ABERDEEN CITY COUNCIL

COMMITTEE	Communities Housing and Infrastructure
DATE	24th May 2017
REPORT TITLE	Aberdeen Cross City Connections – STAG Pre and Part 1 Appraisal
REPORT NUMBER	CHI/17/091
INTERIM DIRECTOR	Bernadette Marjoram
REPORT AUTHOR	Ken Neil

1. PURPOSE OF REPORT:-

This report advises Members of the outcomes of the Scottish Transport Appraisal Guidance (STAG) Pre-Appraisal and Part 1 reports that have been submitted by Peter Brett and Systra consultants for Aberdeen Cross City Connections. A discussion on the findings from the STAG Appraisal is provided along with recommendations on how the study should progress.

2. RECOMMENDATION(S)

2.1 It is recommended that Members:

a) Note the findings and outcomes of the Scottish Transport Appraisal Guidance (STAG) Pre Appraisal and Part 1 reports – Aberdeen Cross City Connections Appraisal and approve the publication of final versions on the Council website; and
b) Agree that the Public Transport and Active Travel options identified in the STAG Part 1 report for Aberdeen Cross City Connections be progressed to STAG Part 2 Appraisal;
c) Note that £100,000 is available in 2017/18 from Nestrans to begin a STAG Part 2 appraisal, and officers continue to work to secure funding to complete the appraisal in future financial years; and
d) Subject to the agreement of recommendation b), approve the immediate commissioning of the Aberdeen Cross City Connections STAG Part 2 Appraisal; and
e) (i) Authorises the Director of Communities, Housing & Infrastructure, the Head of Planning and Sustainable Development and the Transportation Manager to undertake or instruct tendering procedures or competitive quotation procedures, as appropriate, to be carried out.
(ii) Grant approval to appropriate officers to award contracts on receipt of a valid tender submission subject to necessary funding in the approved revenue and capital budgets
(iii) exempts all such procedures and contracts from Standing Order 1(3) of the Council's Standing Orders relating to Contracts and Procurement

3. BACKGROUND/MAIN ISSUES / OTHER HEADINGS AS APPROPRIATE

3.1 In 2013, Aberdeen City Council published its Strategic Infrastructure Plan (SIP). The SIP focusses on the delivery of the Strategic and Local Development Plans and identifies five key infrastructure goals around housing supply, digital connectivity, skills and labour, transport and providing a better image for Aberdeen.

3.2 In relation to transport, the SIP identifies a new project: Cross City Transport Connections and states that:

We will carry out a feasibility study and start to investigate ways to maximise connectivity between new developments arising from the Local Development Plan, including continuing discussions with Nestrans and Transport Scotland in relation to planning and funding."

This study is focussed on considering transport connections between new areas of development (both housing and employment) on the periphery of Aberdeen, and in areas of Aberdeenshire close to the Aberdeen City boundary, with the aim of providing viable, attractive and direct linkages, as an alternative to the private car. Using STAG methodologies, the study considers the most efficient and effective network of connections between these areas, based on alternative modes of sustainable transport. Key issues are determining patterns of demand, technical and operational feasibility of alternative modes, and commercial viability.

3.3 A summary of the key outcomes of the Pre-Appraisal and STAG Part 1 work is provided below. Full details of work undertaken can be found in the key study Reports *(Aberdeen Cross City Transport Connections Pre-Appraisal Report and STAG Part 1 Reports, SIAS, Peter Brett Associates and Energised Environments, March 2017)*. An Executive Summary is appended to this report and the full reports are available on request.

3.4 <u>Objective Setting</u>

Taking cognisance of the policy context and the key problems identified during the study, eight Transport Planning Objectives (TPOs) were set and agreed with the Client Group, comprising of Officers from Aberdeen City Council, Aberdeenshire Council and Nestrans. These are:

TPO1: Increase the modal share for sustainable travel modes, by providing sustainable travel connections between the development sites and key employment hubs.

For Public Transport:

TPO2: Increase the accessibility of employment opportunities.

TPO3: Provide direct connections.

TPO4: Provide journey times competitive with the car.

For Active Travel:

TPO5: Increase the accessibility of employment opportunities.

TPO6: Are safe and secure.

TPO7: Are sufficiently direct and of an acceptable distance to serve a commuter function.

For all modes:

TPO8: Provide good integration between travel modes.

3.5 Option Development

Work undertaken to develop both public transport and active travel options through the STAG Pre-Appraisal and Part 1 process generated the following options which are recommended for further development and appraisal at STAG Part 2:

3.5.1 Public Transport - Selected options for further appraisal

Blackdog - Dubford - Grandhome -Stoneywood – Dyce Railway Station - Dyce P&R (utilising a new active and sustainable travel bridge over the River Don) - Newhills

Route options that would create a public transport route between Blackdog – Dyce – Kingswells – Westhill providing a connection between the large residential sites and the key employment areas.

Consideration of an extension of the route north of Blackdog, potentially beginning/ending in Ellon, Peterhead or Fraserburgh should also be considered as part of this option.

Consideration of the most appropriate location for the bridge crossing over the River Don would be required, taking into account flood risk and the existing Arjo Wiggins Papermill site mill pond and storage areas at the more detailed design stage.

Dyce Park and Ride– Newhills - Kingswells P&R – Countesswells (with further consideration of extension from Countesswells to Chapelton of Elsick via Loriston)

This option identifies a public transport route between Dyce and Countesswells. However, there is further exploration of the route south of Countesswells, which utilises the AWPR to route to the Loirston site and then serves the planned P&R at Portlethen on route to the Chapelton of Elsick site.

South of Countesswells it is recognised that the more geographically dispersed nature of the development sites may lead to likely difficulties in balancing sufficient demand (for commercial viability) with service journey times that will encourage use of the service. There are also feasibility issues on Baillieswells Road in Bieldside given the current road width constraints and likely widening required, which may be very difficult to accommodate and will require further detailed assessment (including consideration of the potential for a public transport only link to the west between Oldfold Farm and Bieldside to overcome these feasibility issues). Two options are therefore being taken forward but with the caveat of addition work required to explore the potential for the route south of the Countesswells site in more detail.

Full details of the above options can be found in Appendix A - Table 4 and Figure 8.

3.5.2 Active Travel - Selected options for further appraisal

A large number of active travel options have been identified although it should be noted that all active travel options together should essentially be considered as a single active travel 'network'.

The appraisal of the active travel options and network highlighted the greater benefits of connections in the north of the study area between Blackdog and Dyce, which would connect the large planned residential area of Grandhome, and additionally those at Stoneywood and Blackdog, with the key employment centres at Dyce and Murcar. In particular, the building of an active and sustainable travel bridge over the River Don between Grandhome and Stoneywood has the capacity to provide a direct route between the sites, significantly reducing active travel journey time and encouraging sustainable travel. It is further recommended that additional work could be undertaken to develop the active travel network around Kingswells. The public transport options will all require a level of subsidy to operate until the development sites are built out such that a critical level of demand is generated for commercial viability, however, the active travel options, if implemented, could provide some 'quick wins' in providing improved accessibility without any need for on-going subsidy.

Detail of the selected active travel options can be found in Appendix A – Figure 7.

3.6 Key Recommendation

While it is acknowledged that some of the public transport options in both the north and south of the study area have merit for further appraisal, the options in the north (as shown in Appendix A - Figure 8) all utilise a new active and sustainable travel bridge over the River Don. The development of this key piece of infrastructure would provide benefits for active travel accessibility in the shorter term and enable the operation of successful public transport services in the medium to longer term. The bridge connection is therefore highlighted as the key element to be considered as the study progresses. Engagement with the developers of the Grandhome and Stoneywood sites, the relevant landowners, and businesses located to the west of the River Don (at potential locations for a new bridge) would be worthwhile at an early stage in order to enable buy-in to the concept. Furthermore, detailed assessment of the flood risk in this area is also required.

3.7 It should be noted at this stage that the outcomes of the existing (pre-Appraisal and STAG Part1) work along with the outcomes of any future STAG Part 2 work could potentially link through to the City Region Deal – Strategic Transport Appraisal.

4. FINANCIAL IMPLICATIONS

4.1 To date this project has been funded through a budget allocation from Nestrans, the Regional Transport Partnership and the Bus Lane Enforcement Fund.

4.2 £100K has been identified through the 2017/18 Nestrans budget for the STAG Part 2 Appraisal. This would not be sufficient to complete the next stage of the project but it is likely that Nestrans and the Bus Lane Enforcement Fund will continue to be sources of funding to allow completion of the appraisal in 2018/19.

5.0 LEGAL IMPLICATIONS

5.1 There are no legal implications at this stage of the work, however future land requirements for potential options will need to be noted as development of the options progresses.

6. MANAGEMENT OF RISK

6.1 There is a risk inherent in not progressing a key transport infrastructure improvement set out in the Strategic Infrastructure Plan which will deliver a range of benefits including sustainable transport modes.

6.2 Project Status Reports (PSR's) will be submitted by the Project Manager on a monthly basis to the Programme Manager, within these forms is a section on new and emerging risks where risks will be scored along with details on how these risk are to be mitigated.

7. IMPACT SECTION

7.1 The Aberdeen City Local Transport Strategy (LTS) recognises the lack of non-car options for circumferential and non-radial journeys as well as barriers to public transport, walking and cycling and a focus of the Aberdeenshire LTS is to encourage people to travel actively. Aberdeen Cross City Connections seeks to identify and remove, where possible, the barriers to sustainable travel and in doing so encourage people to travel actively.

The options being considered as part of Aberdeen Cross City Connections have been assessed in terms of their fit with achieving the LTS policy objectives. These options best meet those objectives and in addition they also contribute towards the delivery of the Local Development Plan (LDP), Strategic Development Plan (SDP), Strategic Infrastructure Plan (SIP) Regional Transport Strategy (RTS), the Local Outcome Improvement Plan (LOIP) and the Regional Economic Strategy.

Economy

7.2 Aberdeen Cross City Connections has been developed to support the Local Transport Strategy (LTS) as well as contributing to economic development. The current vision for the Aberdeen City LTS is:

"A sustainable transport system that is fit for the 21st Century, accessible to all, supports a vibrant economy, facilitates healthy living and minimises the impact on our environment."

People

7.3 Aberdeen Cross City Connections has been developed in accordance with the Aims and Objectives laid out in the Local Transport Strategy and further developed against the user hierarchy of transport modes that has sustainable and active travel modes at the top and private vehicle modes at the bottom.

The contents of this report and the recommendations relate to the delivery of transport infrastructure improvement that will assist in improving access around the periphery of Aberdeen for all those who live and work in those areas.

