Aberdeen City Region Deal Strategic Transport Appraisal: Pre-Appraisal

Final Report
October 2020

ABERDEEN CITY REGION DEAL:
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Project Name: Aberdeen City Region Deal Strategic Transport Appraisal - Pre-Appraisal
Project No: B2289FAT06
Document Title: Pre-Appraisal Report [Final]
Document No.: 1
Revision: 2
Date: 07/10/2020
Client Name: Transport Scotland, Aberdeen City Council, Aberdeenshire Council, nestrans
Client No: TS/MTRIPS/SER/2016 **Ref:** A18246479
Project Manager: Euan Barr
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File Name: Aberdeen STAG Pre-Appraisal Interim Report.pdf

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Document history and status

Revision	Date	Description	By	Review	Approved
0	06/07/18	First draft for Project Working Group Review	CR SR DB	EB	ST
1	24/08/18	Interim Report	CR SR	EB	EB
2	07/10/20	Final Report, combining Interim and Options Reports into single document	CL	TB	CR

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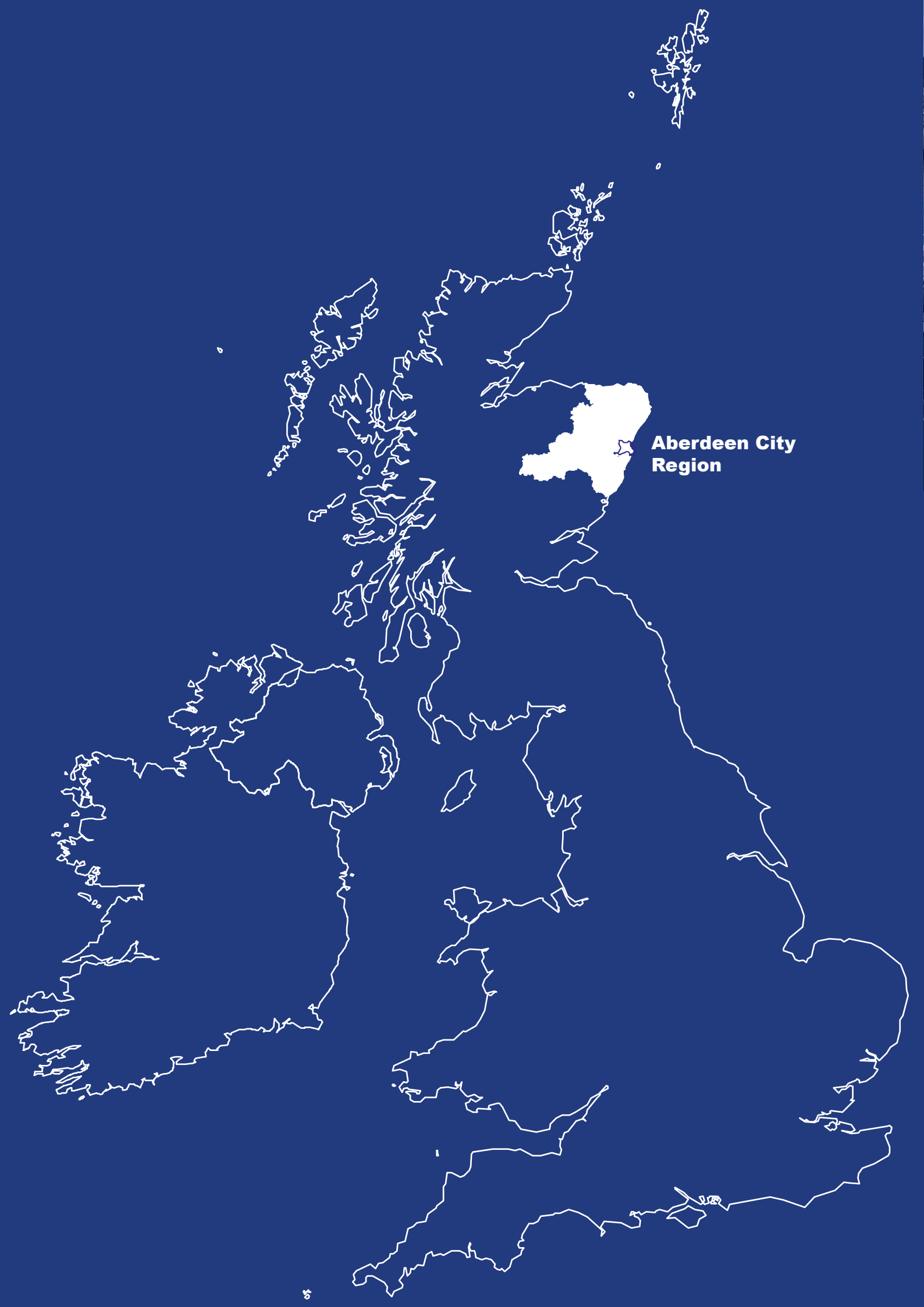

Aberdeen City
Region

01 The Aberdeen City Region Introduction

OVERVIEW

1.1 In November 2016 Aberdeenshire Council, Aberdeen City Council and Opportunity North East successfully agreed a City Region Deal with the UK and Scottish Governments. This deal, worth £826.2 million over a 10-year period, now provides a significant delivery mechanism for initiatives to support sustainable economic growth in the region. The allocation of funds is split between a variety of projects, one of which is a Strategic Transport Appraisal that will take a 20-year strategic view of the transport implications of the investment unlocked by the Aberdeen City Region Deal across all modes, including road and rail.

1.2 The Project Working Group consisting of representatives from Transport Scotland, Department for Transport, NESTRANS, Aberdeen City and Shire Strategic Development Planning Authority, Aberdeen City Council and Aberdeenshire Council, jointly commissioned a Pre-Appraisal Study to be undertaken in accordance with Scottish Transport Appraisal Guidance (STAG) in September 2017.

1.3 This pre-appraisal forms the first part of the Strategic Transport Appraisal that has been undertaken.

BACKGROUND

1.4 The North East of Scotland is one of the most prosperous regions in the UK and retains a high performing economy, despite having faced some challenging times in recent years, primarily due to fluctuating global oil prices. In addition to the opportunities in the oil and gas sector there has been significant investment by the private sector in other strong performing industries. The Aberdeen City Region Deal recognises the opportunity for investment in transport and digital infrastructure to support the planned economic and population growth such that the region can fully realise its economic potential.

1.5 Infrastructure is considered critical to the region's ambition to retain an internationally competitive business environment. The Regional Economic Strategy, upon which much of the City Region Deal agreement is based, emphasises the desire for the region to retain its overall competitiveness whilst securing a long-term economic future, and that infrastructure is essential to this. A key element for the Strategy:

> "is to invest in an infrastructure that caters for the needs of a high performing international city region economy and a growing hinterland – roads with capacity to cope with the demands of business; extensive air and sea links, digital connectivity to develop competitive business, and a competitive and accessible public transport system."

1.6 Four key programmes were established through the strategy to assist in achieving the vision, including:

- **Investment in Infrastructure;**
- **Innovation;**
- **Inclusive Economic Growth; and**
- **Internationalism**

1.7 The Aberdeen City Region Deal acts in part as a delivery mechanism for the Regional Economic Strategy, and has been designed with six key project areas at its core, towards which funding will be directed to enable the economy of the region to continue to develop and grow. These projects are:

- **The Oil and Gas Technology Centre;**
- **Bio-Therapeutic Hub for Innovation;**
- **Agri-Food & Nutrition Hub for Innovation;**
- **Digital Infrastructure;**
- **Aberdeen Harbour Expansion; and**
- **Strategic Transport Appraisal.**

1.8 The City Region Deal committed its partners to support the development of a **Strategic Transport Appraisal** to take a long-term view of the key transport requirements of the region and to assist in the delivery of the four key aims and inform the key areas of infrastructure investment necessary to facilitate the aims and vision of the Regional Economic Strategy. The final transport appraisal will take a 20-year strategic view (up to year 2040) across all modes including road and rail and will be based on Scottish Transport Appraisal Guidance (STAG).

PURPOSE & AIMS OF THIS STUDY

1.9 This study forms the **Pre-Appraisal stage** of the Aberdeen City Region Deal Strategic Transport Appraisal. As such it is a multi-modal, objective-led, study that identifies key themes to drive the future direction of action, and develops Transport Planning Objectives upon which to appraise the likely effectiveness of future interventions in supporting the aspirations of the Regional Transport Strategy. The study does, however, differ from a traditional STAG Pre-Appraisal as it does not proceed to the option generation stage.

THE SPECIFIC AIMS OF THE STUDY ARE:

- Identify cross modal problems and opportunities with the Aberdeen City Region strategic transport provision;
- Identify key appraisal themes around which further appraisal work should be structured; and
- Develop Transport Planning Objectives for the Aberdeen City Region to support future appraisal work and the development of the Regional Transport Strategy.

1.10 An extension to the study was commissioned in October 2018, in which Jacobs was tasked with 'collating and generating options and undertaking option sifting' and to produce a final list of recommended options for consideration by the Client Team. This Option Generation and Sifting Report is an addendum to this Interim Report; and together, comprises the full Aberdeen City Region Deal Strategic Transport Appraisal: Pre-Appraisal report.

OTHER DOCUMENTATION

1.11 This document forms the **Aberdeen City Region Deal Strategic Transport Pre-Appraisal, June 2018**. Its main purpose is to document the process followed and present the analysis and findings from the STAG Pre-Appraisal stage. The document is also further supported by other associated reports and technical notes, generated throughout the study, that form key chapters within this report including:

- Aberdeen Stakeholder Engagement Report, March 2018;
- Aberdeen City Region Deal Strategic Transport Appraisal Key Themes Explanation Note, July 2018;
- Aberdeen City Region Deal Strategic Transport Appraisal Pre-Appraisal Interim Findings, June 2018; and
- Aberdeen City Region Deal Strategic Transport Appraisal Pre-Appraisal ArcStory, July 2018.

REPORT STRUCTURE

1.12 Following this introductory chapter, the remainder of the report is structured as follows:

Chapter 2: Methodology

Chapter 3: Setting the Scene - Geographic, Socio-Economic & Transport Context

Chapter 4: Stakeholder Engagement

Chapter 5: Analysis of Problems and Opportunities

Chapter 6: Theme Setting

Chapter 7: Setting the Transport Planning Objectives

Chapter 8: Conclusions and Next Steps

Chapter 9: Options Report and Next Steps

02 Methodology

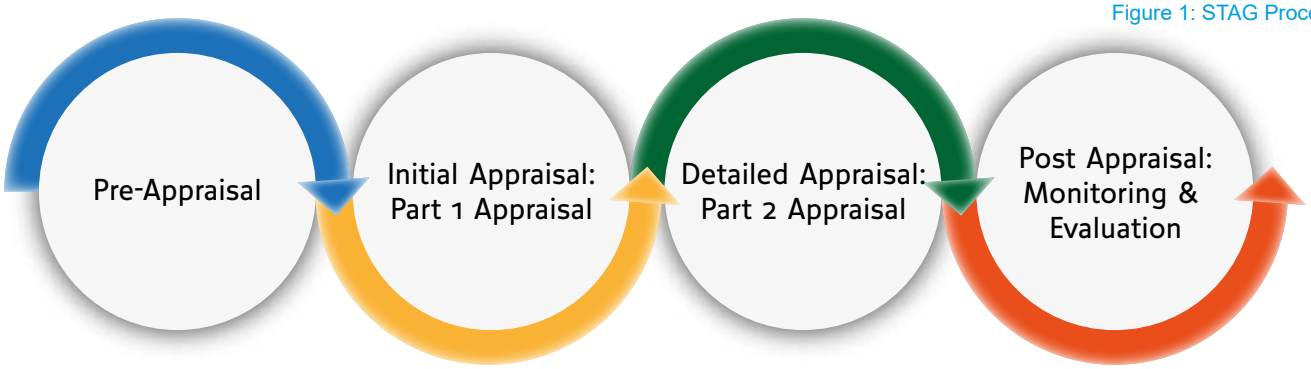
Introduction

STAG

2.1 STAG is Transport Scotland's official appraisal guidance for all transport investment proposals seeking government sign-off or funding. STAG supports the Scottish Government's purpose, which is to *"focus Government and public services on creating a more successful country, with opportunities for all of Scotland to flourish, through increasing sustainable economic growth"* by providing a clear framework to assess evidence-based transport problems, issues, constraints and opportunities including objective-led analysis that can be consistently applied in all transport appraisal contexts.

The STAG process consists of four key phases as outlined in the diagram below.

Figure 1: STAG Process



2.2 This study focuses on phase one of the STAG process, the Pre-Appraisal. The Pre-Appraisal stage involves data analysis and stakeholder engagement to provide a baseline for the study area and to identify any transport related problems and opportunities. The Pre-Appraisal stage is critical to the overall STAG process as it sets the rationale for undertaking the appraisal and provides the basis for the setting of Transport Planning Objectives (TPOs) and any subsequent generation of options in the future.

There are a number of key principles which underpin STAG, those of relevance to this study include:

Robust Pre-Appraisal provides the foundation to the whole process since it promotes the analysis of opportunities during pre-appraisal in parallel to the identification of transport problems.

Objective-led rather than solutions-led which avoids pre-conceived solutions being brought forward without considering other options which may meet the identified problems or opportunities.

Does not prioritise between options but rather it is an aid to decision makers to allow them to make informed choices. STAG may provide an initial rationale for investment and it is important that the STAG outcomes are revisited as the Business Case for an intervention develops.

2.3 Although this study has been undertaken in line with STAG principles, it differs slightly from the traditional STAG Pre-Appraisal template as it does not proceed to the option generation and sifting stage after establishing the Transport Planning Objectives.

KEY TASKS

2.4 Six key tasks were undertaken as part of this study, as outlined in the diagram below, with the outcomes of each forming the basis for the subsequent chapters of this document.

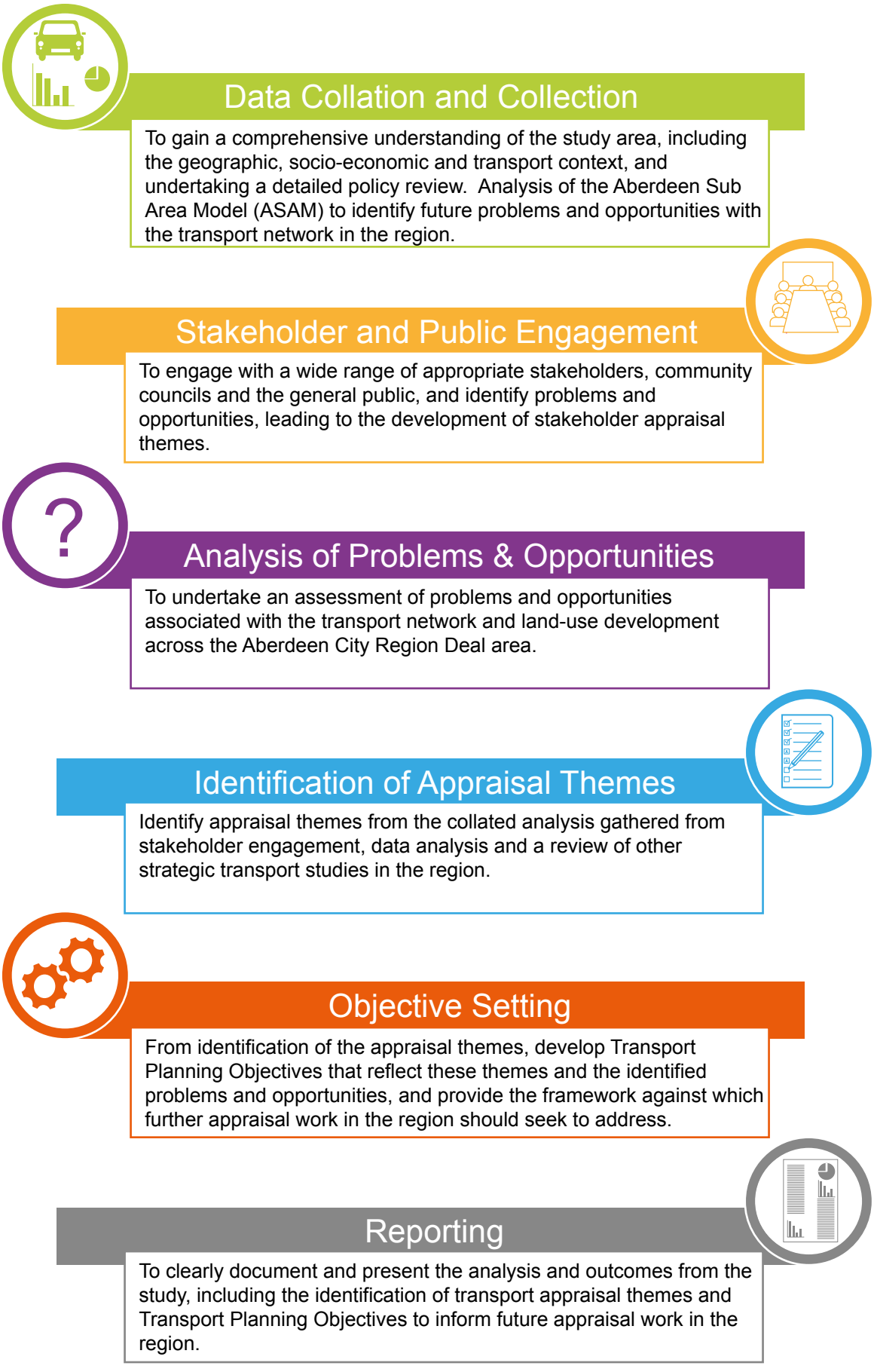


Figure 2: Key Tasks

GEOSPATIAL TOOL

2.5 A key element of the data analysis section of this study is a multi-layered geospatial GIS tool comprising of a range of demographic, economic, and transport datasets. The tool utilised several of the socio-economic layers to undertake a benchmarking exercise to determine the level of performance of an area. These outputs were then combined with the traffic and transport datasets to assist in the identification of problems and opportunities in the Aberdeen City Region.
Data for Aberdeen City and Aberdeenshire was benchmarked at two different levels:

- As part of the **online tool**, the benchmarking for Aberdeen City was against a City Average (CA) consisting of the City of Glasgow, City of Edinburgh and Dundee City, whilst Aberdeenshire is compared against a Scottish Rural Average (SRA) consisting of Angus, Argyll & Bute, Dumfries & Galloway, Highland and the Scottish Borders; and

- As part of the **detailed analysis presented within this report** (Chapter 3), the infographics illustrate this benchmarking at the individual city level for Aberdeen and against the SRA and National levels for Aberdeenshire.

2.6 The analysis tool also acted as a mechanism for validating the problems and opportunities identified through the stakeholder engagement process as well as supporting the development of appraisal themes and the subsequent setting of Transport Planning Objectives.

The diagram below highlights some of the key layers and datasets within the geospatial tool.

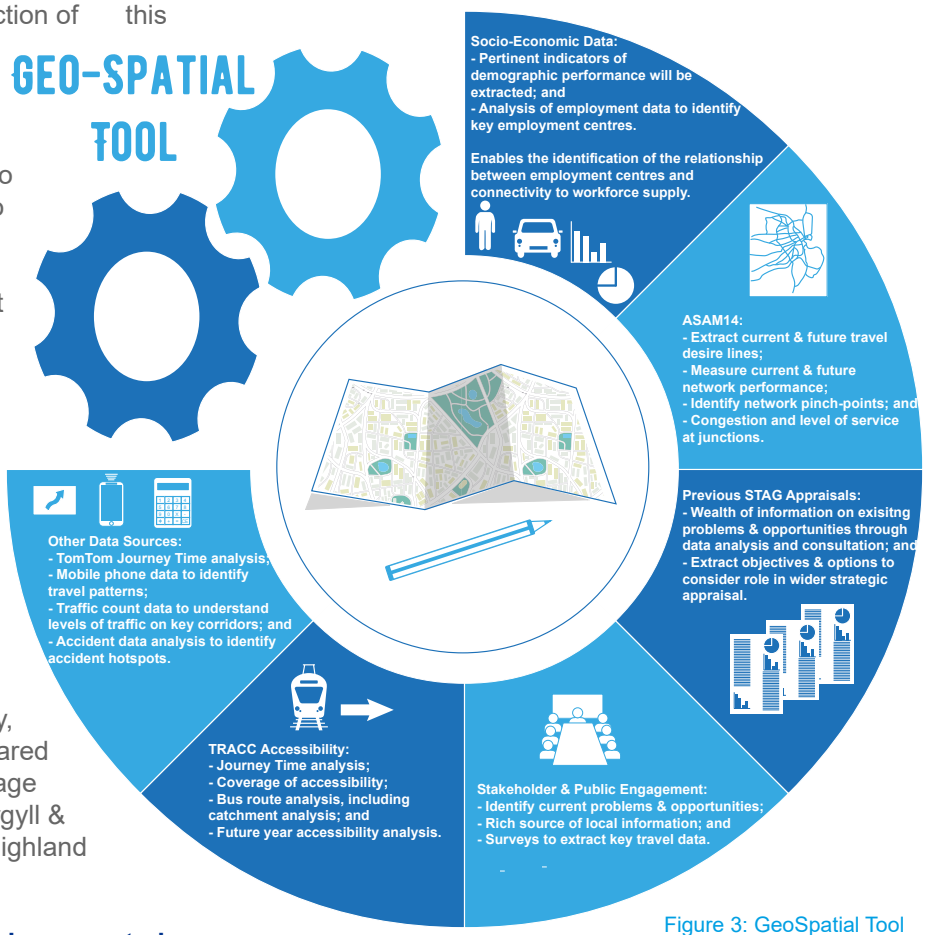


Figure 3: GeoSpatial Tool

2.7 Several of the key outputs from the geospatial tool have been integrated with a webmap viewing application, ArcStory, which provides a visual presentation of the evidence base in a theme orientated storyboard. The application provides an interactive element to enable decision makers to explore each of the geospatial data elements behind the identified appraisal themes and subsequent TPO development, and to enable them to make informed decisions for future appraisal work based on a robust evidence base.

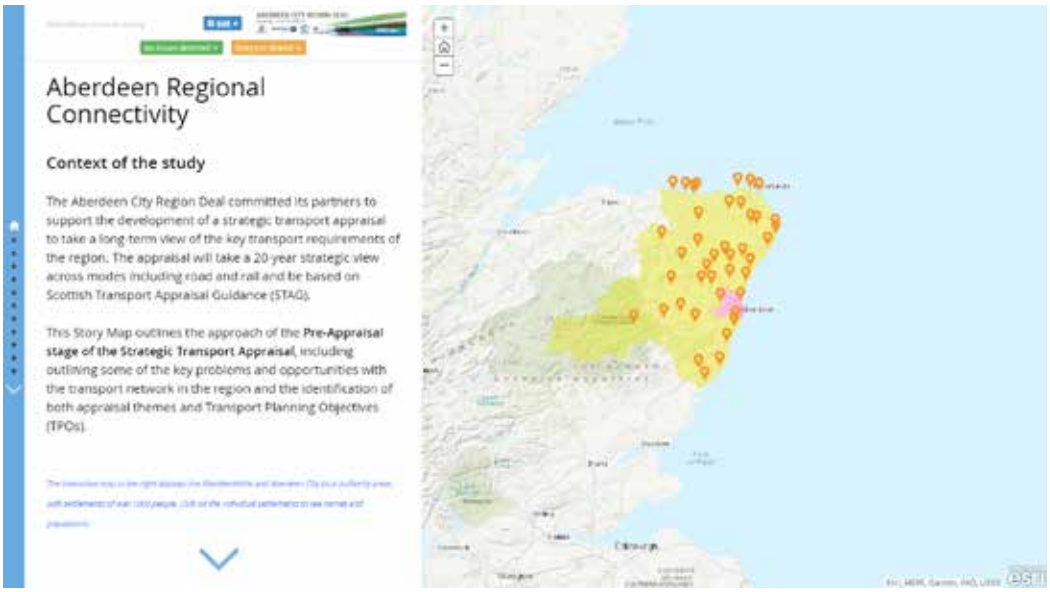


Figure 4: Online ArcStory

Aberdeen Sub Area Model (ASAM)

2.8 The Aberdeen Sub Area Model (ASAM) is a strategic multi-modal transport model covering the Aberdeen City and Aberdeenshire council areas and cross boundary movements into Moray, Highland, Perth and Kinross and Angus local authority areas. At its core, the model consists of three elements; the demand model, the road model and the public transport model, reflecting 2014 transport conditions. ASAM14 is capable of forecasting changes in travel demand and travel patterns over time, identifying potential impacts of new infrastructure and land-use developments, and assessing the benefits of proposed transport interventions and policies.

2.9 Model outputs from a 2017 Baseline, representing 2017 traffic conditions with the AWPR operational and a 2037 forecast have been extracted and analysed for input into this study, in particular for identification of future year problems and opportunities associated with the transport network and land-use development. These inputs are discussed later in this document.

The images right and overleaf illustrate the coverage of the ASAM model network.

Figure 5: ASAM network Aberdeen

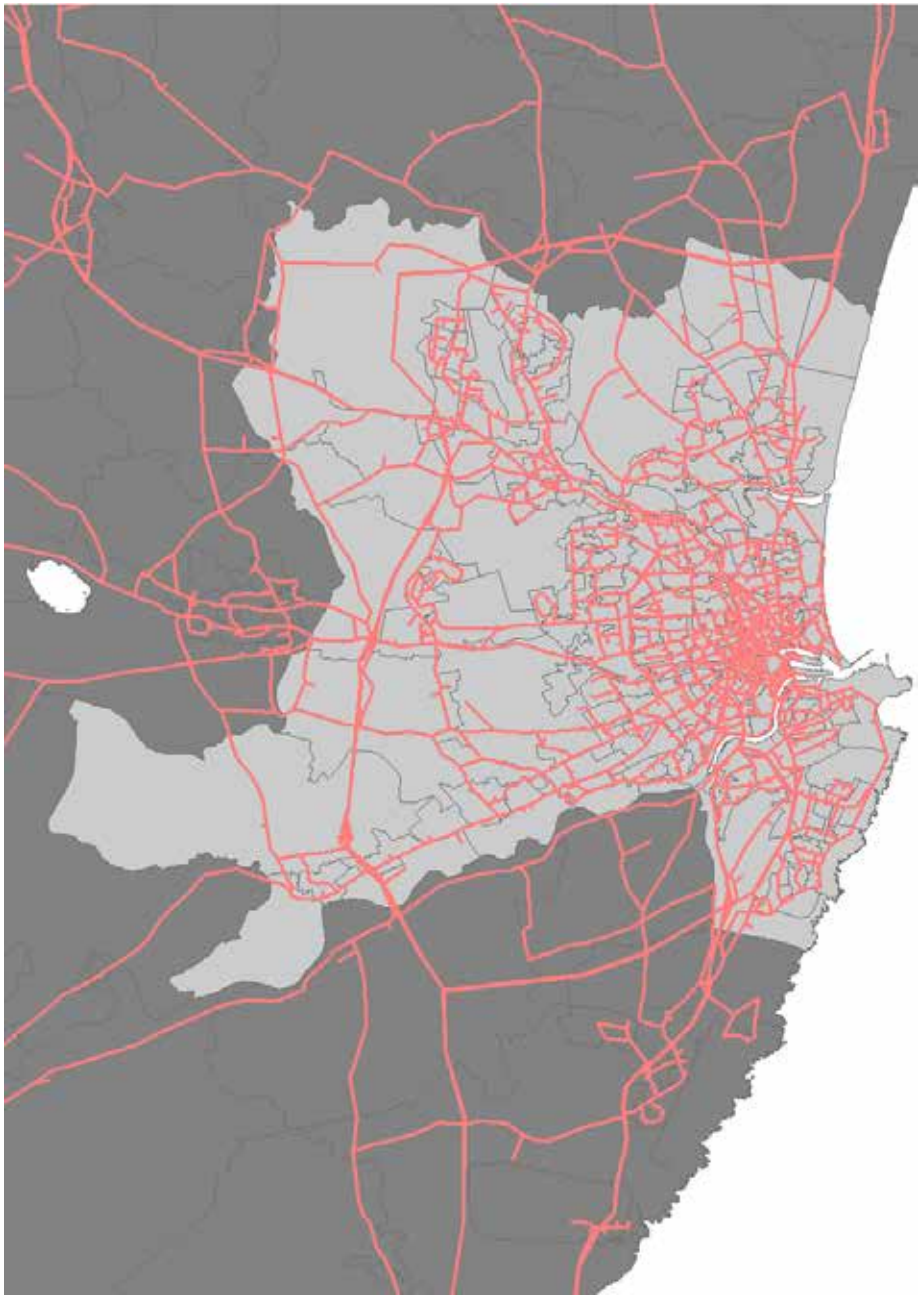
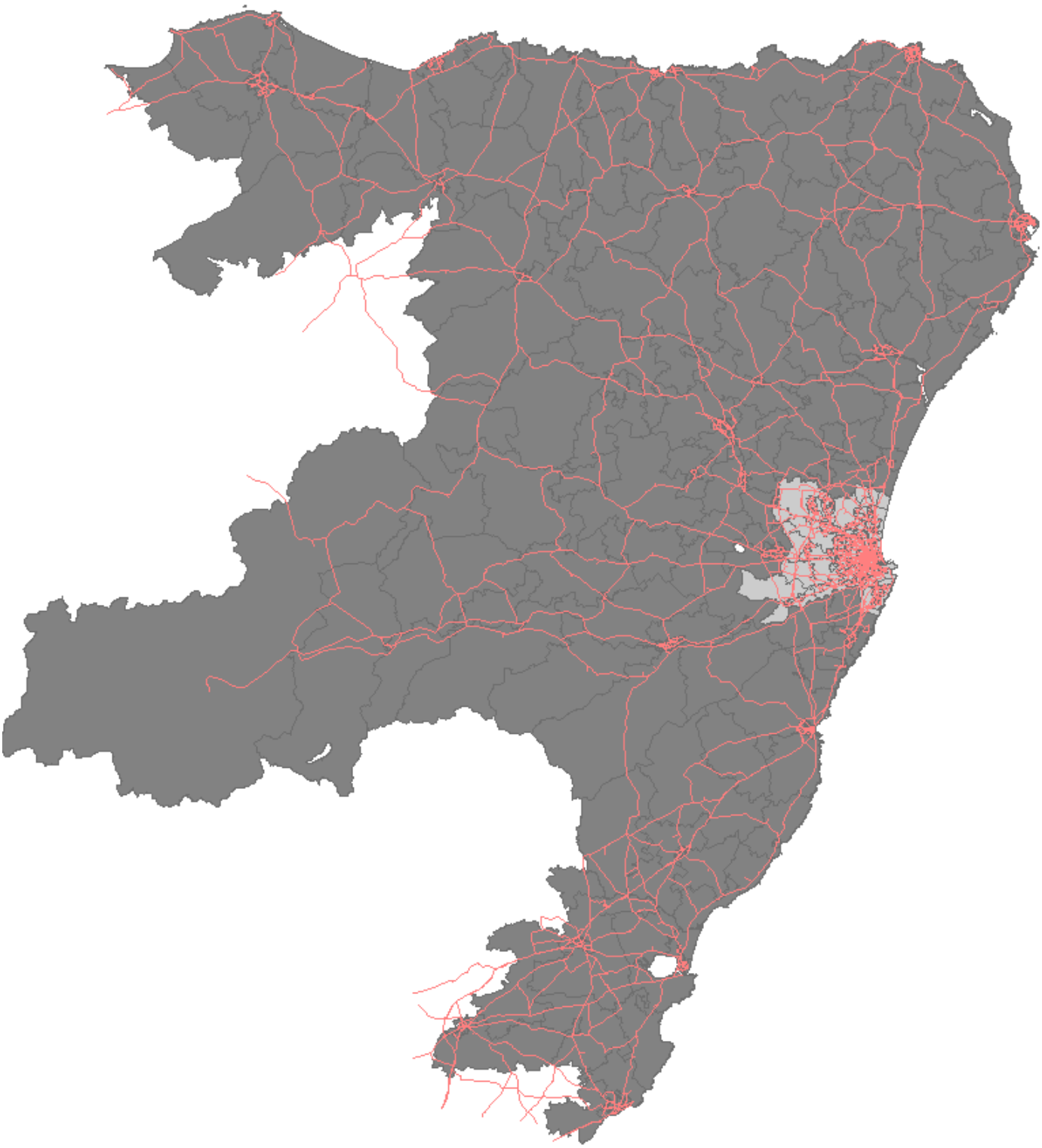


Figure 6: ASAM Full Network Coverage



03 Setting the scene

Data

DATA CONSIDERATIONS

3.1 This chapter summarises the geographic, socio-economic and transport contexts of the Aberdeen City Region. Data is core to the understanding of these contexts and as such it is essential at the outset to acknowledge certain limitations and considerations that should be borne in mind when interpreting the analysis.

