport access to key services and markets (including employment, training, education, health and leisure opportunities) for Newburgh residents	<b>Moderate Benefit</b> ✓✓	The option would improve access for Newburgh residents by introducing better frequency of the existing bus service and by extending its period of operation. These changes would increase the opportunities, services and markets that Newburgh residents could access early in the day, late in the evening and on weekends. They would also allow an improved access to rail interchange (e.g. Ladybank) and offer a more competitive alternative to a private car.
<b>TPO2</b> - Improve public transport connectivity and journey times to and from Newburgh for residents, businesses and visitors	<b>Minor Benefit</b> ✓	The option, which would benefit residents, businesses and visitors, would increase connectivity of Newburgh, by providing greater frequencies and hours of operation of the existing bus service. The proposals however would not improve public transport journey times

## OPTION 1 – IMPROVED (EXISTING) BUS SERVICES TO/FROM NEWBURGH

**TPO3** - Increase sustainable travel to and from Newburgh


**Minor Benefit**  
✓

With increased flexibility around travel times, the option has the potential to facilitate greater use of sustainable transport modes, by improving accessibility by bus to and from Newburgh, thus potentially abstracting mode share from private car.

### STAG Criteria

Criteria	Score/ Assessment Summary	Supporting Information: Rationale & Sub-criteria Score
Environment	Minor Benefit ✓	<b>Noise and Vibration (-):</b> No significant effects on transport noise or vibration for receptors adjacent to bus routes or facilities are predicted .
		<b>Global Air Quality (CO<sub>2</sub>) (✓):</b> The option has the potential for modal shift with people preferring public transport to private vehicles along proposed improved bus routes, resulting in decreased number of cars in the settlement centres (i.e. Perth, Newburgh, Cupar and Ladybank) and better global air quality. The potential for modal shift to more sustainable modes for longer distance journeys may also result in reduced emissions of CO <sub>2</sub> on the wider network.
		<b>Local Air Quality (PM10 and NO2) (✓):</b> Designated Air Quality Management Areas have been declared in Perth and Cupar, and are largely attributed to the impact of traffic. There may be a minor potential for positive effects on air quality in the immediate vicinity of these locations associated with the option, due to positive modal shift and reduced numbers of private cars. Overall, provision of sustainable transport and increasing the modal share will lead to a minor improvement in local air quality.
		<b>Water quality, Drainage and Flood defence (✓):</b> No significant effects on water environments are anticipated for this option, although a consequent reduction in private vehicular traffic may result in the potential for very small improvement of water runoff quality from roads and urban areas.
		<b>Geology (-):</b> No significant effects on geology or geological/material resources are predicted for this option.
		<b>Biodiversity and Habitats (-):</b> Significant road and bus stop infrastructure is not anticipated for this option, as the bus services would be using the existing routes and interchange facilities. No significant effects on biodiversity and habitats are therefore predicted .
		<b>Landscape (-):</b> No significant effects on landscape or townscape are predicted for this option.
		<b>Visual Amenity (-):</b> No significant effects on visual amenity are predicted for this option.
		<b>Agriculture and Soils (-):</b> No significant effects on agriculture and soils are predicted for this option.

## OPTION 1 – IMPROVED (EXISTING) BUS SERVICES TO/FROM NEWBURGH

		<p><b>Cultural Heritage (-):</b> No significant effects on cultural heritage are predicted for this option.</p> <p><b>Physical Fitness (✓):</b> This option has the potential for modal shift with people preferring public transport to private vehicles, resulting in increased walking at either end of the journey.</p> <p><b>Climate Change (✓):</b> A shift away from vehicular based travel through the promotion of public transport and walking which in turn will contribute to a reduction in air pollution and carbon emission levels. However impacts the unlikely to be significant.</p>
<b>Safety</b>		<p><b>Accidents (✓):</b> There are minor positive impacts on accidents in the area, primarily driven by the slight reduced road mode share across all options.</p> <p><b>Security (-):</b> Although the option is likely to achieve some benefits, e.g. due to reduced wait time at bus stops or improved natural surveillance, these are likely to be negligible.</p>
<b>Economy</b>	PVB = £13.3m	<p><b>TEE :</b> Benefits from increased public transport frequency, changes in trip mode to public transport, reduced car dependency, improved public transport access to jobs, employment opportunities, and tourism markets both in and out with Newburgh.</p> <p><b>Wider Economic Impacts</b> (not assessed): Given the scale of patronage and relatively localised benefits associated with the interventions it is considered that there would be no significant wider economic impacts and the TEE captures the economic impacts.</p>
<b>Integration</b>	<b>Minor Benefit</b> ✓	<p><b>Transport (✓):</b> The option is likely to achieve some minor benefit to the integration with other transport services, through greater combined frequency of service and the potential to link journeys / access to onward transport services. No notable change is expected to be made to ticketing, infrastructure, or how the information is provided (e.g. Real Time Information)</p> <p><b>Transport/Land Use (✓):</b> Improved local bus services require no infrastructure changes which would impact on land use planning, however, they will positively contribute to integration between transport and land-use by providing enhanced public transport connections between existing and planned development in Newburgh and key locations.</p> <p><b>Policy (✓✓):</b> The option aligns well with transport policy from national to local level, especially in terms of the promotion of sustainable travel, environmental and health considerations, and improved accessibility through wider travel choices</p>
<b>Accessibility and Social Inclusion</b>	<b>Minor Benefit</b> ✓	<p><b>Community (✓):</b> The option includes the provision of greater frequencies of bus services and extended hours of operation, as well as improving connectivity with train services to help facilitate onward travel. These changes would increase the opportunities, services and markets that Newburgh residents could access early in the day (before 07:00am), late in the evening (after 19:00pm) and on weekends, providing minor benefits to community accessibility.</p>

## OPTION 1 – IMPROVED (EXISTING) BUS SERVICES TO/FROM NEWBURGH

**Comparative (✓):** The extended service frequency and hours of operation associated with this option would improve public transport access to/from Newburgh, and improve accessibility for many socially excluded groups, including those without a car and the mobility impaired.

### Implementability Appraisal

Criteria	Score	Rationale
<b>Feasibility</b>	Minor Consideration	<b>Technical:</b> There are no known technical feasibility issues associated with this option. The option would be using existing infrastructure (i.e. bus stops and roads), and an established mode/technology.
	Major Consideration	<b>Operational:</b> The option would require reconfiguration of existing timetables but no additional vehicles. Enhancements to frequency and operational hours would incur additional operational cost as noted above. The option would require agreement and negotiations with Fife Council, Perth and Kinross Council and bus operators regarding service provision..
<b>Affordability</b>	Moderate to Major Consideration	<b>Financial:</b> There would be additional expenditure required to operate the enhanced service frequency as well as ongoing operational costs. Engagement with Stagecoach highlighted that any increase in operating costs would need a level of subsidy to be negotiated. Engagement with Fife Council highlighted that any improvements to the service are likely to impact on their resources elsewhere. As the option may increase passenger numbers and thus operating revenue, the 'Bus Route Development Grant' might be a suitable funding model.
<b>Public Acceptability</b>	Minor Consideration	Based on the outcomes of the stakeholder engagement supporting the detailed appraisal, only 10% of the respondents stated this was their preferred option. In contrast, 87% of respondents in the preliminary appraisal stage were either supportive or very supportive of this option and it ranked as the second most preferred proposal overall. However, it may not fulfil the aspirations around the public transport offering for the area.

## Option 2 AST: (New) Express Bus Service

OPTION 2 – (NEW) EXPRESS BUS SERVICE	
Proposal Details	
<b>Proposal Name:</b>	(New) Express Bus Service
<b>Proposal Description:</b>	A new Express bus service through Newburgh, with connections to Cupar, Perth, and Broxden Park and Ride. The service currently does not exist. The option offers potential interchange opportunities with other strategic bus services to major Scottish towns and cities. It also includes the potential for more direct services between Newburgh, Cupar and Perth to help improve journey times by public transport, facilitate improved access to key services and markets, improve connectivity, and increase public transport choice.
<b>Estimated Total Public Sector Funding Requirement</b>	£2.7m Capital Costs in 2020 prices, excluding VAT (undiscounted). Costs based on three new buses required to serve route, replaced every 15 years over.
Background Information	
<b>Geographic Context:</b>	The proposal includes for an Express bus service between Perth and Cupar with a stop in Newburgh. The routing of the service is suggested to follow the most direct route from Newburgh to Perth town centre and Broxden Park & Ride, along the A913, A912 and M90. By allowing the service to stop at Broxden Park & Ride, the option allows an interchange with other existing Express Bus services (e.g. Megabus) and could offer connections to further afield destinations in the north, south and west of Scotland. For travel towards Cupar, the route alignment follows the A913 to Cupar. The service assumes limited stopping pattern, to further facilitate faster journey times.
<b>Social Context:</b>	<p>Further to the social context outlined in <a href="#">Option 1</a>, Newburgh is a small rural town with limited community facilities, and as such residents need to travel further afield to access jobs, secondary school, higher education, and wider health care and leisure facilities. The key commuting destinations for this purpose are Perth and Cupar, but people also travel to Perthshire, Dundee, Glenrothes, Kirkcaldy, Stirling and other destinations further afield.</p> <p>The existing public transport services have limitations for the residents' trip purposes; for example there are no evening services and limited Sunday services to/from Perth, and no Sunday services to/from Cupar. Furthermore, the journeys to the main destinations are lengthy and in some instances the cost of travel by public transport is higher than travel by car. Evidence suggests that there is a reliance on car travel (in particularly single occupancy car travel) to reach peoples' destinations, which has implications for the 19% of Newburgh population that has no access to a car or van.</p> <p>The option therefore aims to improve public transport access to the key services and markets for all and make public transport a realistic travel alternative to single occupancy car travel. The option needs to ensure that the service would operate at times suitable for the diverse group of Newburgh population (i.e. the above average percentage of over 65s, retired, self-employed, part time workers, shift workers, students etc) as well as workforce travelling to Newburgh from elsewhere, and /or people visiting Newburgh for leisure/tourism purpose.</p>

## OPTION 2 – (NEW) EXPRESS BUS SERVICE

### Economic Context:

The economic context for this option is relevant as provided in the description for [Option 1](#). The focus of the option is to help improve connectivity of Newburgh for the existing and future residents as well as those travelling to Newburgh for work, leisure and/or tourism, by reducing public transport journey times.