An Equalities and Human Rights Impact Assessment (EHRIA) has not been undertaken on this report as the LTS and RTS from which the transportation proposals within this report are an integral part have been subject to the appropriate assessments. Future Committee reports on the detailed design of any preferred option would be the subject of an EHRIA.

Place

7.4 Aberdeen Cross City Connections has been developed in accordance with the Local Transport Strategy which has the current objective:

"To improve the public realm by prioritising pedestrians, cyclists and public transport with consequent traffic circulation (to enhance environment, aesthetic quality and air quality of the City) for the benefit of shoppers, visitors and residents."

Dedicated public transport and active travel links on the periphery of Aberdeen will improve travel options and assist in making both residential and employment areas more attractive for people who live and work in these areas.

Technology

7.5 Aberdeen Cross City Connections has been developed in accordance with the Local Transport Strategy which has the current objective:

"To expand the use of Intelligent Transport Systems (ITS) to manage traffic flow in order to improve the efficiency of the transport network in the City."

Dedicated public transport links can make use of technology to improve efficiency and better outcomes for the travelling public in terms of higher quality information provision and greater consistency for journeys.

8. BACKGROUND PAPERS

Aberdeen Cross City Transport Connections Pre-Appraisal Reports & Appendices

9. APPENDICES

Appendix A – Aberdeen Cross City Transport Connections Pre-Appraisal and STAG Part 1 Executive Summary Report

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Appendix A – Aberdeen Cross City Connections – STAG Pre and Part 1 Appraisal – Executive Summary

Aberdeen Cross City Transport Connections

STAG Pre & Part 1 Appraisal

Executive Summary

On behalf of **Aberdeen City Council, Aberdeenshire Council & Nestrans**

Aberdeen Cross City Transport Connections

Description:	**Aberdeen Cross City Transport Connections** **STAG Pre & Part 1 Appraisal - Executive Summary**
Date:	**13 March 2017**
Project Manager:	**Emily Seaman**
Project Director:	**Bob Nicol**
Report Authors:	**Emily Seaman**
Report Reviewers:	**Bob Nicol** **Dougie McDonald**

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Executive Summary

Study Background

Aberdeen City Council (ACC) along with Aberdeenshire Council (AC), Nestrans and Transport Scotland commissioned the consultant team of SIAS, Peter Brett Associates (PBA) and Energised Environments (EE) to undertake an appraisal of sustainable transport connections between a number of development sites in Aberdeen and Aberdeenshire. The study has been undertaken in line with the Scottish Transport Appraisal Guidance (STAG) and covers the Pre- and Part 1 Appraisal stages of STAG.

The purpose of the study is ***to examine transport connections between new areas of development on the periphery of Aberdeen, and in areas of Aberdeenshire close to the Aberdeen City boundary with the aim of providing viable, attractive and direct linkages, as an alternative to the private car.***

While the study is focussed on connecting major planned developments, it has also considered interchange points linking radial and orbital routes, the potential creation of interchange 'hubs' and transport integration between bus, rail and active travel modes including Park & Ride (P&R) sites (being rebranded Aberdeen wide as Park & Choose sites), as well as linking the planned development sites to existing key employment centres. In essence, the aim is ***to maximise the sustainable transport based accessibility associated with the developments***.

Pre-Appraisal Summary

The Pre-Appraisal stage of the study covered:

- Problems, Opportunities, Issues, & Constraints – which were informed through a baselining and engagement exercise reported in the study's Baseline Report *(Aberdeen Cross City Transport Connections Baseline Report, SIAS, PBA and EE, January 2016).*
- Objective Setting
- Option Development & Sifting
- Conclusions and Next Steps

A summary of the key outcomes of the Pre-Appraisal work is provided below. Full details of all the Pre-Appraisal work undertaken can be found in the study's Pre-Appraisal Report *(Aberdeen Cross City Transport Connections Pre-Appraisal Report – Final, SIAS, Peter Brett Associates and Energised Environments, August 2016)*.

Problems, Opportunities, Issues & Constraints

This study is considering a future position when the development sites are built out. At present, the development sites under consideration are predominantly greenfield sites which are either yet to be developed or are at a very early stage of development. Hence the problems and opportunities identified relate to potential future **problems** (that could arise if the sites are built out with no provision for sustainable transport access made) and the opportunity to mitigate against these future problems. The future problems could include: additional road congestion, environmental impacts and an increased safety risk for all road users - if a heavy reliance on the private car prevails; community severance; and reduced access to employment, services, and retail and leisure facilities. There is a clear **opportunity** to provide sustainable transport accessibility to create modal shift away from the car and reduce the impact of the identified problems.

A range of existing underlying **issues** with the wider transport network were identified and considered during option development, including: the Aberdeen Western Peripheral Route (AWPR) which will lead to changes in travel patterns in and around the city with enhanced orbital journey times offered by the route; the potentially low commercial appetite of bus operators to run orbital services given the existing low demand; the likely rural nature of some of the active travel routes on the periphery of the city (potentially with lighting and surfacing issues); and current high private car use which may require a culture change to enable the success of new sustainable transport provision (although this may be positively influenced through the implementation of the Aberdeen City Centre Masterplan).

Key **constraints** identified included: the routes of the River Dee and River Don making the development of non-circuitous routes between development sites challenging unless major infrastructure is provided; the topography and steep gradients within certain areas which may make active travel an unattractive option; the alignment of the development sites between the A96 and the A93 – notably the sites at Greenferns, Countesswells, Maidencraig and Oldfold Farm, which makes it difficult to provide a single non-circuitous orbital connection between the sites; t**he rural nature of many of the sites south of Dyce,** particularly the Countesswells and Chapelton of Elsick sites meaning a lack of existing infrastructure and a need for new infrastructure (and hence high cost) to provide connections; and t**he competition between bus and rail travel modes**, particularly between Chapelton of Elsick and Dyce.

Objective Setting

Taking cognisance of the policy context and the key problems identified during the study, eight Transport Planning Objectives (TPOs) were set and agreed with the Client Group. These are detailed in Figure 1.

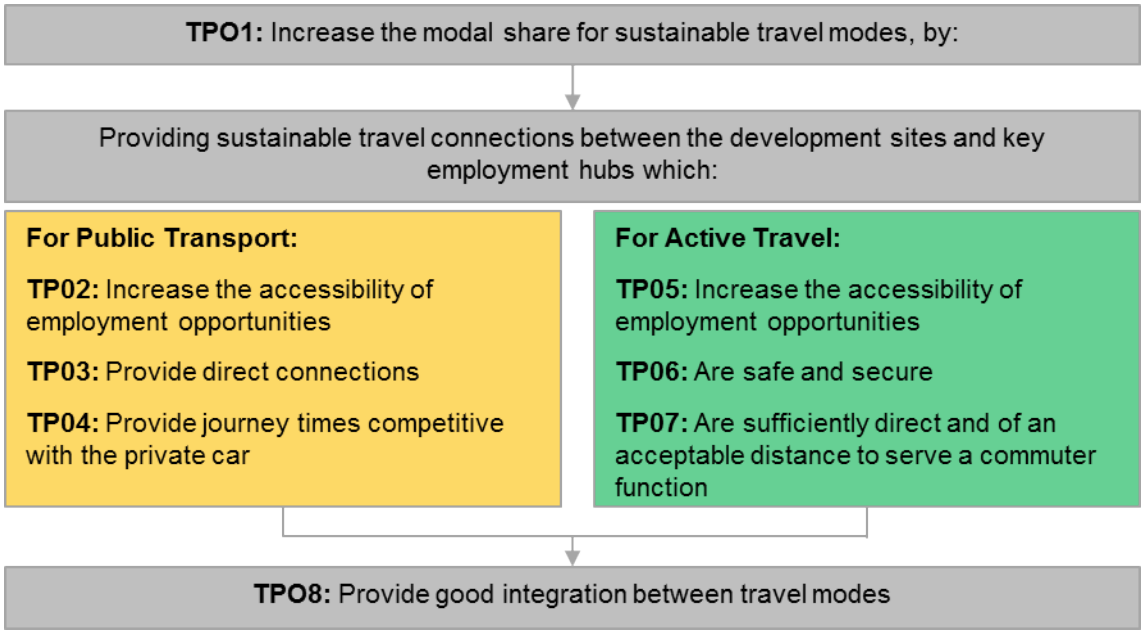

Figure 1: Transport Planning Objectives

Option Development

Options were generated through a number of steps including:

- **Establishing the existing and future public transport and active travel networks;**
- **Establishing the key interchange points:** identified as: Dyce Rail Station, A96(T) Park & Ride (under construction); Kingswells Park & Ride; Portlethen Park & Ride site (not yet developed but with planning approval granted) and Portlethen Railway Station;

- **Establishing existing and future employment hubs**: identified as Aberdeen City Centre; Bridge of Don (north Aberdeen); Dyce (north-west of Aberdeen); Westhill (west of Aberdeen); Altens/Tullos/Cove Bay (south Aberdeen); and Badentoy (Portlethen); and

- **Stakeholder Engagement** with: both Aberdeen City Council and Aberdeenshire Council public transport and active travel officers; bus operators; Scottish Enterprise; Opportunity North East (ONE); Aberdeen & Grampian Chamber of Commerce; the Federation of Small Businesses; Energetica; and a full range of active travel groups in the area.

Public transport options were developed in terms of a broad hierarchy of increasing complexity and cost for a northern section (Blackdog – Dyce) and a southern section (Dyce - Loirston / Chapelton of Elsick), with further consideration given to more minor changes to existing public transport services.

Active travel options were considered between adjacent pairs of sites and with cycle commuting as a focus given the distances involved. As there are already a large number of existing active travel routes (including off-road Core Paths, dual use facilities and on-road cycle provision) which connect to the development sites, rather than developing entirely new routes between pairs of sites, the active travel links developed were largely concerned with filling in 'missing links' in existing routes so as to provide a continuous connection; and / or upgrading an existing route to a level considered suitable for commuters (i.e. providing appropriate surfacing / lighting etc.).

A process of option sifting was undertaken to remove any options not felt to meet the Transport Planning Objectives or which were felt to be highly unfeasible.

Options for Appraisal

Work undertaken to develop both public transport and active travel options generated the following options which were recommended for further development and appraisal at STAG Part 1:

- 22 public transport options of which:
    - 17 are new public transport options; and
    - 5 are existing bus route extension/alteration options; and
- 38 active travel options – although it should be noted that all active travel options together should essentially be considered as a single active travel 'network'.

During the Part 1 Appraisal for both the public transport and active travel options, minor alterations were required to a number of the public transport and active travel routes as, during the more detailed consideration of the routes, feasibility issues and/or improved routeing possibilities were identified. Therefore, the options presented in the Pre-Appraisal Report and final options appraised at Part 1 (as presented in the full Part 1 report) do not exactly match.