3.2 **Firstly**, datasets are made available at different levels of geography due to the need to conform with privacy laws. Figure 7 below illustrates the different levels of geography and the datasets available at those levels. For application within the geospatial tool, a decision was made to aggregate much of the available data to the datazone[1] level where possible to ensure consistency across the majority of datasets.

3.3 **Secondly**, in addition to the data being available at different levels of geography, the source year also differs across the datasets. For example, many of the socio-economic datasets are derived from the 2011 Census, which in addition to limitations on the date of the data, is not updated as regularly as other datasets such as employment data from Business Register and Employment Survey (BRES). Analysis of the datasets, therefore, has largely represented 2011 as the baseline, and where more recent data is available comparisons have been drawn between these years to determine the level of change in trends.

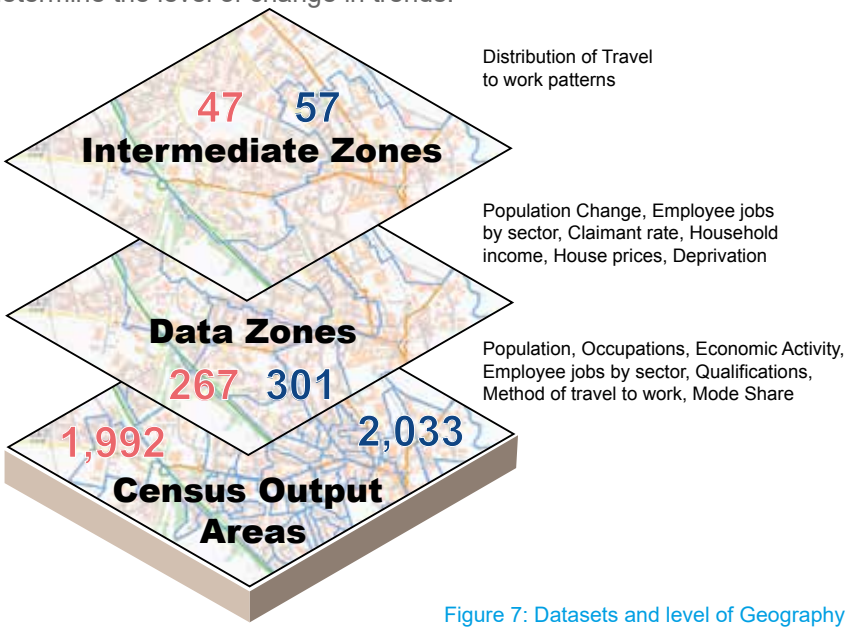


Figure 7: Datasets and level of Geography

3.4 **Thirdly**, it is also important to note that when examining the data trends from the 2011 Census, that this data does not reflect any land-use development and infrastructure changes that have been implemented in the region since 2011. For example, the opening of the Diamond Bridge and uptake of office space at business parks such as the Aberdeen International Business Park and PrimeFour Business Park.

3.5 As explained previously in Chapter 2, the presentation of the data analysis has been compared with the Scottish National Average, as well as comparing Aberdeen City to Dundee, Edinburgh and Glasgow and comparing Aberdeenshire against a Scottish Rural Average. The key below is used throughout the presentation of the data analysis and can be found at the bottom of each facing page. Further supporting information on the data analysis can be found in **Appendix A**.

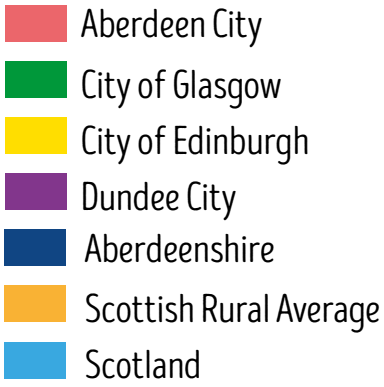


Figure 8: Infographics Key

[1] Datazones are groups of 2011 Census output areas and have, on average, populations of between 500 and 1,000 household residents. They nest within local authority boundaries and where possible, they have been constructed to respect physical boundaries and natural communities. As far as possible, they have a regular shape and contain households with similar social characteristics.

The Aberdeen City Region

Geography

3.6 The Aberdeen City Region consists of a mix of urban and rural areas in the north-east of Scotland comprising of the local authority areas of Aberdeen City (186km^2) with a population of 229,840 in 2016 and Aberdeenshire (6,313km^2) with a population of 262,190 in 2016. The landscape of the region is a varied one; at the core is the urban centre of Aberdeen City, Scotland's third largest city which provides the bulk of employment within the region. This is surrounded by the rugged coastline along the North Sea in the east, the agricultural lowlands in the heart of the region and the mountains of the Cairngorms National Park in the west. Several larger towns located within Aberdeenshire, such as Peterhead, Fraserburgh, Inverurie, Westhill, Stonehaven and Ellon perform key roles in housing much of the region's population as well as supporting its prosperity with a wide range of businesses.

3.7 In the past, the physical environment of the region shaped the focus of the economy on the traditional sectors of agriculture, forestry, fishing and mining of granite; the latter bestowing Aberdeen City with the moniker of the Granite City. However, in the early 1970s, the focus of the economy fundamentally shifted with the initial exploration and the first extraction of oil from the oil fields in the North Sea. This major shift in the focus of the economy gave new impetus to the labour market, with an abundance of highly-skilled and highly-paid jobs leading to a rapid increase in population, expansion of the urban footprint of Aberdeen City and the increased growth of several larger towns in Aberdeenshire, such as those mentioned previously.

3.8 The region has benefited greatly from its geographic proximity to both the oil fields and prime fishing grounds of the North Sea. Aberdeen Harbour has come to be known as Europe's premier marine support centre for the oil and gas industry. Further expansion of the harbour into the Bay of Nigg is now under construction, with the new harbour having deep water berthing capabilities suitable for larger vessels. Peterhead harbour has also recently undertaken an expansion, and is a key facility for larger subsea support vessels. Both Fraserburgh and Peterhead harbours are also particularly important for the fishing and fish processing sectors, assisting in driving Aberdeenshire's economy.

3.9 Connectivity to the rest of Scotland and beyond from the Aberdeen City Region is provided by road, rail, sea and air.

3.10 Rail connectivity to the Central Belt is serviced by the East Coast Mainline, while connections to the north west of Scotland are provided by the Aberdeen to Inverness rail line, which also stops at Dyce station to provide further interchange opportunities to Aberdeen International Airport by bus and taxi.

3.11 Aberdeen International Airport is located approximately seven miles north-west of Aberdeen City Centre and facilitates the movement of 75 flights arriving and departing daily. In mid-2016 an investment project commenced at the airport, which by the end of the two-year project (summer 2018) will see the airport terminal increase in size by 50% providing comprehensive passenger facilities. The airport is also home to the busiest heliport in the UK, with four terminals dedicated to North Sea helicopter operations.

3.12 The primary road network of the Aberdeen City Region is formed by radial routes from Aberdeen City Centre, with connectivity to the central belt provided by the A90 trunk road to the south, connectivity to Inverness by the A96 trunk road to the north-west, and Peterhead and Fraserburgh to the north via a continuation of the A90. The largest settlements can be found along these road corridors in addition to the A93 corridor through to Braemar in the south-west, A944 through Westhill to Alford and A947 through Dyce to Banff and Macduff. In 2018 the Aberdeen Western Peripheral Route (AWPR) will be added to the primary road network. The road combines a bypass for long-distance traffic with peripheral, shorter journeys, with the aim of removing traffic from the city, as well as rural and urban local roads. Once operational the AWPR will become the A90 trunk road and the existing trunk road will be detrunked to become the A92.

3.13 Investment in transport infrastructure in the Aberdeen City Region has historically struggled to keep pace with the more rapid growth in households and key employment sectors as acknowledged in the Regional Economic Strategy (December, 2015) **"Our success has been driven largely by the opportunities in the oil and gas sector, and by a number of other strong performing sectors, and significant investment by the private sector in these. However, the level of investment in the public infrastructure has struggled to keep pace with the demands being placed on it by a fast growing economy and industry investment."** However, recent investment from the Scottish Government and both Aberdeen City and Aberdeenshire councils in the region has seen the construction of several transport interventions with several more due for completion in the near future including:

- The completion of the Diamond Bridge (2016), providing a 3rd crossing over the River Don, in the north of Aberdeen City;
- Revolution in Rail Programme, introducing a

new half hourly ‘cross rail’ service between Inverurie and Montrose stopping at all stations, aimed at increasing and improving connectivity and accessibility;

- Aberdeen to Inverness Rail Improvement, providing double tracking between Aberdeen and Inverurie to increase capacity and also provide capacity for a new station at Kintore;
- Craibstone Park and Ride opened in January 2017, providing 1,000 parking spaces to enable people to park for free and choose which mode of environmentally-friendly transport to use for the remainder of their journey;
- Dyce Drive link road which opened in September 2016, consisting of a three-lane carriageway commissioned to relieve pressure on the busy A96 Aberdeen to Inverness road;
- The Aberdeen Western Peripheral Route (AWPR) which will be one of the largest infrastructure investments in Scotland when it opens in 2018. The project is being delivered as part of Transport Scotland’s commitment to improving travel in the north-east; and
- The dualling of the A96 between Aberdeen and Inverness, which will deliver a number of benefits including improved journey time and reliability, delivering economic growth, improved connectivity and reduce the rate and severity of accidents.

The Aberdeen City Region

Setting the context

3.14 Since the early 1970s and the shift in focus of the Aberdeen City Region's economy from more traditional industries to oil and gas, the economy has become heavily dependent on this sector. The proximity of the region to the North Sea oil fields established the area as a highly attractive location for businesses to situate themselves, leading to Aberdeen being referred to as the "Oil Capital of Europe". Over the years, both the working population and businesses located in the region have established themselves globally as being at the forefront of oil extraction and exploration, mainly due to the technological and operational difficulties associated with extracting oil from the North Sea. The oil industry, however, is susceptible to volatile fluctuations in oil prices. The fall in the price of oil has positive effects for oil consumers but negative effects for oil producers, and the supporting supply chain. These mixed effects impact the national, regional and local economies, which is often magnified in the Aberdeen City Region due to the dominance of the industry over all other industries.

3.15 A reduction in the market price of oil and the subsequent decrease in fuel costs, in addition to lower rates of inflation, increases household discretionary income and thus spend. In contrast, a reduction in oil prices, also generally leads to producers seeking methods of minimising costs such as curtailing further activity into areas such as production and exploration and reducing the workforce. In the Aberdeen City Region, this has generally been possible due to a large proportion of employees being on short term contractor contracts which are dictated by market activity.

3.16 In recent years the oil industry has been in a state of uncertainty, with the price per barrel dropping from a high of $143.95 in July 2008 to a low of $26.01 in January 2016. As a consequence of this significant reduction in the price per barrel, the oil industry reacted initially by reducing costs through efficiencies including redundancies. Since 2014, 150,000 jobs in the UK oil industry have been lost, with 60,000 lost in 2016 alone. Of the current 302,200 jobs in the UK oil industry, 38% are Scottish based jobs. The effects of the oil price crash in the Aberdeen City Region were significant, with the economy suffering a large downturn and increased unemployment. The Aberdeen & Grampian Chamber of Commerce produced a report in 2017 that highlighted that 54% of oil related businesses in the Aberdeen City Region had changed the overall structure of their organisations over the six-month period to the end of 2016. For those employees that lost their jobs due to this restructuring, between 35% (2013) and 45% (2016) left the oil industry completely.

3.17 However, through this economic turbulence, the region has demonstrated its' resilience and looks to be recovering to a stronger position through recent efficiencies and technological advances in the oil industry, positive gains in the price of a barrel of oil to an approximate value of $76.00 (May 2018 average), and support from further diversification of the economy, particularly in the food and drink, renewables and tourism sectors (as discussed later in this chapter). If sustained, this will establish a solid foundation on which to build the future aspirations and aims of the Regional Economic Strategy. The recent significant public sector investment into large scale transport infrastructure improvements are of course key components to unlock further growth in the region. It will be important going forward that the transport system continues to match the demands of the accelerating economic growth in the region.

Figure 9: Daily Oil Prices (May 2018) Source: Federal Reserve Bank St. Louis 2018

The Aberdeen City Region

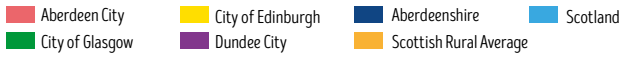
Demography

3.18 Since the rapid rise of the oil industry in the North Sea, the Aberdeen City Region has seen its population grow by 35% from 1971 to 2017 (Figure 10). Between 2001 and 2016, the population[2] of Aberdeen City increased from 211,910 to 222,460 (8.5%), while Aberdeenshire grew by almost double this figure at 15.5% (226,940 to 261,800). Both growth rates outstripped that of the Scottish national profile at 6.7% (5.06 million to 5.4 million), with only the City of Edinburgh showing a similar level of growth at 13%, from 449,020 to 513,210.

3.19 Recent National Records of Scotland (NRS) projections[3] have indicated that over the next 10 years, to 2026, both authorities are likely to see their populations grow by a further 3.2% and 7.1% respectively. Across the local authorities in Scotland, the projected population growth rate of Aberdeenshire is the 5th highest. Of the projected population growth in the region, Aberdeen City's growth will mostly be driven as a consequence of natural change (births and deaths), whilst Aberdeenshire's is more intrinsically linked to an increase in net migration.

3.20 Although an increase in population can be viewed as a positive for the region, it is important that this growth occurs in the age categories from which the region can best benefit. From analysis of the NRS projections, the following key trends are noteworthy:

- In 2017, Aberdeen City had a higher proportion in the working age category (70%) than the Scottish national rate of 65%, which is consistent with the other comparator cities, whereas Aberdeenshire with 63% had a slightly lower proportion compared to the national rate but is greater than the Scottish Rural Average in this category[4] (Figure 11);



- Between 2011 and 2017, Aberdeenshire demonstrated a considerable increase in the over 65s category from 41,100 to 48,806 (16%) compared to a lower growth rate experienced by both Aberdeen City 10% (32,200 to 35,292) and the Scottish national figure 11% (from 896,400 to 1,012,567); and

- Of the projected population growth in the region from 2016 to 2026[3], Aberdeen City is likely to experience the largest growth occurring in the 0-15 years range (6.7%), and aged 75 and above (15.5%). Aberdeenshire, however, will likely experience its largest growth in both the pensionable age category (7.7%) and aged 75 and above (40.5%), which could be linked to the net migration of retirees attracted to relocating to the quality of life in rural Aberdeenshire.

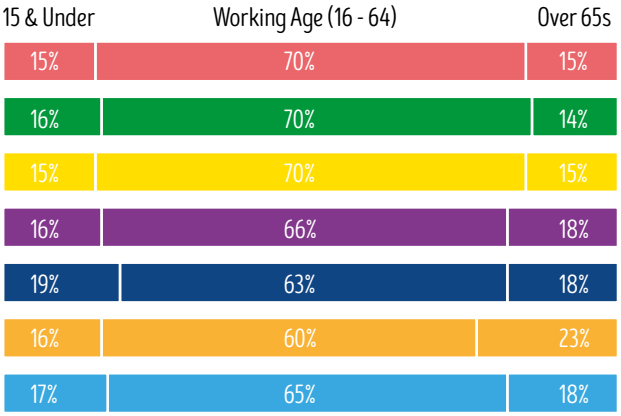
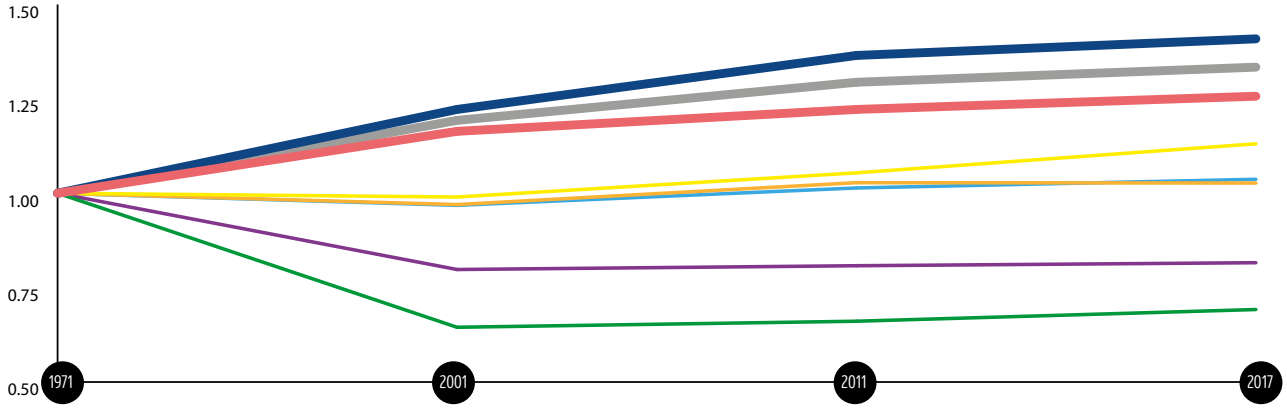


Figure 11: Population Age Category Source: NOMIS 2016

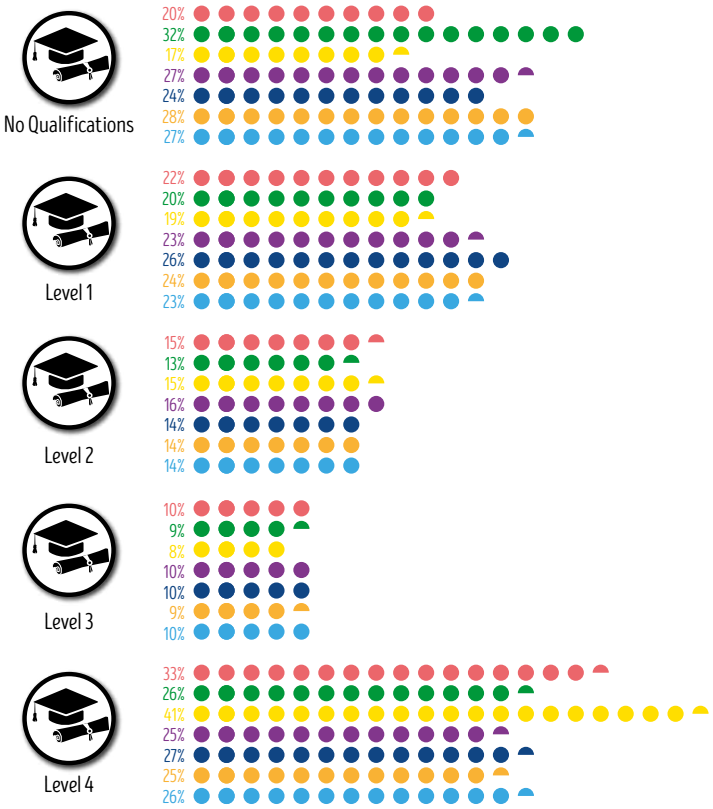
Figure 10: Population Growth (Indexed to 1971 [1971=100]) Source: NOMIS 2016



[2] Office for National Statistics (NOMIS) 2016
[3] https://www.nrscotland.gov.uk/ (March 2018)
[4] NOMIS 2016

3.21 With the region's close ties to the oil, gas and related industries, there is a requirement for a highly skilled workforce to continue to attract future investment in the region's economy and promote the region's competitiveness. In 2016, both Aberdeen City and Aberdeenshire populations had academic attainment levels[5] for NVQ3 and above at 43% and 37% respectively, higher than the national rate at 36% (Figure 12). Both authorities demonstrate that they have a highly qualified population, which is attractive to businesses choosing to locate in or expand their current base within the Aberdeen City Region.

Figure 12: Level of Qualifications Source: Census 2011



3.22 Since the steady recovery of oil prices from the end of 2016, the residential housing market has also started to recover, with both house prices and the number of transactions increasing. Since 2011, the average house price in Aberdeen and Aberdeenshire has increased by 9% (£192,384 to £210,428) and 3% (£210,272 to £216,351) respectively (Figure 13). This increase, although positive, is lower than the Scottish National trend at 11% and below the Glasgow, Edinburgh and Dundee property markets[6]. The second-hand property market has been the main driver behind the resurgence as new house building activity fell by approximately 13% over the course of 2017. The increase in transactions has been centred around the areas of Bieldside, Cults and Milltimber in Aberdeen City; and Portlethen, Westhill and Banchory in Aberdeenshire.

The relocation to these sub-urban locations has mainly been fuelled by a combination of a change in purchasing behaviours of first-time buyers towards semi-detached properties, and that properties have become more affordable as a consequence of the oil price crash. Subsequently this has led to an increase in the availability of housing stock in Aberdeen City and thus the reduction in overall house sales.[7]. In the period 2011 to 2017, the number of house sales fell from 3,520 in 2011 to 1,807 in 2017 in Aberdeen City, while Aberdeenshire exhibited a 7% increase in the number of sales[6] (Figure 14).

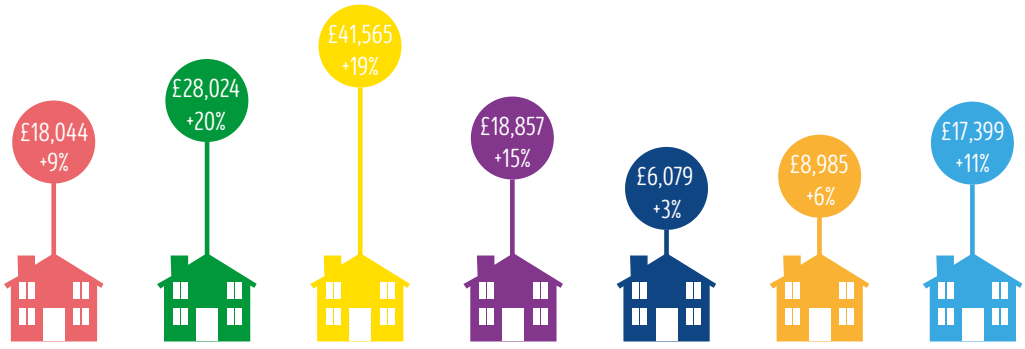


Figure 13: Change in Average House Prices (2011-2017) Source: Scottish Government Statistics 2017

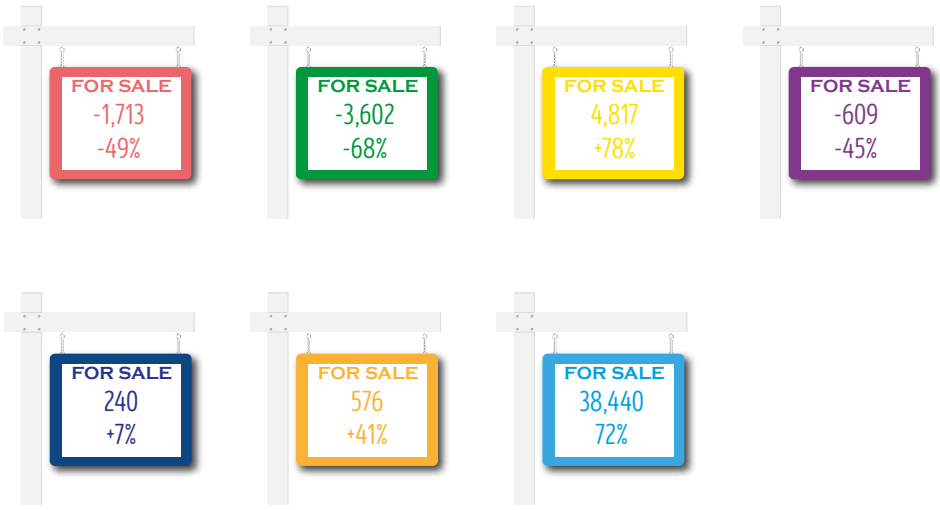


Figure 14: Change in Average House Sales (2011-2017) Source: Scottish Government Statistics 2017

[5] 2011 Census
[6] Scottish Government Statistics, 2018
[7] North East Scotland's Residential Property Market – Spotlight Winter 2017, savills

3.23 These trends in house prices and the number of sales highlights the demand for residing in Aberdeenshire, indicating that this area is an attractive place in which to reside. This is further supported from analysis of the council tax bands (Figure 15), with Aberdeenshire having the highest proportion of properties in the highest tax bands of F-H, 2% higher than Edinburgh and 10% higher than the national average[8]. Aberdeenshire also has the lowest number of zones classed within the 20% most deprived in Scotland (Figure 16) with a proportion of only 2% of its overall constituent zones[9]. Aberdeen City also demonstrates positive trends in terms of council tax banding (15% F-H) and levels of deprivation (8%), although at a lower rate than that of Aberdeenshire.

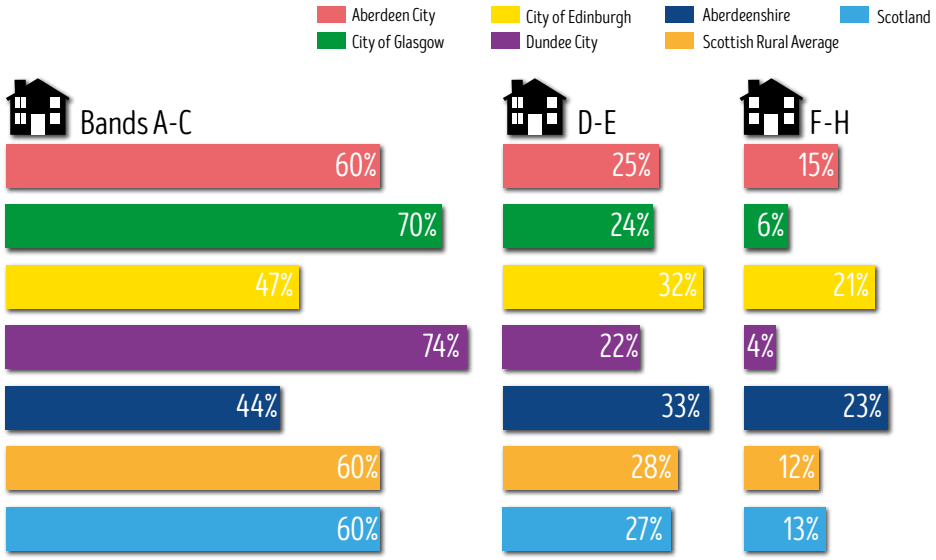


Figure 15: % Properties in Council Tax Bands Source: Scottish Government Statistics 2017

3.24 Car availability is often viewed as an indication of the level of wealth of an area and can often point towards the availability and connectivity of public transport in an area, for example, high car mode share in rural areas. As expected from the evidence on house price levels, car availability is significantly higher in Aberdeenshire than all other comparator areas, in particular, for households with two or more cars available, which is 19% higher than the national average and 13% higher than the Scottish Rural Average[10] (Figure 17). Aberdeen City also has a high level of car availability with higher availability rates than Edinburgh, Glasgow and Dundee Cities for households with access to two and three or more cars. It is also important to note, however, that over a third of Aberdeen City residents have no access to a car which stresses the importance of walking, cycling and public transport in the region.

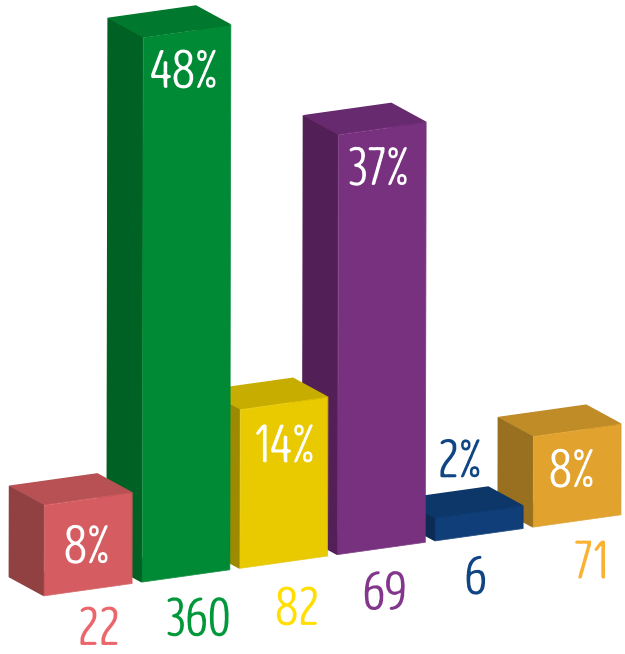
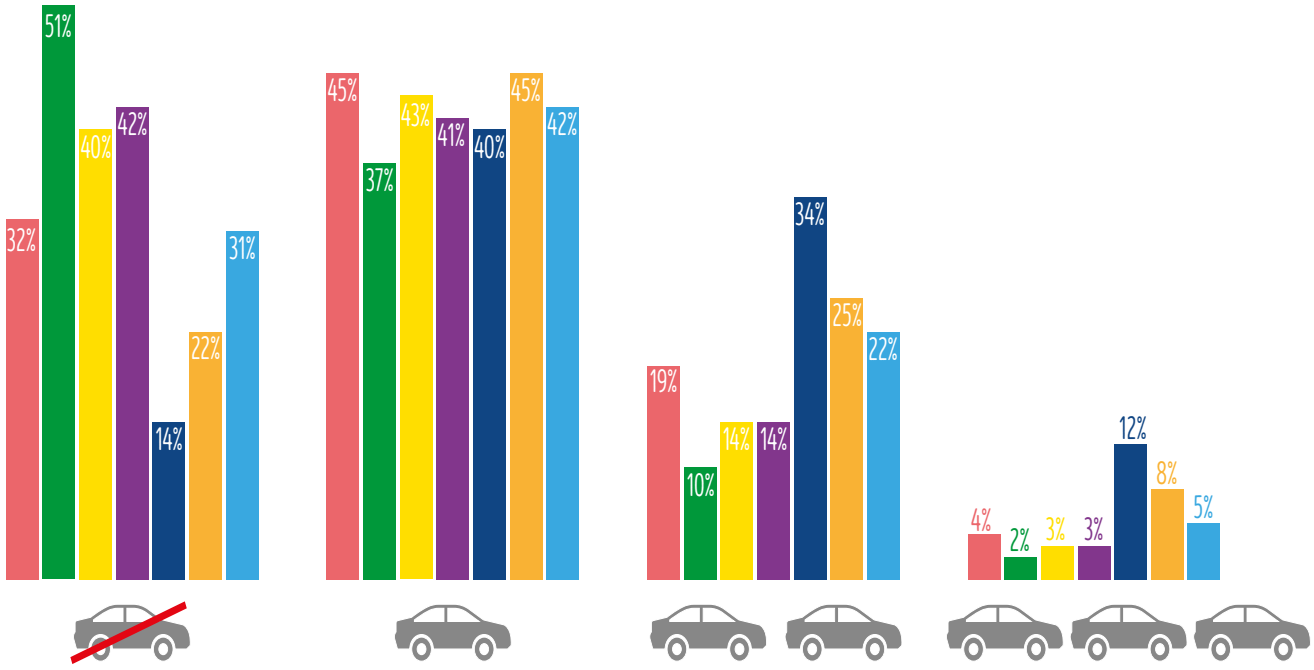


Figure 16: Number of zones in 20% most deprived Source: SIMD 2016

Figure 17: Car Availability Source: Census 2011



[8] Scottish Government Statistics, 2017
[9] SIMD
[10] 2011 Census

3.25 With the regional economy dominated by the oil and gas industry, many residents of the Aberdeen City Region earn more than other similar areas. In 2014, average household incomes (Figure 18) for both Aberdeen City and Aberdeenshire were 7% and 22% higher respectively than the Scottish national rate of £685[11]. Average household weekly income was £25 and £116 higher respectively for Aberdeen City and Aberdeenshire than the next highest area, the City of Edinburgh. As the economy of the region has steadily recovered, both authorities continued to have one of the lowest Job Seekers Allowance (JSA) rates in Scotland (Figure 19). Even throughout the oil price fall and the redundancies made by the industry, the overall growth rates in JSA claimants from 2013 to 2016 only grew by 1% and 2% respectively, comparable to the national trend of 1%[12].