### Planning Objectives:

Criteria	Score	Rationale
<b>TPO1</b> - Improve transport access to key services and markets (including employment, training, education, health and leisure opportunities) for Newburgh residents	<b>Moderate Benefit</b> ✓✓	The option would improve access for existing and new users in the area by reducing journey times and enhancing bus service frequencies to key services and markets in Perth, Cupar and beyond.
<b>TPO2</b> - Improve public transport connectivity and journey times to and from Newburgh for residents, businesses and visitors	<b>Moderate Benefit</b> ✓✓	The option would improve access for existing and new users in the area by reducing journey times and enhancing combined service frequencies to key services and markets in Perth, Cupar and Ladybank, and beyond. Reduced journey times to these destinations would also reduce the overall travel times to onward destinations via connecting services and thus improve access to employment, training, education, health and leisure activities.
<b>TPO3</b> - Increase sustainable travel to and from Newburgh	<b>Minor Benefit</b> ✓	The option has the potential to facilitate greater use of sustainable transport modes, by improving accessibility by bus to and from Newburgh, thus potentially abstracting mode share from private car. This outcome is reflected in the TCRTM model outputs.

### STAG Criteria

Criteria	Score/ Assessment Summary	Supporting Information: Rationale & Sub-criteria Score
<b>Environment</b>	<b>Minor Benefit</b> ✓	<b>Noise and Vibration (-):</b> The provision of express bus service in an established transport corridor combined with upgrades to walking and cycling routes in the vicinity of Newburgh will not require significant road or bus infrastructure as the service would use the existing routes and interchange facilities. Therefore, no significant effects on transport noise or vibration for receptors adjacent to bus routes or facilities are predicted.
		<b>Global Air Quality (CO2) (✓):</b> The proposals are predominately in an already established transport corridor but also involve opening a new corridor for part of the proposed bus service route. The option has the potential for modal shift with people preferring public transport to

## OPTION 2 – (NEW) EXPRESS BUS SERVICE

private vehicles along proposed Express bus route, resulting in decreased number of cars in the settlement centres (i.e. Perth, Newburgh and Cupar) and better global air quality. This outcome is reflected in the TCRTM model outputs. Potential for modal shift to more sustainable modes for longer distance journeys would also result in reduced emissions of CO<sub>2</sub> on the wider network.

**Local Air Quality (PM10 and NO2) (✓):** Significant road and bus stop infrastructure is not anticipated for this option, as the bus services would predominately be using the existing routes and interchange facilities. The impact of additional emissions from extra buses can be mitigated (with new engine technologies and regulation). This option may result in a modal shift from private cars to buses, as evidenced in the TCRTM analysis, which could lead to a reduction in the overall vehicular emissions along the proposed route. Overall, provision of sustainable transport, increasing the modal share and active travel, will lead to a minor improvement impact in local air quality.

**Water quality, Drainage and Flood defence (✓):** Improved bus services may encourage increased use of services with the potential for small changes in use of other modes such as private cars, resulting in the potential for very small improvement of water run-off quality from roads and urban areas.

**Geology (-):** No significant effects on geology or geological/material resources are predicted for this option.

**Biodiversity and Habitats (-):** Improved public transport facilities have a potential for minor changes to local habitats from construction and permanent development works which it is assumed would be mitigated during planning and construction phases. No significant effects on biodiversity and habitats are predicted from this option taking account of assumed design and mitigation.

**Landscape (-):** No significant effects on landscape or townscape are predicted for this option

**Visual Amenity (-):** No significant effects on visual amenity are predicted for this option.




**Agriculture and Soils (-):** No significant effects on agriculture and soils are predicted for this option.

**Cultural Heritage (-):** No significant effects on cultural heritage are predicted for this option.

**Physical Fitness (✓):** There is a potential for modal shift with people preferring public transport to private vehicles, which would result in increased walking at either end of the journey.

**Climate Change (✓):** A shift away from vehicular based travel through the promotion of public transport and walking and cycling which in turn will contribute to a reduction in air pollution and GHG emissions

## OPTION 2 – (NEW) EXPRESS BUS SERVICE

Safety		<b>Accidents (✓):</b> There are minor positive impacts on accidents in the area, primarily driven by the slight reduced road mode share across all options.
		<b>Security (-):</b> Option 2 is a bus service improvements option with no infrastructure changes and likely to have no security enhancements resulting in real and perceived improvements to security other than potentially increased natural surveillance from increased passenger numbers on-board and at stops. Option 2 therefore provides a neutral impact on security
Economy	PVB = £78.1m	<b>TEE :</b> The significant benefit associated with this options is related to the considerable journey time saving accrued over the 60-year appraisal period as a result of introducing an express bus service to the area and reducing the need to interchange. The majority of this benefit is generated from Other Purposes and this reflects the provision of the hourly express service throughout the day .
		<b>Wider Economic Impacts (not assessed):</b> Given the scale of patronage and relatively localised benefits associated with the interventions it is considered that there would be no significant wider economic impacts and the TEE captures the economic impacts.
Integration		<b>Transport (✓):</b> There are likely to be some minor benefit to the integration with other transport services, through greater combined frequency of service and the potential to link journeys / access to onward services. No notable change is expected to be made to ticketing, infrastructure, or how the information is provided (e.g. Real Time Information).
		<b>Transport/Land Use (✓):</b> This option required no infrastructure changes which would impact on land use planning, however, they will positively contribute to integration between transport and land-use by providing enhanced public transport connections between existing and planned development in Newburgh and key locations.
		<b>Policy (✓✓):</b> The option aligns well with transport policy from national to local level, especially in terms of the promotion of sustainable travel, environmental and health considerations, and improved accessibility through wider travel choices.
Accessibility and Social Inclusion		<b>Community (✓✓):</b> The option improves journey times to regional centres, services and amenities and also provides extended operating hours. The proposed timetable of the new services has been designed to complement existing bus services serving Newburgh such that the area is served with an improved half-hourly frequency all day (currently approximately hourly with shorter operating hours). The option will also provide increased active travel facilities and links, helping facilitate non-car access to the public transport network. Together with increasing the public transport offering in Newburgh, the option will have moderate benefit on community accessibility
		<b>Comparative (✓✓):</b> The direct links to key services and markets would improve accessibility for many socially excluded groups, including those without a car and the mobility impaired

## Implementability Appraisal

## OPTION 2 – (NEW) EXPRESS BUS SERVICE

Criteria	Score	Rationale
<b>Feasibility</b>	Minor Consideration	<b>Technical:</b> There are no known technical feasibility issues with this option. The option would predominately be using existing infrastructure (i.e. bus stops and road) and an established mode/technology. There may be a need or desire to formalise bus stopping arrangements for sections of the proposed route, particularly between Lindores and Parbroath crossroads and Cupar..
	Major Consideration	<b>Operational:</b> The new service would require three new buses to operate an hourly service between Cupar and Perth. Clearly this new service would cause additional operational cost. There may also be impacts on wider timetabling and the example timetable has been derived to complement existing provision in Newburgh such that the area is served with a half-hourly bus service. There would be a requirement to work with bus operators to develop the new route, source additional bus fleet and market the new services. In addition, the option would require agreement and negotiations with Fife Council, Perth and Kinross Council and bus operators regarding service provision.
<b>Affordability</b>	Moderate to Major Consideration	<b>Financial:</b> There would be additional capital expenditure required to operate the enhanced service frequency as well as ongoing operational costs. The commercial viability of the service would be dependent on the demand and if it is not in line with operational costs, the service could require subsidy. The option may increase passenger numbers and thus operating revenue, but there is a risk it could also abstract users from the existing bus services. Fife Council provide financial support for existing bus provision in Newburgh and the Council advised that any new service (Option 2) competing with a supported service would highly likely see this funding resource directed elsewhere as the gap in service / service provision no long exist in Newburgh. There is also the possibility of abstraction from commercial services against a supported service
<b>Public Acceptability</b>	Minor Consideration	Based on the outcomes of the stakeholder engagement, 76% of the respondents were either supportive or very supportive of the option and it ranked (together with Option 5 and 6) as the third most preferred proposal overall. However, the option may not fulfil the aspirations around the public transport offering for the area.