The **final options** which have been appraised at STAG Part 1 are shown in the following tables and figures:

- **Public Transport Options** (25 in total due to some additional 'b' options - added due to identified feasibility issues) are shown in Table 1 and Figure 2 to Figure 6. A more detailed map of each individual public transport option is provided in the full STAG Part 1 report. In the figures the dotted lines within the development sites indicate that the route would go through the development site but no specific route has been identified as this would be dependent on the final layout of the sites as they develop. For these options, in many instances it is assumed that a parallel active travel route would be provided as part of the option.

- **Active Travel Options** (33 in total) with Figure 7 showing the envisaged active travel routes between all sites – formed in some instances as an option on its own, or an option in combination with existing routes of suitable quality. It is assumed that the active travel routes developed would form a network of routes connecting up the sites and 'branded' as the 'orbital active travel network' or similar to identify it and promote its use.

The **original set of options** recommended for appraisal at Part 1 can be found in the study's Pre-Appraisal Report (*Aberdeen Cross City Transport Connections Pre-Appraisal Report – Final*, SIAS, Peter Brett Associates and Energised Environments, August 2016). Appendix B of the Part 1 report presents information relating to which options were subsequently altered and the reasons why changes were made.

Table 1: Public Transport Options for Appraisal

1	Blackdog - Dubford - Grandhome - Stoneywood - Dyce Rail Station - Dyce P&R	Bus	x	Figure 2
2	Blackdog - Dubford - Grandhome - Newhills - Dyce P&R	Bus	x	Figure 2
3	Blackdog - Dubford - Grandhome - Stoneywood - Dyce Rail Station - Dyce P&R (Express)	Bus	x	Figure 2
4	Blackdog - Dubford - Grandhome - Newhills - Dyce P&R (Express)	Bus	x	Figure 2
5	Blackdog - Dubford - Grandhome - Stoneywood - Dyce Rail Station - Dyce P&R (utilising new bridge)	Bus	x	Figure 3
6	Blackdog - Dubford - Grandhome - Stoneywood - Newhills - Dyce P&R (utilising new bridge)	Bus	x	Figure 3
7	Blackdog - Dubford - Grandhome - Stoneywood - Dyce Rail Station - Dyce P&R (utilising new bridge and new infrastructure)	Rapid Transit	✓	Figure 3
8	Blackdog - Dubford - Grandhome - Stoneywood - Newhills - Dyce P&R (utilising new bridge and new infrastructure)	Bus / Rapid Transit	✓	Figure 3
9	Blackdog - Dubford - Grandhome - Dyce Rail Station - Dyce P&R	Bus / Rapid Transit	✓	Figure 3
10a	Dyce P&R - Newhills - Kingswells P&R - Countesswells - Oldfold Farm - Chapelton of Elsick	Bus / Rapid Transit	✓	Figure 4
10b	Dyce P&R - Newhills - Kingswells P&R - Countesswells - Oldfold Farm - Chapelton of Elsick	Bus / Rapid Transit	✓	Figure 4

11	Dyce P&R – Dyce Drive - Newhills - Kingswells P&R - Chapelton of Elsick	Bus / Rapid Transit	✓	Figure 4
12	Dyce P&R –Kingswells P&R - Chapelton of Elsick	Bus / Rapid Transit	✓	Figure 4
13a	Dyce P&R – Dyce Drive – Newhills – Kingswells P&R – Countesswells – Oldfold Farm – Loirston – Portlethen P&R – Chapelton of Elsick	Bus / Rapid Transit	✓	Figure 4
13b	Dyce P&R – Dyce Drive – Newhills – Kingswells P&R – Countesswells – Oldfold Farm – Loirston – Portlethen P&R – Chapelton of Elsick	Bus / Rapid Transit	✓	Figure 4
14a	Dyce P&R –Kingswells P&R – Countesswells – Oldfold Farm – Loirston – Portlethen P&R – Chapelton of Elsick	Bus / Rapid Transit	✓	Figure 5
14b	Dyce P&R –Kingswells P&R – Countesswells – Oldfold Farm – Loirston – Portlethen P&R – Chapelton of Elsick	Bus / Rapid Transit	✓	Figure 5
15	Dyce P&R – Dyce Drive – Newhills – Kingswells P&R – Countesswells – Friarsfield – Loirston – Portlethen P&R – Chapelton of Elsick	Bus / Rapid Transit	✓	Figure 5
16	Dyce P&R –Kingswells P&R – Countesswells – Friarsfield – Loirston – Portlethen P&R – Chapelton of Elsick	Bus / Rapid Transit	✓	Figure 5
17	Westhill, Kingswells Park & Ride and Dyce (including extension to Westhill)	Bus / Rapid Transit	✓	Figure 5
18	Dubford - Grandhome - (Aberdeen City Centre)	Bus	x	Figure 6
19	Dyce - Stoneywood - (Aberdeen City Centre) - Loirston - Chapelton of Elsick	Bus	x	Figure 6
20	Dyce - Stoneywood - (Aberdeen City Centre) - Loirston - Portlethen Park & Ride - Chapelton of Elsick	Bus	x	Figure 6
21	Westhill - Kingswells P&R - Maidencraig - (Aberdeen City Centre) - Loirston - Portlethen Park & Ride - Chapelton of Elsick	Bus	x	Figure 6
22	Maidencraig - Kingswells Park & Ride	Bus	x	Figure 6

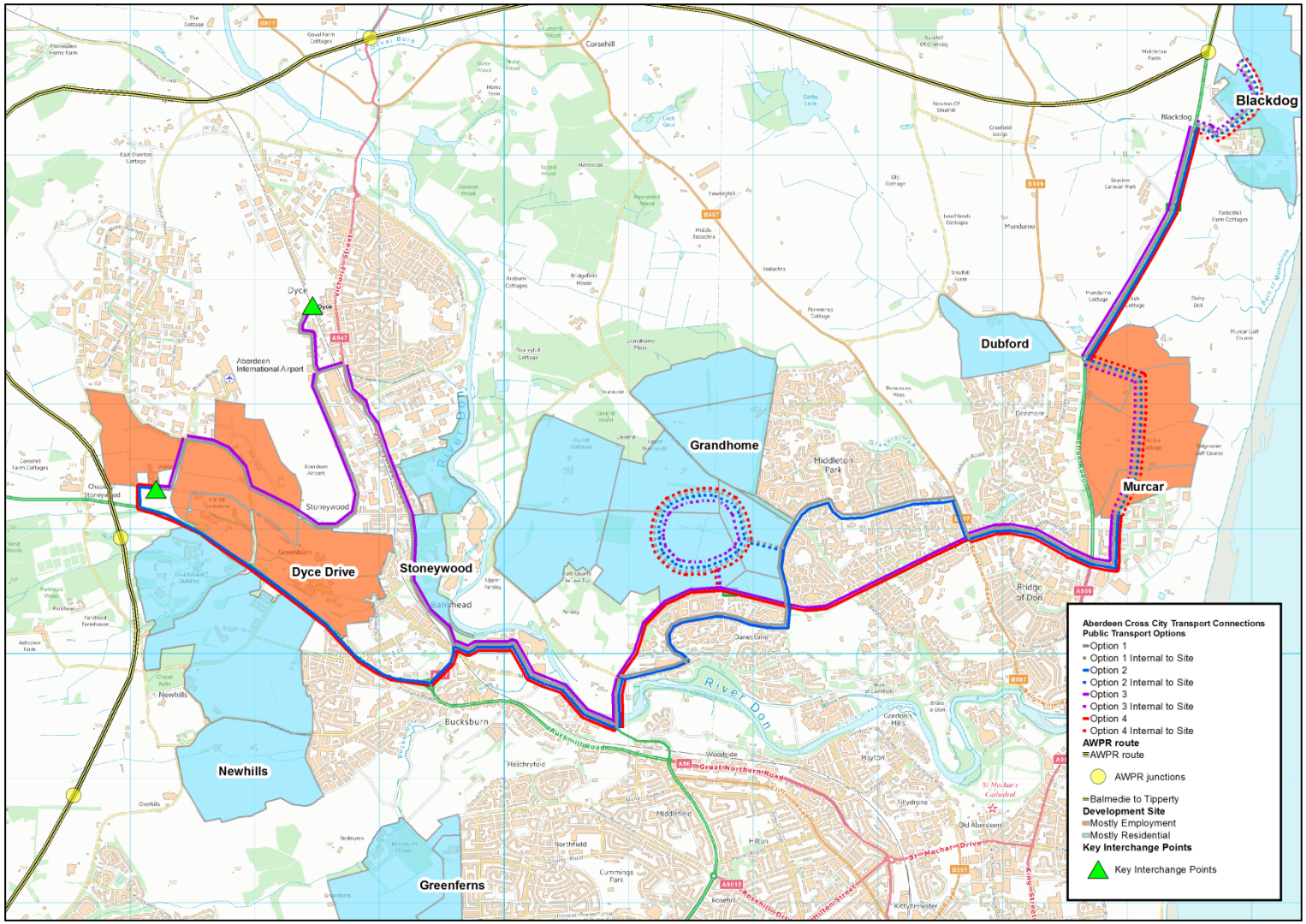

Figure 2: Public Transport Options - Strategic Options (Options 1 - 4)