Figure 18: Average Household Weekly Income Source: Scottish Government 2014

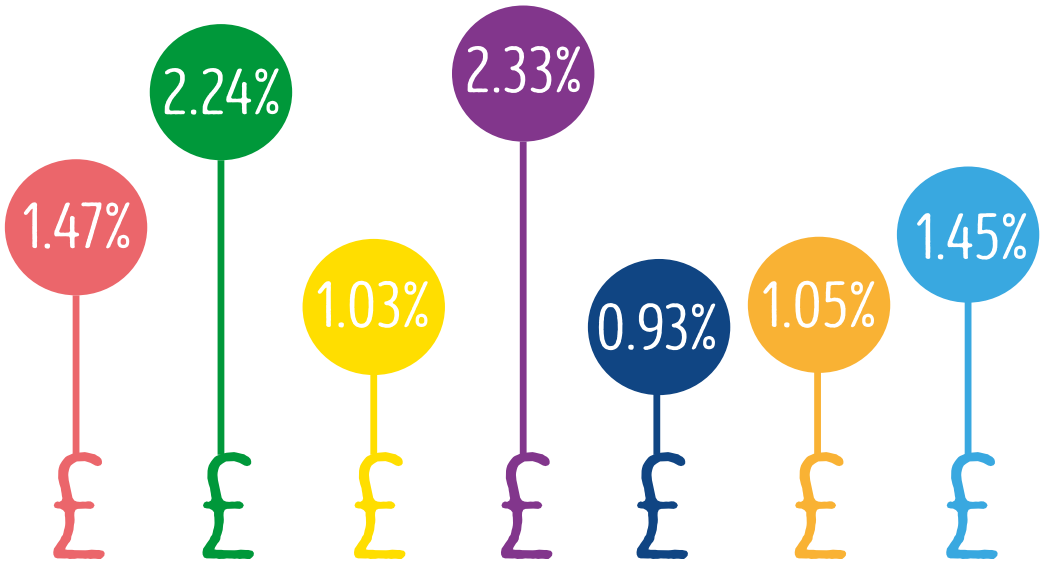


Figure 19: Job Seekers Allowance (% population) Source: NOMIS 2016

[11] Scottish Government Statistics, 2018
[12] NOMIS, 2016

The Aberdeen City Region

ECONOMY

3.26 As noted in section 3.16, the Aberdeen City Region economy, in recent years, has gone through a difficult time due to the fall in oil price. Since the end of 2016, however, there has been steady growth in oil prices, once again establishing oil production in the region as its highest performing major asset class. Additionally, the result of the referendum on leaving the EU and the weakening of Sterling against other currencies, has left the Aberdeen City Region oil industry in an advantageous position. Production costs are incurred in Sterling, whilst the product is sold in US Dollars which increases profitability due to currency deficits. With the Mining and Quarrying (includes Oil and Gas) sector accounting for 21% of the Aberdeen City Region's economic output in 2016, this up-turn has led to renewed confidence in the regional economy and the jobs and investment markets in the region.

3.27 In 2011 the Census reported that both Aberdeen City and Aberdeenshire had higher economic activity rates at 73% and 75% respectively compared to the Scottish national figure of 69% (Figure 20). From the results of the ONS annual population survey, 2017, these figures increased to 78% and 84% respectively in 2017, while Scotland also increased to 77%[13]. These trends point towards the increased recovery of the Aberdeen City Region economy, further supported by developments in alternative sectors such as renewables and tourism, and increased investment in the property market.

Analysis of data from the

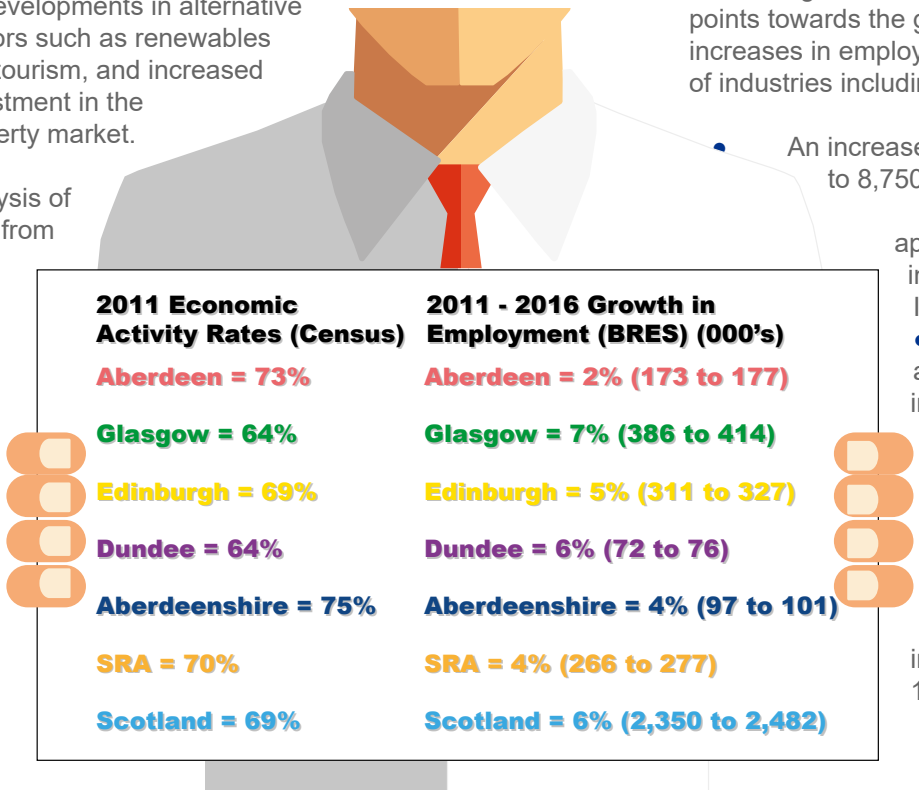


Figure20:Economic Activity Rates & Change in Employment Source: BRES 2016

3.28 Business Register Employment Survey (BRES), also points towards the recovery and diversification of the economy in the Aberdeen City Region. Over the period between 2011 and the end of 2016, the number of people employed in both Aberdeen City and Aberdeenshire increased by 2% and 4% respectively (Figure 20). This growth, although positive, is slightly behind the national trend of 6%, although this slower growth rate in the number of jobs is heavily influenced by the number of reductions in jobs during the oil price crash in 2015-2016, which saw an overall decrease in jobs between 2015 and 2016 of -3% and -2% respectively[14].

3.29 With respect to industry, the change in the number of jobs (Figure 21) over the 2011 to 2016 period varies amongst sectors between the two local authorities. In Aberdeen City, the biggest increases were found in:

- "Arts, entertainment, recreation & other services", which increased from approximately 5,000 to 6,000 (20%);
- "Accommodation & food services", which increased from approximately 11,000 to 13,000 (18%); and
- "Transport & Storage, and Information and Communication", which increased from approximately 11,000 to 12,500 (14%).

The largest decreases were found in:

- "Manufacturing" which decreased from approximately 12,000 jobs to 11,000 (-8%); and
- "Administrative & Support Service Activities" which decreased from approximately 22,000 to 21,000 (-5%).

3.30 The changes in the jobs market in Aberdeenshire points towards the greater focus on diversification with increases in employment numbers in a greater spread of industries including:

- An increase in jobs from approximately 6,000 to 8,750 (46%) in "Primary Industries";
- An increase from approximately 4,300 to 5,250 (22%) in "Transport & Storage, and Information and Communication";
- An increase from approximately 1,600 to 1,950 (22%) in "Financial and Insurance & Real Estate Activities";
- A 20% increase in "Professional, Scientific & Technical Activities" from approximately 10,000 to 20,000; and
- A 18% increase in employment in "Manufacturing" from 11,000 to 13,000.

[13] NOMIS, 2017
[14] NOMIS, 2016

Jacobs

The largest decreases were found in:

- "Administrative & Support Service Activities" which decreased from approximately 13,000 to 8,000 (-38%); and
- "Education, Human Health & Social Work Activities" which decreased from approximately 19,000 to 18,000 (-5%).

3.31 These trends could potentially indicate that employment in the oil and gas industry, where higher paying work can be found, still dominates the region, along with new emerging industries such as food and drink and sustainable tourism.

Figure 21: Change in Employment by Industry (2011-2016) Source: BRES 2016

3.32 Analysis of the number of business units by industry[14] (Figure 22) reveals that the changes in the number of jobs by sector are likely linked to the increase in the number of units, i.e. new premises. This could be a positive indication of inward investment by businesses either choosing to (re)locate in the region or expanding existing premises. For example, both Aberdeen City and Aberdeenshire showed an increase in the number of units in "Professional, Scientific & Technical Activities", an increase of 1,100 and 1,270 units respectively, which supports the increase in the number of jobs in this particular sector. This is likely driven by the investment by Subsea 7's acquirement of floorspace at Arnhall Business Park (Westhill) and Marathon Oil's uptake of floorspace at the Hill of Rubislaw[15].

3.33 Interestingly both Aberdeen City and Aberdeenshire have seen an increase in the number of business units in "Business administration & support services", which has conversely seen a reduction in the number of jobs over the same period. This could potentially indicate downsizing by some companies or start-ups of a greater number of smaller scale enterprises that have not managed to offset the overall reduction in the number of jobs.

3.34 A strong indicator of the level of investment, entrepreneurial activity and confidence in an area is the number of new business start-ups (Figure 23), which is closely linked to the change in the number of business units and thus change in employment numbers. The number of annual business start-ups[14] in Aberdeen City increased by 5% between 2010 to 2015, from 1,035 to 1,090. For Aberdeenshire, this figure stood at 30%, increasing from 880 in 2010 to 1,140 in 2015. Despite this overall increase in the number of business start-ups, year on year trends show that both Aberdeen City and Aberdeenshire have seen a decrease in year on year growth post 2013, while cities such as Edinburgh and Glasgow have demonstrated strong year on year growth over this period.

3.35 On a positive note, despite a significant number of business closures (Figure 24) recorded for both Aberdeen City and Aberdeenshire between 2011 and 2013, both local authority areas witnessed an overall net increase in new businesses, with 2,180 in Aberdeen City and 1,960 in Aberdeenshire. These numbers, at 24% and 11% respectively, are higher than the City of Glasgow, although significantly lower than the City of Edinburgh. Furthermore, both Aberdeen City and Aberdeenshire show

[14] NOMIS, 2016
[15] Spotlight Aberdeen Offices, savills, Spring 2017

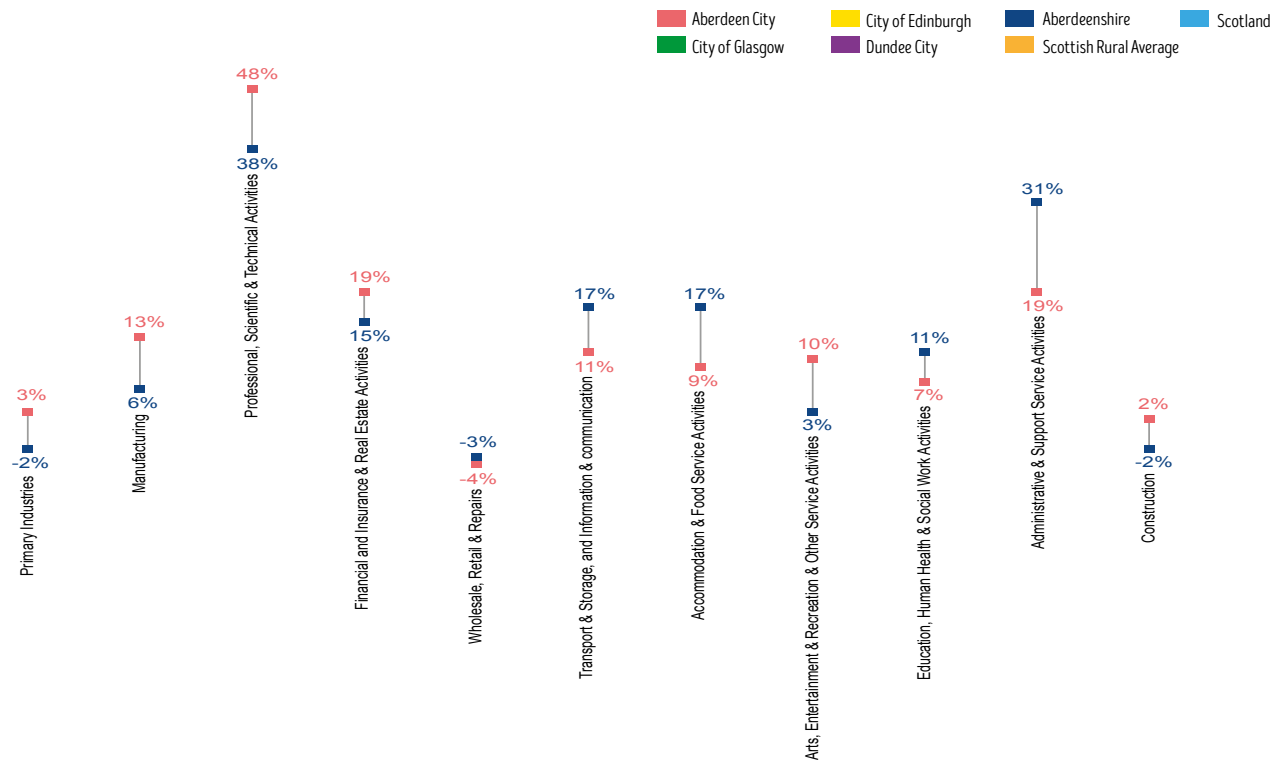


Figure 22: Change in Business Units by Industry (2011-2016) Source: BRES 2016 (Aberdeenshire Blue, Aberdeen Red)

stronger one year survival rates (Figure 25) for businesses, often producing rates higher than the national average and cities such as Glasgow and Edinburgh.

3.36 Overall, business start-ups, closures and survival rates across Aberdeen City and Aberdeenshire indicate a strengthening labour market, giving workers the confidence to move between employers and locate in the region. This also provides greater confidence to other enterprises choosing the Aberdeen City Region as a place in which to set up business. The broader economic backdrop is also likely to have supported business creation in the region, as the volatility of the oil and gas industry in the region has given rise to investment into alternative and renewable energies, technology and deep-sea maintenance.

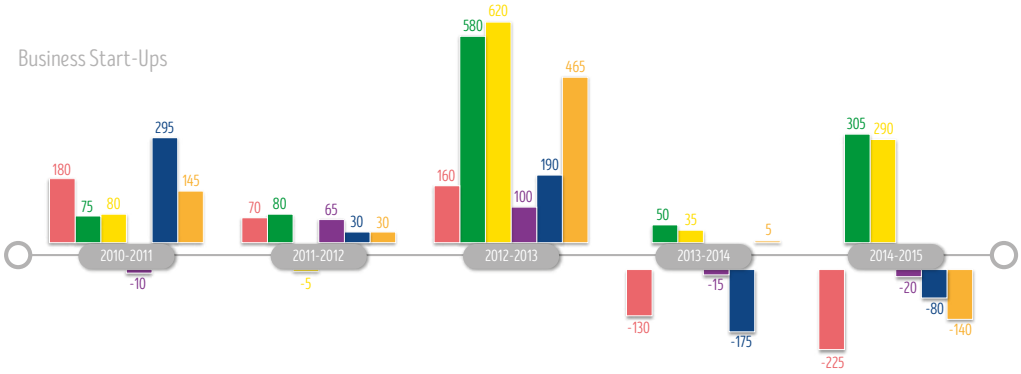


Figure 23: Change in Business Start-ups (2010-2015) Source: NOMIS 2016

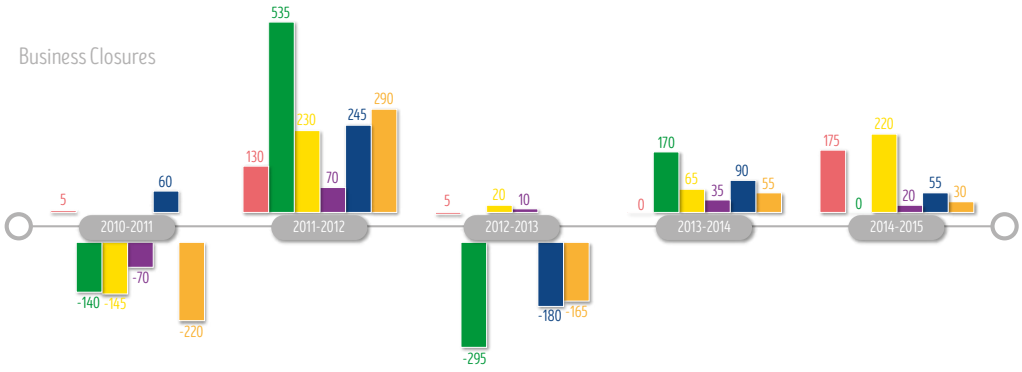


Figure 24: Change in Business Closures (2010-2015) Source: NOMIS 2016

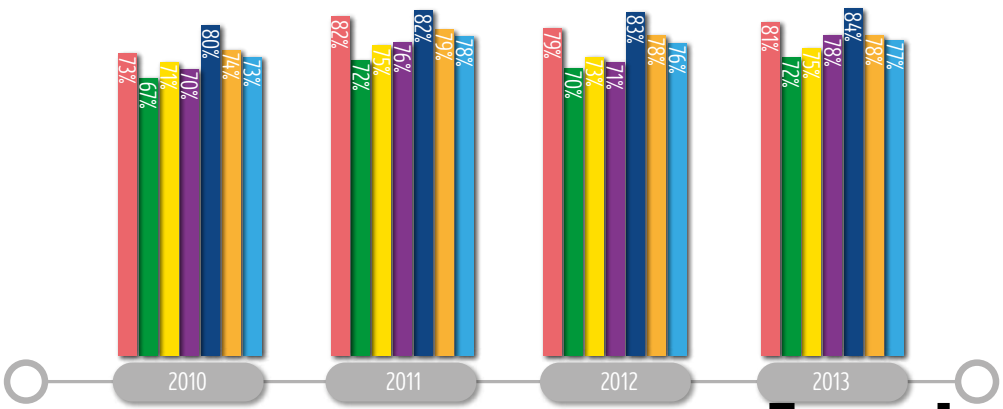


Figure 25: Two Year Business Survival Rates (2010-2015)

Source: NOMIS 2016

3.37 Tourism has also played a key role in the diversification of the Aberdeen City Region economy as tourism numbers have grown year on year, and in a survey run by Laterooms.com in 2017, Aberdeen ranked 7th of all places in the UK as a location to have a weekend break. The region has many attractions that not only draw visitors from other parts of the UK, but from much further afield. It boasts eight whisky distilleries, over 260 castles, 55 golf courses, one National Park, five ski resorts, one Royal Home and over 165 miles of coastline containing some of the best locations for dolphin spotting[16]. In the future, expansion of Aberdeen Harbour into the south harbour will also open up opportunities for passenger cruise ships to tie-up providing cruise passengers with a wide variety of excursions throughout the Aberdeen City Region.

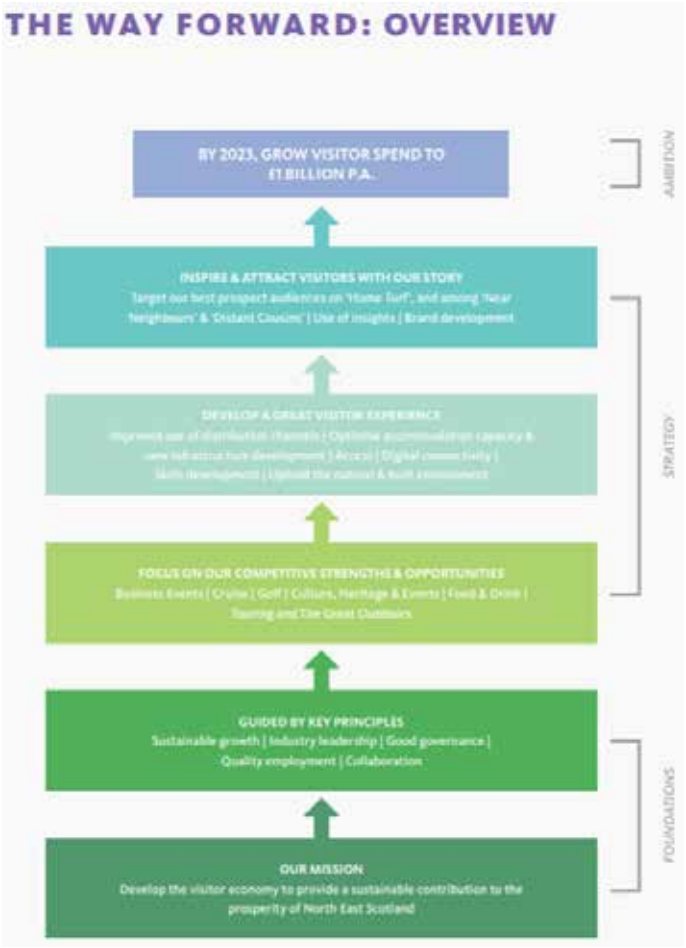
3.38 Total visitor spend in the region increased from £340 million in 2013 to £351 million in 2014[17]. By 2016 this number had increased to £630 million. The sector is responsible for approximately 10,200 jobs in Aberdeen City and 6,200 in Aberdeenshire. These figures further substantiate the trends seen in the change in the number of jobs in the accommodation and food services industries, as tourism continues to go from strength to strength in the region. Within these figures it is also important to take cognisance of the impact of business tourism, with many jobs in hospitality specifically catering for the needs of offshore workers/ short term contract workers.

3.39 In 2018 Visit Aberdeenshire launched their Destination Aberdeen & Aberdeenshire Our Tourism Strategy 2018-2023. The ambition of the strategy is to grow visitor spend in Aberdeenshire to £1 billion per year by 2023; the sum of £500m in overnight spend and a further £500m in day visit receipts. Key to achieving this ambition is understanding what visitors are looking for and who they are. In 2016, 78% of visitors were from Scotland, England, Wales and Northern Ireland, while the remaining 22% were from international locations. The top five reasons for visiting the region were[18]:

- The scenery & landscape
- To visit family / friends who live there
- The history & culture
- To return, following a previous holiday there
- Because of a long desire to visit

3.40 The document outlines the strategy for developing a great visitor experience in the region by focusing on the competitive strengths and opportunities throughout the region. Figure 26 outlines the strategy for achieving the ambition of £1 billion visitor spend by 2023. An element within the strategy that is pertinent to this study is the focus on transport connectivity to Aberdeen City Region from its key inbound markets, and around the region itself[17].

Figure 26: Visit Aberdeenshire Tourism Strategy 2018-2023



3.41 The Aberdeen City Region's GVA (Gross Value Added), which has been dominated by the Oil and Gas industry, has seen increased growth over the past few years as a result of this increased investment in the tourism sector, in addition to the renewables sector, which has also gathered increased momentum over the past ten years, with significant growth in

[16] https://www.visitabdn.com/
[17] Aberdeen City and Shire Tourism Partnership – Our Strategy for Growth, 2013
[18] Destination Aberdeen & Aberdeenshire, Our tourism strategy 2018-2023, 2018

the Aberdeen City Region. Over a fifth of Scotland's onshore wind turbines are located in Aberdeenshire as a result of local farmers and businesses identifying this potential and diversifying into the renewables market. As these assets begin to mature and generation outputs increase, job creation is also likely to increase through the need for operators and maintenance[19]. As job opportunities currently appear relatively strong in this sector, efforts have been made to help those workers who have found themselves unemployed from the oil and gas sectors to retrain and transfer their skills. One such initiative established by the Scottish Government, is the £12 million funded Training Transition Fund, to assist those affected by the oil and gas industry to undertake training and attend courses to facilitate a move into the available opportunities in the renewables industry[20].

3.42 Even companies who have traditionally been solely focused on the oil and gas sector have transformed part of their business strategy to enter the renewables market. One such example is the Aberdeen based Ecosse Subsea Systems (EES), who recently completed a £5 million project to clear the seabed of 3,000 boulders to assist in the establishment of the world's largest offshore wind farm. This contract was undertaken based on the completion of a similar project for the development of the Westermost Rough offshore windfarm.

3.43 The Aberdeen City Region is also now becoming renowned as a centre for excellence in the development of technologies and solutions for the renewables sector. The Energetica corridor, which stretches from Aberdeen to Peterhead, is fast becoming a leading destination for innovation, knowledge and learning for the energy industry. Including projects such as Hywind Floating Wind Park, Batwind Energy Storage, European Offshore Wind Deployment Centre and the Decommissioning Centre of Excellence.

3.44 Both universities in Aberdeen are members of The Offshore Renewables Institute. The institute is a research partnership which focuses on developing and delivering solutions for the offshore wind farm industry. Robert Gordon University is in the top 30 ranked organisations in the world for patent filing through development of innovative technologies to assist in the renewables sector. Over the next 10 years, global offshore wind expenditure is expected to reach more than £200 billion and Scotland along with the rest of the UK, Germany and Denmark are currently at the forefront of this industry accounting for 90% of offshore wind deployment across the world[21].

3.45 Further positivity in the Aberdeen City Region economy is also demonstrated in a report published by Oil and Gas UK, who believe that approximately £50 billion of investment will be necessary for the decommissioning of old rigs in the North Sea. This should again act as a stimulus in the local labour and property markets. Other industries previously suppressed by the focus on the oil and gas sector are also on the increase, with food and drink, agriculture and fisheries in particular, witnessing increased growth and a higher share of the Aberdeen City Region GVA.

[19] Onshore Wind in Aberdeenshire: Growth and Performance 2016/17, savills
[20] https://www.insider.co.uk/special-reports/insider-special-report-renewable-energy-9878709/
[21] https://www.trackerintelligence.com/resources/procurement-news/4-reasons-scotland-leading-way-renewable-energy/

3.46 Since 1997 the Aberdeen City Region has also witnessed significant growth in Gross Value Added (GVA), despite a slower growth rate experienced in recent years coinciding with the drop in oil price. In 2015 the Aberdeen City Region contributed a similar amount to the Scottish economy as that of both Glasgow and Edinburgh Cities (Figure 27). Considering the GVA per head it is clear that Aberdeen City delivers a significantly higher contribution compared to both Glasgow and Edinburgh, demonstrating the success of the local economy (Figure 28).

3.47 After a period of uncertainty and reliance on the oil and gas industry, the economy of Aberdeen City and Aberdeenshire is undergoing a resurgence as not only are past endeavours rebuilding but the emergence of new technologies and reapplied focus has enabled the economy to adapt and strengthen in the face of further development and introduction of new infrastructure. Looking forward it is essential to understand the ability of the transport network to assist in facilitating this economic growth.

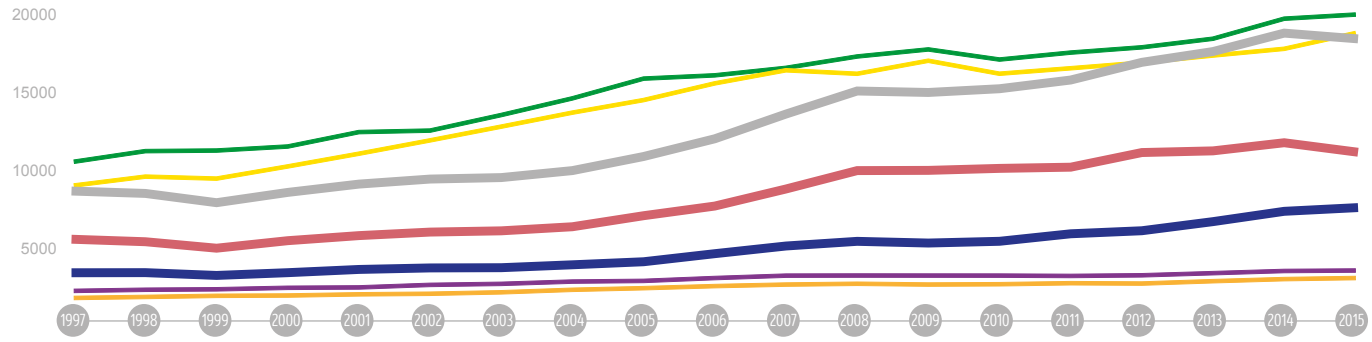


Figure 27: Regional GVA (£ Millions) Source: NOMIS 2016

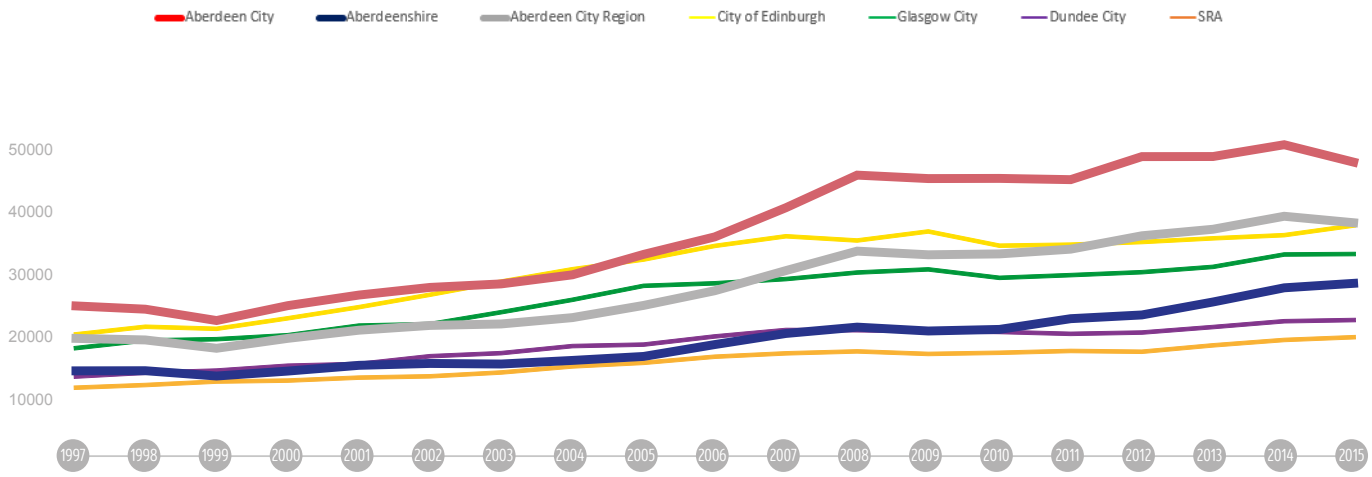


Figure 28: Regional GVA per Head (£ Thousands) Source: NOMIS 2016

The Aberdeen City Region

TRANSPORT

3.48 Investment in transport infrastructure in the Aberdeen City Region has historically struggled to keep pace with the more rapid growth in population and key employment sectors. In recent years, however, this gap has been narrowed as key high-profile infrastructure projects and strategies are completed or are due for completion in the very near future. Examples of significant infrastructure investment include the Aberdeen Western Peripheral Route (AWPR), Diamond Bridge, Haudagain junction improvements, the City Centre Masterplan, the new Aberdeen South Harbour and the Programme of Rail Revolution and strategies such as the Revised Roads Hierarchy. Each of these initiatives is aimed at providing mechanisms for unlocking further growth, demographically and economically.