## Option 3 AST: Reopened/New Train Station in Newburgh

### OPTION 3 – REOPENED/NEW TRAIN STATION AT NEWBURGH

#### Proposal Details

<b>Proposal Name:</b>	Reopened/new train station at Newburgh
<b>Proposal Description:</b>	<p>Provision of a train station in Newburgh in order to help increase public transport choice for trips to and from Newburgh, increase connectivity, and help facilitate access to key services and markets. The option considers the opening of the rail station as both a permanent and a modular structure to test user demand for the service. It also considers multimodal access to the stations. The option has four sub-options, as follows:</p> <ul style="list-style-type: none"> <li>○ 3a: Reopening of a former rail station at Abernethy Road;</li> <li>○ 3c: Reopening of a former railway station at Clatchard Quarry;</li> <li>○ 3d: Opening a new station at the east end of the town; and</li> <li>○ 3e: Provision of a station as a modular/'pop-up' structure.</li> </ul>
<b>Estimated Total Public Sector Funding Requirement</b>	<p>Capital Costs in 2020 prices, excluding VAT (undiscounted):</p> <ul style="list-style-type: none"> <li>○ 3a: £5m</li> <li>○ 3c: £8m</li> <li>○ 3d: £8m</li> <li>○ 3e: £5.3m</li> </ul>


#### Background Information

<b>Geographic Context:</b>	<p>Newburgh is located on the Edinburgh to Perth railway line and was previously served by a station which closed for passengers in 1955. The station remained open for freight until 1980 when it served both the Clatchard quarry, to the south of the town, and through-freight from Fife and the South to the Highlands. The line runs between Perth station to the northwest and Ladybank to the south and from Ladybank to Hilton Junction it is located on a single-track section of the railway. The proposal includes for three potential rail station locations in Newburgh, as follows:</p> <ul style="list-style-type: none"> <li>○ Option 3a at Abernethy Road - to the west of Newburgh. The location is the site of a former rail station, with a site entrance opposite the existing car park, which includes a bus turning circle. Whilst the former station yard is owned by a private company, the access to the old station site has been reserved by Network Rail;</li> <li>○ Option 3c at the east end of the town – behind Newburgh primary school. This is a new site, with nearby land proposed for 12ha mixed use housing and employment development.</li> <li>○ Option 3d at Clatchard Quarry – to the south east of Newburgh. The location is also a former rail station. This option would require the purchase of third-party land from the Quarry; and</li> <li>○ Option 3e proposes a modular station structure at one of the three locations identified.</li> </ul>
----------------------------	--

### OPTION 3 – REOPENED/NEW TRAIN STATION AT NEWBURGH

<b>Social Context:</b>	The social context for this option is relevant as provided in the description for <a href="#">Option 1</a> . The proposal would offer a travel alternative to a car, widen modal choice and help improve access to/from Newburgh.
<b>Economic Context:</b>	<p>The economic context for this option is relevant as provided in the description for <a href="#">Option 1</a>. The option would help improve the connectivity of Newburgh for both the local residents and those travelling to Newburgh for work, leisure and/or tourism.</p> <p>The option also considers a modular or ‘pop-up’ rail station. This includes a modular platform option that could be built relatively quickly next to an existing section of track, and more cheaply than a typical station design. The aim of installing such a station is to gauge how much demand there would be for a full-sized station.</p> <p>Different locations may be impacted by the requirement to safeguard and/or purchase third party land.</p>

### Planning Objectives:

Criteria	Score	Rationale and Appraisal of Sub-options
<b>TPO1</b> - Improve transport access to key services and markets (including employment, training, education, health and leisure opportunities) for Newburgh residents	<b>Minor to moderate benefit</b> 	<p>The option would improve access to and from Newburgh for existing and future developments. Opening a rail station would provide an additional transport mode choice for Newburgh residents and enhance journey times to key services and markets (e.g. Perth to the north, and Ladybank, Glenrothes and Kirkcaldy to the south). It could also extend the distance users can travel in a reasonable journey time and thus increase the travel to work area. The direct access to rail service would increase the overall public transport frequency for the town.</p> <p><b>3a</b> (✓✓): The location of the station is shown to capture the majority of the town in its walking catchment and therefore the accessibility benefits are shared by a large proportion of Newburgh residents.</p> <p><b>3c</b> (✓✓): The location of the station is shown to capture the majority of the town in its walking catchment and therefore the accessibility benefits are shared by a large proportion of Newburgh residents. The LDP proposed 12ha mixed use development site would be well served by this location.</p> <p><b>3d</b> (✓): The location of the station outside of town would limit the accessibility benefits by decreasing direct access catchment via walking and cycling, as shown in the walking catchment analysis.</p> <p><b>3e (location dependent)</b>: A pop-up solution may only introduce short-term access improvements, but can be used to test demand.</p>
<b>TPO2</b> - Improve public transport connectivity and journey times to and from Newburgh for residents, businesses and visitors	<b>Minor to moderate benefit</b>	<p>The option would facilitate direct access to the rail network and enhance access to the area for businesses, visitors and residents. It would also provide wider travel options for nearby settlements and communities. As rail is generally considered an attractive public transport mode, the option is likely to have a positive impact on making Newburgh a more attractive tourism and business location.</p>

## OPTION 3 – REOPENED/NEW TRAIN STATION AT NEWBURGH

✓ - ✓✓

**3a(✓✓):** The option is shown to bring significant journey time savings to other rail station, in particular Edinburgh and connecting stations. Journey time savings to key local services such as health care or education are not however significantly improved as access still requires some form of interchange to a final destination.

**3c(✓✓):** The option is shown to bring significant journey time savings to other rail station, in particular Edinburgh and connecting stations. Journey time savings to key local services such as health care or education are not however significantly improved as access still requires some form of interchange to a final destination.

**3d(✓):** The location of the station outside of town is shown to limit the journey time and accessibility benefits by decreasing direct access catchment via walking and cycling. While a station here may be a viable option for some, its location is shown to improve access and journey times to a lesser extent than 3a or 3c.

**3e (location dependent):** A pop-up solution may have a reduced quality of station compared to permanent solution, but will not overly affect connectivity and journey times if services are recast/integrated (e.g. with times linked etc) to a standard that is comparable with a full station option.

**TPO3** - Increase sustainable travel to and from Newburgh

**Minor to moderate benefit**

✓ - ✓✓

The option is expected to be an attractive option for travel to and from Newburgh and as such has the potential to encourage modal shift from car. The addition of rail as a mode would promote sustainable travel especially for trips to locations along the rail line, but also for indirect journeys to places such as Cupar, as is evidenced through the TCRTM analysis. TCRTM shows however there to be some abstraction from the existing bus services, particularly between Newburgh and Ladybank.

**3a(✓✓):** The proposed location has good existing links for walking and cycling and is shown encompass the majority of Newburgh within its walking catchment.

**3c(✓✓):** The location of the station next to the 12ha proposed new development site at the east end of the town offers the opportunity to further capture new journeys of those living or travelling to/from this location. As travel habits are typically formed at the beginning of moving to a new location, having this mode in place when the development takes place is likely to further increase sustainable travel, and limit the embedding of less sustainable travel habits.

**3d(✓):** The location of the station outside of town is shown to limit the journey time and accessibility benefits by decreasing direct access catchment via walking and cycling as evidenced through TRACC accessibility analysis

**3e (location dependent):** The option has the potential to deliver change across the period of the modular station. However, some users may not be willing to switch mode without a commitment to long-term change e.g. those with investments in bus season tickets and cars may not feel they get value from

## OPTION 3 – REOPENED/NEW TRAIN STATION AT NEWBURGH

switching mode when the service could be removed. As such, capturing the full modal shift potential is likely to be dependent on the duration of the ‘pop-up’ station.