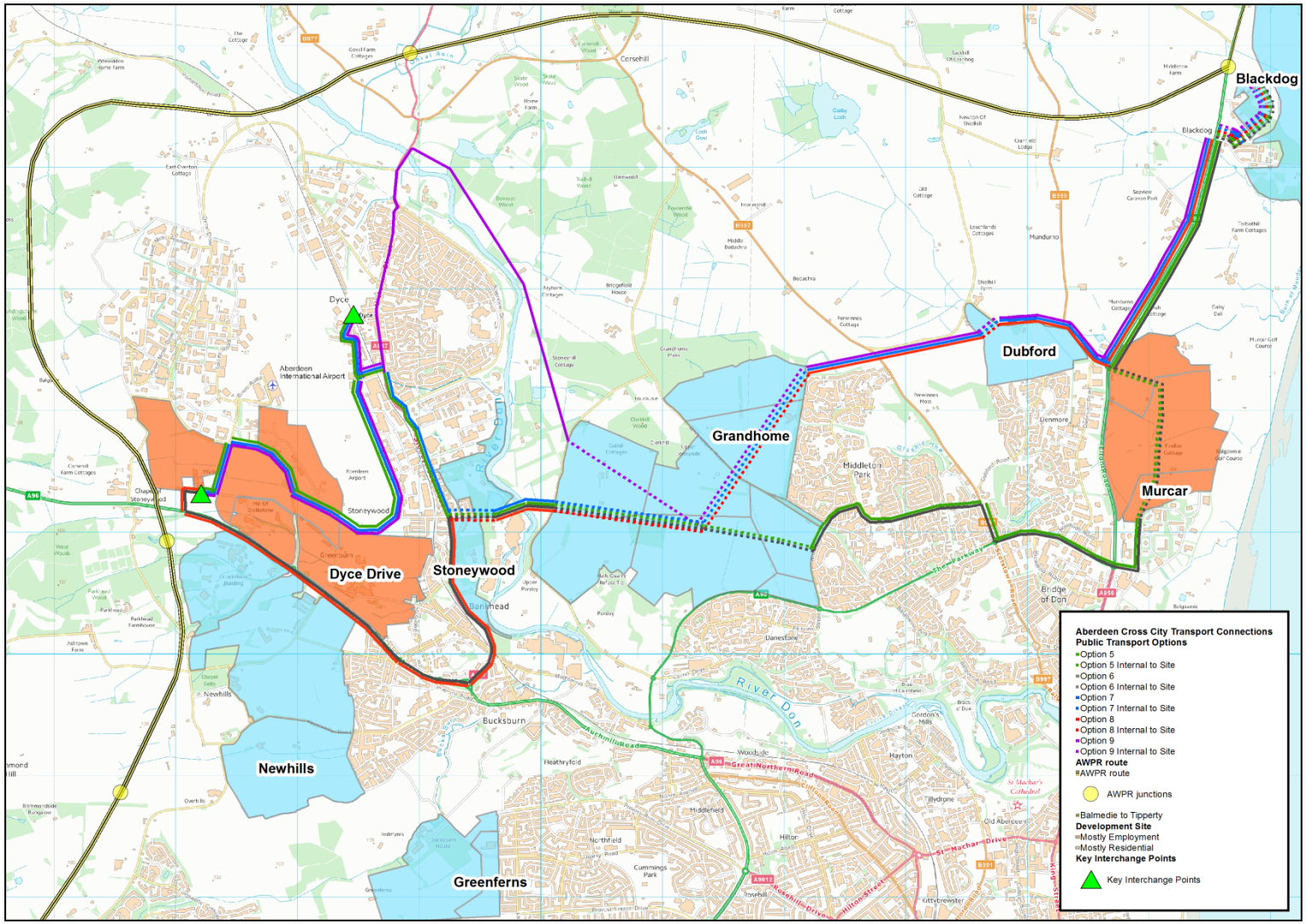

Figure 3: Public Transport Options - Strategic Options (Options 5 - 9)

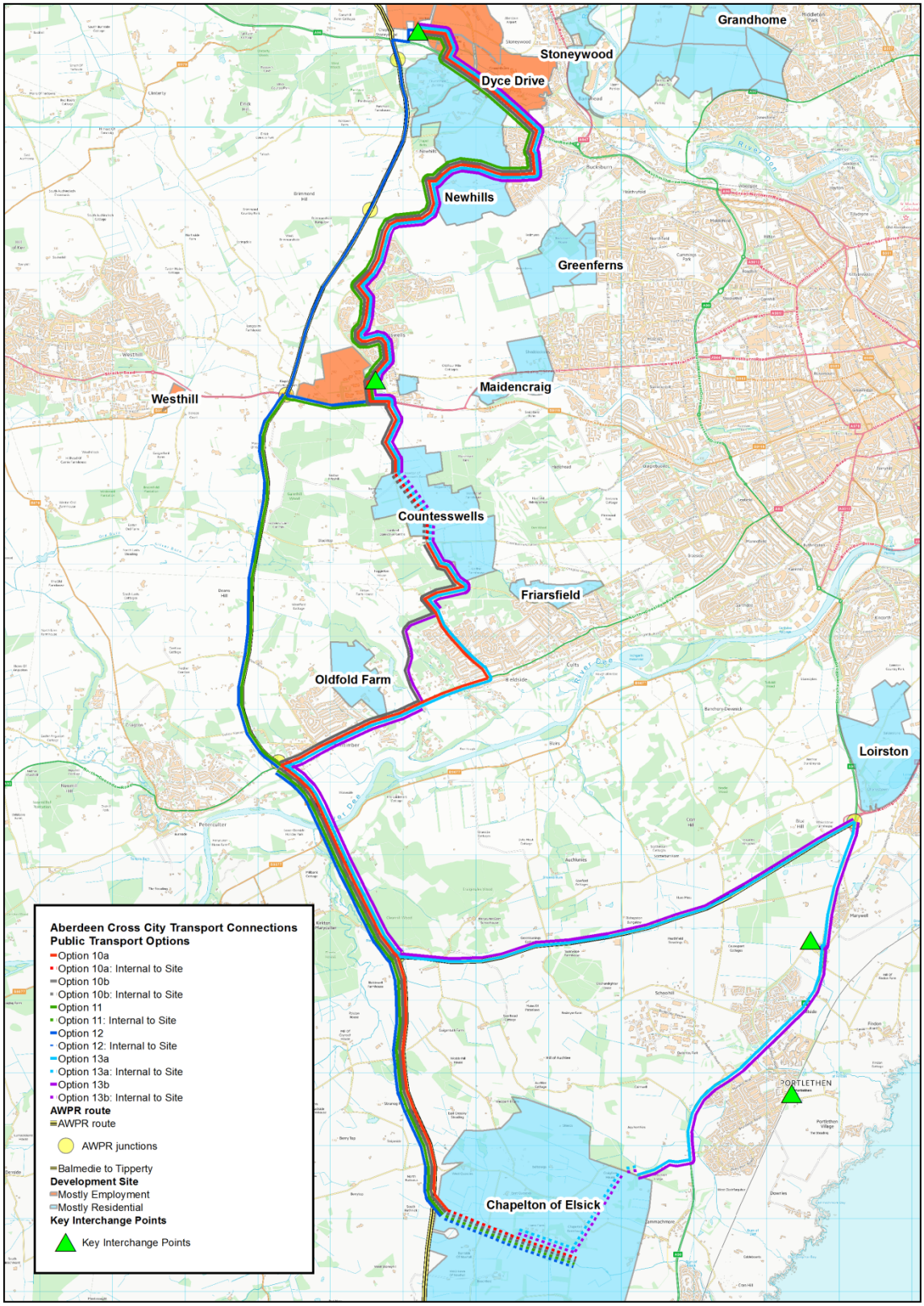

Figure 4: Public Transport Options - Strategic Options (Options 10a – 13b)

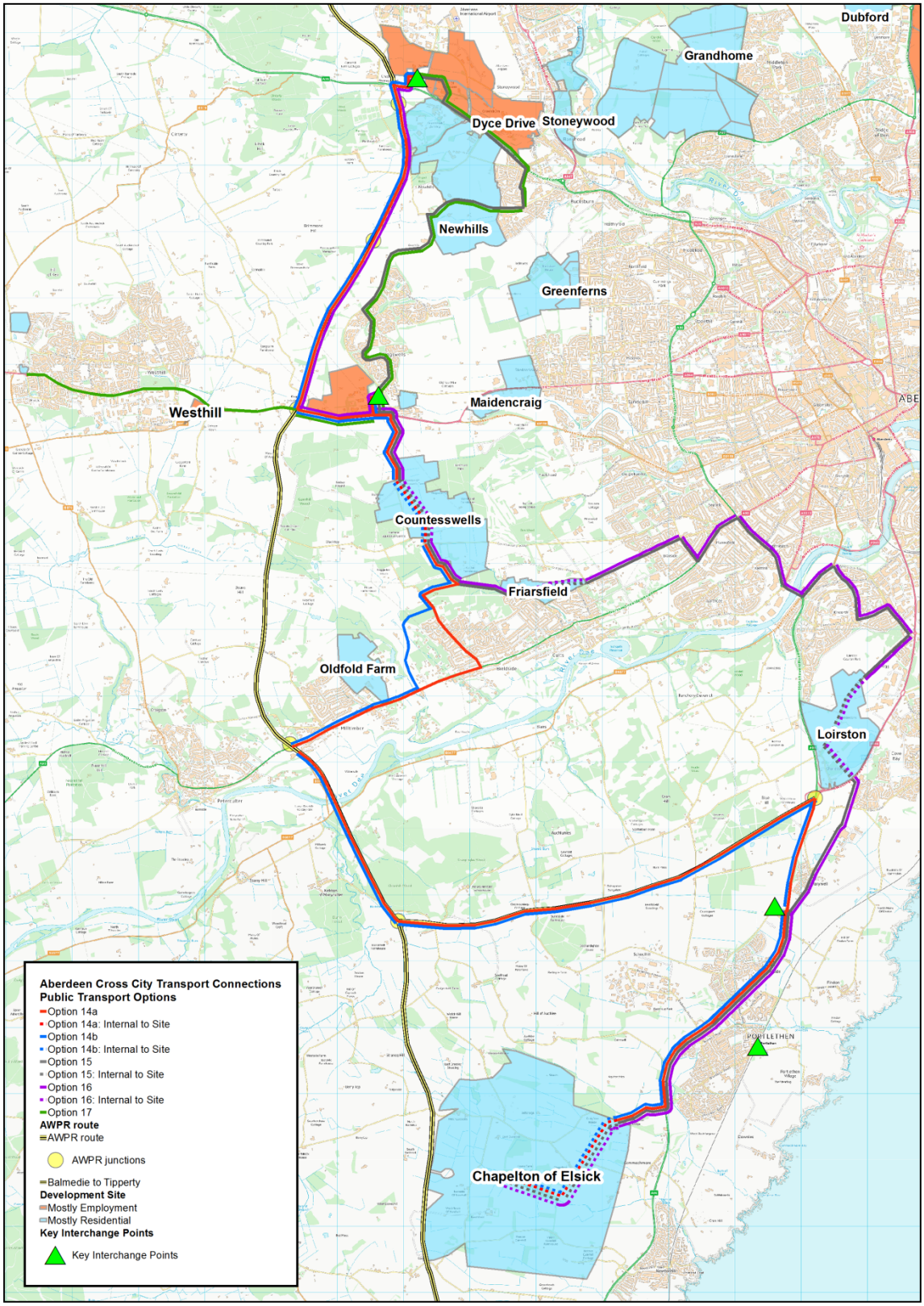

Figure 5: Public Transport Options - Strategic Options (Options 14a – 17)