3.49 Key to the Regional Economic Strategy is the ability of the transport infrastructure in the region to enable future growth and opportunity within the region. Transport in the region plays two crucial roles, enabling the movement of people to and from jobs, leisure and residential locations; and linking businesses located within the Aberdeen City Region to their key local and external markets. Key to facilitating these movements are the main transport corridors and hubs, such as the forthcoming AWPR, radial bus routes, the rail network, Aberdeen International Airport and the ports and harbours of Aberdeen, Peterhead and Fraserburgh.

DIGITAL

3.50 Although not explicitly a form of transport in itself, digital connectivity plays an ever increasingly important role in the need for travel or for reduced travel, especially in the modern world where there is increased demand for the flexibility to work, learn and shop from home. Digital connectivity also plays an important role in the decision making process for businesses looking to locate in an area, and thus can act as a stimulus for further economic growth.

3.51 Analysis of superfast and ultrafast broadband coverage in both the Aberdeen City and Aberdeenshire areas, demonstrate that both areas are lagging behind other areas of Scotland (Figure 29). Both areas demonstrate a significant level of variance in access to ultrafast broadband and whilst Aberdeenshire also demostrates a lower level of access to Superfast broadband below the Scottish Rural Average and Scotland. Additionally both local authorities demonstrate lower speeds for both upload and download comparisons. This level of digital connectivity could potentially be a problem for attracting both business and people to the region, especially when there is a demand for information on an almost instant basis.

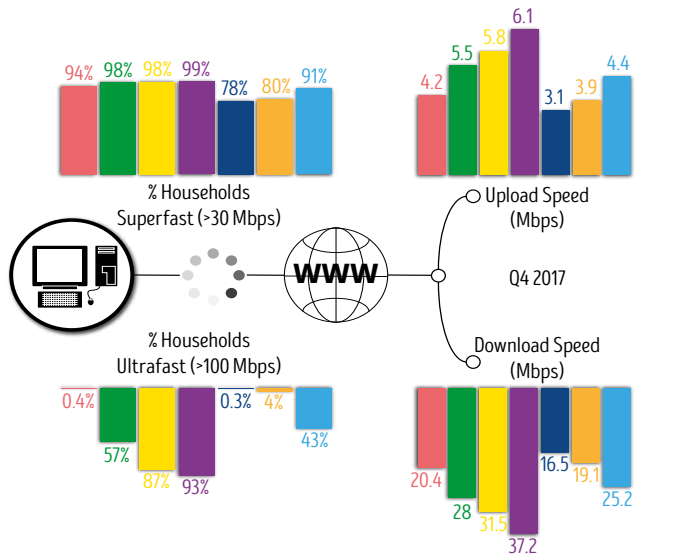


Figure 29: Broadband Connectivity Source: www.thinkbroadband.com

BUS

3.52 Within the region there are two main bus operators, First Aberdeen which mainly operate within Aberdeen City and Stagecoach Bluebird which mainly operate within Aberdeenshire and connections into Aberdeen City.

3.53 The majority of Stagecoach Bluebirds operate on the strategic corridors feeding into Aberdeen City, such as the A90, A96, A944, A947 and A93. These services link the main outlying settlements and core business areas along these corridors with Aberdeen City Centre. Stagecoach Bluebird service 727 provides a service linking Aberdeen International Airport with Aberdeen Union Square bus station, which provides interchange opportunities to the wider regional bus network.

3.54 In addition to the two main operators, there are a further eight smaller operators within Aberdeenshire who operate local services in rural locations which provide connections into the strategic bus network on the key corridors.

3.55 There are also five bus based Park and Ride sites in the Aberdeen City Region; Bridge of Don, Kingswells, Ellon, Newtonhill and Craibstone, with a sixth planned for Findon Junction (Portlethen) in 2020. Park and Ride surveys carried out at these sites by Nestrans, have found that these are all currently underutilised, with Ellon showing the highest usage volumes at an average of 61% capacity.

3.56 From analysis of the bus service coverage data, four key problems are evident:

- **Service frequency**, drops off on the outskirts of Aberdeen City, leaving many settlements along key corridors with a reduced service in comparison with locations closer to the city. This is also true when considering the current daytime bus network alongside planned land allocations and future housing development;
- **Lack of orbital routes** linking the key corridor services, i.e. the rim of a wheel. This means it is often necessary to complete one or more interchanges to access key areas by bus. As an example of this, a resident of Peterculter who wishes to travel to Westhill by bus, would currently need to travel into Aberdeen City Centre to interchange to another service to head back out in the direction of Westhill. A journey that could be completed by car in **12** minutes takes over **70** minutes by bus;
- **Journey Times** are regularly longer than the equivalent by private car between key destinations such as residential areas and business parks (discussed further in this section); and
- **Cost of travel**; an annual season pass on the bus network in Aberdeen City is **£160** more expensive than a season pass for Dundee City and **£130** more expensive than a season pass in Glasgow City.

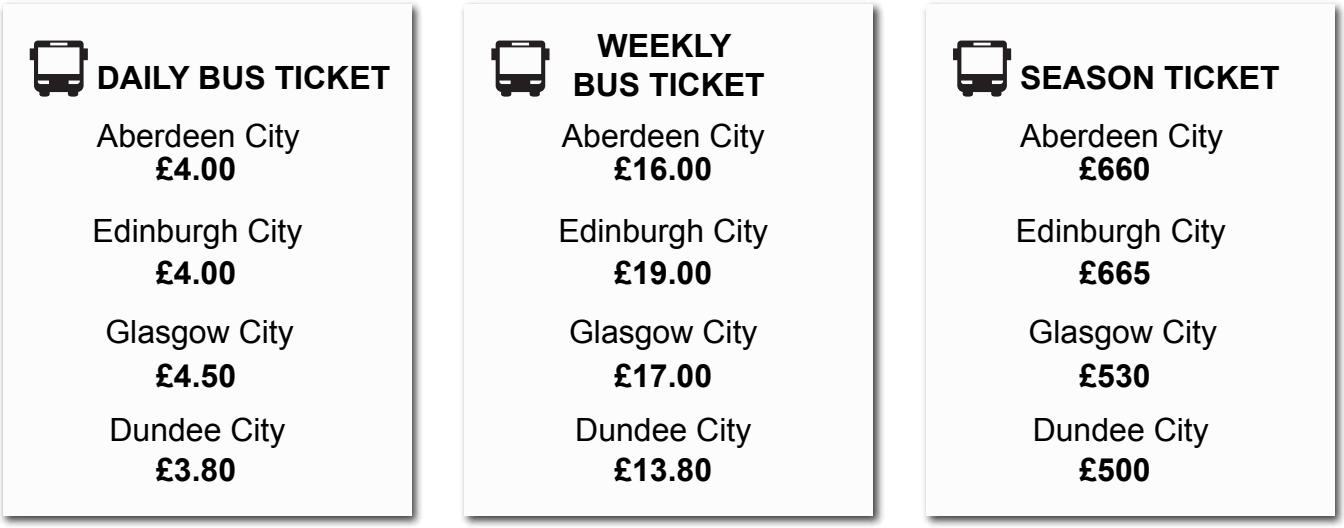


Figure 30: Comparator Bus tickets Source: Various operator websites

RAIL

3.57 There are two main rail corridors that operate in the region; the East Coast Mainline serving Aberdeen and the south of the region including Portlethen, Stonehaven, Laurencekirk and on to the Central Belt and the Aberdeen Inverness Line, serving Dyce, Inverurie, Insch and Huntly and on to Inverness. Analysis of station boardings data from the Office for Rail and Road (ORR) highlights the following key trends:

- All eight rail stations in the region show significant levels of growth in boardings between 2010 and 2016;
- Both Dyce and Inverurie demonstrate significant growth in patronage, with Dyce increasing from **579,660** in 2010 to **664,396** in 2016 (**+84,736, 15%**) and Inverurie increasing by **188,182** boardings from **345,790** in 2010 to **533,972** in 2016 (**+54%**);
- Portlethen demonstrates the most significant percentage growth in patronage during this time, with boardings increasing by **206%** from **18,382** to **56,324**; and
- Boardings at Aberdeen Station increased by **17%** from **2,964,302** to **3,459,944**.

3.58 Although the increase in boardings is a positive for the sustainable transport network, continued growth of similar magnitude could lead to potential capacity issues on services, especially during peak commute times. In particular, the East Coast Mainline may be particularly impacted by this as this corridor has been allocated a significant number of housing development, approximately **2,770** between 2017 and 2026 and existing peak capacity on this route is already constrained. Improvements such as Rail Revolution, which introduces a new half hourly service stopping at all stations, could potentially address this and add additional capacity for additional growth.

3.59 To the north, ongoing rail improvements including double tracking a section of track between Aberdeen and Inverurie will increase capacity on the line as well as the delivery of a new station at Kintore. These improvements are particularly necessary to manage the added demand on this section of railway, not just due to general increases in popularity of rail, but also to accommodate increased demand from housing development and employment opportunities tied to land-use development in the Dyce area.

3.60 LENNON ticket data was analysed to determine the main origins and destinations of movements for all eight stations in the region. The key trends from this analysis are:

- The top five destinations for people travelling from Aberdeen were (most popular first) **Edinburgh**, **Glasgow**, **Dyce**, **Stonehaven** and **Inverurie**;
- The top five origins for people travelling to Aberdeen were (most popular first), **Inverurie**, **Stonehaven**, **Dyce**, **Edinburgh** and **Glasgow**; and
- Travel between Aberdeen City and Aberdeenshire is significant with over **403,000** ticket sales from Aberdeen to Aberdeenshire stations and over **858,000** ticket sales from Aberdeenshire stations to Aberdeen in 2017.

PUBLIC TRANSPORT ACCESSIBILITY

3.61 TRACC[22] accessibility software was used to measure the levels of accessibility in the Aberdeen City Region to key employment locations and services by public transport. TRACC measures the level of accessibility from a set of origins to a destination using all modes of public transport and walking and cycling.

3.62 The level of journey time accessibility from and to each postcode in the Aberdeen City Region from / to the key employment and services has been assessed across four time periods:

- AM Peak Period (7am to 10am);
- Inter Peak Period (10am to 4pm);
- PM Peak Period (4pm to 7pm); and
- Off Peak Period (7pm to midnight).

AM Peak Period

3.63 Travel to the locations in the chart (Figure 31) highlight that there is a wide range of postcodes that have poor travel time accessibility. On average **32%** of postcodes in the region cannot reach any of the 13 locations within the three-hour period by public transport. In particular, both Arnhall Business Park and PrimeFour Business Park cannot be reached by approximately **40%** of the Aberdeen City Region postcodes. Union Street is the most accessible location within the region with **51%** of postcodes being within an hour's journey on public transport. This figure decreases slightly to **47%** when only bus based travel is considered. Focusing on key service locations, **42%** of postcodes are within an hour's journey time of Aberdeen Royal Infirmary, which increases to **53%** within **90 minutes**.

3.64 In the opposite direction, the average number of postcodes without accessibility is slightly less at **30%**. Two locations that show below average accessibility to postcode locations are Prime Four and Arnhall at **34%** and **36%** respectively. Union Street demonstrates the highest levels of accessbility in both the scenarios of bus only and with all public transport options open.

PM Peak Period

3.65 On average public transport accessibility is slightly better to the key locations during the PM peak (Figure 32) than the AM peak. Overall, however, the results are reflective of those in the AM peak with Union Street having the best accessibility within an hour and both PrimeFour and Arnhall having the lowest level of overall accessibility. Travel from key locations to the postcodes, highlights that although PrimeFour and Arnhall have below average accessibility, the locations with the largest number of postcodes which are inaccessible is travel from Robert Gordon University **(35%)**, Ellon **(35%)** and Altens **(36%)**.

Inter Peak and Off-Peak Periods

3.66 Generally, the Inter Peak period has greater overall accessibility than all other time periods, but this is partly due to the longer travel window and that more services are captured. For both directions, the percentage of postcodes with no accessibility decreases to **22%**. Union Street remains the most accessible location within an hour's travel time, with PrimeFour and Arnhall still showing the lowest levels, although these levels are considerably lower than the other time periods. Access both to and from the hospital remains in the mid **40%** range for public transport accessibility within an hour's travel.

3.67 The off-peak period highlights the same trends as the other time periods with regards to both highest and lowest accessibility. In general, the average number of postcodes with no accessibility to the key locations increases to 34% and to the postcodes from these locations to 37%.

Summary

3.68 Overall the accessibility analysis highlights that Aberdeen City Centre remains the most accessible location in the region for the largest proportion of the population. This emphasises the importance of effective implementation of the City Centre Masterplan proposals. Strategic locations out with the City Centre such as Arnhall and PrimeFour, are highlighted as being problematic to reach for public transport users if they are not in close proximity to the specific key radial route. This point is further emphasised by the need to undertake multiple interchanges from certain locations via the City Centre to access these locations for those not residing along these specific corridors.

[22] TRansport ACCessibility Software

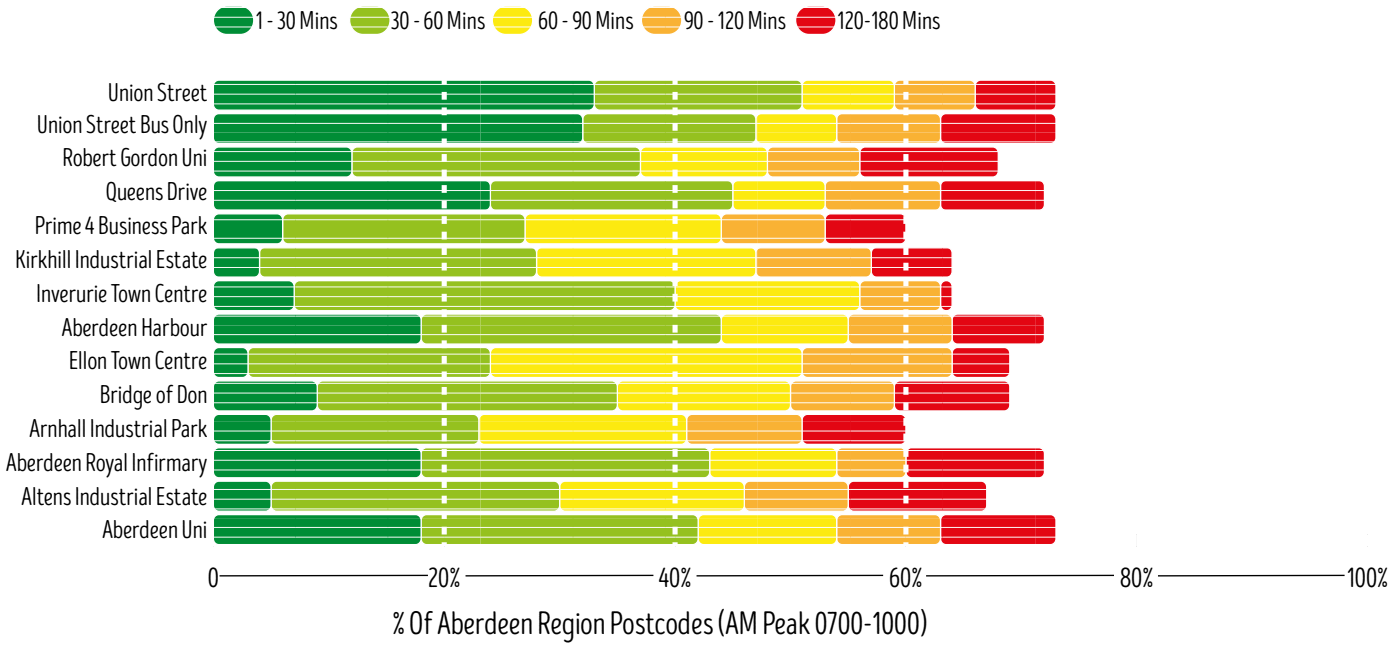


Figure 31: PT Accessibility (AM Peak) Source: TRACC (2018 Timetable)

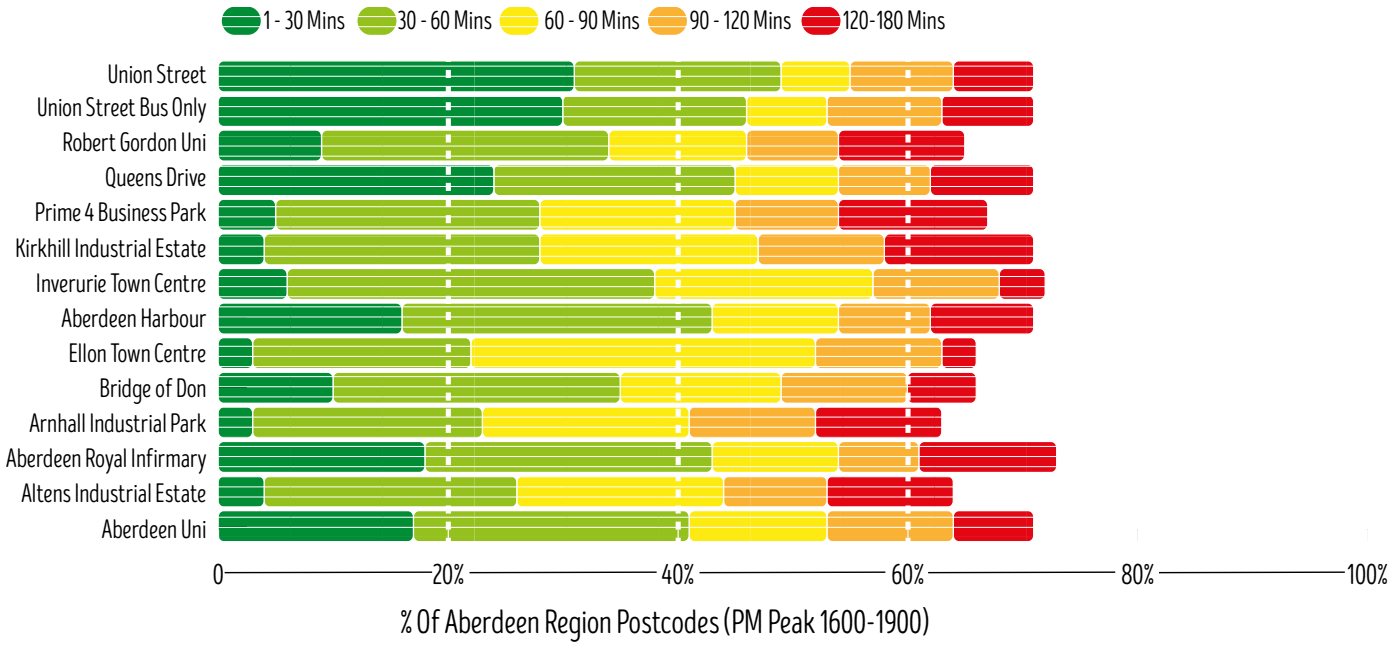


Figure 32: PT Accessibility (PM Peak) Source: TRACC (2018 Timetable)

AIR CONNECTIVITY

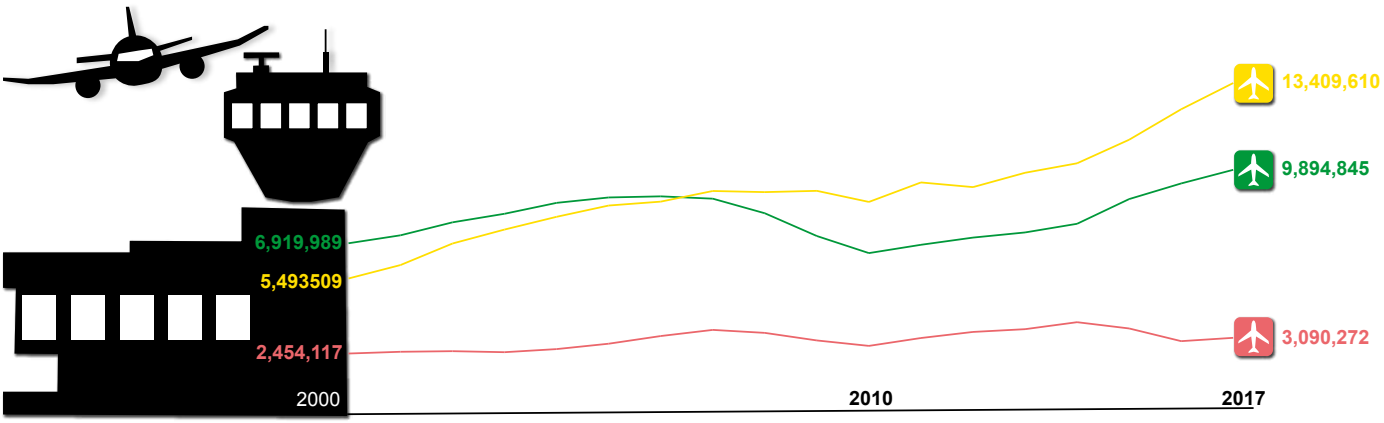
3.69 Air connectivity can be a key contributor to an area's economic growth potential as it unlocks opportunities for attracting business investment, the import and export of goods and also the transit of passengers. Further to this, air connectivity can also assist in growing the tourism sector of a region and thus contribute to its potential economic prosperity. There are many indicators used in determining the level of air connectivity of an area, including total passenger movement, cost of flights, number of direct flights and travel time.

3.70 Aberdeen International Airport is the third largest airport within Scotland, providing direct and frequent flights to the rest of the UK and key European locations such as Amsterdam and Scandinavia. Additionally, the airport is the best-connected airport for UK to UK flights, which is a crucial aspect due to the propensity of the airport to be used for business flights.

3.71 Analysis of key aviation statistics reveals the following trends:

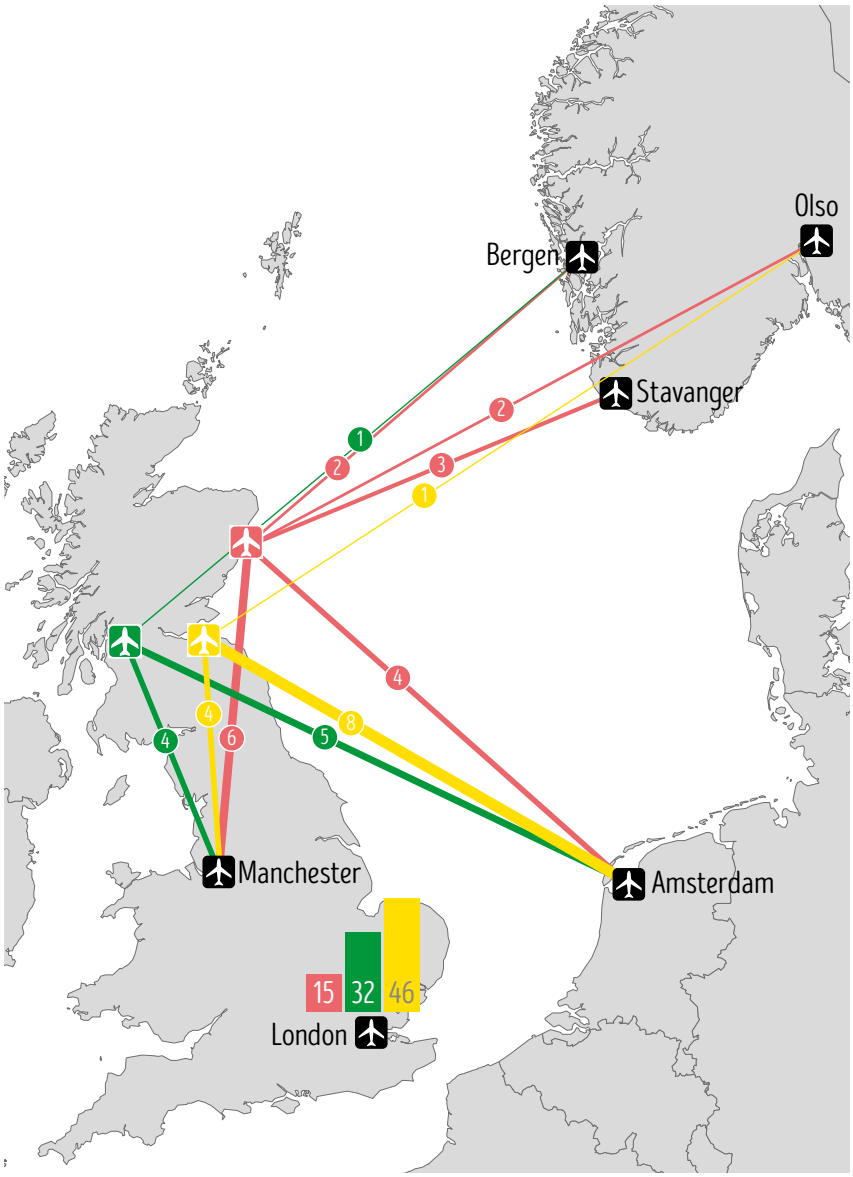
- The total number of passengers using Aberdeen International Airport increased between 2011 and 2017 by **0.2% from 3,082,575 to 3,090,272**, compared to a passenger growth rate of **44%** at Glasgow International Airport (6,858,268 to 9,894,845) and **43%** at Edinburgh International Airport (9,282,695 to 13,409,610) (Figure 33);
- When comparing the total number of passengers per head of population (based on respective City Deal boundaries), Aberdeen International Airport (6.24) performs slightly better than Glasgow International Airport (5.42), but is behind that of Edinburgh International Airport (9.76);
- In 2013, **61%** of all passengers from Aberdeen International Airport were business travellers, compared to **30%** at Edinburgh International Airport and **27%** at Glasgow International Airport;
- The importance of the airport to the region is highlighted by the fact that the number of passengers passing through the terminal is similar in scale to those traveling through Aberdeen Rail Station (Rail to Aiport Ratio of 1.12), whereas in Edinburgh (1.82) and Glasgow (4.69) the number of people travelling through the rail stations in the cities far exceeds those using the respective airports;
- In 2013, **90%** of all passengers passing through Aberdeen International Airport originated or destinated in the Aberdeen City Region, compared to **73%** and **67%** for Edinburgh International Airport and Glasgow International Airport and their City Deal regions respectively;
- Aberdeen International Airport has a greater number of direct daily flights to locations such as Norway compared to Glasgow International Airport and Edinburgh International Airport. This is likely to be as a result of oil related business both on and off-shore;
- There are also more domestic flights (Figure 34) from Aberdeen International Airport to Manchester than from both Glasgow International Airport and Edinburgh International Airport. This is likely due to two factors; the difficulty in reaching Manchester from Aberdeen by public transport compared to Glasgow and Edinburgh in terms of frequency, journey time and cost, and secondly due to the large number of business travellers who live in the North of England and work in the oil industry; and

Figure 33: Total Passengers (2000 - 2017)
Source: Civil Aviation Authority



- Flights from Aberdeen International Airport tend to be more expensive than flights from Glasgow International and Edinburgh International Airports; for example flights to Amsterdam from Aberdeen are on average **£127** more expensive than flights from Glasgow and **£121** more expensive than flights from Edinburgh. This is likely linked to the smaller catchment area of Aberdeen International Airport compared to both Glasgow and Edinburgh International Airports, which limits the scale of operations of low cost carriers such as EasyJet and Ryanair. Excluding the low cost carriers and comparing only flights provided by KLM, still demonstrates a difference in prices, but overall more closely aligned, £153 Aberdeen, £112 Edinburgh and £92 from Glasgow.

Figure 34: Number of daily flights (Summer 2018)
Source: Aberdeen, Glasgow & Edinburgh Airports



SEA CONNECTIVITY

3.72 The Aberdeen City Region is served well by ports and harbours along its coastline, mainly as a result of its history being closely linked to fishing. The largest of these harbours, and main contributors to the region's growing GVA, are Aberdeen, Peterhead and Fraserburgh.

- Aberdeen is Europe's premier marine support centre for the oil and gas industry, and the main commercial port serving the north east of Scotland, and is the region's busiest. Annually around **6,500** vessels operate through the harbour, with around four million tonnes of cargo valuing at approximately **£1.5 billion**;
- In December 2017, consent was granted to expand Aberdeen Harbour south into the Bay of Nigg in a project worth **£350 million**. The new facilities will include 1,400 metres of new quay and a water depth of 10.5 metres to help attract the cruise ship market and larger vessels. A study commissioned by Scottish Enterprise estimates that the new harbour will generate a further **£1 billion** per annum for the economy by 2035 and will create an additional **7,000** equivalent jobs;
- Aberdeen Harbour provides essential connectivity from the mainland to Orkney and Shetland through the Northlink ferry service which is based in the harbour. Over the five-year period from 2013 to 2017, both car and coach carryings have increased by **6%** and **15%**, while both passenger traffic and commercial lane meterage have decreased by **-5%** and **-1%** respectively;
- Due to the increased marine traffic in Aberdeen Harbour supporting the oil and gas industry, other freight movements and fishing activity has decreased in recent years. In the period from 2005 to 2016, the amount of freight passing through Aberdeen Harbour has decreased by 839 tonnes (-18%), from 4,609 tonnes in 2005 to 3,770 tonnes in 2016. This decline has mainly been driven by a decrease in inward freight which has fallen by -28% (-673 tonnes) over this same time period from 2,401 tonnes to 1,728 tonnes.
- With regards to fishing, there has likewise been a decline in the fish landed at Aberdeen Harbour, with a decrease of -551 tonnes (-34%) from 2012 to 2016 (1,640 to 1,089) with a subsequent decrease in value of -£125,000 (-3%) (£4,228,000 to £4,103,000).