### STAG Criteria

Criteria	Score/ Assessment Summary	Supporting Information: Rationale & Sub-criteria Score
Environment	<p><b>Neutral to minor benefit</b></p> <p>— — ✓✓</p>	<p><b>Noise and Vibration</b></p> <p><b>3a (✓):</b> The construction and operation of updated /new structures to support the option may lead to changes in noise and vibration levels in the surrounding environment. The scale of potential impacts would depend on the precise physical location of the permanent sites and their proximity to sensitive receptors e.g. existing residential development at Banklands (although impacts depend on ambient noise levels and level of vehicle movements already occurring, and these include a regular train service that already runs through Newburgh). Changes in noise levels could be anticipated as a result from increased routeing of private cars along existing routes. The option is likely to promote modal shift and help reduce congestion on wider network.</p> <p><b>3c (✓):</b> The dominant noise source at present is likely to be road and traffic noise from vehicles using the A913. The study area already is influenced by the residential area of Newburgh, the A913 road and existing rail infrastructure, with further housing and employment development (NEB001) allocated in the vicinity of the location in the LDP. The nearest noise sensitive receptors have been identified as dwellings and commercial premises on the A913 and also local dwellings adjacent to the site. Newburgh Primary School is north of the indicative location and located on the A913. During operation, the proposal would draw additional traffic to the area with the potential of increasing noise levels however, it is unlikely to lead to a significant increase in ambient noise levels due to the acoustic environment likely to be dominated by existing road traffic on Abernethy Road. Vehicle noise impacts may also be mitigated in the option results in a modal shift from cars to trains</p> <p><b>3d (✓):</b> Clatchard Quarry is within 1km of the indicative location and may have an existing impact on local noise and vibration impacts. The study area already is influenced by the residential area of Newburgh, the A913 road and existing rail infrastructure, with further housing and employment development (NEB001) allocated in the vicinity of the location in the LDP. The dominant noise source at present is likely to be Clatchard Quarry, road and rail noise from vehicles using the local transport network. The nearest sensitive receptors have been identified as dwellings at Burnside located on the A913. During operation, the proposal would draw additional traffic to the area with the potential of increasing noise levels however, it is unlikely to lead to a significant increase in ambient noise levels due to the acoustic environment likely to be dominated by existing road and train transport network.</p> <p><b>3e (✓):</b> The construction and operation of a modular rail facility could lead to changes in noise and vibration levels in the surrounding environment. The scale of potential impacts would depend on the physical location of the station / hub and proximity to sensitive receptors e.g. residential properties, as noted for each location above.</p>

### OPTION 3 – REOPENED/NEW TRAIN STATION AT NEWBURGH

**Global Air Quality (CO2) 3a-e (✓):** The addition of a new station would not appreciably alter CO2 emissions. The development of a new railway station would likely redirect / displace vehicle traffic from current preferred routes, but the works themselves would not lead an increase in overall traffic levels within Fife. Overall, provision of sustainable transport modes and increasing their modal share will have a minor beneficial impact on global air quality.

**Local Air Quality (PM10 and NO2) (✓):** The development of a new railway station would likely redirect / displace vehicle traffic from current preferred routes, but the works themselves would not lead an increase in overall traffic levels within Fife. This option may result in a modal shift from private cars to trains, which could lead to a reduction in the overall vehicular emissions along the proposed route. Overall, provision of sustainable transport modes and increasing their modal share will have a minor beneficial impact on local air quality.

**Water quality, Drainage and Flood defence: 3a, c (✓):** The site lies on the Strathearn Sand & Gravel (superficial) and the Bridge of Earn (bedrock) groundwater bodies - both classified by SEPA as of 'good' status in 2018. The nearest surface water body is the Firth of Tay approximately 400m(a)/600m(c) from the site. With appropriate SUDS design and associated mitigation/ compliance with SEPA and Scottish Water guidance and authorisations, the reopening of the station at Abernethy Road is unlikely to have significant adverse effects on water quality and drainage. According to SEPA's Flood Risk Map, the site does not lie in an area at risk from river, surface water or coastal flooding. No significant effects on water environments are anticipated for this option, although a consequent reduction in private vehicular traffic may result in the potential for very small improvement of water runoff.

**3d (-):** The nearest surface water body is an unclassified tributary to the Pow of Lindores flowing south to north adjacent to the site. The site is not within a surface water drinking water protected area. The bedrock groundwater body beneath the site is recorded on the SEPA Water Classification Hub as Wormit (ID: 150595). This waterbody was given an overall status of 'Poor' by SEPA in 2019 due to its chemical status. According to SEPA flood maps, the indicative location is not within an area that is susceptible to coastal or surface water flooding, although lies in relative close proximity to an area at risk from river flooding, and more detailed assessment is likely to be required. According to SEPA flood maps, the indicative location is not within an area that is susceptible to coastal or surface water flooding, although lies in relative close proximity to an area at risk from river flooding, and more detailed assessment is likely to be required.

**3e (- to ✓):** See comments on Options 3a-3d for information on water quality, drainage and flood defence at each pop-up station location. With appropriate SUDS design and associated mitigation/ compliance with SEPA and Scottish Water guidance and authorisations, the construction of a pop-up station is unlikely to have significant adverse effects on water quality and drainage. However depending on the design of the pop-up station, surface water run-off and drainage may require further consideration in the event that a permanent SUDS design is unlikely to be implemented.

**Geology : 3a (-):** The indicative location of a new station is at Abernethy Road on a brownfield site. Superficial geology is noted as Till and likely to comprise of superficial glacial clays, sand and gravel. Bedrock geology is composed of mudstone and siltstone of the Ballagan Formation which includes nodules and beds of ferroan dolomite. No published (British Geological Survey (BGS) borehole data is available on site however the closest deep borehole (NO21NW7) records bedrock at 30mbgl. No geological Sites of Special Scientific Interest (SSSIs)

## OPTION 3 – REOPENED/NEW TRAIN STATION AT NEWBURGH

or other designated sites of geological value have been identified in the area. The indicative location has not been associated with coal or other mineral mining according to the BGS non coal mining plans in the past and as such the Coal Authority search did not identify any mining in the area. Economic mineral resources are not anticipated on site. Therefore it is not anticipated that the reopening of a station at Abernethy Road would cause significant impacts on geology.

**3c (-):** Superficial geology is noted as Till and likely to comprise glacial clays, sand and gravel and potentially alluvium. Bedrock geology is composed of pyroxene andesite and olivine basalt lavas and rhyodacite of the Ochil Volcanic Formation. An inferred fault with unknown displacement runs broadly south-north adjacent to the site. No geological SSSIs or other designated sites of geological value have been identified in the area. The indicative location is not associated with coal or other mineral mining according to the BGS non coal mining plans in the past and as such the Coal Authority search did not identify any mining in the area. Economic mineral resources may be present on site, although these are currently being worked to the east at Clatchard Quarry. Therefore it is not anticipated that the opening of a station at the east end of Newburgh would cause significant impacts on geology.

**3d (-):** Superficial geology is noted as Till and likely to comprise glacial clays, sand, and gravel and potentially alluvium. Bedrock geology is composed of pyroxene andesite, olivine basalt lavas and rhyodacite of the Ochil Volcanic Formation and the rock is being extracted at the adjacent Clatchard Quarry. No published BGS borehole data is available on site however the closest deep borehole (NO21NW15) records shallow bedrock at 2mbgl, which is to be anticipated in proximity to a quarry. No geological SSSIs or other designated sites of geological value have been identified in the area. The indicative location has not been associated with coal or other mineral mining according to the BGS non coal mining plans in the past and as such the Coal Authority search did not identify any mining in the area. Reopening of the station at this location will remove the ability to extract minerals here, although this is not considered to be significant given the existing quarry is operational and other mineral resources are present in the wider area. Overall, the impact on geology from reopening the station at this location is considered to be neutral.

**3e (-):** See comments on Options 3a-3d for information on geology at each pop-up station location. Impacts from a pop-up station will depend on method of construction. With adequate mitigation in place it is anticipated that the construction of a pop-up station would not have significant adverse effects on geology and soils.

**Biodiversity and Habitats: 3a (X):** The proposed site is brownfield in nature with trees and scrub forming a loose boundary along the around the indicative boundary. Designated sites within 5km of the indicative location include:

- Firth of Tay and Eden Estuary SSSI (Site Code 135198 approx. 400m north)
- Firth of Tay and Eden Estuary SPA (Site Code 8501 approx. 400m north)
- Inner Tay Estuary SAC (Site Code 8257 approx. 400m north)
- Lochmill Loch SSSI (Site Code 135413 approx. 2km southwest)
- Lindores Loch SSSI (Site code 135348 approx. 2.85 km southeast)

Available desktop data (National Biodiversity Network (NBN) Gateway) indicates the site and surrounds support a breeding bird, including Lesser redpoll, Sparrowhawk, Skylark, Short eared Owl (red list). From the desk study it has been established bat species occur within the

## OPTION 3 – REOPENED/NEW TRAIN STATION AT NEWBURGH

site and include pipistrelle soprano pipistrelle (*P. pygmaeus*). Red squirrel and hedgehog also occur in the study area within a 2km radius of the indicative location. Impacts on designated sites are considered unlikely. There would be a level of habitat loss as a result of any new infrastructure. It is assumed that appropriate detailed surveys (Extended Phase 1 / Protected Species) for habitats and protected species would thereafter be undertaken as part of detailed station design and recommended mitigation integrated into the implementation such that potential impacts would be reduced to an acceptable level. It is likely that significant adverse impacts to important habitats and priority species can be avoided.