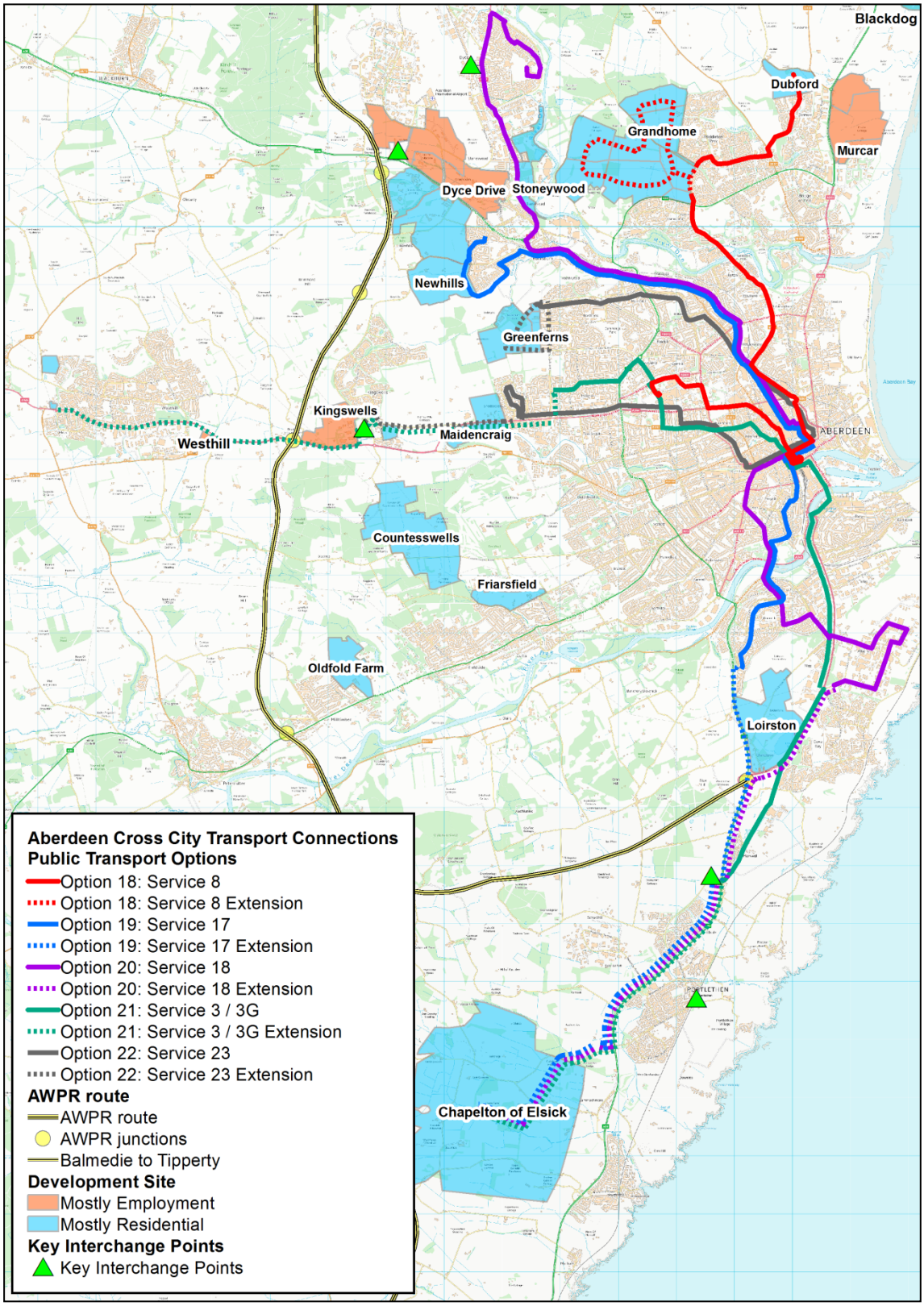

Figure 6: Public Transport Options – Existing Route extensions/alterations (Options 18-22)

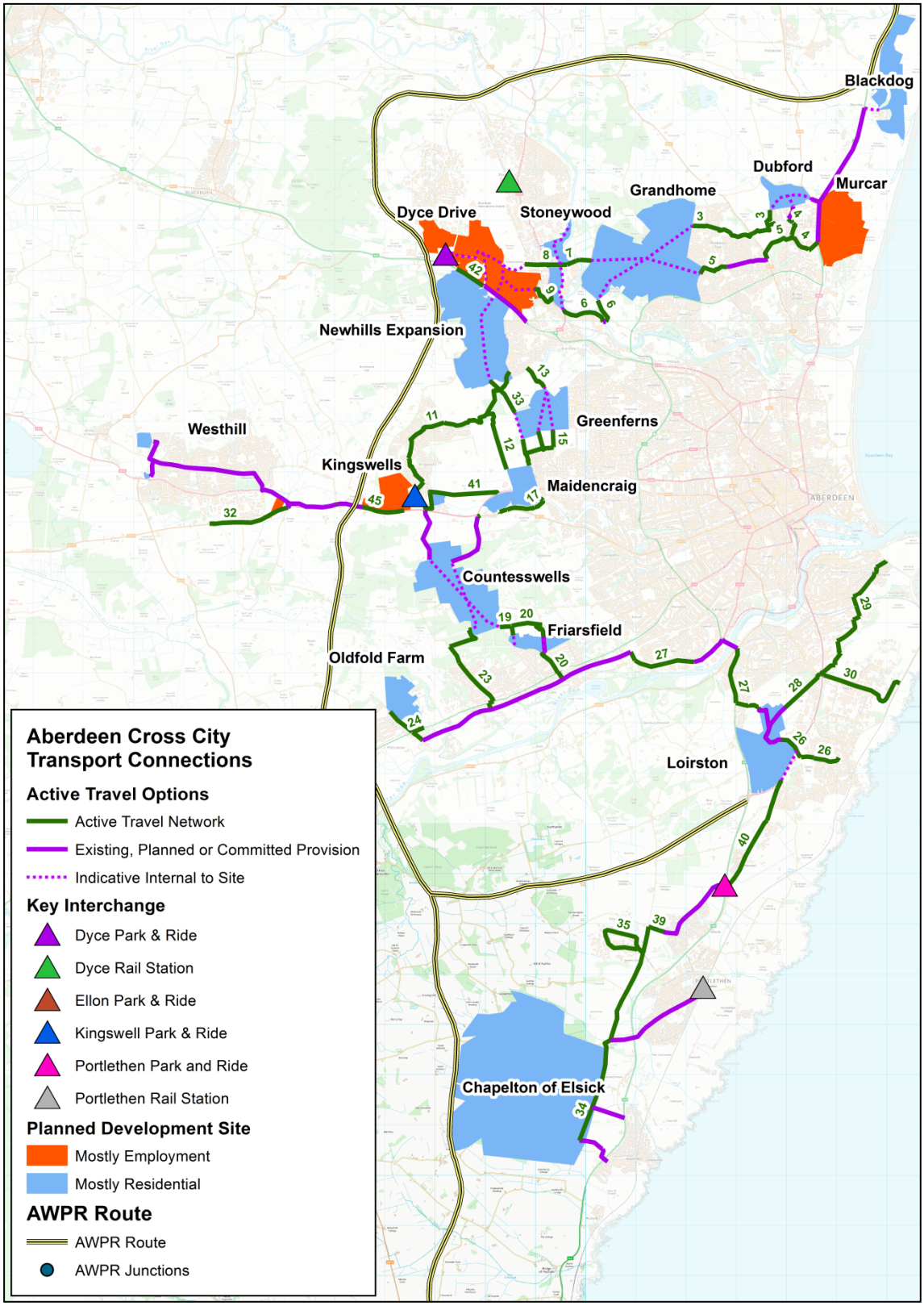

Figure 7: Active Travel Options

Part 1 Appraisal

Methodology

The Part 1 Appraisal is an initial appraisal of the options generated during Pre-Appraisal. It involves a qualitative appraisal of the options against the study Transport Planning Objectives and STAG criteria (Environment, Economy, Safety, Accessibility & Social Inclusion, and Integration), as well as consultation and based on the appraisal outcomes, further option sifting.

At this phase in the study, an indicative assessment of the scope and scale of the benefits and impacts associated with each option are usually considered. This allows for a focus of appropriate effort and resources towards options which merit detailed quantitative appraisal at the STAG Part 2 appraisal stage, and eliminates options which are unlikely to meet the Transport Planning Objectives, alleviate problems, or realise opportunities identified during Pre-Appraisal.

However, given the number of options recommended for further appraisal at STAG Part 1, and a need to effectively appraise these options, discussion was undertaken with the Client Group on the most robust way forward to allow for workable analysis. Through discussion it was agreed that a *focused appraisal* at Part 1 was appropriate. This has involved appraising the options using the key criteria most likely to quickly eliminate options – and then undertaking a very high level appraisal against the remaining Part 1 appraisal criteria for all public transport options, and the active travel options as a whole 'network'.

The key criteria against which the options were appraised against in detail were agreed with the Client Group as:

- For the **public transport** options:
    - **Accessibility:** with development of **accessibility indicators** for the options to show improvements in access to employment and the study area in general for the development sites, as well as indicators relating to the differential between public transport and private car journey times. The difference in journey time between the reference situation and 'with option' situations was weighted by the number of people to whom the reduction would apply (at the origin) and the number of jobs (at the destination) to generate 'market potential' accessibility indicators; and
    - **Affordability:** with cost estimates including consideration of new road infrastructure costs; additional bus stops required and their type (Bus shelters; Bus laybays; 'Busway' stops etc.); bridges; additional junction requirements; and provision of an adjacent active travel route (where appropriate and feasible) but not allowing for any land purchase costs, any required public utility relocations; traffic management during construction; legal costs; design work; any investigation or site supervision requirements; or on-going maintenance costs – given the inherent difficulty in estimating this without detailed information on the volume of users. Costs were developed for: each 'basic' option assuming conventional (high-specification) bus operation; those options which utilise section(s) of the AWPR, for which additional consideration was given to the cost of these options utilising a segregated public transport route (and associated active travel route) running parallel to the AWPR as opposed to simply utilising the AWPR; and for options for which rapid transit (guided bus/light rail/tram etc.) has been identified as a possibility, additional consideration was given to the cost if rapid transit were it to be implemented along the route.
- For the **active travel** options:

- A focus on the key **Transport Planning Objectives:** covering **modal shift** (TPO1), **safety** (TPO6), and **directness** (TPO7). For these criteria, a score was awarded based on the anticipated benefit/disbenefit with the scores then weighted based on their ability to connect people with employment and the options then 'ranked' based on their 'market potential'; and

- **Affordability:** with cost estimates including consideration of route surfacing requirements and surface type, lighting, crossings, signage, earthwork requirements etc. but not including any land purchase costs, any required public utility relocations; traffic management during construction; legal costs; design work; any investigation or site supervision requirements; or on-going maintenance costs – given the inherent difficulty in estimating this without detailed information on the volume of users.