Bay of Nigg, location of Aberdeen South Harbour expansion

- Peterhead is a sheltered deep-water port with over 3km of berthing. It is one of the most important fish ports in the UK, with a reputation as a traditional centre of excellence for fishing fleets providing a full range of on-site facilities such as a fish market, ice and water plants, fuel supplies and ship repair and maintenance. In addition to the fishing industry, Peterhead also serves a broad range of industries including the oil and gas industry (over 40 years), renewables and leisure;
    - Peterhead over the period from 2005 to 2016, witnessed an increase in total freight passing through the port of 220 tonnes (24%) from 928 tonnes to 1,148 tonnes. The main driver behind this growth was the increased amount of outward freight departing Peterhead which increased from 322 tonnes to 453 tonnes (41%).
    - The amount of fish landed at Peterhead also increased over the period 2012 to 2016, with an increase of 29,598 tonnes of fish (103,038 to 132,636 29%) at an increased value of £27,496,000 (£109,946,000 to £137,442,000 25%).
- Fraserburgh harbour is located on the north-east corner of Scotland, around 40 miles north of Aberdeen. Its location enables the harbour to have great potential for commercial and oil related traffic due to its close proximity to Scandinavia and the Baltic States. The main driver of the port is the fish industry with upgrades to the harbour in 2007, providing two of the most up-to-date fish markets in the UK. Both markets are completely chilled and are capable of allowing landings of fish over a 24-hour period, five days a week. The facilities provided enable the market to handle 6,000 boxes of fish a day;
    - Over the period 2005 to 2016, the tonnage of cargo passing through Fraserburgh Port decreased by -38%, from 107 tonnes to 66 tonnes. The decline in inward freight through the port is the main contributor to this decrease with inward freight decreasing from 88 tonnes to 53 tonnes, a -40% decrease;
    - In 2016, the amount of fish landed at Fraserburgh Port decreased by -7% from 23,459 tonnes in 2012 to 21,774 tonnes in 2016. Value of the fish landed, however, increased by 2% from £35,460,000 to £36,309,000.

It is evident that connectivity by sea plays an essential role in the Aberdeen City Region economy, especially through the serving of the oil and gas and fishing sectors along with the movement of freight into and out of the region.

ROAD

3.73 Parts of the road network in Aberdeen have historically been known to suffer from issues with congestion as a result of several key points on the network where capacity constrains movement of a large number of vehicles. More specifically there are key issues around the Bridge of Dee, points along Anderson Drive, Haudagain and Persley Bridge. Several key interventions have already commenced, or are in the process of being appraised, to address these problems, including the Aberdeen Western Peripheral Route, the recently opened Diamond Bridge and Haudagain major junction improvements. In Aberdeenshire, there are also constraints associated with the network around Inverurie and the at-grade junction at Laurencekirk.

3.74 Analysis of several sets of traffic data has revealed the following trends in the Aberdeen City Region:

- Since 2011, the total vehicle kilometres in both Aberdeen City and Aberdeenshire has increased by **3%** and **8%** respectively, compared to **5%** nationally. These increases could potentially be a reflection on an increased percentage in car ownership across the Aberdeen City Region;
- Aberdeen City has a lower percentage of roads considered in the red category for road condition, i.e. in need of urgent repair, at **4%** when compared to **5%** in Glasgow and **7%** in Edinburgh;
- Aberdeenshire also has a lower percentage of roads considered to be in the red category at **4%**, when compared to the Scottish rural average of **10%** and Scottish national average of **7%**;
- Traffic counts on key corridors into City Centre highlight that approximately **38%** of all traffic enters/exits the city during the combined AM/PM peak periods; and
- The average cost of parking for 9 hours in Aberdeen City Centre is relatively low at **£11** compared to both Edinburgh **£19.30** and Glasgow **£21.04**.

Safety

- From 2011 to 2017 there has been a **-42%** reduction in the number of casulties on roads in the Aberdeen City Region, decreasing from **878** to **513**;
- This decrease in casualties is a reflection of a significant decrease in the number of serious and slight casualties while fatal casualties, which have halved from 18 in 2011 to 9 in 2017 still account for **2%** of yearly casualties;
- **27%** of all casualties in 2016 involved a pedestrian or cyclist in the Aberdeen City Region compared to **47%** in Edinburgh, **38%** in Glasgow and **29%** across Scotland;
- In 2017, **65%** (335) of all casualties were located in Aberdeenshire, a decrease of -41% from 2011;
- Aberdeenshire was also the location of the highest number of fatalities in 2017 with **7** compared to **2** in Aberdeen City. This number, however, does signfy an overall reduction in fatal casualties in rural Aberdeenshire;
- Over the six year period from 2011 to 2016, the casualties were spread across the following locations:

- A90 South: **148** (5% Fatal);
- Anderson Drive: **89** (2% Fatal);
- A90 North: **253** (11% Fatal);
- A93: **141** (4% Fatal);
- Queens Rd: **18** (1% Fatal);
- A944: **135** (3% Fatal);
- A96: **180** (5% Fatal); and
- City Centre: **825** (11% Fatal)

Figure 35: Locations of Fatal Accidents (2011-2016)
Source: STATS19, 2016

TRAVEL TO WORK MODE SHARE

3.75 Although based on Census figures from 2011, the travel to work mode share (Figure 36) for the region is an important factor linked to the pressures on the transport network. It provides essential information for planning future year infrastructure interventions to address any problems with the network or realise any potential opportunities of the network. The key trends from the data are:

- Aberdeen City has a significantly higher car mode share than Edinburgh **(+26%)**, Glasgow **(+22%)** and Dundee **(+13%)**;
- Aberdeen City has a lower bus and walking mode share compared to the above cities;
- Aberdeenshire car mode share is higher than all cities and both the Scottish national average **(+8%)** and Scottish Rural Average **(+7%)**;
- Travel to work by bus is **6%** lower in Aberdeenshire than the Scottish national average; and
- Aberdeenshire has a higher mode share falling in the other category which could point towards offshore workers who travel by helicopter for the longest leg of their journey.

3.76 The high car mode share is reflective of the data analysis outlined earlier with respect to the percentage of households with access to 2 or more cars, which was significantly higher than all other comparator areas. The availability and low cost of City Centre parking and the difference in weekly household incomes which is on average higher in the Aberdeen City Region are likely the main contributors to these trends.

3.77 The low bus mode share could be a result of the low service frequency and long journey times in some parts of the region, cost of fares and connectivity issues highlighted previously. Although, the low service provision is also linked to the previous point on high car mode share, which makes high frequency services difficult to operate on a commercial basis.

3.78 As most development sites, both residential and business orientated, are located in sub-urban locations, car is the most popular mode of choice due to easier access, availability of free parking and lower frequency connections to these locations by public transport.

3.79 A comparison of the 2011 census statistics was undertaken using results from the public survey (discussed in Chapter 4). It is important to take cognisance, however, while interpretating the results that the answers to the survey may be skewed by participation levels and thus responses by different mode users. For example a car user may rate bus service provision as poor, but as they are a car user this is more perceived than actual. The comparison discovered a similar level of car mode share, however, there are greater differences when considering public transport and active modes, in particular bus usage and cycling. **20%** of respondents to the public survey stated that they use the bus to travel to work, whereas the 2011 census has this figure at **8%**. For cycling, there is an **8%** difference between the survey **(9%)** and the census data **(1%)**. These results could potentially indicate that, either there has been a mode shift towards these more sustainable modes of transport, or that there was a higher participation level by the users of these modes in the survey compared to car users.

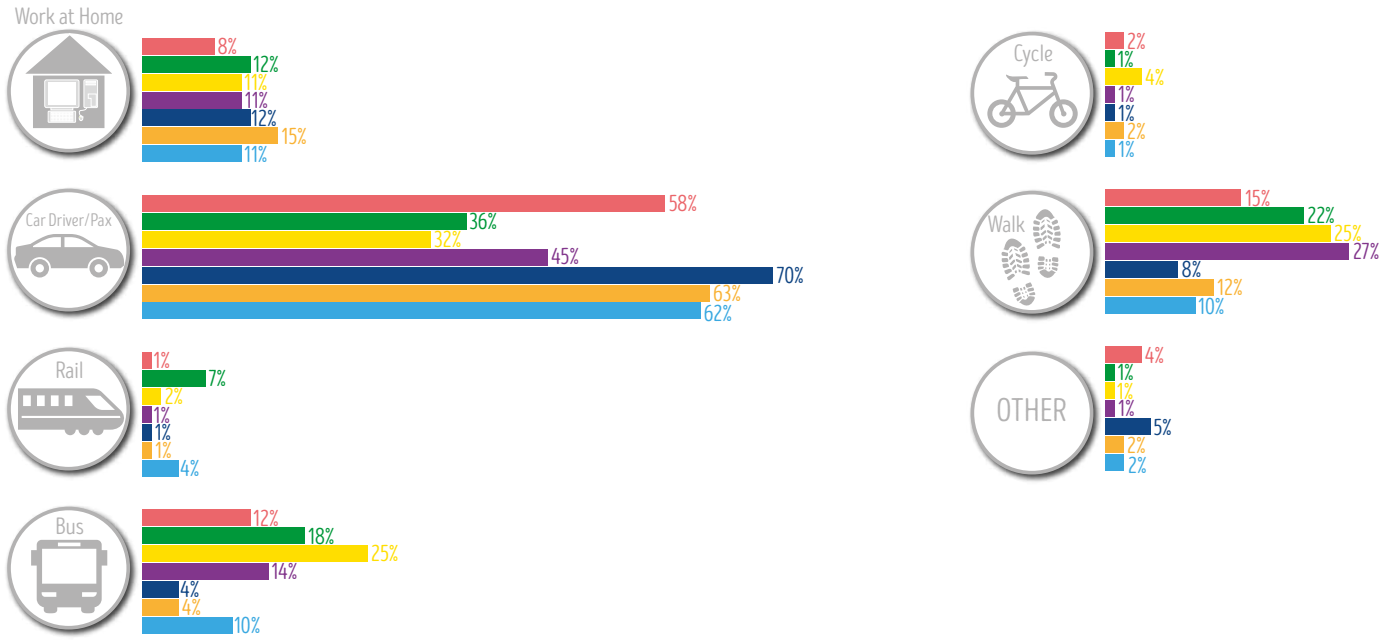


Figure 36: Travel to Work Mode Share Source: Census, 2011

TRAVEL TO KEY EMPLOYMENT AREAS

3.80 Looking at the origin destination travel to work by mode data, fourteen of the largest employment centres in the Aberdeen City Region were examined. Eight of these locations had a car mode share greater than **80%**, with the highest of these being Arnhall Business Park in Westhill at **89%**. Only Union Street and the West End office district varied considerably with around a **25%** bus mode share and **25%** walk mode share each. On average only **2%** of workers choose to cycle to work. This analysis indicates the importance of location for employment centres and obtaining low car travel to work mode share. Areas with the highest bus mode share are also those that are most accessible.

DISTANCE TRAVELLED TO WORK

3.81 The national average distance travelled to work is approximately **12km**. In Aberdeen City, **80%** of the working population travel less than 10km to work, whilst **42%** of the working population of Aberdeenshire complete a similar journey length. Looking at these percentage values in conjunction with the mode share figures and travel to key employment areas indicates that the location of both residence and employment are the main drivers behind the high car mode share. As a number of current and future development is based in sub-urban locations, and with most business sites in these locations offering free parking, car is often the preferred choice.

TRAVEL TO WORK

3.82 From the 2011 Census, the key travel trends for Aberdeen City Region residents are:

- **95%** of people working in the Aberdeen City Region also live in the Aberdeen City Region;
- **74%** of people living within Aberdeen City, work in Aberdeen City;
- **43%** of people living in Aberdeenshire, work in Aberdeenshire;
- Both Aberdeen City and Aberdeenshire demonstrate similar work from home values, **8%** and **12%** respectively to the national average of **11%**;
- Both locations also have a large amount of people with no fixed location (Aberdeen City **7%** and Aberdeenshire **9%**);
- Those working offshore equates to **2%** from Aberdeen City and **3%** from Aberdeenshire; and
- Out with internal movements, the next top three movements are to Angus **(0.4%)**, Moray **(0.3%)** and Edinburgh **(0.1%)**.

3.83 The data confirms that most of the those who live in the Aberdeen City Region also work within the region. This statisitc highlights both the current and future need to maintain and enhance the strategic transport network in the Aberdeen City Region, to facilitate the movement of people and goods throughout the Aberdeen City Region.

ASAM ANALYSIS

The Aberdeen Sub Area Model (ASAM) was investigated to comprehend the forecast changes in demand and supply in the Aberdeen City Region. Data was extracted for two modelled years, 2017 and 2037 and the changes between these years in terms of land-use and traffic interaction were explored.

Over the 20-year period between 2017 and 2037, the number of households and subsequent population in the ASAM model area increase by 47,126 households and 56,864 people. During this same time period, the number of jobs in the region increase by 37,910.

Households

Of the additional 47,126 households, 21,590 (46%) are predicted to be located in Aberdeenshire. The areas in Aberdeenshire were the most growth is expected are Inverurie (~2,736), Porthlen/Elsick (~2,767) and Kintore (~1,389).

Within the Aberdeen City local authority area, the areas with the largest number of increases in housing are Kingswells (~4,138) and the Grandhome area (~4,698). Both of these areas sit in between the AWPR and A90 corridors.

Employment

90% of the predicted increase in jobs are located within the AWPR boundary. Approximately 19,630 of these jobs are located within the Anderson Drive boundary within Aberdeen City, with significant growth in Aberdeen City Centre west (2,932) and Aberdeen Royal Infirmary (1,371). Outside the Anderson Drive corridor, two areas in particular show significant growth, the Dyce area (8,619) and Altens (2,624).

In Aberdeenshire, increases in employment are spread out more evenly across the region, with only Westhill (700) and Inverurie (659) showing any significant growth. The image below shows the increases in jobs greater than 100.

Road Network

As a consequence of the predicted changes in land-use, the transport network was analysed to identify potential problems and opportunities.

AM Peak Period

There is increased traffic in most directions leading into Aberdeen City Centre and also in the Dyce area. This ties in with the expected patterns as a result of the increased changes in both households and employment. The most significant changes in traffic flows are found in the following locations:

- Dyce area around the industrial estate and airport;
- A96 from Inverurie to Aberdeen City Centre, including Great Northern Road and Berryden Road corridor;
- The A90 south from Blackdog across the River Don;
- A90 Northbound across the River Dee; and
- Both directions on Anderson Drive around the Stockethill Area which ties in with the increased employment at the ARI.

The largest differences in traffic flows are mainly on the AWPR which illustrates that the road is performing as expected, carrying traffic both north and south and bypassing the City Centre. From the analysis of link flow differences, most traffic increases are from the AWPR to Altens, AWPR and then A96 into Aberdeen City Centre and A90 southbound from Blackdog.

Although there are increased flows at the above locations compared to 2017, there are only a few locations where the volume capacity ratio exceeds 75%. Those locations being; Great Western Road at Kittybrewster, King Street north of School Road, A90 Northbound at both Portlethen and Charleston, A90 southbound at Ellon and A96 southbound at Inverurie.

When looking at junction volume capacity constraints, however, there are 38 junctions with a VC ratio greater than 85%, which is an indication of a junction nearly at maximum capacity, including:

- Dyce Drive and Airport Link Road;
- Great Western Road and Anderson Drive;
- Queens Road and Anderson Drive;
- Lang Stracht and Anderson Drive;
- Both new junctions on Anderson Drive at Haudagain; and
- Several key junctions along Wellington Road including the signals at Souterhead Rbt.

PM Peak Period

The PM peak road network displays a similar picture to that of the AM but in reverse as traffic heads away from employment areas. Again, the biggest changes in flows are witnessed on the A90 north towards Blackdog, the Dyce area and the A90 south around Portlethen. Traffic, however, decreases on the A944, which could suggest an alternative routing in the PM peak for traffic.

Unlike the AM peak, however, there are increased locations of both network and junction capacity issues. On the road network, certain key locations show capacity volumes above 75% including:

- Links in and around the Dyce area;
- Short section of the AWPR between Dyce and Kingswells junctions;
- Persley Bridge;
- King Street at School Road;
- Bridge of Dee Southbound; and
- A90 southbound around Portlethen.

51 junctions have a volume capacity ratio over 85% which are spread throughout the network, but in the main are mostly concentrated within the Anderson Drive boundary. Some of the key locations are:

- The roundabout of the A96 and Airport Link Road;
- Dyce Drive and the A96;
- Schoolhouse junction of the AWPR;
- Kingswells junction of the AWPR and Farley Road;
- Bridge of Dee south junction;
- Anderson Drive and Queens Road;
- Anderson Drive and Lang Stracht;
- The two new junctions at Haudagin; and
- Several junctions along Wellington Road.

DATA PROBLEMS & OPPORTUNITIES

The table below highlights the key problems and opportunities identified during the data analysis stage.

Problems	Opportunities
Oil dependent economy	Strong population growth
A growing ageing population	Highly educated population
High car availability levels	Highly attractive location in which to reside - high house prices, high number of households in the highest tax band, low levels of deprivation
Lack of high speed digital and mobile connectivity	Highly paid employment
Limited bus service provision - service frequency, journey times, cost of travel, lack of orbital routes	Increased levels of tourism and tourist spend
Over capacity rail services during peak periods	Increased diversification of the economy
Under utilised Park and Ride sites	Increase in rail patronage
Limited public transport accessibility in rural areas	Aberdeen International Airport is well connected to the rest of the UK and Europe
Increase in traffic flows in city area	Expansion and enhancement of Aberdeen, Peterhead and Fraserburgh Harbours
Increase in vehicle KMs	Reducing accident rates
Low cost of parking in the City Centre	The key service centre is the most accessible and where the majority of predicted future employment is to occur and is the focus of the City Centre Masterplan
Very high car mode share	
Low PT mode share and active travel	
Car most dominant mode of transport to key employment areas	

Table 3.1: Problems & Opportunities Identified from Data analysis

04 Stakeholder Engagement

INTRODUCTION

4.1 Stakeholder Engagement is an essential element of the STAG process to ensure that specific knowledge and views of key users of the transport network are captured. Identifying the key stakeholders who could contribute significantly to this study was, therefore, of critical importance to the outcomes of the study, as was the method used to gather their views. In line with STAG, stakeholder views on problems and opportunities formed an important element of the process to understand and define the problems and opportunities. The core engagement was therefore undertaken in parallel to the analysis of the data and review of policies outlined elsewhere in the report.

4.2 Extensive discussion was held with the Project Working Group to identify the key stakeholders and the method of engagement with each. It was agreed that stakeholders such as local and regional authorities, decision makers and business organisations should be engaged with via **structured interviews**. Transport operators and providers, active travel organisations, disability groups, health and emergency services and the local business community should be engaged with via **facilitated stakeholder workshops** and local Community Councils, wider organisations and the general public engaged with via **online surveys**.

4.3 The following list of Stakeholders were invited to express their views on the Aberdeen City Region transport system to the study team (those marked with a * did not respond):

Table 4.1: Invited Stakeholders (Workshops/Structured Interviews)

Category	Organisation
National / Regional Authorities	Transport Scotland
	Nestrans
	Aberdeen City & Shire SDPA
Local Authorities	Aberdeen City Council (various departments)
	Aberdeenshire Council (various departments)
	Moray Council *
	Angus Council
Road Transport Organisations	Road Haulage Association*
	Freight Transport Association
	North East Scotland Freight Forum
Trunk Road Operation / Maintenance	Bear Scotland*
	Aberdeen Roads Ltd
Rail Transport Organisations	Rail Freight Group
	Abellio Scotrail
Marine Transport	Northlink Ferries
Bus Operators	First Aberdeen
	Stagecoach Bluebird
	Community Transport Organisations
	Bains
	Deveron Coaches
	MW Nicoll*
Air Transport	Aberdeen International Airport
Active Travel Organisations	Cycling Scotland*
	Sustrans*
	Aberdeen Cycle Forum*
	CTC Grampian
	Aberdeen Outdoor Access Forum
	Aberdeenshire Local Outdoor Access Forum
	Living Streets*
	Paths for All
Disability Organisations	Bon Accord Access Panel
	Aberdeenshire North Access Panel
	Central Aberdeenshire Access Panel*
	West Aberdeenshire Access Panel*
	Disability Equity Partnership
	Aberdeenshire South Access Panel
Health & Emergency Services	NHS Grampian*
	NHS Grampian Public Health*
	Police Scotland*
	Ambulance Service*
	Fire Brigade*
	Integrated Joint Board Aberdeen*
	Integrated Joint Board Aberdeenshire
Business Organisations	Visit Scotland*
	Energetica
	Aberdeen Harbour Board
	Peterhead Harbour*
	Fraserburgh Harbour
	Opportunity North East
	Federation of Small Businesses
	Aberdeen & Grampian Chamber of Commerce
	Scottish Council of Development and Industry
	Scottish Enterprise*
Educational Organisations	The University of Aberdeen
	Robert Gordon University
	North East Scotland College*
Youth Focused Organisations	Institution of Highways and Transportation - Youth Panel
	Aberdeen Association of Civil Engineers - Youth Panel

4.4 This section outlines the key findings of each method used for stakeholder engagement. (additional information in Appendix B) The full analysis is outlined within the Analysis of Problems and Opportunities section of this report.

STRUCTURED INTERVIEWS

4.5 As previously outlined, Jacobs worked closely with the Project Working Group to derive a list of key stakeholder organisations, and the most appropriate contacts within these. Those stakeholders who were identified as having the potential to possess detailed and wide-ranging knowledge of the region's transport network were engaged with via in-depth structured interviews. Where possible these interviews were held face-to-face or, where this was not possible, via telephone.

4.6 The face-to-face interviews took place during prearranged timeslots during October 2017, the remainder of the interviews were undertaken by telephone between November 2017 and February 2018.

Structured Interviewees

4.7 The following organisations took part in structured interviews for this study:

Table 4.2: Structured Interviewees

Organisation
Transport Scotland (various departments)
Nestrans
Aberdeen City & Shire SDPA
Aberdeen City Council (various departments)
Aberdeenshire Council (various departments)
North East Scotland Freight Forum
Aberdeen Harbour Board
Aberdeen & Grampian Chamber of Commerce
Scottish Enterprise
Institute of Highways and Transportation - Youth Panel
Aberdeen Association of Civil Engineers - Youth Panel

Structured Interview Format

4.8 The structured interviews were conducted using a set of consistent questions designed to obtain each interviewee's perspectives on key problems and opportunities, weaknesses and threats, typical modes of travel, interfaces with the transport network as well as views on the future direction of the economy of the region.

4.9 The interviews were each conducted by two experienced Jacobs' staff one of whom asked questions and facilitated the discussion, whilst the other took detailed notes.

4.10 There were a total of eleven questions asked during interviews, these were as follows:

1. What are the key functions of your organisation and your specific role within it?
2. What are the key interfaces between your organisation and the transport network in and to / from the Aberdeen City Region?
3. What are the main modes of travel relevant to your organisation in the Aberdeen City Region?
4. What are the main routes and hubs within or through the Aberdeen City Region of interest to your organisation?
5. Can you highlight any specific strengths to the transport network in and to / from the Aberdeen City Region which may act as a barrier to the activities and interests of your organisation?
6. If there are any, what are the specific problems with the transport network in and to / from the Aberdeen City Region which may act as a barrier to the activities and interests of your organisation?
7. Can you highlight any specific opportunities relevant to the transport network in and to / from the Aberdeen City Region which may be relevant to the study?
8. If there are any, what are the specific threats to the transport network in and to / from the Aberdeen City Region which may be relevant to the study?
9. What are some of the key themes that you feel need to be addressed in the Aberdeen City Region?
10. What do you think the Aberdeen City Region economy will / should look like in 2020, 2030 and 2040?
11. What impact do you think the Aberdeen Western Peripheral Route will have on the Aberdeen City Region following the full scheme opening?

Structured Interview Problem & Opportunity Responses

4.11 A total 122 problems and 93 opportunities were recorded for this form of engagement. Responses were grouped into concise problem and opportunity categories as outlined below in Table 4.3, along with a record of the number of stakeholders whose views fell into each category.

Problems	Count
Over-reliance on car as main mode of travel	13
Lack of public transport accessibility	12
Lack of high quality connected active travel provision	9
Unreliable public transport journey times during peak times and in built up areas	9
Limited funding opportunities	6
Limited integration between land use & transport network	6
Key corridors in region suffer journey time reliability issues during peak times	5
Long journey times to key destinations	5
Oil and gas dominated economy	5
High cost of travelling	4
Lack of high capacity road network provision	4
Lack of public transport capacity on key corridors	4
Public transport options not being competitive when compared to the private car	4
Safety issues on road network	4
Low cost and relative ease of parking in the city	3
Poor perception of road maintenance	3
Relative isolation of the Aberdeen City Region to Central Belt and poor inter-town connectivity	3
City Centre journey time reliability issues during peak times	2
Constrained road capacity in the City Centre	2
High traffic volumes into city during peak times	2
Lack of alternative vehicular routes	2
Limited scope for public sector funding for improved bus provision	2
Negative health impact from vehicle emissions	2
AWPR alone will not necessarily solve all problems of connectivity	2
Road infrastructure for freight movements is not always suitable	2
Road safety concerns hinders active travel uptake	2
Vehicle dominant mode in City Centre	2
Growing & ageing population	1
Lack of high speed internet access	1
Lack of quality, accessible multi-modal interchanges	1

Opportunities	Count
Lock in AWPR benefits	12
Quality sustainable travel provision shown to increase uptake of these modes	11
Committed rail developments including Kintore Station and Programme of Rail Revolution	8
Better connect the region as a whole	8
Continued economic growth	7
Increase collaboration between government and business	6
City Centre Masterplan	5
Develop the tourism offering	4
Make bus more competitive with car	4
Technology as a way of improving transport network efficiency	4
Change perception of public transport	3
Growth (economic, employment and tourism) generated by new harbour	3
Improved regional connectivity will facilitate change towards more sustainable movements	3
Increased positive growth in rail patronage	3
Move towards higher density and well located developments to reduce the need to travel by car	3
Build on identified successes of rail park & ride sites	2
Recent digital connectivity improvements can reduce the need to travel	2
Economic benefit of an airport well integrated with the city region	1
High quality of life in the Aberdeen city region	1
Local existing high skills base	1
Move towards a less car dependent region	1
Reduced emissions will improve air quality	1

Table 4.3: Problem and Opportunity Categories Identified through Structured Interviews

4.12 As can be seen, the most frequently identified problems identified by stakeholders through structured interviews related to **over-reliance on car as main mode of travel**, **a lack of overall public transport accessibility and of high quality connected active travel provision and unreliable public transport journey times**. Collectively these top four problems represented over a third of all problems identified through this engagement method.

4.13 Conversely the most frequently identified opportunities were around **locking in the potential benefits of Aberdeen Western Peripheral Route (AWPR), the investments in sustainable travel provision, and rail infrastructure to deliver uptake in these modes and a desire to see continued economic growth**. Again, these top four opportunities represented over a third of all opportunities identified through this engagement method.

STAKEHOLDER WORKSHOPS

4.14 A wide range of stakeholders with considerable knowledge using and operating transport in the region were engaged with via means of facilitated workshops. A total of three, half-day workshops were held; two were held for stakeholders and a one for local elected members.

4.15 The three workshops took place at/on the following locations and dates:

- Jurys Inn, Aberdeen, afternoon of 21 November 2017;
- Curl Aberdeen, Aberdeen, morning of 22 November 2017; and
- Town House, Aberdeen, afternoon of 26 January 2018 (elected members workshop)

Workshop Attendees

4.16 A wide range of key stakeholders were invited to the workshops, representing a diverse range of organisations. Those that attended were as follows:

Table 4.4: Workshop Attendees

21 November 2017	22 November 2017
Nestrans	North East Scotland Freight Forum
Angus Council	Aberdeen Roads Ltd
North East Scotland Freight Forum	Northlink Ferries
First Aberdeen	Stagecoach Bluebird
Aberdeenshire Local Outdoor Access Forum	Bains Coaches
Paths for All	Aberdeen Cycle Forum
Integrated Joint Board Aberdeenshire	Aberdeen Outdoor Access Forum
Energetica	Opportunity North East
Scottish Council of Development and Industry	The University of Aberdeen
Aberdeen City Council	CTC Grampian
Aberdeenshire Council	Aberdeen International Airport
Transport Scotland	Road Haulage Association
Disability Equity Partnership	Aberdeenshire Council
Robert Gordon University	Federation of Small Businesses
	Aberdeen City Council

Workshop Format

4.17 The workshops were each facilitated by Jacobs with assistance from Project Working Group representatives. The running order and format, below, was adopted to encourage group discussions and maximise the coverage of views expressed:

- Presentation on background and purpose of the Study;
- Presentation of key data trends;
- Breakout session – Group discussions on Problems and Opportunities;
- Plenary session on Problems and Opportunities; and
- Next Steps and Closing Remarks.

4.18 The presentation outlined the background to, and purpose of the study and summarised key facts, figures and data trends for the Aberdeen City Region. Attendees were then split into a number of facilitated group breakout sessions, which were mixed to ensure a variety of organisations were represented in each group. These sessions were aimed at capturing attendees' views on problems relating to current transport provision and identifying potential opportunities (but not specific measures). The final plenary session allowed feedback from the different groups on the key problems and opportunities and discussion of emerging key themes.