**3c (X):** The proposed site is brownfield with a NWSS lowland mixed deciduous woodland (SCPTDATA 950150854) is approx. 350m west of the indicative location. Designated sites within 5 Km of the indicative location include:

- Firth of Tay and Eden Estuary SSSI (Site Code 135198 approx. 1.2 km northwest)
- Firth of Tay and Eden Estuary SPA (Site Code 8501 approx. 1.2 km northwest)
- Inner Tay Estuary SAC (Site Code 8257 approx. 1.2km northwest)
- Lochmill Loch SSSI (site code 135413 approx. 2.66 km southwest)
- Lindores Loch SSSI (Site code 135348 approx. 2.55 km southeast)

Available desk – top data (NBN Gateway) indicates the site and surrounds support a breeding bird, including Lesser redpoll, Sparrowhawk, Skylark, Kingfisher Short eared Owl (red list). From the desk study it has been established bat species occur within the site and include pipistrelle soprano pipistrelle (*P. pygmaeus*). Otter, red squirrel, and hedgehog also occur within a 2 km radius of the study area. Impacts on designated sites are considered unlikely. There would be a level of habitat loss as a result of any new infrastructure. Further location specific desk study plus single site walkover will be undertaken. It is assumed that appropriate detailed surveys (Extended Phase 1 / Protected Species) for habitats and protected species would thereafter be undertaken as part of detailed station design and recommended mitigation integrated into the implementation.

**3d (-):** The proposed site is brownfield with a NWSS lowland mixed deciduous woodland (SCPTDATA 950150854) is approx. 350m west of the indicative location. Designated sites within 5 Km of the indicative location include:

- Firth of Tay and Eden Estuary SSSI (Site Code 135198 approx. 1.2 km northwest)
- Firth of Tay and Eden Estuary SPA (Site Code 8501 approx. 1.2 km northwest)
- Inner Tay Estuary SAC (Site Code 8257 approx. 1.2km northwest)
- Lochmill Loch SSSI (site code 135413 approx. 2.66 km southwest)
- Lindores Loch SSSI (Site code 135348 approx. 2.55 km southeast)

Available desk – top data (NBN Gateway) indicates the site and surrounds support a breeding bird, including Lesser redpoll, Sparrowhawk, Skylark, Kingfisher Short eared Owl (red list). From the desk study it has been established bat species occur within the site and include pipistrelle soprano pipistrelle (*P. pygmaeus*). Otter, red squirrel, and hedgehog also occur within a 2 km radius of the study area. Impacts on designated sites are considered unlikely. There would be a level of habitat loss as a result of any new infrastructure. Further location specific desk study plus single site walkover will be undertaken. It is assumed that appropriate detailed surveys (Extended Phase 1 / Protected Species) for habitats and protected species would thereafter be undertaken as part of detailed station design and recommended mitigation integrated into the implementation.

## OPTION 3 – REOPENED/NEW TRAIN STATION AT NEWBURGH

		<p><b>Landscape : 3a (✓✓):</b> Development of a station with platform(s) and potentially shelters, car parking and lighting at Abernethy Road is unlikely to lead to significant loss or fragmentation of rural fringe character in the Coastal Terraces LCT west of Newburgh or on the townscape of the settlement. The area between the road, railway line and overbridge is largely flat and cleared with a hardstanding partially occupied by light industrial/ storage. The development may provide the opportunity to create a positive entrance feature to Newburgh and established trees and scrub could be incorporated into further measures for landscape integration. The proposed active travel information/ infrastructure improvements would have the potential for minor improvements in townscape in Newburgh, including improved signage and paving as well as core paths and cycle routes outside the settlement, including surfacing, gates and signage.</p> <p><b>3c (X):</b> The potential station site on the eastern edge of Newburgh is located on a steep slope: a large field to the north sloping away from the railway line with mature woodland above the line on a steeper slope on the south side. Development of a station with vehicular access across the field slope as well as potentially platforms, bridge, shelters, car parking and lighting is likely to lead to some loss or fragmentation of rural fringe character in the Foothills - Fife LCT and affect the setting of the settlement, but have little effect on the adjacent dispersed suburban townscape. The established woodland backdrop could be incorporated into planting and landform measures to improve landscape integration. The proposed active travel information/ infrastructure improvements would have the potential for minor improvements in townscape in Newburgh, including improved signage and paving and improvements to core paths and cycle routes outside the settlement, including surfacing, gates and signage. This would compensate for some of the effects of the station itself.</p> <p><b>3d (X):</b> The potential station site at Clatchard Quarry lies well to the east of Newburgh near the small settlement of Burnside and Craigmill and an operating quarry. It is located on sloping wooded ground between the settlement and railway, or possibly less steep ground to the south currently occupied by yard space. Development of a station with vehicular access across the slope as well as platforms, shelters, car parking and lighting is likely to lead to some loss or fragmentation of rural fringe character in the Foothills - Fife and/or Lowland Valley - Fife LCTs and the setting of the small settlement, with the effect varying according to precise location. Depending on location, the established woodland could be incorporated into planting and landform measures to improve landscape integration. The proposed active travel information/ infrastructure improvements would have the potential for minor improvements in townscape in Newburgh, including improved signage and paving as well as improvements outside the settlement to core paths and cycle routes, including surfacing, gates and signage. This would compensate for some of the effects of the station itself.</p> <p><b>3e (✓✓ to X):</b> See comments on Options 3a-d for potential landscape/ townscape effects at each specific station location. Impacts from a pop-up station will be similar but will depend on the extent of facilities developed and on design and method of construction. There are likely to be fewer opportunities to mitigate longer term landscape/ townscape effects so the assessment reflects the worst case scenarios.</p>
		<p><b>Visual Amenity 3a (✓):</b> 4The site is overlooked by houses on higher ground on the western edge of Newburgh, adjacent to the A913 and cycle route 776 passes by on the overbridge. The development of the site may slightly improve visual amenity from the road and cycle route, although there is the potential for minor adverse visual effects on residents from loss of existing trees and night time lighting. The proposed active travel information/ infrastructure improvements would have the potential for minor improvements in visual amenity in</p>

## OPTION 3 – REOPENED/NEW TRAIN STATION AT NEWBURGH

Newburgh, including signage and paving as well as surfacing, gates and signage on routes outside the settlement as well as encouraging people's appreciation of the landscape through increased access to the countryside.

**3c (X)** The site is overlooked by houses on higher ground on the eastern edge of Newburgh and overlooks houses on lower ground to the north, as well as being partially visible from the A913. The development of the site may adversely affect visual amenity for some residents due to loss of existing trees, visibility of earthworks and structures as well as night time lighting and vehicle movements across the lower slope. The proposed active travel information/ infrastructure improvements would have the potential for minor improvements in townscape in Newburgh, including improved signage and paving, minor visual improvements in the fabric of the area outside the settlement, including surfacing, gates and signage on routes as well as encouraging people's appreciation of the landscape through increased access to the countryside. This would compensate for some of the effects of the station itself.

**3d (X)**: The site overlooks houses to the northeast, as well as being partially visible from the A913. The development of the site may adversely affect visual amenity for some residents due to loss of existing trees, visibility of earthworks and structures as well as night time lighting and vehicle movements between the road and station. The proposed active travel information/ infrastructure improvements would have the potential for minor improvements in visual amenity in Newburgh, including signage and paving, and outside the settlement improvements to core paths and cycle routes, including surfacing, gates and signage. This would compensate for some of the effects of the station itself.

**3e (✓ to X)**: See comments on Options 3a-d for potential visual effects at each specific station location. Impacts from a pop-up station will be similar but will depend on the extent of facilities developed and on design and method of construction. There will be fewer opportunities to mitigate longer term visual effects so the assessment reflects the worst case scenarios.

**Agriculture and Soils: 3a (-)**: Potential for impacts on soils may result from the historic and current agricultural land and transportation uses around the periphery. Land Capability for Agricultural data from the MacAulay Land Use Research Institute suggests that the site comprises Class 3.1 agricultural land, which is "land capable of producing consistently high yields of a narrow range of crops and/ or moderate yields of a wider range", however this is likely due to the sensitivity of the mapping since the site is known to be brownfield and is not used for agricultural purposes. The brownfield nature of the site means that a comprehensive site investigation will be required to inform on ground conditions relating to contamination and allow detailed geotechnical design. The study area is influenced by rail and road infrastructure and the overall impact of the proposal is considered to be small. With adequate mitigation in place, it is anticipated that the reopening of a former rail station in Newburgh at Abernethy Road would have a slight negative impact on soils, primarily due to the cost of site investigations. However these would be required for all new station options. It should be noted that costs could rise if significant contamination requiring remediation is encountered, although remediation of soils would also represent an environmental improvement.

**3c (-)**: Potential for impacts on soils may result from the historic and current agricultural land and transportation uses around the periphery. The likely significant effect from the development comprises of the loss of agricultural land (Class 3.1 'Land capable of producing consistently high yields of a narrow range of crops and/ or moderate yields of a wider range. Short grass leys are common') and sterilisation of the ground which cannot be mitigated against. It is noted that the proposed station site lies in close proximity to a mixed-use site NEB001 allocated in the Fife LDP. The wider development here will result in the loss of potential agricultural land, however, given

## OPTION 3 – REOPENED/NEW TRAIN STATION AT NEWBURGH

scale of agricultural land in the area and the scale of the development, the overall impact is considered to be small. Mitigation includes careful handling and reuse of topsoil on site where possible and minimisation of earthworks, as well as SUDS to limit sedimentation and adherence to construction best practice. With adequate mitigation in place, it is anticipated that the construction of a rail station at the east end of Newburgh would have a slight negative impact on soils, primarily due to the cost of site investigations. However these would be required for all new station options

**3d (-):** See comments for Option 3a and 3c. With adequate mitigation in place, it is anticipated that the reopening of a former rail station at Clatchard Quarry would have a slight negative impact on soils and geology, primarily due to the cost of site investigations. However these would be required for all new station options. It should be noted that costs could rise if significant contamination requiring remediation is encountered, although remediation of soils would also represent an environmental improvement.