The study considers a future year of 2030 and assumes in the 'reference case' that: major transport interventions in the area are in place (including the Aberdeen Western Peripheral Route (AWPR) including the Balmedie to Tipperty dualling, the Access from the South (Bridge of Dee) proposals; the A96(T) Park & Ride site at Dyce, and the A90(T) Portlethen Park & Ride site); that the outcomes of the Aberdeen Routes Hierarchy work will be in place providing improved sustainable travel priority on key radial routes into Aberdeen city centre; and that all development sites are built out (although sensitivities with respect to the commercial viability of public transport services if differing levels of development build out were realised have been undertaken).

The options, where appropriate, were scored using the STAG seven-point scale ranging from -3 (Major Negative Impact) to +3 (Major Positive Benefit). To allow for clarity for decision makers when considering the benefits and impacts of options compared to one another, the scoring of options has been undertaken relatively between public transport options and between the active travel options such that the options with the greatest benefits have been awarded the highest scores, and conversely the options with the greatest negative impacts have been awarded the lowest scores.

In order to fully understand the accessibility benefits of the options, key metrics developed were the 'market potential' indicators for each option i.e. the comparative magnitude of the benefit the option might bring in terms of the number of trips that might benefit from an options implementation. This has been done through developing a long term future picture of jobs and people in the study area. Understanding the potential benefits of the options and then combining these potential benefits with housing and employment projections has provided an indication of the potential people and employment catchment affected by the improvements. Full details of these projections can be found in the full Part 1 Appraisal Report and its associated Appendices, *Aberdeen Cross City Transport Connections - STAG Part 1 Report – Final,* (*SIAS, PBA and EE, March 2017)* and *Aberdeen Cross City Transport Connections - STAG Part 1 Report – Final - Appendices,* (*SIAS, PBA and EE, March 2017).*

To provide stakeholders and the public with an opportunity to provide feedback on the options developed and feed into the Part 1 Appraisal stage, an on-line engagement programme was undertaken.

The engagement involved:

- Development of an 'engagement pack' which was available on the study's dedicated webpage. The pack set out the study background, a brief summary of the Pre-Appraisal work, the study TPOs and all the options developed alongside maps and key points relating to the options;

- An associated on-line questionnaire to be completed once the engagement pack had been reviewed.

The engagement pack and survey were 'live' on the Aberdeen City Council hosted study webpage between 31 October and 2 December 2016, with e-mails sent out to a range of business

groups/organisations, bus operators, active travel groups, Community Councils, Councillors and environmental groups/organisation to inform them that the material and questionnaire were available.

While the study is focussing on developing transport connections between new areas of development, many of the connections developed provide improved accessibility to existing communities within Aberdeen and Aberdeenshire and input was further sought from existing communities who may benefit. In addition to those stakeholders listed above, the availability of the engagement material was publicised through a number of Aberdeen City and Aberdeenshire Council relevant Facebook pages and twitter feeds, as well as through an associated Aberdeen City Council press release in order to increase awareness of the consultation.

The key outcomes of the appraisal were incorporated in the option appraisal as appropriate.

Full details of the appraisal undertaken, the individual scores awarded to each criteria for each public transport option and for the active travel network and the associated appraisal summary tables, as well as full details of the consultation undertaken and the analysis of the outcomes, can be found in the Part 1 Appraisal Report and its associated Appendices, *Aberdeen Cross City Transport Connections - STAG Part 1 Report – Final,* (*SIAS, PBA and EE, March 2017)* and *Aberdeen Cross City Transport Connections - STAG Part 1 Report – Final - Appendices,* (*SIAS, PBA and EE, March 2017).*

Public Transport Option Appraisal

Table 2 show the key points relating to each option and whether it has been subsequently deemed for selection or rejection at this stage. Key general points to note are:

- There is a **clear 'trade-off' between directness and accessibility**. Many of the more direct options which provide quicker public transport journey times and may be preferential (especially for longer distance trips), do not serve as many communities and as such reduce the overall accessibility benefits of the options;

- **Many of the options only become commercially viable once the development sites are built out to a certain level – often a build out of 75% or more is required with a good public transport mode share to ensure viability**. In general, delivering orbital public transport can be challenging given the need to generate sufficient demand to make services commercially viable. There are currently no bus services subsidised in the Aberdeen City area, and it is likely that the options would require to be pump primed through Section 75 agreements. If no subsidy were available and the options were not implemented until sufficient build-out were achieved, this would not support the 'locking in' of travel behaviour from the out-set at the development sites and would require a change in travel behaviour of the existing residents once sufficient development build-out was achieved. This may need to be achieved through the provision of sufficient incentives to encourage travel behavioural change – especially given the high estimated public transport mode share of the options required for commercial viability even once certain levels of build-out are reached. The subsidy required would be at a significant cost to the Council(s); The issue of generating sufficient demand is particularly pertinent over the southern section of the study area, particularly south of Countesswells to Chapelton of Elsick given the more spatially spread out nature of the development sites. Over this southern section, the option routes either utilise the AWPR (for directness and speed) and hence 'by-pass' the potential existing demand from Altens/Tullos/Kincorth/Garthdee/Springfield etc., or they route via these urban areas but with a subsequent increase in travel time for longer journeys, which may discourage their use and hence reduce overall demand for longer trips;

- For all options**, journeys by private car are always quicker than the corresponding journey by public transport**. This is to be expected, especially for some of the longer distance trips where the AWPR will provide good orbital journey times by private vehicle. While many of the options reduce the journey time differential between car and public transport, the journey time by public transport is still often much longer than that by car, especially for the longer distance trips. It may therefore be very difficult to encourage people to utilise public transport for these journeys; and

  It is clear **in the north of the study area that a public transport only bridge over the River Don, connecting Grandhome and Stoneywood is key to enabling a significant reduction in journey time by public transport** between the development sites between Blackdog and Dyce.

Table 2: Public Transport Options – Key Points for Selection or Rejection

1	Blackdog - Dubford - Grandhome - Stoneywood - Dyce Rail Station - Dyce P&R	• No improvement for journey times for end-to-end journeys (i.e. when travelling between Blackdog and Dyce) over reference situation due to circuitous routeing. • Car remains significantly quicker and therefore it may be difficult to attract users. • Provide the lowest accessibility benefit when compared to other options in the north of the study area. • Only commercially viable at the 12% public transport mode share level if all sites built out fully. At lower levels of build out (75% and 50%), public transport mode share would need to be 17%. This may be very hard to achieve.	**Reject**
2	Blackdog - Dubford - Grandhome - Newhills - Dyce P&R		**Reject**
3	Blackdog - Dubford - Grandhome - Stoneywood - Dyce Rail Station - Dyce P&R (Express)	• Provides more 'express' routes than Options 1 and 2 but still no improvement for journey time for end-to-end journeys over reference situation due to circuitous routeing. • Car remains significantly quicker. • Only commercially viable at the 12% public transport mode share level if all sites are built out at the 75% level. At the lower level of build out (50%), the options would only be viable at the 17% mode share level and above. This may be very hard to achieve.	**Reject**
4	Blackdog - Dubford - Grandhome - Newhills - Dyce P&R (Express)		**Reject**
5	Blackdog - Dubford - Grandhome - Stoneywood - Dyce Rail Station - Dyce P&R (utilising new bridge)	• Improvement for journey times for end-to-end journeys (i.e. between Blackdog and Dyce) over reference situation although car remains significantly quicker. • Moderate accessibility benefits when compared to other options in north of study area and major improvement in reducing the public transport to car journey time differential. • Commercially viable at 12% public transport mode share level if all sites built out at 75% level. At 50% build out, mode share needs to be 17%. Option therefore unlikely to be commercially viable until significant proportion of development sites are built. • Moderate environmental impact due to new bridge over River Don. • Amongst most favoured options in the north of the study area by the public.	**Select**
6	Blackdog - Dubford - Grandhome - Stoneywood - Newhills - Dyce P&R (utilising new bridge)		**Select**

7	Blackdog - Dubford - Grandhome - Stoneywood - Dyce Rail Station - Dyce P&R (utilising new bridge and new infrastructure)	• Improvement for journey times for end-to-end journeys (i.e. between Blackdog and Dyce) over reference situation although car remains significantly quicker. • Major accessibility benefits when compared to other options in north of study area and major improvement in reducing public transport to car journey time differential. • 17% public transport mode share required to enable commercially viability if all sites built out at 75% level. At 50% build out, mode share of 25% required. Option highly unlikely to be commercially viable until significant proportion of development sites are built - the public transport only link means the options avoid some existing residential areas which may adversely impact patronage. • Major environmental impact due to new bridge over River Don and new public transport only link between Dubford and Grandhome. • Amongst least favoured options in the north of the study area by the public (perhaps not surprisingly given existing communities in the north (Bridge of Don area) are 'bypassed'.	**Select**
8	Blackdog - Dubford - Grandhome - Stoneywood - Newhills - Dyce P&R (utilising new bridge and new infrastructure)		**Select**
9	Blackdog - Dubford - Grandhome - Dyce Railway Station - Dyce P&R	• Very high infrastructure cost due to public transport only link from Grandhome to north Dyce. • Option is commercially viable at 9% mode share level if development build out of just 50% at sites achieved, but analysis did not take account of journey time/route distance. It is doubtful that such a circuitous route could attract sufficient demand. • Major environmental impact due to significant public transport only link.	**Reject**
10 a & b	Dyce P&R - Newhills - Kingswells P&R - Countesswells - Oldfold Farm - Chapelton of Elsick	• Feasibility issues in the Bieldside area (Option 10a) due to narrow road widths and geometry. • High infrastructure cost, due to AWPR 'slips' required at Chapelton of Elsick, and additionally for Option 10b due to public transport only link to avoid feasibility issues in Bieldside area. • Both Options 10a and 10b are commercially viable at the 12% mode share level if development build out of 75% at all sites achieved. This may be achievable given the region wide existing bus mode share of 12-13%, although limited potential for capturing demand along the southern section of the route south of Countesswells given the routeing on the AWPR not serving the Loirston site or planned Park & Ride at Portlethen, and limiting use by existing communities.	**Reject** (section between Countesswells and Dyce being taken forward under Option 13)