Workshop Problem & Opportunity Responses

4.19 A wide range of views were expressed, leading to the identification of 146 problems and 148 opportunities from the three workshops. As with the structured interview responses, the workshop groups responses were grouped into a smaller number of problem and opportunity categories which are outlined in Table 4.5:

Table 4.5: Problems and Opportunity Categories Identified Through Stakeholder Workshops

Problems	Count
Limited integration between land use & transport network	10
Lack of public transport accessibility	9
Lack of high quality connected active travel provision	8
Lack of public transport capacity on key corridors	8
Limited funding opportunities	8
Public transport options not being competitive when compared to the private car	8
Local geography constrains ability to create efficient transport system	7
Growing & ageing population	7
Key corridors in region suffer journey time reliability issues during peak times	7
Long journey times to key destinations	6
Negative health impact from vehicle emissions	6
Over-reliance on car as main mode of travel	6
High cost of travelling	5
Low cost and relative ease of parking in the city	5
Road infrastructure for freight movements is not always suitable	5
Lack of high speed internet access	4
Constrained road capacity on key corridors into City Centre	3
Lack of quality, accessible multi-modal interchanges	3
Oil and gas dominated economy	3
AWPR alone will not necessarily solve all problems of connectivity	3
Skills shortage for key industries	3
Unreliable public transport journey times during peak times and in built up areas	3
Constrained road capacity in the City Centre	2
Difficult for vulnerable users to access public transport, i.e. connections to Aberdeen Rail Station from the City Centre	2
Limited scope for public sector funding for improved bus provision	2
Poor access to the airport from Dyce Rail Station	2
Poor tourism infrastructure and difficult to access attractions	2
Road safety concerns hinders active travel uptake	2
Lack of alternative vehicular routes	1
Lack of high capacity road network provision	1
Poor perception of road maintenance	1
Relative isolation of the Aberdeen City Region to Central Belt and poor inter-town connectivity	1
Safety issues on road network	1
Unsafe driver behaviour	1
Vehicle dominant mode in City Centre	1

Opportunities	Count
Technology as a way of improving transport network efficiency	16
Better connect the region as a whole	13
Lock in AWPR benefits	12
Develop the tourism offering	9
Continued economic growth	8
Increased positive growth in rail patronage	8
Committed rail developments including Kintore Station and Programme of Rail Revolution	7
Economic benefit of an airport well integrated with the city region	7
City Centre Masterplan	6
Increase collaboration between government and business	6
Move towards a less car dependent region	6
Move towards higher density and well located developments to reduce the need to travel by car	6
Build on identified successes of rail park & ride sites	5
Growth (economic, employment and tourism) generated by new harbour	5
Health benefits associated with an increase in walking and cycling	5
Quality sustainable travel provision shown to increase uptake of these modes	5
Recent digital connectivity improvements can reduce the need to travel	5
Improved regional accessibility will facilitate change towards more sustainable movements	3
Local existing high skills base	3
Make bus more competitive with car	3
Freight efficiency benefits from AWPR	2
Reduced emissions will improve air quality	2
Travel planning can result in behaviour change	2
Change perception of public transport	1
Continuing improvements to road safety	1
High quality of life in the Aberdeen City Region	1
Improved regional connectivity will facilitate change towards more sustainable movements	1

4.20 There was a greater spread of problems and opportunities identified by stakeholders through Workshops when compared to those gathered through structured interviews. This likely reflects the wide diversity, and greater number, of stakeholders engaged with via this method.

4.21 From the workshops, the most frequently identified problems relate to a **perception of limited integration between land use and transport networks, a lack of overall public transport accessibility, a lack of high quality connected active travel provision, a lack of public transport capacity on key corridors, limited funding opportunities and of overall poor public transport offering**. Collectively these top six problems

represented over a third of all problems identified through this engagement method.

4.22 Conversely the most frequently identified opportunities were around **technology as a way of improving transport network efficiency, locking the potential benefits of AWPR, better connecting the region as a whole and developing the region's tourism offering**. Again these top four opportunities represented over a third of all opportunities identified through this engagement method.

COMMUNITY COUNCILS

4.23 It was collectively agreed with the Project Working Group that all active Community Councils within the Aberdeen City Region would be invited to contribute via means of an online survey. In addition, stakeholders who were invited to take part in stakeholder workshops but who were unable to attend, we included in the surveys.

4.24 Community Council contacts and stakeholders were invited to participate via a link to a survey that included a set of region specific questions created to ascertain perspectives on key problems and opportunities, and the potential future of the Aberdeen economy.

4.25 The online Community Council / Organisation survey was published on 19th December 2017 and closed on 19th February 2018, allowing for a total of 9 weeks to complete the survey.

Invited Community Councils

4.26 Table 4.6 and Table 4.7 outline the Community Councils that responded to the survey:

Aberdeenshire Community Councils
Banchory
Banff & Macduff
Benholm and Johnshaven
Bennachie
Birse and Ballogie
Buchan East
Cornhill & Ordiquhill
Crathes, Drumoak and Durris
Deer
Echt and Skene
Ellon
Foveran
Fyvie, Rothienorman, Monquhitter
Invercairn
Inverurie
Methlick
Mintlaw and District
New Pitsligo
Peterhead
Portlethen and District
Portsoy & District
Turriff and District
Westhill & Elrick
Whitehills & District

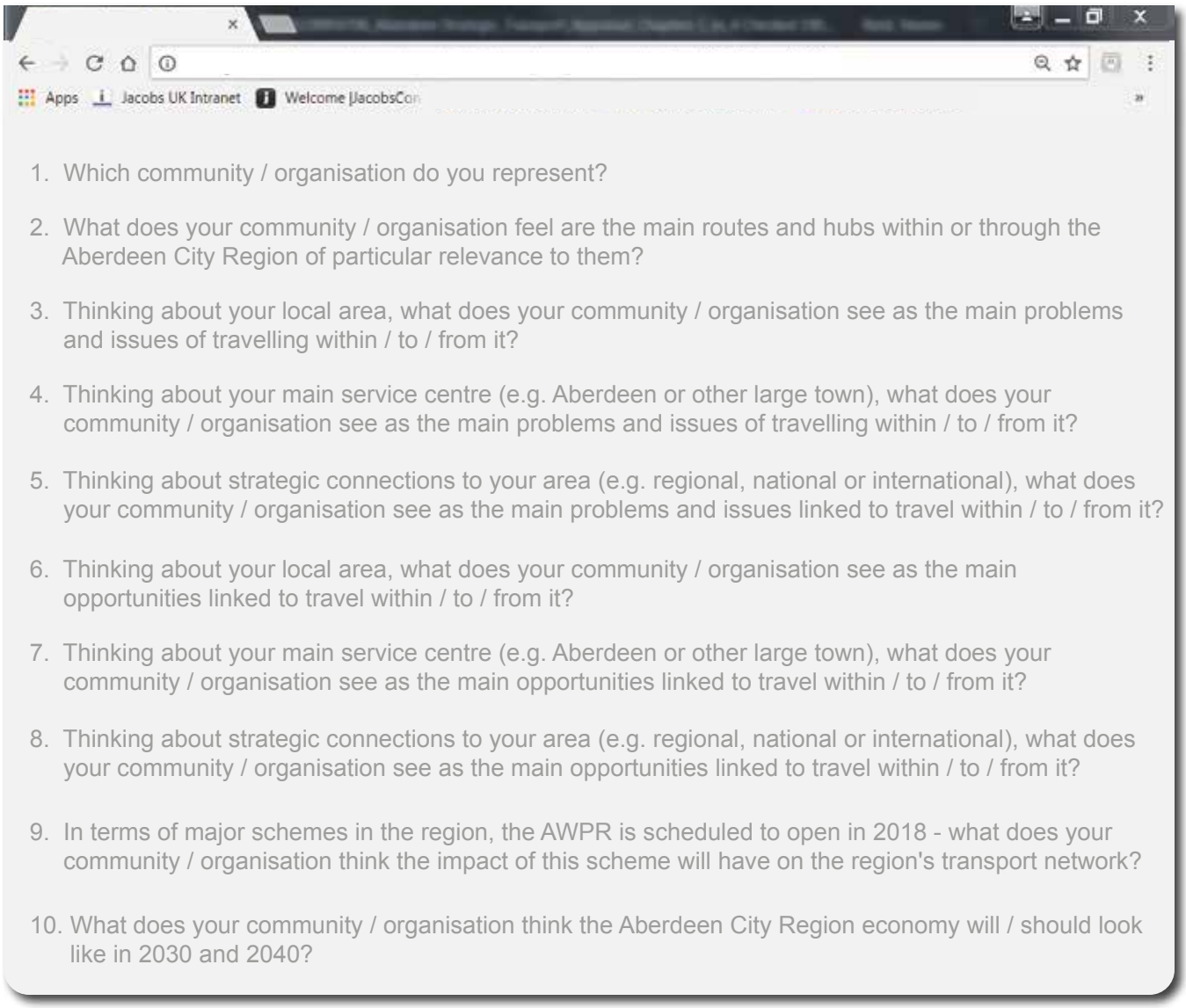
Table 4.6: Aberdeenshire Community Councils who responded to the survey

Aberdeen City Community Councils
Kingswells
Old Aberdeen
Queens Cross and Harlaw
Rosemount and Mile End
Torry

Table 4.7: Aberdeen City Community Councils who responded to the Survey

Online Survey Format

4.27 There were a total of ten questions asked through the online survey, which were developed in consultation with the Project Working Group. The survey questions were as follows:



Online Survey Problem & Opportunity Responses

4.28 Analysis of survey responses led to the identification of 92 problems and 66 opportunities which were collated into problems and opportunity categories, as outlined in Table 4.8 below.

Problems	Count
Relative isolation of the Aberdeen City Region to Central Belt and poor inter-town connectivity	7
Lack of public transport accessibility	6
Lack of high capacity road network provision	5
Lack of high quality connected active travel provision	5
Lack of public transport capacity on key corridors	4
Limited funding opportunities	4
Limited integration between land use & transport network	4
Long journey times to key destinations	4
Unreliable public transport journey times during peak times and in built up areas	4
Constrained road capacity on key corridors into City Centre	3
Difficult for vulnerable users to access public transport, i.e. connections to Aberdeen Rail Station from the City Centre	3
High cost of travelling	3
Key corridors in region suffer journey time reliability issues during peak times	3
Lack of quality, accessible multi-modal interchanges	3
Local geography constrains ability to create efficient transport system	3
Over-reliance on car as main mode of travel	3
Public transport options not being competitive when compared to the private car	3
Poor perception of road maintenance	3
Road safety concerns hinders active travel uptake	3
Safety issues on road network	3
Constrained road capacity in the City Centre	2
Growing & ageing population	2
Lack of alternative vehicular routes	2
Negative health impact from vehicle emissions	2
Poor access to the airport from Dyce Rail Station	2
Road infrastructure for freight movements is not always suitable	2
Unsafe driver behaviour	2
City Centre journey time reliability issues during peak times during peak times	1
Low cost and relative ease of parking in the city	1

Opportunities	Count
Better connect the region as a whole	16
Quality sustainable travel provision shown to increase uptake of these modes	7
Make bus more competitive with car	5
Change perception of public transport	4
City Centre Masterplan	4
Committed rail developments including Kintore Station and Programme of Rail Revolution	4
Continued economic growth	4
Technology as a way of improving transport network efficiency	4
Move towards higher density and well located developments to reduce the need to travel by car	3
Develop the tourism offering	2
Economic benefit of an airport well integrated with the city region	2
High quality of life in the Aberdeen City Region	2
Increase collaboration between government and business	2
Increased positive growth in rail patronage	2
Lock in AWPR benefits	2
Continuing improvements to road safety	1
Freight efficiency benefits from AWPR	1
Move towards a less car dependent region	1

Table 4.8: Problems and Opportunity Categories Identified Through Stakeholder Survey

4.29 As with the workshop responses, there was a considerable spread of problems and opportunities identified by stakeholders through the online survey. Again, this likely reflects the diverse background of respondents, particularly amongst Community Councils which represent a diverse range of areas.

4.30 The most frequently identified problems identified by stakeholders through the survey relate to **the relative isolation of the region and poor inter-town connectivity, a lack of public transport accessibility, a lack of high capacity road network provision, a lack of high quality connected active travel provision, lack of public transport capacity on key corridors, limited funding opportunities, limited integration between land use & transport network, long journey times to key destinations and unreliable journey times on public transport**. Collectively these top nine problems represented over a third of all problems identified through this engagement method.

4.31 Conversely the most frequently identified opportunities were around **better connecting the region as a whole, quality sustainable travel provision being shown elsewhere to increase uptake of these**

modes, capitalise on future major infrastructure commitments and to make bus more competitive with car. Again, these top four opportunities represented over a third of all opportunities identified through this engagement method.

PUBLIC SURVEY

4.32 To supplement the engagement process above, it was agreed the views from the general public on the Aberdeen City Region transport system be sought alongside information on their demographics and typical travel patterns, to check for consistency alongside the views of stakeholders.

4.33 As such, a wide-ranging questionnaire was made available via an online survey. This survey was advertised via the social media feeds of Transport Scotland, NESTRANS, Aberdeen City Council and Aberdeenshire Council and the local press also picked up details of the study via an Aberdeen City Council press release.

4.34 There were a total of 33 questions included in the survey. For ease of completion, respondents were asked specific questions related to their stated main modes of travel which meant that respondents could choose to only answer expanded questions related to their previous answer [i.e. if respondents stated they usually travelled by car, then detailed questions were asked relating to journeys by road]. Respondents could also answer questions regarding why they have chosen not to travel via specific modes.

4.35 Initial questions focused on frequent modes of travel and destinations, plus views on the quality of the transport network, for specific modes. Additional questions were also asked on demographic areas including respondents' age range, gender, employment status and on regular original and destinations for work and also for retail and leisure. A total of 578 valid responses were received by the closing date of 19 February 2018.

4.36 The information obtained from the public survey was analysed to gain an understanding of travel behaviour across the study area and to validate the views of key stakeholders. The responses from the public survey also provides an important dataset to compare against elements of the 2011 census data.

Public Survey Results

4.37 A summary of the mode share data provided by the public has been included previously as a comparison to the 2011 census data. This section rather focuses on a summary of the public responses to demographic and experiences of the region's transport network. A complete analysis of the public survey responses is included in **Appendix B**.

4.38 Demographics

- The majority of responses were from those in full-time employment (approximately 63%) and were male (approximately 61%); and
- The largest proportion of respondents were in the 45 – 64 age bracket, followed by 35 – 44, then 25 – 34, then 65+ and then 18 – 24. Under 18s formed less than 1% of responses.

Quality of Transport Network

4.39 Survey respondents were asked to rate the various transport networks that they use. For each question there were a wide variety of responses, with at least some respondents rating the various transport networks either excellent or very poor. It should be noted that there is some potential bias in responses, for example people who don't travel by bus may rate bus more poorly and so on. As an average of all responses however, responses can be summarised as follows:

- The average score given for the road network was approximately 4 out of 10;
- The average score for the bus network was approximately 2 out of 10;
- The average score for the rail network was approximately 4 out of 10;
- The average score given for the walking network was also approximately 4 out of 10; and
- The average score for the cycling network was approximately 2 out of 10.

Important Issues

4.40 A wide range of responses were received from respondents on the important issues to them. The most important issue for local trips, for trips to / from Aberdeen City Centre or their nearest largest town and also for trips to the central belt of Scotland was the **perceived high cost of public transport**.

4.41 Further, for those who do not regularly travel on foot, the main reason given for not doing so were **safety concerns associated with poor infrastructure and lighting**. For those who do not regularly cycle, the main reason given for not doing so was also **safety, but due to a lack of segregated cycle facilities**. For those who do not regularly travel by bus or rail, the main reason given for not using this mode of travel was the **cost**.

05 Analysis of Problems and Opportunities

INTRODUCTION

5.1 This stage of the STAG process involves the identification of actual and perceived problems and opportunities that are specific to the area, and forms a fundamental element of the study. STAG broadly defines problems and opportunities as:

Problems: existing and future problems within the transport and land use system (e.g. unreliable journey times due to high volumes of traffic on key corridors).

Opportunities: chances to improve the transport and land use system (e.g. improve journey times and reliability).

5.2 Four key workstreams fed in to the identification of future year problems and opportunities across the Aberdeen City Region transport and land use system, comprising:

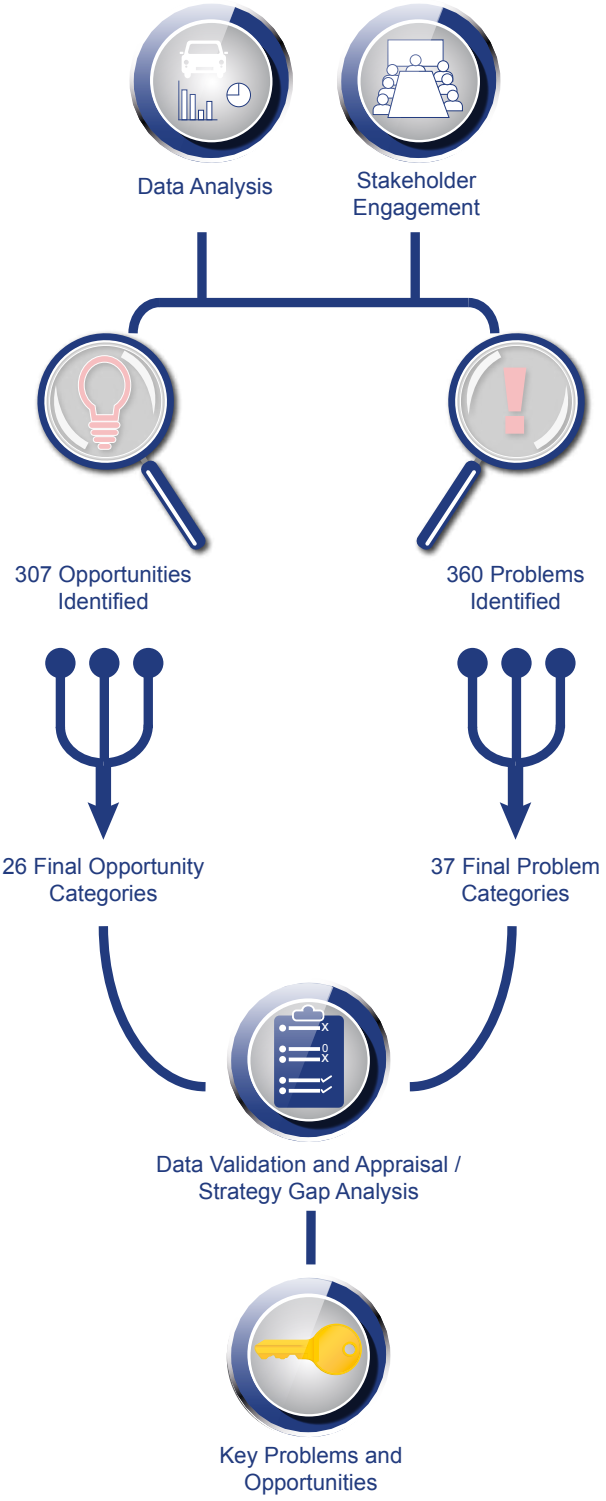
- Data analysis (as detailed in Chapter 3);
- Analysis of ASAM transport model outputs (as detailed in Chapter 3);
- Stakeholder engagement (as detailed in Chapter 4); and
- Relevant policy, strategy and previous appraisals review (as detailed in this Chapter).

IDENTIFICATION PROCESS

5.3 The key workstreams for identification of problems and opportunities were data analysis and stakeholder engagement. Data analysis was used to check for problems or opportunities with geographic context, and quantification of these where possible. Additionally, in line with the strategic scope of the study, stakeholder engagement asked stakeholders to consider problems and opportunities across the wider Aberdeen City Region's transport system as a whole. As such, the majority of problems and opportunities identified by stakeholders were not attributed to specific transport corridors or more localised areas. However, for instances where the geographic context was important to a particular problem or opportunity it was captured.

5.4 Following the completion of the Stakeholder Engagement and data analysis workstreams, a total of 360 individual problems and 307 individual opportunities were identified. Based on an initial review of these long lists, it was evident that a number of individual problems and opportunities covered very similar points, and thus, could be grouped and distilled into categories (See Appendix C). These were then reviewed alongside data and other relevant policy, appraisals and strategies for validation. Following review of these problems and opportunities categories alongside data and relevant policies, appraisals and strategies, a set of key problems and opportunities were identified which in turn led to the development of key themes (Chapter 6). The full methodology adopted in the development of problems and opportunities is shown in Figure 37 below.

Figure 37: Identification of Problems and Opportunities



IDENTIFIED PROBLEMS

5.5 Following an extensive review process of problems identified from data and stakeholder engagement, the 360 individual problems were distilled into 37 categories. The tables outline these 37 problem categories and sets out the proportion of the original 360 individual problems that were assigned to each category.

ACCESSIBILITY

- Long journey times to key destinations (4%)
- Local geography constrains ability to create efficient transport system (3%)
- Poor access to the airport from Dyce Rail Station (1%)

ACTIVE TRAVEL

- Lack of high quality connected active travel provision (6%)
- Road safety concerns hinders active travel uptake (2%)

CONNECTIVITY

- Relative isolation of the Aberdeen City Region to Central Belt and poor inter-town connectivity (3%)
- AWPR alone will not necessarily solve all problems of connectivity (1%)
- Lack of quality, accessible multi-modal interchanges (2%)
- Lack of high speed internet access (1%)

PUBLIC TRANSPORT

- Public transport options not being competitive when compared to the private car (4%)
- Lack of public transport accessibility (8%)
- Unreliable public transport journey times during peak times and in built up areas (4%)
- Lack of public transport capacity on key corridors (4%)
- High cost of travelling (3%)
- Difficult for vulnerable users to access public transport, i.e. connections to Aberdeen Rail Station from the City Centre (1%)
- Limited scope for public sector funding for improved bus provision (1%)

ROAD

- Key corridors in region suffer journey time reliability issues during peak times (4%)
- Lack of high capacity road network provision (3%)
- Road infrastructure for freight movements is not always suitable (3%)
- Low cost and relative ease of parking in the city (3%)
- Safety issues on road network (2%)
- Poor perception of road maintenance (2%)
- Constrained road capacity on key corridors into City Centre (2%)
- Constrained road capacity in the City Centre (2%)
- Lack of alternative vehicular routes (1%)
- Vehicle dominant mode in City Centre (1%)
- Unsafe driver behaviour (1%)
- City Centre journey time reliability issues during peak times (1%)
- High traffic volumes into city during peak times (1%)

SOCIO-ECONOMIC

- Over-reliance on car as main mode of travel (6%)
- Limited integration between land use & transport network (6%)
- Limited funding opportunities (5%)
- Negative health impact from vehicle emissions (3%)
- Growing & ageing population (3%)
- Oil and gas dominated economy (2%)
- Skills shortage for key industries (1%)
- Poor tourism infrastructure and difficult to access attractions (1%)

VALIDATION OF PROBLEMS

5.6 Each problem category was checked to verify whether they were evidenced, i.e. with data, or whether they were perceived or unable to be verified. A RAG (Red/Amber/Green) system was adopted for each problem category where:

- **Red** indicates data is unavailable or the data does not validate the problem;
- **Amber** indicates data is available and it validates the Problem in part; and
- **Green** indicates data is available and it validates the Problem.

Figure 38 outlines the availability of data which is applicable to each final Problem category, while **Appendix D** details the data context further.

Figure 38: Data Validation of Problems

IDENTIFIED OPPORTUNITIES

5.7 Following an extensive review process of opportunities identified from stakeholder engagement, the 307 individual opportunities were distilled into 29 categories. The tables outline these 29 opportunity categories and sets out the proportion of the original 307 individual Opportunities that were assigned to each category.

ACCESSIBILITY

- Better connect the region as a whole (12%)
- City Centre Masterplan (5%)
- Economic benefit of an airport well integrated with the city region (3%)
- Improved regional accessibility will facilitate change towards more sustainable movements (1%)
- Travel planning can result in behaviour change (1%)
- Maximise access to new harbours (1%)

ECONOMY & DEVELOPMENT

- Continued economic growth (6%)
- Develop the tourism offering (5%)
- Increase collaboration between government and business (5%)
- Move towards higher density and well located developments to reduce the need to travel by car (4%)
- Growth (economic, employment and tourism) generated by new harbour (3%)
- Local existing high skills base (1%)
- High quality of life in the Aberdeen City Region (1%)

ACTIVE TRAVEL

- Quality sustainable travel provision shown to increase uptake of these modes (7%)
- Health benefits associated with an increase in walking and cycling (2%)
- Incorporation of high quality active travel provision as part of City Centre Masterplan (1%)

ENVIRONMENT

- Technology as a way of improving transport network efficiency (8%)
- Reduced emissions will improve air quality (1%)

PUBLIC TRANSPORT

- Committed rail developments including Kintore Station and Programme of Rail Revolution (6%)
- Increased positive growth in rail patronage (4%)
- Make bus more competitive with car (4%)
- Change perception of public transport (3%)
- Build on identified successes of park & ride sites (2%)

CONNECTIVITY

- Recent digital connectivity improvements can reduce the need to travel (2%)
- Improved regional connectivity will facilitate change towards more sustainable movements (1%)

ROAD

- Lock in AWPR benefits (8%)
- Move towards a less car dependent region (3%)
- Freight efficiency benefits from AWPR (1%)
- Continuing improvements to road safety (1%)

POLICY / APPRAISAL / STRATEGY REVIEW OF PROBLEMS & OPPORTUNITIES

5.8 Following the analysis of problems and opportunities derived from stakeholders and data, a review of relevant existing, appraisal and strategy reports from Aberdeen City Council, Aberdeenshire Council, Nestrans and national government was undertaken. Applicable problems and opportunities were extracted from these and checked for consistency, or otherwise, against this pre-appraisal's problems and opportunities. The following studies reviewed as part of this exercise include:

- A90/A96 Haudagain Improvement (2008)
- A90 Fraserburgh Peterhead Ellon – Aberdeen Corridor Study (2016)
- A947 Route Improvement Strategy (2016)
- Aberdeen Access from the South (2008)
- Aberdeen City Centre Masterplan and Delivery Programme (ongoing)
- Aberdeen Cross City Transport Connections (ongoing)
- Aberdeen Roads Hierarchy (ongoing)
- Access to Laurencekirk (ongoing)
- B9119 Queen's Road / Skene Road Study (2017)
- Bridge of Dee Study (ongoing)
- City Centre Masterplan (2015)
- Dyce Station Car Park Extension (2015)
- Fraserburgh and Peterhead to Aberdeen Strategic Transport Study (ongoing)
- Inverurie Interchange (2014)
- Junction Feasibility (ongoing)
- Locking in the Benefits of the AWPR (2008)
- Modern Transport System (2003)
- Reducing the Barriers to Bus Use (2015)
- Wellington Road Multimodal Corridor Study (ongoing)
- Westhill Capacity Study (2007)
- Westhill Public Transport and Access Strategy (2017)

Problems from Previous Studies Analysis

5.9 Following a review of all appropriate problems identified in the above studies, it was found that the majority, approximately 70%, of those problems listed in Table 5.1 corresponded with those identified by this study. This is to be expected given the regionally specific nature of this study and the local nature of the other studies. It is notable that this study identified a number, approximately 30%, of additional categories however and this likely reflects the wide ranging extensive stakeholder engagement and data analysis undertaken for this study.

Problem	Not directly identified in previous studies	Identified in 1 study	Identified in 2 studies	Identified in 3+ studies
AWPR alone will not necessarily solve all problems of connectivity	x			
City Centre journey time reliability issues during peak times	x			
Constrained road capacity in the City Centre				x
Constrained road capacity on key corridors into City Centre				x
Difficult for vulnerable users to access public transport, i.e. connections to Aberdeen Rail Station from the City Centre	x			
Growing & ageing population		x		
High cost of travelling				x
High traffic volumes into city during peak times			x	
Key corridors in region suffer journey time reliability issues during peak times				x
Lack of alternative vehicular routes			x	
Lack of high capacity road network provision			x	
Lack of high quality connected active travel provision				x
Lack of high speed internet access		x		
Lack of public transport accessibility			x	
Lack of public transport capacity on key corridors				x
Lack of quality, accessible multi-modal interchanges			x	
Limited funding opportunities		x		
Limited integration between land use & transport network				x
Limited scope for public sector funding for improved bus provision		x		
Local geography constrains ability to create efficient transport system	x			
Long journey times to key destinations	x			
Low cost and relative ease of parking in the city	x			
Negative health impact from vehicle emissions				x
Oil and gas dominated economy	x			
Over-reliance on car as main mode of travel				x
Poor access to the airport from Dyce Rail Station	x			
Public transport options not being competitive when compared to the private car		x		
Poor perception of road maintenance	x			
Poor tourism infrastructure and difficult to access attractions	x			
Public transport options not being competitive when compared to the private car		x		
Relative isolation of the Aberdeen City Region to Central Belt and poor inter-town connectivity			x	
Road infrastructure for freight movements is not always suitable				x
Road safety concerns hinders active travel uptake	x			
Safety issues on road network				x
Skills shortage for key industries	x			
Unreliable public transport journey times during peak times and in built up areas				x
Unsafe driver behaviour				x
Vehicle dominant mode in City Centre		x		

Table 5.1: Previous Studies Gap Analysis: Problems

5.10 In terms of gaps identified, the problem of severance was identified in other studies but was not specifically identified by this study. This relates to the concept of severance specifically between communities, attributed to traffic and transport links which are at, or over, capacity. This results in a perceived and physical severance, which in turn negatively affects quality of life and limits people's mobility.

5.11 Having reviewed the problem categories identified by this study however, rather than add a new problem category for severance it was decided that this was appropriately covered already by the following:

- Limited integration between land use & transport network;
- Local geography constrains ability to create efficient transport system; and
- Constrained road capacity on key corridors into City Centre.

Opportunities from Previous Studies Analysis

5.12 Following a review of all appropriate opportunities identified in the aforementioned studies, again it was found that the majority, approximately 75%, of those opportunities listed in Table 5.2 corresponded with those identified by this study. This is to be expected given the regionally specific nature of this study and the local nature of the other studies. It is again notable that this study identified a number, approximately 25%, of additional categories and this likely reflects the wide ranging extensive stakeholder engagement and economic review undertaken for this study.

Opportunity	Not directly identified in previous studies	Identified in 1 study	Identified in 2 studies	Identified in 3+ studies
Better connect the region as a whole				x
Build on identified successes of park & ride sites				x
Change perception of public transport			x	
City Centre Masterplan		x		
Committed rail developments including Kintore Station and Programme of Rail Revolution		x		
Continued economic growth	x			
Continuing improvements to road safety			x	
Develop the tourism offering		x		
Economic benefit of an airport well integrated with the city region	x			
Freight efficiency benefits from AWPR		x		
Growth (economic, employment and tourism) generated by new harbour	x			
Health benefits associated with an increase in walking and cycling	x			
High quality of life in the Aberdeen city region			x	
Incorporation of high quality active travel provision as part of City Centre Masterplan	x			
Improved regional accessibility will facilitate change towards more sustainable movements			x	
Improved regional connectivity will facilitate change towards more sustainable movements			x	
Increase collaboration between government and business			x	
Increased positive growth in rail patronage			x	
Local existing high skills base		x		
Lock in AWPR benefits				x
Make bus more competitive with car				x
Maximise access to new harbours		x		
Move towards higher density and well located developments to reduce the need to travel by car				x
Move towards higher density developments to reduce the need to travel by car			x	
Quality sustainable travel provision shown to increase uptake of these modes				x
Recent digital connectivity improvements can reduce the need to travel	x			
Reduced emissions will improve air quality	x			
Technology as a way of improving transport network efficiency				x
Travel planning can result in behaviour change		x		

Table 5.2: Previous Studies Gap Analysis: Opportunities

5.13 There were no specific opportunities of note identified by the other studies which it was felt needed further consideration by this study.

KEY PROBLEMS & OPPORTUNITIES

5.14 Following the identification of the problem and opportunity categories, these were analysed to determine a set of key problems and opportunities. These describe the specific regional context with which the transport network functions, or is expected to function in future, and views on how these may broadly be addressed. These assisted in the identification of key themes and Transport Planning Objectives. These were identified as follows:

Key Problems

5.15 **High car usage in the Aberdeen City Region –** contributing factors include:

- Car mode share in the region is particularly high - at 58% Aberdeen City has a significantly higher car mode share than Edinburgh (32%), Glasgow (36%) and Dundee (45%). At 70% Aberdeenshire car mode share is higher than all cities and both the Scottish national average (62%) and Scottish Rural Average (63%);
- Car ownership / availability in the region is also high, particularly so for the proportion of households with access to two or more vehicles. Households with access to two or more cars in Aberdeenshire is 34%, this is 12% higher than the national average and 9% higher than the Scottish Rural Average. Aberdeen City, at 19%, is 5% higher than Edinburgh and Dundee and 9% higher than Glasgow; and
- The region has a large geographic area and hence longer than average travel distances – almost half of Aberdeenshire residents travel further than 10km to work. This is an increasing trend - since 2011, total vehicle kilometres in both Aberdeen City and Aberdeenshire has increased by 3% and 8% respectively, compared to 5% nationally.