**3e (-):** See comments on Options 3a-3d for information on agriculture capability

**Cultural Heritage: 3a (✓):** There are no nationally listed sites or buildings on or close to the Abernethy Road site. The Newburgh Conservation Area lies close to the east and has many listed buildings, being mainly C and B listed, however there is very limited intervisibility and effects on setting would be limited and not necessarily adverse. The proposed active travel information/ infrastructure improvements would have the potential for minor townscape improvements, including signage and paving, which could improve the setting of the Newburgh Conservation Area and listed buildings. The proposed improvements outside the settlement would have the potential to encourage more access which would increase the opportunity to appreciate cultural heritage assets in the area surrounding Newburgh. The proposals have the potential to affect as yet unknown archaeology, depending on location. Assuming suitable mitigation through site investigation, location and design there are unlikely to be significant effects on cultural heritage.

**3c (X):** There are no nationally listed sites or buildings on or close the site. The Newburgh Conservation Area lies to the north and east and has many listed buildings, being mainly C and B listed, however there is very limited intervisibility and effects on setting would be very limited. Four listed buildings lie closer to the site but are partly screened by other properties. The proposed active travel information/ infrastructure improvements would have the potential for minor townscape improvements, including signage and paving, which could improve the setting of the Newburgh Conservation Area and listed buildings. The proposed active travel information/ infrastructure improvements outside the settlement would have the potential to encourage more access, which would increase the opportunity to appreciate cultural heritage assets in the area surrounding Newburgh. Physical proposals have the potential to affect as yet unknown archaeology, depending on location. Assuming suitable mitigation through site investigation, location and design there are unlikely to be significant effects on cultural heritage.

**3d (X):** The scheduled monument of Denmylne Castle and two B listed buildings lie close to the site. Their setting may potentially be affected depending on the precise location. The Newburgh Conservation Area lies well to the northwest and effects on setting would be unlikely. The proposed active travel information/ infrastructure improvements would have the potential for minor townscape improvements, including signage and paving, which could improve the setting of the Newburgh Conservation Area and listed buildings. The proposed improvements outside the settlement would have the potential to encourage more access which would increase the opportunity to appreciate cultural heritage assets in the area surrounding Newburgh. The proposals have the potential to affect as yet unknown

## OPTION 3 – REOPENED/NEW TRAIN STATION AT NEWBURGH

		<p>archaeology, depending on location. Assuming suitable mitigation through site investigation, location and design there are unlikely to be significant effects on unknown cultural heritage</p> <p><b>3e</b> (✓ to ✗): See comments on Options 3a-d for potential for effects at each specific station location. Impacts from a pop-up station are likely to be similar, although if slightly less construction works, foundations etc then the potential for adverse effects on known and undiscovered cultural heritage assets may be less.</p>
		<p><b>Physical Fitness 3a-e</b> (✓✓): Improvements between public transport and active travel routes between settlements has the potential to encourage modal shift with people preferring active travel and public transport to private vehicles. This would result in increased walking and cycling which would lead to improvements in physical fitness. Increased use of longer sections of route between settlements for both commuting and recreation may have a more significant effect for a small number of people.</p>
		<p><b>Climate Change 3a-e</b> (✓): A large proportion of journeys made using the local road network and other routes (such as the A912 and A913) are made by private cars. A shift away from vehicular based travel through the promotion of trains and walking and cycling which in turn will contribute to a reduction in and GHG emissions with the potential for a small beneficial impact.</p>
<b>Safety</b>	<b>3a-e:</b> ✓✓	<p><b>Accidents 3a-e</b> (✓): There are minor positive impacts on accidents in the area, primarily driven by the slight reduced road mode share across all options.</p> <p><b>Security 3a-d</b> (✓✓): The provision of new rail station facilities (all option variants) is likely to improve security for public transport users as these would comply with at least the minimum security standards, for example for site perimeters, entrances and exits, and lighting. A station would also include formal surveillance (CCTV) and on-platform emergency call / information facilities. This assumption is the same for a 'pop-up' station that would be designed to at least minimum standards and so there is unlikely to be any reduced security impact compared to a permanent solution. Option 3a, c and d therefore provides a moderate benefit to the security sub criteria.</p> <p><b>3e</b> (✓): It is expected that the 'pop-up' station would be designed to at least minimum standards and so there is unlikely to be any reduced security impact compared to a permanent solution.</p>
<b>Economy</b>	PVB = £82.9m	<p><b>TEE 3a-d:</b> The significant benefit associated with this options is related to the considerable journey time saving accrued over the 60-year appraisal period as a result of introducing an express bus service to the area and reducing the need to interchange. The majority of this benefit is generated from Other Purposes and this reflects the provision of the hourly express service throughout the day.</p> <p><b>3e:</b> Not assessed but benefits likely to be in line with permanent site benefits above,</p> <p><b>Wider Economic Impacts</b> (not assessed): Given the scale of patronage and relatively localised benefits associated with the interventions it is considered that there would be no significant wider economic impacts and the TEE captures the economic impacts.</p>

## OPTION 3 – REOPENED/NEW TRAIN STATION AT NEWBURGH

<p><b>Integration</b></p>	<p><b>3a,c:</b> ✓✓</p> <p><b>3d:</b> ✓</p>	<p><b>Transport 3a-e:</b> The option would provide a new transport mode at Newburgh and improve the integration of the transport network by linking active, bus and car travel. The additional mode would also add new ticketing options for public transport at Newburgh such as smartcard ticketing and rail season tickets. Information boards on the station platform would enhance public transport user information.</p> <p><b>3a (✓✓✓):</b> Although active travel integration may be weakened for some due to the location being towards the town's edge compared to a more central location, the station would still be within the 800m distance (generally considered appropriate for walking access to rail ) of many parts of Newburgh, including the new housing development at Banklands. In addition there are existing car parks, a bus stop, bus turning circle, and other facilities that would aid integration with other transport modes.</p> <p><b>3c (✓✓✓):</b> The location would be within 300-500m walking distance of the existing bus services, depending on the exact location. Active travel integration may be weakened for some due to the location being towards the town's edge compared to a more central location, however the location would still be within the 800m distance of many parts of Newburgh, including the proposed 12ha mixed used development site.</p> <p><b>3d (✓):</b> The existing bus routes run along the A913, and walking routes and new bus stops would need to be considered for integration purposes. Active travel integration would also be weakened due to the location being outside of the town compared to a more central location.</p> <p><b>3e (✓-✓✓✓):</b> The temporary nature of the station is likely to have the same benefits as a permanent location, although there would be variations of the benefits depending on the station location described above..</p> <hr/> <p><b>Transport/Land Use 3a-e:</b> The option fits well with local and regional land use policy, and would provide improved sustainable transport access for both existing and future travellers to/from Newburgh, including proposed development sites in the town.</p> <p><b>3a (✓✓):</b>The site is within 800m distance of many residential parts of Newburgh, including the new housing development site at Balklands. It lies approximately 1-1.5km from the 12ha mixed used development site proposed in the LDP, and at the far end of Lindores Abbey Distillery, an employment and visitor destination. The site itself is safeguarded in the LDP.</p> <p><b>3c (✓✓✓):</b> The option fits well with local and regional land use policy, and will provide improved sustainable transport access to developments in Newburgh for residents, businesses, and visitors. The site is within 800m distance of many residential parts of Newburgh and would serve the proposed LDP development sites at the east end of the town particularly well.</p> <p><b>3d (✓):</b> The option generally aligns with local and regional land use policy and will provide improved sustainable transport access to developments in Newburgh for residents, businesses, and visitors. However, the site is located outside of the town and as such is not as well integrated with development as the other station options considered. While some users may be willing and able to walk or cycle to this site, journeys by other motorised mode may be needed, limiting environmental and accessibility benefits and limiting the potential for modal shift.</p> <p><b>3e (✓-✓✓✓):</b> The option overall fits well with local and regional land use policy, and will provide improved sustainable transport access to developments in Newburgh for residents, businesses, and visitors, with some variation depending on location as per options 3a to 3d.</p>
---------------------------	--	--

## OPTION 3 – REOPENED/NEW TRAIN STATION AT NEWBURGH

**Policy 3a,c,d,e (✓✓):** The options align well with transport policy from national to local level, especially in terms of the promotion of sustainable travel, improved accessibility through wider travel choices, improved access to opportunities, inclusiveness and benefits for health and the environment. The options do not return a major benefit as they do not fully align with all transport policy such as smart ticketing and real time information. Option 3 introduces an extra rail stop between Perth and Edinburgh and may impact on the Scottish Government policy to reduce intercity journey times and stops on intercity services

### Accessibility and Social Inclusion



#### Community 3a-e:

All three option variants for Option 3 provide benefits in terms of public transport network coverage for many residents in Newburgh and the surrounding local area. The actual location of a train station in Newburgh does impact the overall benefit to community accessibility. As noted in the TPO appraisal, consideration of the walking catchments of 400m, 800m and 1500m for each proposed station location shows that the catchments for Option 3a (Abernethy Road) and 3c (East of town) encompass a larger proportion of the local population than Option 3d (Clatchard Quarry). For all proposed station locations, it is likely the service would attract users from wider catchments including those that choose to walk or cycle and those that choose to drive to the station. For example, those living in Newburgh and surrounding areas over 1500m away that have access to a car may consider the station at Clatchard Quarry an improved public transport option.