		• Most favoured option by the public.	
11	Dyce P&R – Dyce Drive - Newhills - Kingswells P&R - Chapelton of Elsick	• Options generate smallest improvements in reducing public transport / car journey time differentials. • Minor improvements in access (due to the need to interchange to access the route) for all sites other than Chapelton of Elsick. • Worst performing of all the southern options reflecting trade-off between 'directness' and 'demand' i.e. the more express routeing means a reduced number of existing communities are served by the route and hence do not derive any benefit from the option. • Infrastructure cost is one of the highest of all options under consideration. • If just 50% build out at the development sites achieved, a 25% public transport mode share is required for commercial viability. This may be very difficult to achieve and there is limited potential for capturing demand along the southern section of the routes south of Countesswells given the more spatially dispersed nature of the development sites and the routeing of the option on the AWPR limiting use by existing communities. • Among least favoured of all options in the south of the study area.	**Reject**
12	Dyce P&R –Kingswells P&R - Chapelton of Elsick		**Reject**
13 a & b	Dyce P&R – Dyce Drive – Newhills – Kingswells P&R – Countesswells – Oldfold Farm – Loirston – Portlethen P&R – Chapelton of Elsick	• Option 13 (a&b) route between Countesswells and Dyce is identical to Option 10 (a & b) and 15 and provides good accessibility between Countesswells and Dyce, serving Kingswells and Newshills also. • Option 14 (a&b) route between Countesswells and Dyce is identical to Option 16 and provides a fast connection between the Kingswells and Dyce Park & Ride sites, more competitive with the private car than the Option 13 (and 10 and 15) routeing via Kingswells and Newhills. • South of Countesswells there are feasibility issues in the Bieldside area (Options 13a and 14a) due to narrow road widths and geometry. • High infrastructure cost, particularly for Options 13b and 14b due to public transport only link to avoid feasibility issues in Bieldside area. • Routes serve the Loirston site and the planned Portlethen Park & Ride site with quicker journey times between Chapelton of Elsick and Countesswells than Options 15 and 16 which	**Select**
14 a & b	Dyce P&R – Dyce Drive – Newhills – Kingswells P&R – Countesswells – Oldfold Farm –		**Select**

	Loirston – Portlethen P&R – Chapelton of Elsick	route through a number of existing communities.	
15	Dyce P&R – Dyce Drive – Newhills – Kingswells P&R – Countesswells – Friarsfield – Loirston – Portlethen P&R – Chapelton of Elsick	• No benefit to longer distance trips given the routeing but significant reduction in public transport travel time between development sites north of the A93 & Dyce. South of the Countesswells site, the development sites are more geographically dispersed leading to likely difficulties in balancing sufficient demand (for commercial viability) with journey times that would encourage use of the service. • Major improvement in access to employment for Countesswells and Chapelton of Elsick. • Major reduction in public transport to car journey time differentials compared to other southern options reflecting the options serving a greater range of existing communities (Bridge of Dee, Garthdee and Springfield areas) but the routeing through the existing communities is at significant detriment to journey times for trips from/to Chapelton of Elsick/Loirston and the development sites further north. • With a 30-minute bus frequency, Option 15 is commercially viable at the 9% public transport mode share level which may be achievable. • Limited environmental impact.	**Reject** (section between Countesswells and Dyce being taken forward under Option 13)
16	Dyce P&R –Kingswells P&R – Countesswells – Friarsfield – Loirston – Portlethen P&R – Chapelton of Elsick		**Reject** (section between Countesswells and Dyce being taken forward under Option 14)
17	Westhill, Kingswells Park & Ride and Dyce (including extension to Westhill)	• Reductions in public transport travel time, especially between Kingswells & Newhills but service would struggle to compete with significantly quicker car travel times on the AWPR. • Limited improvement in accessibility as a stand-alone option but potential to combine with Options 5, 6, 7 or 8 to create route between Blackdog – Dyce – Kingswells – Westhill connecting large residential and employment areas.	**Select**

18	Dubford - Grandhome - (Aberdeen City Centre)	• Major improvement in accessibility of Grandhome site but very limited benefit to other sites. • One of the lowest cost options. • One of the most favoured options by the public but careful consultation required to establish impacts to existing users of the service. • Low environmental impact. • Current bus operator may be unwilling to alter existing commercially viable service until sufficient demand established. • Limited geographical coverage of option means it only provides specific benefit to a small number of the development sites, therefore not considered to fully cover the remit of the brief. There may be merit in further considering the option, outwith of this study, once the relevant development sites are better established.	**Reject**
19	Dyce - Stoneywood - (Aberdeen City Centre) - Loirston - Chapelton of Elsick	• Major improvement in access to employment for Chapelton of Elsick but limited improvement for other sites. • Struggles to compete with journeys by private car on the AWPR between Newhills/Bucksburn and Chapelton of Elsick. • One of the lowest cost options. • Least favoured of all options in the south by the public and careful consultation required to establish impacts to existing users of the service. • Low environmental impact. • Current bus operator may be unwilling to alter existing commercially viable service until sufficient demand established. • Limited geographical coverage of option means it only provides specific benefit to a small number of the development sites, therefore not considered to fully cover the remit of the brief. There may be merit in further considering the option, outwith of this study, once the relevant development sites are better established.	**Reject**
20	Dyce - Stoneywood - (Aberdeen City Centre) - Loirston -	• Major improvement in access to employment for Chapelton of Elsick but limited improvement for other sites.	**Reject**

	Portlethen Park & Ride - Chapelton of Elsick	• Struggles to compete with journeys by private car on the AWPR between Newhills/Bucksburn and Chapelton of Elsick. • One of the lowest cost options. • Amongst the least favoured options in the south by the public and careful consultation required to establish impacts to existing users of the service. • Low environmental impact. • Current bus operator may be unwilling to alter existing commercially viable service until sufficient demand established. • Limited geographical coverage of option means it only provides specific benefit to a small number of the development sites, therefore not considered to fully cover the remit of the brief. May be merit in further considering option, outwith of this study, once relevant development sites better established.	
21	Westhill - Kingswells P&R - Maidencraig - (Aberdeen City Centre) - Loirston - Portlethen Park & Ride - Chapelton of Elsick	• Major improvement in access to employment for Chapelton of Elsick but limited improvement for other sites • Struggles to compete with journeys by private car on the AWPR between Westhill and Chapelton of Elsick • One of the lowest cost options • Amongst most favoured of the extended route option by the public and careful consultation required to establish impacts to existing users of the service. • Low environmental impact • Current bus operator may be unwilling to alter existing commercially viable service until sufficient demand established • Limited geographical coverage of option means it only provides specific benefit to a small number of the development sites, therefore not considered to fully cover the remit of the brief. May be merit in further considering option, outwith of this study, once relevant development sites better established.	**Reject**
22	Maidencraig - Kingswells Park &	• Minor improvements in access for Greenferns and Maidencraig but limited population such	**Reject**

	Ride	that 'market potential' is low • Struggles to compete with journeys by private car • Indirect route between Greenferns and Kingswells as via city centre • One of the lowest cost options • Amongst most favoured of the extended route option by the public but careful consultation required to establish impacts to existing users of the service. • Low environmental impact • Current bus operator may be unwilling to alter existing commercially viable service until sufficient demand established • Limited geographical coverage of option means it only provides specific benefit to a small number of the development sites, therefore not considered to fully cover the remit of the brief. There may be merit in further considering the option, outwith of this study, once the relevant development sites are better established.	

Active Travel Option Appraisal

The focussed appraisal of the active travel options was undertaken through consideration of each option's anticipated impact on modal shift, safety and directness, with the assigned scores then weighted based on the number of people and jobs that could potentially benefit from the option. This exercise was also undertaken based on the estimated cost of the option. For each criterion appraised, the options were then 'ranked' based on their weighted score.

In order to consider active travel option prioritisation, the rank of each option for all the key appraisal criteria were added together and a final ranking score for each option assigned, as shown in Table 3.

The initial focussed appraisal allows for prioritisation of the connections within the full active travel network. As it is assumed that the active travel options could form a single 'network' of routes connecting up the development sites (and 'branded' as the 'orbital active travel network' or similar to identify it and promote its use), a high level appraisal of all the active travel network options as an entire network was undertaken against the full range of STAG criteria.

Key points from both the focussed and network wide full appraisal are:

- The active travel options linking the northern development sites consistently achieve the highest ranks i.e. those providing connections between Blackdog and Dyce through Dubford, Grandhome and Stoneywood;
- Options which form part of the route linking into Dyce from the south (Options 33 and 42), and the option alongside the A944 providing part of the route from Westhill to Dyce (Option 45) are in the top 10 highest ranked options;
- The option providing an improved cycling route to the Badentoy industrial estate also ranks in the top 10, given its connection to the employment opportunities;
- In terms of increasing directness and improving journey times by active travel, it is important to note that many of the development sites could be accessed by cycle commuters in many cases more quickly by simply utilising on-road routes. In these instances, it is unlikely that the active travel option network would provide a more direct or faster journey time. However, as a key objective is to ensure safe and secure routes, and while research shows that while experienced cyclists may prefer on-road routes, offering off-road cycle opportunities is more likely to encourage non-cyclists and hence have a greater impact on the modal shift that might be achievable through the networks implementation;
- Many of the active travel options utilise existing Core Paths or road network and overall there is minimal additional construction away from existing routes with little adverse impact to the environment. Of particular note:
    - Option 7 requires the build of a dedicated active travel bridge (potentially as part of a public transport link) over the River Don which may have some minor adverse impact on the surrounding environment and River Don watercourse during construction;
    - A small number of the options pass through conservation areas, but in these cases care has been taken to consider a more natural unbound surface treatment and lighting possibilities could be considered to be more low level and in keeping with the rural surroundings (although the security of users would need to be considered in these instances to ensure adequate visibility and safety);

- The overall cost of the full active travel network is estimated at approximately £14.5million (with 40% contingency). While no funding is currently set aside for the networks implementation, targeted investment in those routes likely to provide the greatest benefits (highlighted through the ranking process undertaken) would allow for phased implementation of the options, reducing the requirements for up-front funding for the full network. Developer contributions could also be sought to part-fund the network where appropriate.

Overall the appraisal highlighted that, given the large residential development at Grandhome and the employment centres at Dyce, Murcar and the Bridge of Don, as well as the close proximity of the sites in the north of the study area compared to those in the south, there are greater benefits in providing active travel links in the northern area.

It is therefore recommended that connections in the north of the study area, between Blackdog and Dyce, be prioritised. Similar to the public transport appraisal, a connection over the River Don, between Grandhome and Dyce, has the potential to provide significant benefit and could be developed as an active travel link or incorporated as part of a public transport connection.

In addition, improvements in the active travel connections to Kingswells, Kingswell Park & Ride and Westhill were also shown to provide benefits and should also be prioritised.