5.16 **A large volume of private car movements combined with the constrained road network –** linked to long / unreliable journey times, particularly in the peak periods. Contributing factors include:

- Traffic modelling data (ASAM 2017) highlights several Aberdeen road links are over 75% capacity including on Wellington Road, Bridge of Dee, A956 south of Bridge of Don, A90 south of Ellon and A96 through Inverurie. Additionally, modelling highlights several junctions over 85% capacity including Wellington Road, A90 both north and south approaches to City Centre, and A947 both north and south of Dyce; and
- Motorists are attracted into Aberdeen City Centre by relatively inexpensive parking. Cost of all day parking in city is often cheaper than return rail travel; the average price of a 9-hour stay is approximately £11, this compares with an average for Edinburgh of £19 and for Glasgow of £21.

5.17 **Infrastructure and services need to keep a pace with development growth –** where it doesn't that can lead to over saturation of the network in constrained areas:

- A number of new housing allocations located in the south are located along the A90 corridor which could increase north/south travel on this route. ASAM 2017 model outputs indicate several links along this route are, or are predicted to be above 85% capacity. Analysis of proposed Local Development Plan land-use allocations over time, compared with the current public transport network, shows a number of these areas are likely to have a relatively sparse public transport route coverage and service frequency; and
- Future scenario traffic modelling runs show current traffic network conditions to deteriorate approximately in line with development, specifically outputs highlight an average 41% increase in travel time from 2017 to 2037, during the peaks.

5.18 **Poor perception of public transport provision in the Aberdeen City Region –** often seen as an uncompetitive option due to long / unreliability of journey times, relatively high ticket prices and lack of quality interchanges.

- Mode share for travel to work by bus is lower than comparator cities for Aberdeen, which, at 12%, is 13% lower than Edinburgh, 6% lower than Glasgow and 2% lower than Dundee. The picture is more mixed for Aberdeenshire which, at 4% mode share, is on a par with the Scottish Rural Average but 6% lower than the national average;
- On average, around 50% of postcodes in the region cannot reach any of the top 13 employment attractors within the 90-minute period by public transport; and
- An annual bus season pass for Aberdeen City is £160 more expensive than a season pass for Dundee City (£500), and £130 more expensive than a season pass in Glasgow (£530). However, a season ticket for Edinburgh (£665) is £5 more expensive.

5.19 **The rail network is currently limited to two main corridors –** these corridors currently suffer from overcrowding in the peak period. Whilst further land use development could add to the pressure on the routes, the Rail Revolution proposals will add additional capacity.

- Rail patronage in the region shows significant growth levels. Boardings growth at key stations within the region, between 2010 and 2016, were as follows; Aberdeen 17% (+495,642); Inverurie 54% (+188,182), Dyce 15% (+84,736), Stonehaven 11% (+52,976), Portlethen 206% (+37,942), Insch 36% (31,524), Laurencekirk 42% (+30,942), and Huntly 18% (+15,836).

5.20 **Lack of a wide-spread high quality and fully integrated active travel network, in particular linked cycle routes –** leads to a requirement to often cycle on roads, which hampers active travel uptake.

- Whilst cycle mode shares across the comparator areas are very similar, walk mode share for Aberdeen City (15%) is 12% lower than Dundee, 10% lower than Edinburgh and 7% lower than Glasgow. Equally the walk mode share for Aberdeenshire (8%) is 4% lower than the Scottish Rural Average and 2% lower than the national average.

5.21 **Relative remoteness of Aberdeen City Centre in relation to key markets in the Central Belt and beyond.**

- Less major cities, towns and local rail stations can be reached within a three-hour travel window by rail from the region than can for Glasgow and Edinburgh.

Key Opportunities

5.22 **The programme of Rail Revolution and the opening of Kintore Rail Station –** linked to passenger growth through other rail stations.

- There is a commitment to reopen Kintore Station and studies are ongoing to investigate extending the rail network north to Ellon. The Programme of Rail Revolution plans introduce new and extended service provision to allow further opportunities for growth in rail travel in the region.

5.23 **AWPR –** seen as a major component in relieving pressure on the traffic network.

- Aberdeen Western Peripheral Route will combine a bypass for long distance traffic with a peripheral route for shorter journeys with aim of removing traffic from City Centre; and

- Anticipated to improve freight links, reduce the time to market for goods and to reduce accidents due to the high quality route and modern design standards.

5.24 **City Centre Masterplan –** potential to improve the public realm for the benefit of all users

- In terms of transport, the City Centre Masterplan is seen as an excellent example of a mechanism that will set the framework to prioritise bus access, relocate vehicle movements and improve the quality of urban space within the City Centre.

5.25 **Continued sustainable economic growth –** stimulated through both traditional sectors and diversification.

- The Region has a high performing economy - regional GVA Growth (1997-2015) shows Aberdeen City growth at 107% and Aberdeenshire at 135% compared to City of Edinburgh at 112%, Glasgow City at 92%, Dundee City at 68% and Scottish Rural Average at 87%.

5.26 **Aberdeen South harbour –** has the potential to stimulate further growth in the economy, employment and tourism.

- Due to the geographical proximity of Aberdeen to the North Sea oil fields and fishing waters, marine transport plays an important role in the growth in the region's economy. The existing Aberdeen Harbour plays a crucial role in the supply and maintenance of vessels related to the oil and gas industry and handles over 6,500 shipping movements annually. Peterhead has also demonstrated growth tonnage; and

- The new harbour will significantly enhance the region's ability to handle this growth as well as allow cruise ships to berth.

5.27 **High quality of life in the Aberdeen City Region –** has the ability to retain and attract high skilled individuals and tourists.

- The high quality of life within the region is evident in the low levels of deprivation. The number of locations within 20% most deprived in Scotland (SIMD, 2016) for Aberdeen City are 22 and Aberdeenshire 6. This compares to City of Edinburgh at 82, Glasgow City 360, Dundee City 69 and Scottish Rural Average 71;

- Since 2001, both of the region's local authority areas have shown sustained population growth – Aberdeen at a rate of 8.5% and Aberdeenshire at a rate of 15.4%. This compares with population growth for Scotland as a whole of 7.1%, City of Edinburgh 14.3%, Glasgow City 7.3%, Dundee City 2.2% and Scottish Rural average of 5.9%; and

- Tourism numbers for the region have grown year on year. Aberdeen is ranked 7th of all places in the UK as a location to have a weekend break (Laterooms 2017). The region boasts Europe's largest whisky trail, over 300 castles / country houses and historic ruins, 55 golf courses, one National Park, five snow sports centres, one Royal Home and over 165 miles of coastline containing some of the best locations for dolphin spotting.

06 Development of Key Themes

Overview

6.1 Following the analysis of the problems and opportunities, a number of over-arching appraisal themes were extracted to assist in identifying the desired outcomes which should be sought by objectives created for this study.

6.2 A parallel exercise was also undertaken to derive a set of relevant themes from relevant national, regional and local transport and economic policies and strategies. These were then used as a 'filter' through which the problems and opportunities themes derived by this study were matched to check alignment.

6.3 As a result, some changes were identified and used to produce a set of final **key themes** that ultimately guided the formation of applicable and regionally specific Transport Planning Objectives (TPOs). Details of the Key Themes process can be seen in Appendix D, and the study TPOs are presented in the following chapter 7.

THEMES FROM PROBLEMS & OPPORTUNITIES

6.4 The first step in the derivation of the themes for this study was to review the analysis for each of the problem and opportunity categories and group these to form a set themes that captured the key areas identified to guide the derivation of appropriate TPOs. The resulting themes identified were as follows:

1. Connections to core growth areas

• Where key business and residential development areas are planned, this theme outlines a desire to ensure these are well connected internally and to external networks (transport and digital).

2. Maintaining and creating a desirable place to live, work and visit

• The region is already an area of outstanding natural beauty so where interventions are planned, this theme outlines a desire to ensure these are adopted in a way that does not impact the region negatively.

3. Increasing travel choices for all

• Currently the region has a dominant private car mode share, mainly because this is seen as a more attractive transport option than the alternatives. This theme outlines a desire to increase the attractiveness of other forms of travel compared to the private car.

4. Supporting key sectors and facilitating increased diversification of the region's economy

• The Aberdeen City Region Deal aims to support sustainable economic growth in the region. This theme outlines a desire to accommodate this by ensuring that the transport system is able to facilitate the planned growth.

5. Creating a resilient and affordable transport system

• There is currently a perceived lack of alternative routes, particularly for freight and when incidents occur. There is also a perception that travel throughout the region can be expensive. This theme outlines a desire to ensure that the transport network can cope with incidents, and that it offers economic travel throughout the region.

6. Improving strategic connectivity

• There is a perception that the region is remote from key markets. This theme outlines a desire to support the competitiveness of the region by ensuring it is well connected to key markets and destinations.

7. Expanding opportunities for effective partnerships

• There is a perception that funding opportunities are scarce and significant interventions have an opportunity to be best provided in partnership between multiple bodies. This theme outlines a desire to expand the potential of partnerships to enhance the region's transport system.

THEMES FROM POLICY / STRATEGY REVIEW

6.5 To verify these themes derived from problems and opportunities, and check for aspects that may have required stronger recognition, a further step undertaken was to review these against a set of parallel themes derived from various transport and economic strategies and policies. This ensured that the final **key themes** derived from this pre-appraisal relate not only to the problems and opportunities identified by this study, but also the aims and aspirations of national, regional and local policy and strategy linked to transport, development and the economy.

The national, regional and local policies and strategies from which themes were identified included:

- National Transport Strategy (Transport Scotland)
- Regional Transport Strategy (Nestrans)
- Aberdeen Local Transport Strategy (Aberdeen City Council)
- Aberdeenshire Local Transport Strategy (Aberdeenshire Council)
- Regional Economic Strategy (Regional Economic Group)
- Strategic Development Plan (Aberdeen City and Shire Strategic Development Planning Authority)
- Strategic Infrastructure Plan (Aberdeen City Council)
- Aberdeen City Region Deal (Aberdeen City Council, Aberdeenshire Council, Opportunity North East, Scottish Government & UK Government)

6.6 The resulting themes that were developed for these were as follows:

1. Improving accessibility and connectivity to key locations

• Improved accessibility and connectivity is a fundamental policy outcome at national, regional and local level. The aim is to increase the ability to access key locations, such as universities and hospitals, efficiently and sustainably, resulting in reduced transport inequalities.

2. Reducing journey times / improving reliability

• A desire to tackle congestion and improving integration of the transport network; increasing reliability on strategic routes will improve the competitiveness of the Aberdeen City Region.

3. Reducing car dependence

• Private car travel is high in the Aberdeen City Region and is linked to long travel distances, geographic spread, difficulties in providing economically sustainable public transport network and low cost and high supply of city centre parking. Reducing car dependency would increase opportunities to improve the uptake in sustainable modes of travel and have a positive impact on local air quality.

4. Reducing the need to travel

• Reducing the need to travel, specifically non-sustainable journeys, will relieve pressure on the region's transport network and have resulting environmental benefits.

5. Achieving modal shift / improving alternatives to the car

• Improving the desirability of alternatives to the private car through improved quality, accessibility and affordability of sustainable alternatives, will aim to result in reduced vehicle emissions, improved health and less car dominated local centres.

6. Improving road safety

• Improved road safety will result in a transport network where all users are safer, travelling by car, public transport and active travel.

7. Improving travel opportunities for all sections of the community

• Improving accessibility to a variety of transport modes will promote regional equality and inclusiveness, creating a socially inclusive transport system in the north east.

8. Improving travel opportunities for all sections of the community

• Improvement in economic performance throughout the region will aim to facilitate positive growth in infrastructure investment and increase the, already highly skilled, regional population.

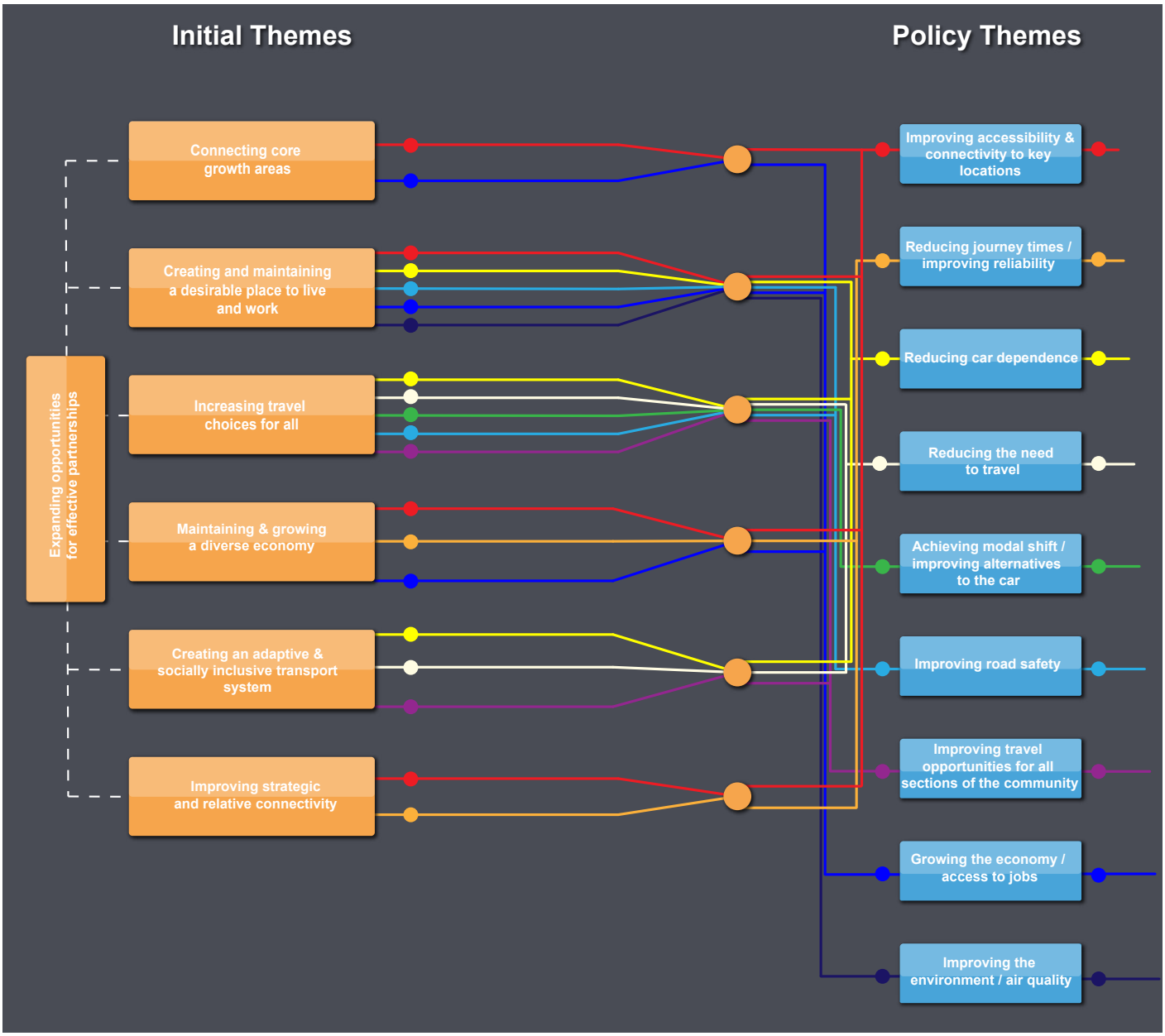
9. Improving the environment / air quality

• Improving air quality and tackling climate change is a key national, regional and local policy direction. The reduction in harmful emissions from transport will improve health and assist in maintaining the region's desirability as a place to live, work and visit.

COMPARISON & IDENTIFICATION OF KEY THEMES

6.7 A full review of the themes from problems and opportunities was undertaken against the themes identified within relevant Strategies and Policy, with the consistencies and gaps between the two identified. The process adopted is outlined in Figure 39.

Figure 39: Theme development process



6.8 The process demonstrated significant overlap between the two sets of themes and therefore re-affirmed that the problems and opportunity themes originally identified by this study are also reflected in current relevant policies and strategies. This process did however identify the 3 thematic areas that were identified in policies and strategies which were not explicitly captured originally by this study. These were:

- Reducing the need to travel;
- Improving road safety; and
- Improving the environment.

6.9 These thematic areas were therefore adopted alongside the original problem and opportunity themes to derive a set of final key themes which are described overleaf.

FINAL KEY THEMES

6.10 The final key themes derived for the study, used to guide the formation of applicable and regionally specific TPOs, were as follows, along with a description of the outcomes sought:

1. Connections to and integration of core growth areas

- Seeks to ensure core growth areas are well connected and integrated to existing land-uses and the transport network. The aim of this is to reduce dependence on the private car.

2. Maintaining and enhancing the natural & built environment so that the region remains a desirable place to live, work and visit

- Seeks to ensure the future transport system not only does not negatively impact on the region's environment, but also enhances it where possible.

3. Increasing travel choices for all

- Seeks to ensure there are a number of travel choices available for key journeys with a particular focus on making the alternatives to private car more attractive.

4. Reducing the need to travel

- Seeks to ensure the means are available to provide the region's residents the ability to fulfil many of their needs / responsibilities without having to travel to do so.

5. Supporting key sectors and facilitating increased diversification of the region's economy

- Seeks to ensure the transport system provides efficient access to key markets.

6. Creating a safe, resilient and socially inclusive transport system

- Seeks to ensure the transport system reduces the risk of accidents, accommodates unexpected changes and is cost effective to use.

7. Improving strategic connectivity

- Seeks to ensure the region is connected to key markets so that it is not relatively disadvantaged compared with other regions.

6.11 Figure 40 outlines the complete process adopted from problem and opportunity themes, filtered through policy and strategy themes to derive the above set of final key themes.

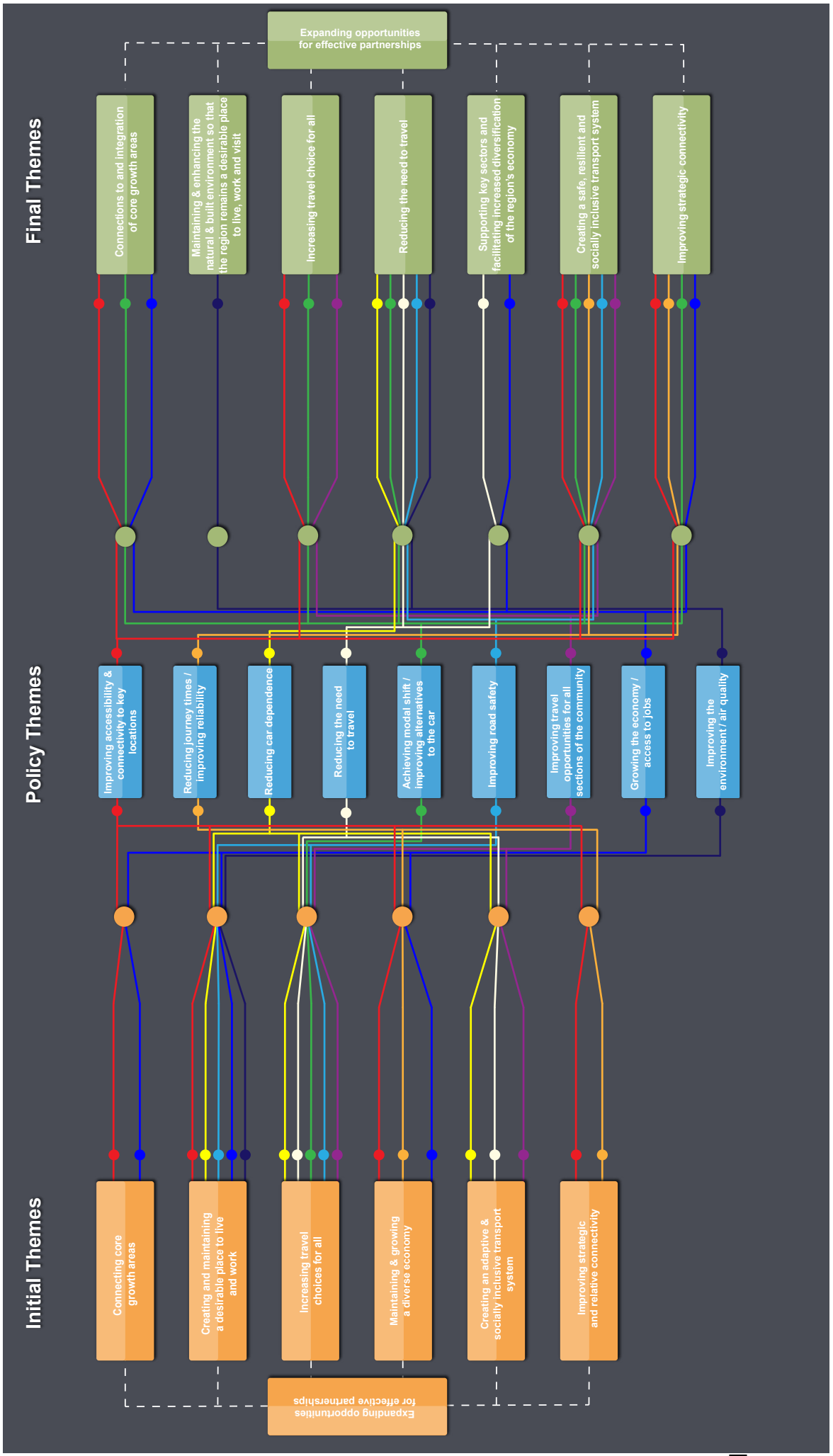


Figure 40 : Key Themes: Stakeholder Engagement and Policy & Strategy

07 Objective Setting

Introduction

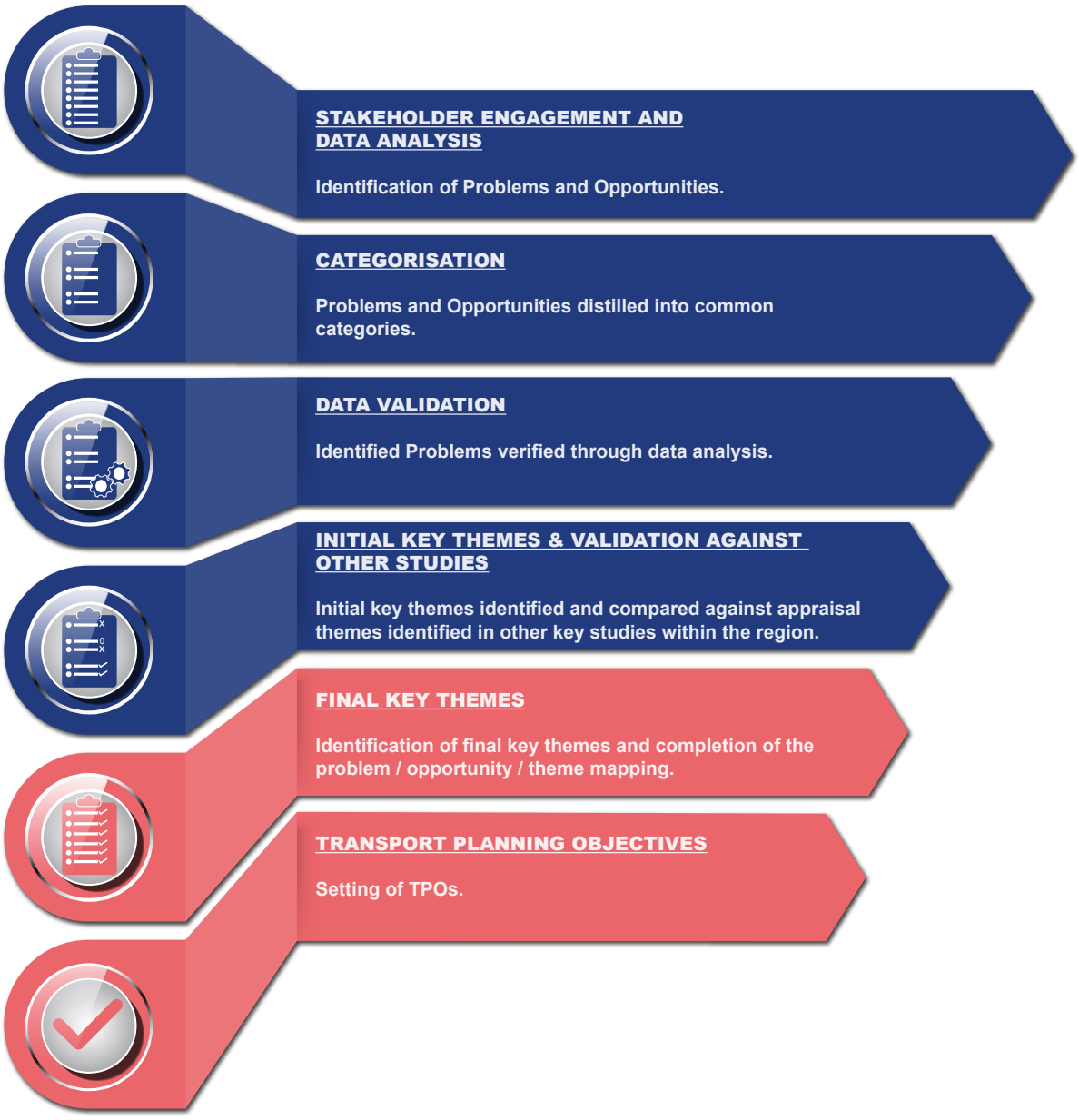
7.1 This chapter sets out the Transport Planning Objectives (TPOs) which were developed, and form a key part of the pre-appraisal stage for the Strategic Transport Appraisal for the Aberdeen City Region. The development and definition of the TPOs were informed by the Key Themes, and as such fully reflect the specific problems and opportunities that were identified from the pre-appraisal evidence base including the detailed data analysis and the comprehensive stakeholder engagement. These also reflect the appropriate local, region and national government priorities related to transport and the economy. As such they are specific and relevant to the region.

7.2 In summary, the development of the TPOs was informed by:

- Problems and opportunities identification and definition, gathered evidence from:
  - analysis of data and ASAM14 model outputs;
  - stakeholder engagement;
  - comprehensive review of other key appraisals for the region;
  - national, regional and local policies and strategies; and
  - discussions with the Project Working Group.

The full methodology adopted in the development of fully tracked and evidenced TPOs was as follows:

Figure 41: Objective setting process



7.3 The objectives were developed with SMART principles in mind, such that they will be:

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

7.4 Whilst there is no STAG requirement for fully SMART objectives at Pre-Appraisal stage, it is essential that objectives set at this stage are framed such that they can be "SMART'ened" as the next stages are embarked upon.

TRANSPORT PLANNING OBJECTIVES

The Transport Planning Objectives (TPOs) derived for the Aberdeen City Region at Pre-Appraisal were:

TPO1 : Increase access to a sustainable transport system for all, recognising specific needs of disadvantaged and vulnerable users.

Focus is on alleviating the problems and addressing the opportunities related to access to and the sustainability of the Aberdeen City Region transport system as a whole. The transport system includes the road, rail, and active travel networks and the various services (including bus, rail, taxi and freight) that operate on them. All users are included with particular recognition given to disadvantaged and vulnerable users to both improve access to potential employment and key services, and ultimately their quality of life.

TPO 2: Reduce the business costs of transport for all sectors of the economy to realise the aspirations of the Regional Economic Strategy.

Focus is on improving the competitiveness of businesses in the region, which is a key aspiration of the Regional Economic Strategy. The objective should be one that promotes the local economy by improving connectivity to the transport network for businesses to efficiently and effectively access key markets. Additionally, a focus will be on addressing key problems such as transport related costs, long journey times and journey time reliability.

TPO 3: Reduce the adverse impacts of transport on public health and the natural and built environment.

Focus is on alleviating transport related problems that adversely impact upon the quality of life in the region, including vehicle emissions and accidents, whilst maintaining and enhancing the high quality of the natural and built environment, which is a key factor attracting a skilled workforce and tourism to the region. This will encompass opportunities linked to new technologies and initiatives, such as electric/hydrogen vehicles and Mobility as a Service.

TPO 4: Improve the integration of transport and land use to reduce the need to travel by private car.

Focus is on addressing problems that act as barriers to linking employment, retail / leisure and residential areas with a sustainable, connected public transport and active travel network, to reduce the need to travel by private car. Additionally, a focus will be on creating a high quality digital network to reduce the need for travel.

TPO 5: Improve the relative competitiveness of public transport compared to the private car.

Focus is on addressing problems and opportunities in relation to the perception that public transport is not currently a desirable alternative to the private car due to factors including limited public transport network coverage within the region and cross-boundary, unreliable journey times and the low cost of parking availability within the city centre.

TPO 6: Maintain and enhance a safe, resilient and reliable transport network.

Focus is on addressing problems associated with road safety, particularly vehicle / active travel conflicts, and a lack of alternative routes should incidents occur. It is linked to opportunities concerning continuing road safety initiatives, freight movements and benefits that may be realised by capitalising on future major infrastructure commitments, such as Aberdeen Western Peripheral Route.

Objectives Linked to Back Through Key Themes to Problems and Opportunities

7.5 As described previously in the report, the TPOs can be tracked back through key themes to problems and opportunities and ultimately to the original source. In this way the methodology adopted has been undertaken to provide a clear and transparent audit-trail, which is regionally specific and highly robust.

7.6 Figure 42 maps the clear links from each TPO back through to each problem and opportunity category. It demonstrates the full relationships between the TPOs, the key themes and the problems and opportunities. This highlights clear linkages between many of the problems and opportunities and the appropriateness of the TPOs in seeking to address these. Appendix E contains Objective Summary Tables detailing this for each objective; and Appendix F contains a more legible version of Figure 42.