**3a (✓✓✓):** The option on Abernethy Road currently has excellent walking and cycling links with pavement access and off-road access from the Fife Coastal Path. The option proposes providing improvements to this active travel provision and together with its large population catchment it is likely to bring noticeable improvements to community accessibility.

**3c (✓✓):** Option 3c offers a comparable walking catchment and it will provide pavement access on residential streets; however, it is situated on a steep hillside and walking or cycling to the station may not be possible for all users.

**3d (✓):** Option 3d does not have as large a walking catchment and as shown in the TPO appraisal, a large proportion of western Newburgh is situated over 1500m from the proposed site. The proposed location is on a hillside and even for those residents inside 1500m, walking or cycling may not be a viable option.

**3e (✓-✓✓✓):** As above per location. It is assumed that the modular station would be designed to appropriate accessibility standards, despite its temporary nature.

**Comparative 3a, d (✓✓):** Similarly to Community Accessibility, all options provide improved accessibility to a greater or lesser degree. The Options were developed and refined following the development of the TPOs which aimed to address a range of identified problems including those listed above. The analysis presented in Community Accessibility and also the TPO appraisal indicates how each Option contributes to improving Comparative Accessibility.

## OPTION 3 – REOPENED/NEW TRAIN STATION AT NEWBURGH

### Implementability Appraisal

Criteria	Score	Rationale
Feasibility	Moderate Consideration	<p><b>Technical:</b> Site 3a (Abernethy Road) has a number of facilities which may ease delivery, including being safeguarded in the LDP, an existing station building (which would require upgrading), a nearby car park, and a bus stop. As noted in the environmental appraisal, the land is relatively flat and would provide good access for construction with minimal disruption expected to the local road network or community areas.</p> <p>Both site 3c (East of Town) and site 3d (Clatchard Quarry) are located on constrained land areas and purchasing of third party land may need to be considered for these options, making them less feasible and more costly. As noted in the environmental appraisal, both sites are situated on sloping land with constrained access meaning site construction is likely to be more challenging than Option 3a. While both 3c and 3d are considered technically feasible at this stage, significant preparatory work would need to be undertaken to ensure their suitability as locations for a new train station.</p>
	Major Consideration	<p><b>Operational:</b> Physical operation is feasible, as the line is active; however, there would be timetable impacts on users along the line from the additional stop, and ScotRail/Abellio have noted that the current single line section through Newburgh is a constraint and that an extra call would need to be reviewed for impact. In particular, the possibility of delivering the service without negatively impacting on the timetabling of existing services and increasing journey times would require investigation. To understand journey times and journey time penalties on the line resulting from an additional stop, Railsys modelling (as supplied by Network Rail) was undertaken and outcomes provided in Appendix A. This suggests that the introduction of an additional stop would result in a journey time increase between Ladybank and Hilton Junction of up to 2 minutes 30 seconds. Discussions with ScotRail/Abellio would be required to understand the impact of this increase on wider timetabling.</p> <p>In addition to this consideration, the ScotRail Fit for the Future proposed timetable changes will focus on improved punctuality and reliability of services as well as introducing new methods of analysis developed during COVID-19 to refine and improve the service offer as the operator learns more about how customer travel behaviours are changing. Due to the evolving nature of timetables and the timescale for station delivery, detailed timetabling has not been undertaken but a high-level timetable is provided in Appendix A. A sensitivity test of the proposed new timetable has been undertaken in the TCRTM and the impact on benefits explored in this main report.</p> <p>It should also be noted that the South of Perth (Bridge of Earn) Transport Appraisal, which was identified as an issue in the Pre-Appraisal (Case for Change) stage, is reviewing transport access for Bridge of Earn/Oudernarde. Its potential options include a rail station in Bridge of Earn/Oudernarde. Any station in Newburgh may have to be feasible with any new station in Bridge of Earn/Oudernarde, should it emerge as the preferred option from the appraisal.</p>

### OPTION 3 – REOPENED/NEW TRAIN STATION AT NEWBURGH

<b>Affordability</b>	Moderate to Major Consideration	<b>Financial:</b> There would be significant costs associated with reopening the station, which would need to be weighed against the overall benefits. Depending on the preferred station location, the costs to be considered include signalling, overhead line and track costs, station and platform builds/upgrades, land purchase, and/or car park construction and maintenance. Incorporating rail station calls at a new station in Newburgh can be contained within existing operating diagrams (i.e. do not result in less efficient use of rolling-stock and train crews) and therefore the additional operating cost for rail services at Newburgh will be relatively small and there is a probability that this will be counterbalanced by the additional revenue generated. If additional revenue was insufficient to meet these operating costs, then there would be an adverse impact on ScotRail subsidy requirements, but this could be anticipated to be modest.
<b>Public Acceptability</b>	Minor Consideration	Option 3 has significant public support from those that responded and has received considerable support from residents and businesses throughout the appraisal process. The establishment of a local campaign group, the Newburgh Train Station Group, indicates a long running level of support in the community for a rail station in Newburgh. From the information gathered and views expressed during the full appraisal process, the local community would strongly support this option.

## Option 4 AST: Car Sharing

OPTION 4 – CAR SHARING	
Proposal Details	
<b>Proposal Name:</b>	Car Sharing
<b>Proposal Description:</b>	<p>Discussions with relevant stakeholders (TACTRAN, SEStran and Fife Council) highlighted that the only current viable option open to appraisal at this stage is informal car-sharing between those travelling to and from Newburgh. Given the lack of options for hosting, funding or publicising a car share scheme, the success of this option would likely depend on community responsibility. For example creating a social media group where those looking to participate could make arrangements to car share.</p> <p>Depending on the success or uptake from the community, the option has the potential to encourage car sharing, limit the impact of individual car travel, and help address high public transport fares. It also helps to widen travel choice. However, access for those without a car, who would benefit from the increased accessibility the most (car owners already have this access), is dependent on others being willing and able to consistently provide lift-sharing services.</p>
<b>Estimated Total Public Sector Funding Requirement</b>	<p>£0m</p> <p>No costs associated with this option.</p>
Background Information	
<b>Geographic Context:</b>	The proposal considers an informal car sharing schemes for Newburgh residents. Lift-sharing (also known as ‘carpooling’) encourages those who own cars to offer spare seats to those who are going to the same or a nearby destination. This would be an informal scheme, most likely operated through online or social media community car sharing site. The proposal aims to facilitate access by sharing cars or lifts between Newburgh and predominately nearby destinations, including Bridge of Earn, Kinross, Perth, Glenrothes, Kirkcaldy, Cupar, Dundee or Ladybank.
<b>Social Context:</b>	The social context for this option is relevant as provided in the description for <a href="#">Option 1</a> . The proposal aims to offer travel alternatives, improve access to the key services and markets for Newburgh residents and help address high public transport fares by sharing the cost of car travel.
<b>Economic Context:</b>	The economic context for this option is relevant as provided in the description for <a href="#">Option 1</a> . In addition, the proposal makes use of the high car ownership among Newburgh’s households as well as the above average percentage of Newburgh residents who already car share to work (8% for Newburgh in comparison to 7% for Fife and 6% for Scotland as a whole). The proposal would also help improve travel times and to some extent connectivity to/from Newburgh.
Planning Objectives:	



## OPTION 4 – CAR SHARING

Criteria	Score	Rationale
<b>TPO1</b> - Improve transport access to key services and markets (including employment, training, education, health and leisure opportunities) for Newburgh residents	—	The option has the potential to encourage car sharing, limit the impact of individual car travel, and help address high public transport fares. It also helps to widen travel choice. However, the restricted ability or opportunities to car share is unlikely to have a notable impact on journey times or public transport connectivity for residents, businesses and visitors and therefore the option scores neutrally against TPO 1 and TPO2
<b>TPO2</b> - Improve public transport connectivity and journey times to and from Newburgh for residents, businesses and visitors	—	The option could improve connectivity and journey times by sharing rides to public transport hubs, and thus improving the overall travel times and connections to key services and markets. However the restricted ability to car share is unlikely to have a notable impact on residents, businesses and visitors.
<b>TPO3</b> - Increase sustainable travel to and from Newburgh	✓	The option attempts to makes use of the high car ownership among Newburgh’s households and the above average percentage of Newburgh residents who already car share. It is therefore expected, that the option would increase sustainable travel by reducing single occupancy car travel, as shown through TCRTM analysis.