Table 3: Active Travel Prioritisation based on overall ranked scores

	Market Potential Ranked Score					
Option	Cost	Mode Share	Safety	Directness / Journey Time	Sum of all ranks	Final Ranking
3	14	8	8	4	34	5
4	18	12	13	6	49	10
5	3	16	22	24	65	16
6	12	6	6	2	25	2
7	17	4	6	2	28	3
8	1	7	7	24	39	7
9	4	3	2	3	12	1
11	16	11	10	8	45	9
12	23	21	18	7	69	19
13	25	13	12	24	74	22
15a	15	19	16	5	55	12
15b	20	19	16	9	64	15
15c	22	19	16	13	70	20
17	26	26	27	10	89	26
19	13	22	20	12	67	18
20	19	25	25	24	93	28
23	28	33	33	24	118	32
24	8	30	31	24	93	28
26	30	27	26	11	94	29
27	27	23	23	14	87	24
28	2	24	24	24	74	22
29	21	17	21	24	83	23
30	6	14	14	24	58	13
32	24	10	9	24	67	18
33	10	5	4	24	43	8
34	32	28	28	24	112	30
35	5	15	19	24	63	14
39	29	31	30	24	114	31
40a	31	32	32	24	119	33
40b	7	29	29	24	89	26
41	9	9	11	24	53	11
42	11	1	1	24	37	6
45	0	2	3	24	29	4

Recommended Options for Further Development

Public Transport

The public transport options which are considered worthy of further appraisal, if the study is to be progressed to STAG Part 2, have been further developed including consideration of:

- Combining the selected options appropriately;
- Option extensions in the north to potentially operate from/to Fraserburgh, Peterhead and Ellon etc.); and
- The further work required to explore the options south of the Countesswells site, given: the issues identified with regards the commercially viability of services due to the more geographically dispersed development sites in the south and the associated user demand issues; and the feasibility constraints in relation to an appropriate route through the Bieldside area because of the existing topography and narrow road widths, and the potential high cost to provide an alternative route.

A re-numbering process was undertaken to provide a final succinct consolidated list of recommended options that could be progressed to STAG Part 2. These options are presented in Table 4 and shown graphically in Figure 8.

For all options, note that bus is assumed as the operating travel mode, with high quality modern buses assumed to be utilised with the ability to carry cycles. It is also assumed that all interchange points have suitable cycle parking/storage available.

Table 4: Public Transport - Selected options for further appraisal

5 & 17	Blackdog - Dubford - Grandhome - Stoneywood - Dyce Railway Station - Dyce P&R (utilising new bridge)	x	The option would include an extension of the Options 5 and 6 routes to combine with the Option 17 route between Dyce and Westhill (through Kingswells) creating a public transport route between Blackdog – Dyce – Kingswells – Westhill providing a connection between the large residential sites and the key employment areas. Consideration of an extension of the route north of Blackdog, potentially beginning/ending in Ellon, Peterhead or Fraserburgh should also be considered as part of this option. Consideration of the most appropriate location for the bridge crossing over the River Don would be required, taking into account flood risk and the existing Arjo Wiggins Papermill site mill pond and storage areas at the more detailed design stage.	A1
6 & 17	Blackdog - Dubford - Grandhome - Stoneywood - Newhills - Dyce P&R (utilising new bridge)	x		A2
7 & 17	Blackdog - Dubford - Grandhome - Stoneywood - Dyce Railway Station - Dyce P&R (utilising new bridge and new infrastructure)	✓	The option would include an extension of the Options 7 and 8 routes to combine with the Option 17 route between Dyce and Westhill (through Kingswells) creating a public transport route between Blackdog – Dyce – Kingswells – Westhill providing a connection between the large residential sites and the key employment areas. Consideration of an extension of the route north of Blackdog, potentially beginning/ending in Ellon, Peterhead or Fraserburgh should also be considered as part of this option. Consideration of the most appropriate location for the bridge crossing over the River Don would be required at the more detailed design stage, taking into account flood risk and the existing Arjo Wiggins Papermill site mill pond and storage areas. In addition, the routeing of the public transport only link between Dubford and Grandhome would need to be explored to establish a suitable link that avoided/caused minimal impact to the Local Nature Reserve and Local Nature Conservation Site at Scotston Moor.	B1
8 & 17	Blackdog - Dubford - Grandhome - Stoneywood - Newhills - Dyce P&R (utilising new bridge and new infrastructure)	✓		B2
13a &	Dyce P&R - Newhills - Kingswells P&R –	✓	Options 10, 13 and 15 follow the same route between Dyce and Countesswells. However, Option	C1

13b	Countesswells (with further consideration of extension from Countesswells to Chapelton of Elsick via Loriston)		13 is being progressed due to the potential for further exploration of the route south of Countesswells, for which Option 13 utilises the AWPR to route to the Loirston site and then serves the planned P&R at Portlethen on route to the Chapelton of Elsick site. South of Countesswells it is recognised that the more geographically dispersed nature of the development sites may lead to likely difficulties in balancing sufficient demand (for commercial viability) with service journey times that will encourage use of the service. There are also feasibility issues on Baillieswells Road in Bieldside given the current road width constraints and likely widening required, which may be very difficult to accommodate and will require further detailed assessment (including consideration of the potential for a public transport only link to the west between Oldfold Farm and Bieldside to overcome these feasibility issues). Options 13a & 13b are therefore being taken forward but with the caveat of addition work required to explore the potential for the route south of the Countesswells site in more detail.	
14a & 14b	Dyce P&R – Kingswells P&R – Countesswells (with further consideration of extension from Countesswells to Chapelton of Elsick via Loriston)	✓	Options 14 and 16 follow the same route between Dyce and Countesswells (utilising the AWPR between Dyce and Kingswells) and offering a quicker and more direct link between Kingswells and Dyce than Option 13. South of the Countesswells site, the Option 14a & 14b route is identical to that of Option 13a &13b and as noted above, this section of the route is being taken forward but with the caveat of addition work required to explore the potential for the route south of the Countesswells site given feasibility issues within the Bieldside area and the issues in balancing demand with journey times.	C2

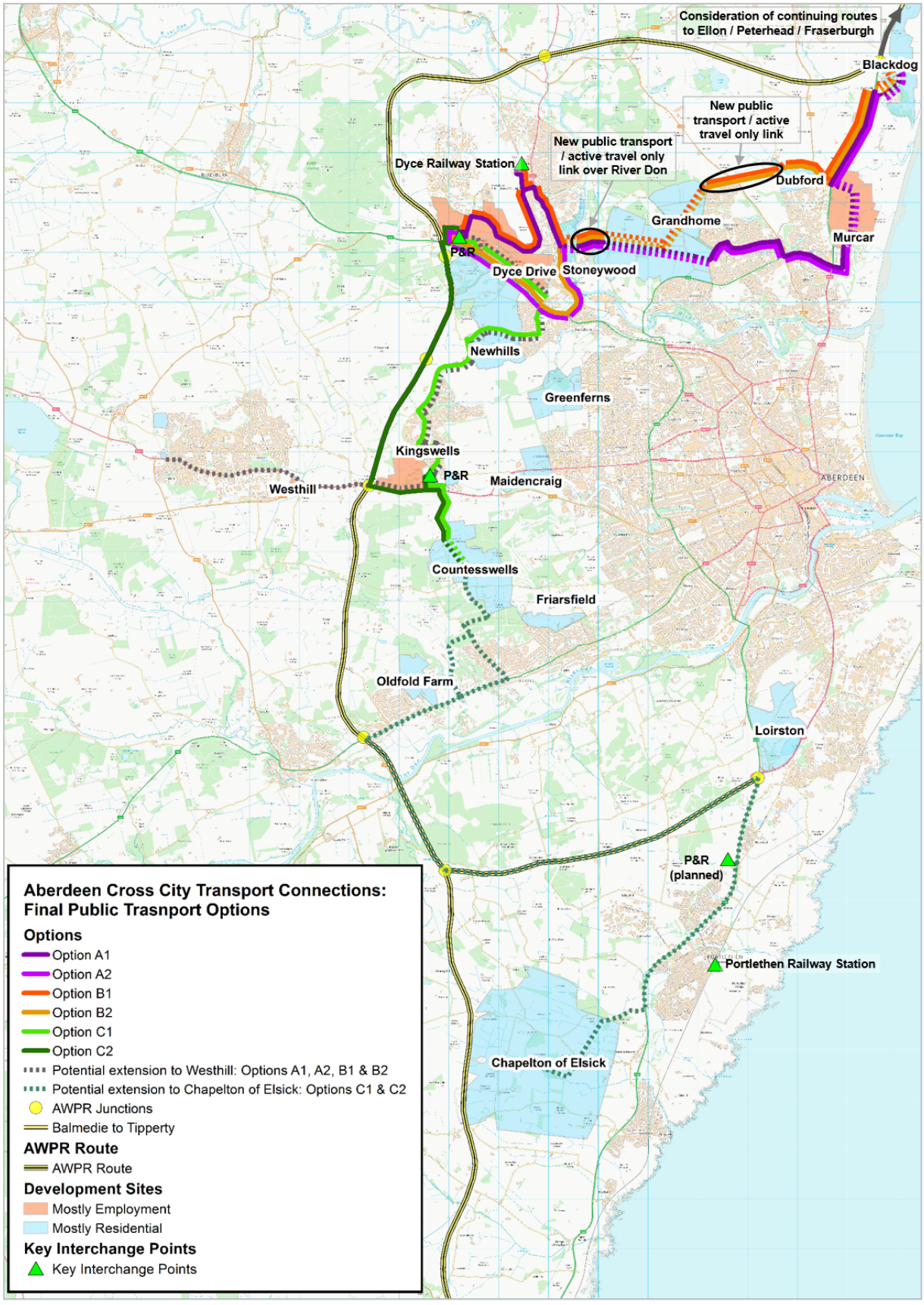

Figure 8: Final Public Transport Options

Active Travel

The appraisal of the active travel options and network highlighted the greater benefits of connections in the north of the study area between Blackdog and Dyce, which would connect the large planned residential area of Grandhome, and additionally those at Stoneywood and Blackdog, with the key employment centres at Dyce and Murcar. In particular, the building of a bridge over the River Don between Grandhome and Stoneywood has the capacity to provide a direct route between the sites, significantly reducing active travel journey time and encouraging sustainable travel.

It is further recommended that additional work could be undertaken to develop the active travel network around Kingswells.

The public transport options will all require a level of subsidy to operate until the development sites are built out such that a critical level of demand is generated for commercial viability, however, the active travel options, if implemented, could provide some 'quick wins' in providing improved accessibility without any need for on-going subsidy.

Key Recommendation

While it is acknowledged that some of the public transport options in both the north and south of the study area have merit for further appraisal, the options in the north (as shown in Figure 8) all utilise a new bridge over the River Don (similar to the key active travel connection recommended between Grandhome and Stoneywood which could be incorporated in any bridge design). The development of this key piece of infrastructure would provide benefits for active travel accessibility in the shorter term and enable the operation of successful public transport services in the medium to longer term. The bridge connection is therefore highlighted as the key element to be considered as the study progresses. Engagement with the developers of the Grandhome and Stoneywood sites, the relevant landowners, and businesses located to the west of the River Don (where the new bridge would be required to 'land') would be worthwhile at an early stage in order to enable buy in to the concept. Furthermore, detailed assessment of the flood risk in this area is also required.