## STAG Criteria

Criteria	Score/ Assessment Summary	Supporting Information: Rationale & Sub-criteria Score
<b>Environment</b>	—	<p><b>Noise and Vibration (-):</b> No significant effects on noise and vibration are predicted for this option.</p> <p><b>Global Air Quality (CO2) (✓):</b> The option is likely to contribute to the overall reduction in vehicular traffic which would lead to a minor positive effect on global air quality.</p> <p><b>Local Air Quality (PM10 and NO2) (✓):</b> The option is likely to contribute to the overall reduction in vehicular traffic which would lead to a minor positive effect in terms of local air quality along key routes.</p> <p><b>Water quality, Drainage and Flood defence (✓):</b> Encouraging car sharing is likely to result in a decrease in the overall use of private cars, resulting in the potential for very small improvement of water run-off quality from roads and urban areas.</p> <p><b>Geology (-):</b> No significant effects on geology or geological/ material resources are predicted for this option.</p>

## OPTION 4 – CAR SHARING

		<p><b>Biodiversity and Habitats (-):</b> No significant effects on biodiversity or habitats are predicted for this option.</p> <p><b>Landscape (-):</b> No significant effects on landscape or townscape are predicted for this option.</p> <p><b>Visual Amenity (-):</b> No significant effects on visual amenity are predicted for this option.</p> <p><b>Agriculture and Soils (-):</b> No significant effects on agriculture and soils are predicted for this option.</p> <p><b>Cultural Heritage (-):</b> No significant effects on cultural heritage are predicted for this option.</p> <p><b>Physical Fitness (-):</b> As car sharing is unlikely to result in more active forms of travel this option will have no effect on physical fitness.</p> <p><b>Climate Change (-):</b> No significant effects on climate change are predicted for this option.</p>
<b>Safety</b>		<p><b>Accidents (✓):</b> There are minor positive impacts on accidents in the area, primarily driven by the slight reduced road mode share across all options.</p> <p><b>Security (-):</b> There are some potential security issues around car share schemes in relation to sharing a vehicle with a relative stranger, however, well managed schemes seek to minimise these and therefore Option 4 returns a neutral impact on security</p>
<b>Economy</b>	PVB = £2.3m	<p><b>TEE :</b> Low levels of benefits in comparison to other options, reflecting the overall limited impact of an informal car share option as identified throughout the appraisal.</p> <p><b>Wider Economic Impacts (not assessed):</b> Given the scale of patronage and relatively localised benefits associated with the interventions it is considered that there would be no significant wider economic impacts and the TEE captures the economic impacts.</p>
<b>Integration</b>		<p><b>Transport (✓):</b> The option aligns well with land-use by enhancing access to both existing and new developments in Newburgh for residents, businesses and visitors and is expected to provide a minor benefit for Transport and Land-Use Integration.</p> <p><b>Transport/Land Use (✓):</b> The option aligns well with land-use by enhancing access to both existing and new developments in Newburgh for residents, businesses and visitors.</p> <p><b>Policy (✓):</b> While Option 4 aligns with transport policy from national to local level, particularly with regard to promotion of sustainable travel, reduced single occupancy private car use, improved accessibility through widened travel choices, improved access to</p>

## OPTION 4 – CAR SHARING

		opportunities and benefits to the environment, it is considered to have a minor benefit due to the potential slight negative impact on the competitiveness of public transport compared to car
<b>Accessibility and Social Inclusion</b>		<b>Community (-):</b> The likely operation of a car share scheme (as outlined in the TPO appraisal) the restricted ability or opportunities to car share is unlikely to have a notable impact on journey times or public transport connectivity for residents, businesses and visitors and therefore against Community Accessibility the option scores neutrally.
		<b>Comparative (-):</b> The option may have a positive impact particularly on groups with no access to their own car and/or those with limited mobility. The option may also enhance access to areas underserved by public transport, but any benefit is likely to be minor.

## Implementability Appraisal

Criteria	Score	Rationale
<b>Feasibility</b>	Minor Consideration	<b>Technical:</b> Setting up a car sharing scheme would be feasible from a technical perspective. There are well established lift and car sharing schemes operating across Scotland, which could provide good understanding of requirements.
	Moderate to Major Consideration	<b>Operational:</b> One of the main issues to consider from an operational perspective will be to ensure there is enough users of the scheme to make it feasible. As car sharing relies on people being willing to share lifts as well as being able to make their journeys at the same time and to the same destinations, there needs to be enough users signed up to the service for trips to be matched. Given that Newburgh residents are mainly employed in industries that require shift work, and include an above average increasing number of part time workers and self-employed, who all require varying needs of access to the transport network and times needed to travel, it is deemed that this will likely reduce the opportunities for the same journeys to be matched. Similarly, viability of a car club depends on having sufficient number of members using the scheme.
<b>Affordability</b>	Minor to Moderate Consideration	<b>Financial:</b> There are no costs associated with Option 4 where a car sharing scheme in Newburgh would be informal, likely organised by the community and will have no capital costs or additional ongoing operating or maintenance costs. If successful uptake of local participants results then it may be likely that there are some minor cost savings for individuals who share fuel costs and save on public transport fares. This may have a small impact on patronage figures on public transport but as shown in Chapter 4, there is negligible mode shift from public transport as a result of this option when modelled in TCRTM.
<b>Public Acceptability</b>	Moderate Consideration	No respondent expressed support for the car sharing option (Option 4) during the latest stakeholder engagement and therefore it is not possible to draw any conclusions on the option's acceptability. The success of any car sharing option would be dependent on public support and community setup and without it, it is unlikely that this option would be effective.



**SYSTRA provides advice on transport, to central, regional and local government, agencies, developers, operators and financiers.**

**A diverse group of results-oriented people, we are part of a strong team of professionals worldwide. Through client business planning, customer research and strategy development we create solutions that work for real people in the real world.**

**For more information visit [www.systra.co.uk](http://www.systra.co.uk)**

**Birmingham – Newhall Street**

5th Floor, Lancaster House, Newhall St,  
Birmingham, B3 1NQ  
T: +44 (0)121 393 4841

**Birmingham – Edmund Gardens**

1 Edmund Gardens, 121 Edmund Street,  
Birmingham, B3 2HJ  
T: +44 (0)121 393 4841

**Bristol**

One Temple Quay, Temple Back East  
Bristol, BS1 6DZ  
T: +44(0)118 208 0111

**Dublin**

2nd Floor, Riverview House, 21-23 City Quay  
Dublin 2, Ireland  
T: +353 (0) 1 566 2028

**Edinburgh**

Prospect House, 5 Thistle Street,  
Edinburgh, EH2 1DF  
T: +44 (0)131 460 1847

**Glasgow**

Seventh Floor, 124 St Vincent Street  
Glasgow, G2 5HF  
T: +44 (0)141 468 4205

**Leeds**

100 Wellington Street, Leeds, LS1 1BA  
T: +44 (0)113 360 4842

**Liverpool**

5<sup>th</sup> Floor, Horton House, Exchange Flags  
Liverpool, L2 3PF  
T: +44 (0)151 607 2278

**London**

3<sup>rd</sup> Floor, 5 Old Bailey,  
London, EC4M 7BA  
T: +44 (0)20 3855 0079

**Manchester – Piccadilly**

16th Floor, City Tower, Piccadilly Plaza  
Manchester, M1 4BT  
T: +44 (0)161 504 5026

**Manchester – King Street**

76 King Street, Manchester, M2 4NH  
T: +44 (0)161 697 3899

**Newcastle**

Floor B, South Corridor, Milburn House, Dean Street,  
Newcastle, NE1 1LE  
T: +44 (0)191 249 3816

**Perth**

13 Rose Terrace, Perth PH1 5HA  
T: +44 (0)131 460 1847

**Reading**

Davidson House, Forbury Square  
Reading, Berkshire, RG1 3EU  
T: +44 (0)118 208 0111

**Woking**

Dukes Court, Duke Street  
Woking, Surrey GU21 5BH  
T: +44 (0)1483 357705

**York**

Meridian House, The Crescent,  
York, YO24 1AW  
T: +44 (0)1904 454 600

**Other locations:**

**France:**

Bordeaux, Lille, Lyon, Marseille, Paris

**Northern Europe:**

Astana, Copenhagen, Kiev, London, Moscow, Riga, Wroclaw

**Southern Europe & Mediterranean: Algiers, Baku, Bucharest,**  
Madrid, Rabat, Rome, Sofia, Tunis

**Middle East:**

Cairo, Dubai, Riyadh

**Asia Pacific:**

Bangkok, Beijing, Brisbane, Delhi, Hanoi, Hong Kong, Manila,  
Seoul, Shanghai, Singapore, Shenzhen, Taipei

**Africa:**

Abidjan, Douala, Johannesburg, Kinshasa, Libreville, Nairobi

**Latin America:**

Lima, Mexico, Rio de Janeiro, Santiago, São Paulo

**North America:**

Little Falls, Los Angeles, Montreal, New-York, Philadelphia,  
Washington

**SYSTRA**