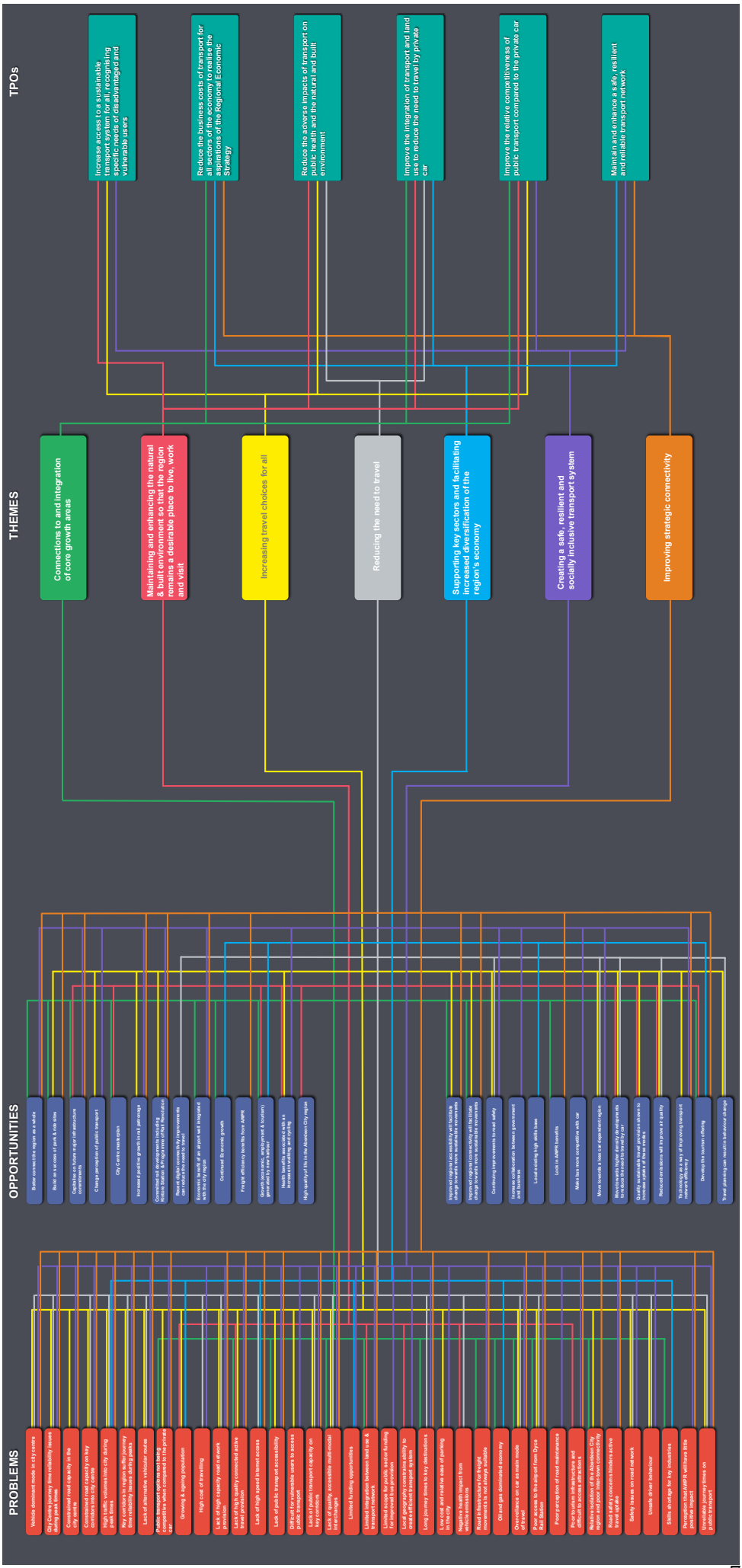


Figure 42 : Problems and Opportunities to TPOs

08 Next Steps

Overview

8.1 This Aberdeen City Region Strategic Transport Appraisal – Pre Appraisal study has developed a robust framework for the derivation of objectives, which will subsequently be used to appraise the performance of options aimed at improving the performance of the Aberdeen City Region transport network and ultimately support economic growth in the region. In line with STAG, the objectives are directly linked to the key transport problems and opportunities within the study area.

8.2 The key findings of this study were presented and approved through the following local and regional committees:

- Aberdeen City Council – City Growth and Resources Committee (Tuesday 19th June 2018)
- Nestrans – Nestrans Board (Wednesday 20th June 2018)
- Aberdeenshire Council – Infrastructure Services Committee (Thursday 21st June 2018)
- Aberdeen City Region Deal - Aberdeen City Region Deal Joint Committee (Friday 22nd June 2018)

NEXT STEPS

8.3 This study will now sit at Interim stage until such time as the Aberdeen Western Peripheral Route is fully operational and a period of evaluation undertaken. If the findings of this evaluation show changes to traffic patterns differing significantly from that anticipated through modelling, the findings of this study may need to be revisited. Otherwise they will be formalised.

8.4 In the meantime, this study sits as a vital central element feeding into various national, regional and local transport and land use strategies and plans. Figure 43 sets out how the findings will inform these future workstreams.

8.5 Following the generation of options, this study will also provide an evidence base and the Transport Planning Objectives against which this options will be assessed through the STAG process to include:

- The likely impacts of the options against the Transport Planning Objectives;
- The likely impacts of the options against STAG criteria [i.e. Environment, Safety, Economy, Integration, and Accessibility and Social Inclusion];
- Options against established policy directives; and
- Feasibility, affordability and public acceptability of the options.

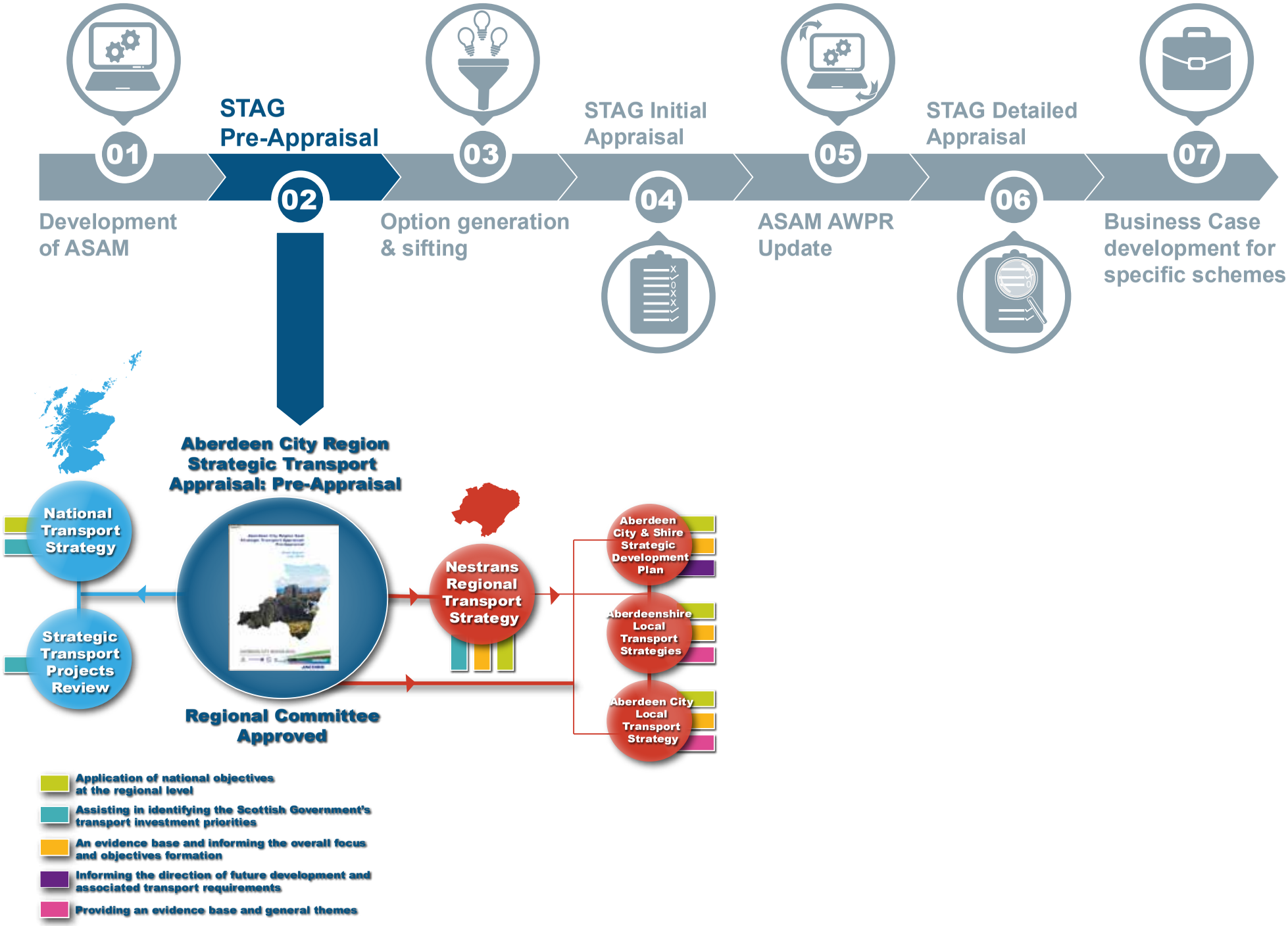


Figure 43 : Future Workstreams

09 Option Generation and sifting

Introduction

Work Completed to Date

9.1 Jacobs was commissioned by the Aberdeen CRD Transport Working Group (Client Team) in September 2017 to undertake the Aberdeen City Region Deal Strategic Transport Appraisal: Pre-Appraisal in accordance with Scottish Transport Appraisal Guidance (STAG); and formed one of the first stages of the Strategic Transport Appraisal component of the Aberdeen City Region Deal (CRD).

9.2 Since September 2017, the following actions have been completed and were reported on in the Interim Report – submitted to the Client Team in July 2018:

- Identification of cross modal problems and opportunities with the provision of strategic transport in Aberdeen City and Aberdeenshire
- Identification of Key Problems and Opportunities
- Formation of robust Transport Planning Objectives (TPOs)
- Collating of options arising from existing relevant work (see 'Emerging Option vs Appraisal Themes' Note, dated July 2018)

9.3 All project partners approved the Interim Report, identified problems and opportunities, and the confirmed transport planning objectives through their respective governance and committee processes during June 2018. The Interim Report is currently available to view on the NESTRANS website.

9.4 An extension to the study was commissioned in October 2018, in which Jacobs was tasked with 'collating and generating options and undertaking option sifting' and to produce a final list of recommended options for consideration by the Client Team.

9.5 This Option Generation and Sifting Report is an addendum to the Interim Report. Together, these comprise the full Aberdeen City Region Deal Strategic Transport Appraisal: Pre-Appraisal report. The outcomes from this work will principally go on to inform the next stage of the Aberdeen CRD Strategic Transport Appraisal, second Strategic Transport Projects Review (STPR2) being undertaken by Transport Scotland and the next NESTRANS Regional Transport Strategy .

Recap of Transport Planning Objectives

9.6 Following the formation of objectives, the next step in the STAG Pre-Appraisal process is to generate a wide range of options which could meet the Transport Planning Objectives, alleviate the identified problems and address the potential opportunities across the Aberdeen City Region transport and land use system.

9.7 The study objectives, derived through the earlier stages of this pre-appraisal, and upon which the options are to be appraised, are as follows:

- **TPO 1:** Increase access to a sustainable transport system for all, recognising specific needs of disadvantaged and vulnerable users
- **TPO 2:** Reduce the business costs of transport for all sectors of the economy to realise the aspirations of the Regional Economic Strategy
- **TPO 3:** Reduce the adverse impacts of transport on public health and the natural and built environment
- **TPO 4:** Improve the integration of transport and land use to reduce the need to travel by private car
- **TPO 5:** Improve the relative competitiveness of public transport compared to the private car
- **TPO 6:** Maintain and enhance a safe, resilient and reliable transport network

9.8 The objectives are considered in line with current transport planning best practice and policy. They reflect the overarching aims and ambitions of the Client Team for the region, which are:

- Integration with planning to locate development in sustainable locations (Housing within walking distances of town and city centres, places of employment, etc);
- Restrictions on out-of-town developments (Town Centre First principle) complementary to Place-making and more attractive centres;
- Restrictive parking standards with new developments;
- Need for ambitious (Monitored and Enforced) Travel Plans; and
- Traffic Management to improve safety and prioritise buses/cycling with restrictions on cars.

Option Generation and Sifting Framework

9.9 Through discussions with the Client Team, the option generation and sifting framework shown in Figure 44 was developed and agreed.

Option Generation

9.10 STAG stipulates that the option generation process should not be unreasonably constrained at the start of the appraisal process. As such, the option generation process undertaken for this study was informed by a review of existing policy documents and studies in the region and captured key inputs through option generation workshops with Council Officers, Stakeholders and Elected Members, and option generation by the Client Team.

9.11 As a result, 774 individual options were generated, ranging from very specific options / locations to others which were not linked to specific option / locations but rather more representative of the Aberdeen City Region transport network as a whole. Given the geographic extent of the Aberdeen City Region, no single option / measure is likely to provide a solution to the transport problems and address all the opportunities within the study area.

9.12 A primary and secondary 'cleaning' and consolidation of similar options was completed at this stage to provide a clean long-list of options to be considered for sifting, as described further at Sections 9.27 to 9.34.

Option Sifting

9.13 STAG allows option sifting to be undertaken when:

- an unmanageably large number of options have been generated; and/or
- where there is general consensus that a particular option is not expected to meet the Transport Planning Objectives, or identified transport problems and/or opportunities.

9.14 The sifting process was undertaken given the large number of options generated through this study. This was undertaken over four steps as identified in Figure 45 with further details provided in Sections 9.35 to 9.54.

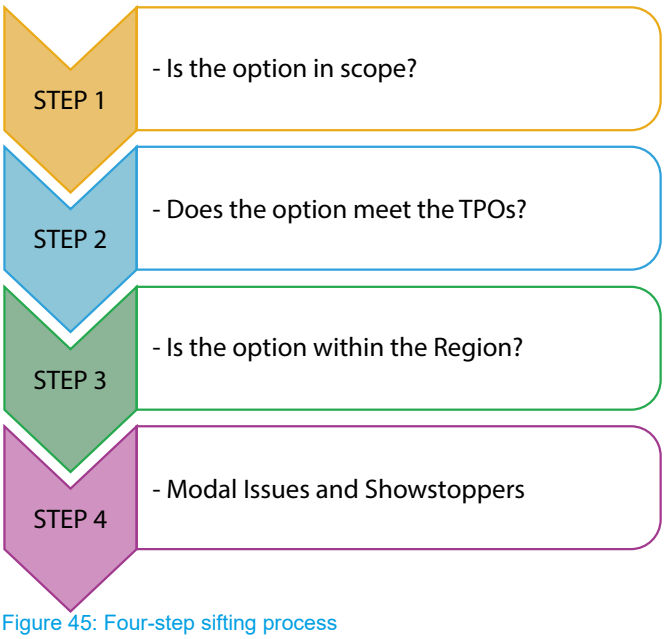


Figure 45: Four-step sifting process

9.15 At Step 2, options were sifted in line with STAG where options which are not expected to meet the objectives should be removed from further consideration. It was recognised in most cases there was limited quantifiable information available on each of the options. It was therefore equally important to avoid sifting out any options too early until unequivocal evidence demonstrates the option will not deliver against the objectives or alleviate the identified problems and address the potential opportunities.

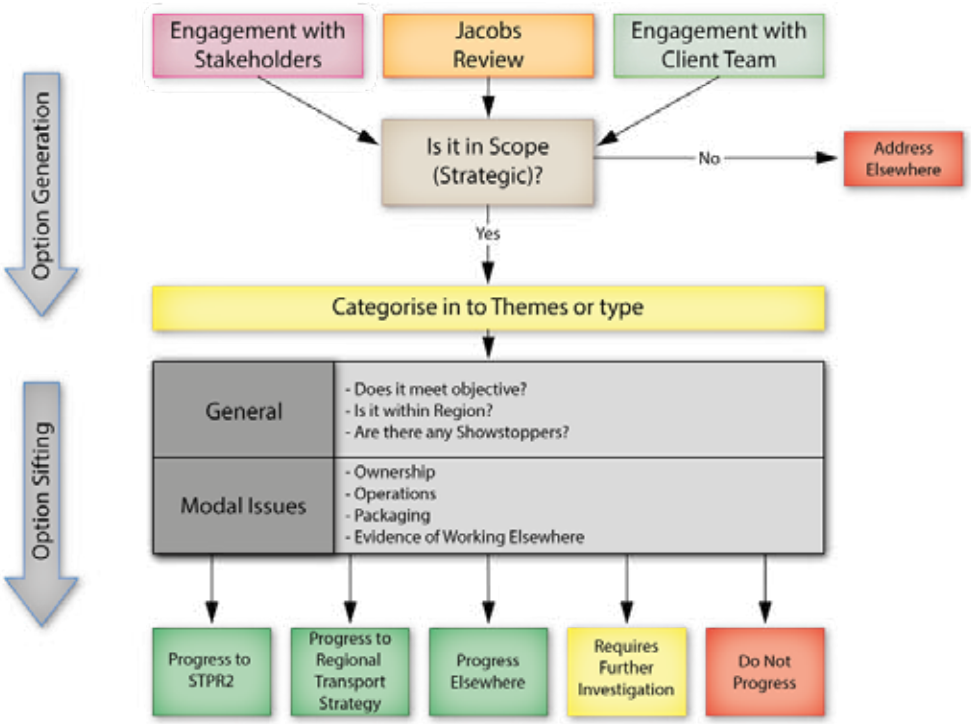


Figure 44: Option Generation and Sifting Framework

Review of Existing Options

Policy Documents and Existing Studies

9.16 An initial exercise to establish options arising from existing relevant work was undertaken. This involved collating and categorising the options, then assessing them against the appraisal themes. This exercise and its outcomes were documented in the 'Emerging Option vs Appraisal Themes' Note that was submitted to the Client Team in July 2018 and can be found in Appendix G, followed by Table G.1 which specifically outlines the Aberdeen City and Aberdeenshire SDP Cumulative Transport Appraisal options and how these have been considered by this study.

9.17 Figure 46 below summarises the outcome of this by showing the spread of options across 17 option categories identified during the review. The note also provides a list of the options considered in these studies, which was used to gain an understanding of what options were already being considered elsewhere in the Aberdeen City Region.

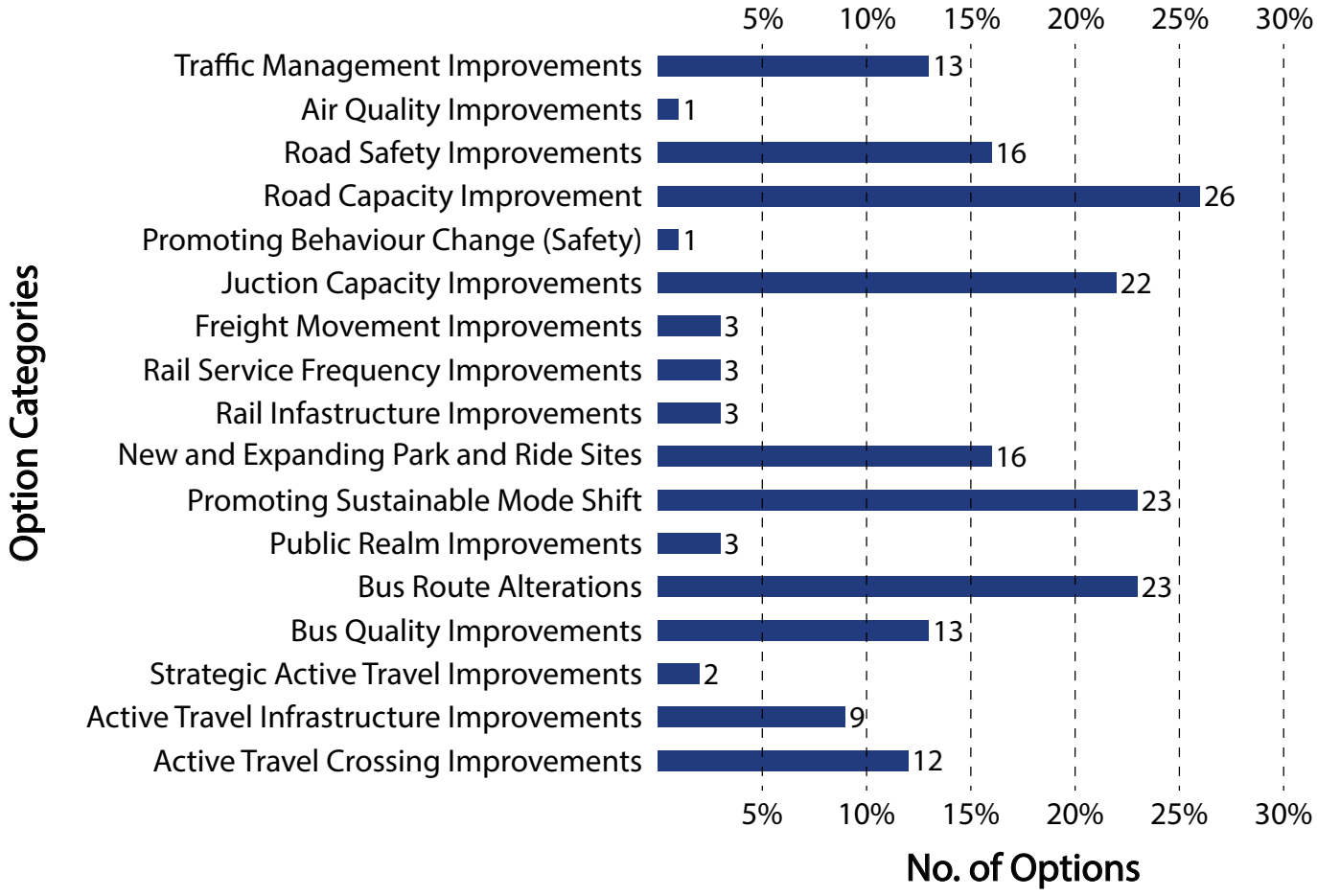


Figure 46: Share of existing options assigned to each option category

Option Generation Workshops

9.18 Key to the successful generation of wide ranging, robust and appropriate options is that the process is informed by a wide range of stakeholders, as well as the Project Team. These stakeholders should be those who are identified to bring particular key knowledge of the study area. As such, a number of option generation workshops were held with these key stakeholders to gain their input to the option generation process, and qualitatively gauge the performance of the options to address problems and opportunities and therefore meet one or more of the TPOs.

Details of Workshops Undertaken

Agenda and Format

9.19 Three option generation workshops were held in late 2018 to beginning 2019 in the following locations:

- Aberdeen City Council, Aberdeenshire Council and NESTRANS Officers
  o 28th November 2018, Aberdeenshire Council Headquarters, Woodhill House, Aberdeen
- Stakeholders
  o 13th December 2018, Jury's Inn Hotel, Aberdeen
- Elected Members
  o 8th February 2019, Aberdeen City Council Town House, Aberdeen

Dates and Venues

9.20 The agenda for each of the workshops was as follows:

- Welcome and introduction
- Presentation on study background and work completed to date
- Breakout to Modal / Theme discussions and option generation
- Summary of workshop and next steps

9.21 Stakeholders were split across four mode tables: Road, Public Transport, Active Travel and Technology/Behaviour, as shown in Table 9.1. Attendees were allocated 20 minutes to discuss potential options specifically related to that mode, prior to then moving to the next table – allowing attendees to suggest options for each mode. Each table was facilitated by a representative from Jacobs who transcribed notes of the emerging options proposed by stakeholders (see Figure 47).

9.22 The Elected Members workshop followed a similar format with attendees spending 20 minutes at each table, however each table was given a theme rather than a mode (based on the emerging National Transport Strategy themes, and upcoming NESTRANS Regional Transport Strategy themes). Each theme was supported by a set of prompt questions to aid discussion, as identified in Table 9.2.

Table 9.1: List of Modes and Categories used in Officers and Stakeholders Option Generation Workshops

Table 1	Table 2	Table 3	Table 4
Road	Public Transport	Active Travel	Technology/ Behaviour
Infrastructure	Infrastructure	Strategic Networks	Technology
Safety	Services	Infrastructure	Mode Shift
Traffic Management	Systems - Fares/ Ticketing/ Passenger Information	Soft Measures	Policy Instruments
Maintenance	Partnerships / Funding	Funding	Environment
Freight	Rail Freight	Other	Funding for Transport
Other	Other		Other

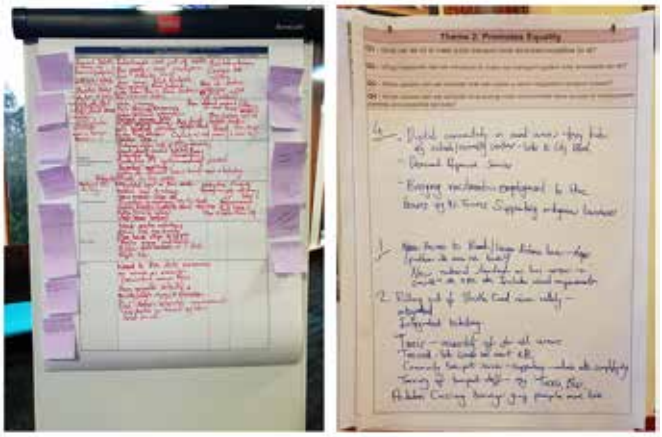


Figure 47: Transcribed suggestions of interventions for different themes

Table 9.2: List of Themes and Question Prompts used in Elected Members Option Generation Workshop

Theme	Questions
Theme 1: Helps our Economy Prosper	Q1 - What can we do to grow the economy in a sustainable manner whilst reducing the impact of congestion?
	Q2 - What options can we consider to reduce journey times to/from and within the region?
	Q3 - What can we do to encourage business to start/grow in the region?
	Q4 - What measures will allow freight to be moved more effectively to/from/within the region?
	Q5 - How can future investment priorities be funded?
Theme 2: Promotes Equality	Q1 - What can we do to make public transport more attractive/competitive for all?
	Q2 - What measures can we introduce to make our transport system fully accessible for all?
	Q3 - What options can we consider that will create a more integrated transport system?
	Q4 - What options can we consider to ensuring rural communities have access to employment centres and essential services?
Theme 3: Takes Climate Action	Q1 - How can we reduce the negative impacts of vehicle pollution in Aberdeen and the surrounding towns?
	Q2 - What non-transport measures can we introduce to reduce the need for travel?
	Q3 - What options should be considered to ensure that we provide a truly resilient transport network?
	Q4 - How can we best exploit technologies and alternative fuels to deliver a truly green transport system?
Theme 4: Improves our Health and Wellbeing	Q1 - What options can we consider to make active travel more attractive in the region?
	Q2 - What options can we consider to maintain a safe and accessible transport system?
	Q3 - What transport options can we consider to maximise the benefits of the city centre masterplan?
	Q4 - What types of systems/approaches will help make communities great places to live and work, now and in the future?

9.23 The purpose of changing from the mode to theme tables specifically for elected members was to reduce the likelihood of the same types of options being generated to the previous workshops, therefore maximising the potential coverage of options suggested. The questions helped stimulate broader discussions about options that would contribute to the themes, and not restrict tables to a certain mode.

Attendees

9.24 *Council Officers:* A total of 24 Officers attended the session – 14 from Aberdeen City Council, 9 from Aberdeenshire Council and 1 representing NESTRANS. Table 9.3 lists the departments from the councils that were represented:

9.25 *Elected Members:* All elected Members representing the region were invited (MPs, MSPs and Councillors), and a total of 23 attended as follows:

- Aberdeen City Council Councillors: 9
- Aberdeenshire Council Councillors: 9
- MSPs: 4
- MPs: 1

9.26 *Stakeholders Organisations:* A diverse range of organisations from various sectors were invited to attend the stakeholder workshop. A total of 19 organisations attended and listed in Table 9.4. The full list of invitees can be found in Appendix H.

Table 9.3: List of departments represented at the Council Officer workshop

Aberdeen City Council	
Economic Development	Roads Opertations Manager
Environmental Health	Road Projects
Environmental Planning	Structures, Flooding and Coastal Protection
Intelligent Transport Systems	Transportation Strategy and Programmes
Road Safety and Traffic Management	Transportation Strategy and Programmes - Civitas Project
Roads Operations and Streetlighting	
Aberdeenshire Council	
Economic Development	Road Development
Transportation Strategy	European Strategy (transportation)
Roads Policy	Planning Policy
Planning Delivery	Transportation
Area Managers	Strategic Transportation Projects

Table 9.4: List of Organisations who attended the Stakeholder Option Generation Workshop

	Organisation
1	Abellio Scotrail
2	Aberdeen & Grampian Chamber of Commerce
3	Aberdeen Association of Civil Engineers - Youth Panel
4	Aberdeen City Council
5	Aberdeen Cycle Forum
6	Aberdeen Harbour Board
7	Aberdeenshire Council
8	Bains Coaches
9	CPT Scotland
10	First Aberdeen
11	Fraserburgh Harbour
12	Freight Transport Association
13	Institute of Highways and Transportation - Youth Panel
14	Invest Aberdeen
15	NHS Grampian
16	Northlink Ferries
17	Opportunity North East (ONE)
18	University of Aberdeen
19	Visit Scotland

Stage 1: Option Generation

Summary of Generated Options and Initial Cleaning of Long List

9.27 All suggestions of options from the workshops were recorded and logged in a spreadsheet for cleaning. Table 9.5 shows the total number of options suggested fom each of the sources.

Table 9.5: Number of options suggestions by source

Source of options	No. of option suggestions generated
Council Officers Workshop	254
Stakeholder Council Officers Workshop	186
Elected Members Workshop	234
NESTRANS - Strategic options generated from ongoing work and initiatives	100
Total	**774**

Primary 'Clean' for Long List of Options

9.28 Options generated by officers and stakeholders were subject to a Primary 'Clean' involving:

- Removal of options that were not sufficiently well defined to be considered as an option and/ or were too ambiguous to be properly identified and defined as an option;
- Categorisation of the options by type;
- Minor refinement of the wording of options to produce a clean long list of 94 options. A summary of options types is provided in Table 9.6, and a long list of the clean options can be found in Appendix I.

Table 9.6: Summary of the number of cleaned options following the Officers and Stakeholder Organisations Workshops

Types of Options (based on breakout table modes)	No. of Options
Active Travel	31
Public Transport and Freight	27
Roads	17
Technology/Behaviour	19
Total	**94**

Secondary 'Clean' for Emerging Options and Addition of Elected Members Options

9.29 In order to understand what the 'Emerging Options' were in advance of the Elected Members workshop, the **94 options** were subjected to a secondary 'clean', resulting in approximately 30 emerging options. This was a spreadsheet-based exercise and involved the Project Team reviewing the options and fitting them into more concise option categories, for example:

- Options relating to active travel routes and infrastructure were put into the *Develop a network of high quality and safe active travel routes in the region option.*
- Options relating to road improvements and upgrades were either categorised into a one of the Route-based Action Plans or A90 Upgrading options (based on the location of the suggested intervention).

9.30 The 234 option suggestions collected from the Elected Members workshop were then reviewed against the emerging options, of which:

- The majority of option suggestions had already been captured in the existing generated options (121)
- Some option suggestions were consolidated into existing generated options as they had not previously been mentioned, however not considered to be unique enough to be listed as a new option (43)
- Some option suggestions were added as a new option (20)
- Remaining suggestions were considered not sufficiently well defined to be considered as options and/or were too ambiguous to be properly identified and defined as an option (50)

9.31 Following the secondary clean for emerging options, consolidation into existing and new additional options from Elected Members workshop, the emerging options list was finalised in agreement with the Client Team whereby **51 options** moved to the Option Sifting stage. In addition, the options were given more concise labelling by their 'type' to summarise the spread of options,

of which there were 10, as shown in Figure 48. These types are not an exclusive labelling as options could cut across other categories, however for the purposes of this process they have been allocated what is considered their primary type.

9.32 The full list of **51 options** across the **10 option** types can be seen in Appendix J.

9.33 Throughout the option generation stage the process maintained a focus on generating and developing options within the context of the relevant policy framework, and with continuous cross-reference to the defined Transport Planning Objectives. This minimised the likelihood of developing interventions that could inadvertently have resulted in unintended policy conflicts or transport impacts, whilst at the same time generating options that were considered would have a positive contribution in meeting one or more of the Objectives.

9.34 The final interventions that have been developed compliment and build-on the current well-established policies and strategies to promote increased integration of land-use and transport planning for sustainable development.

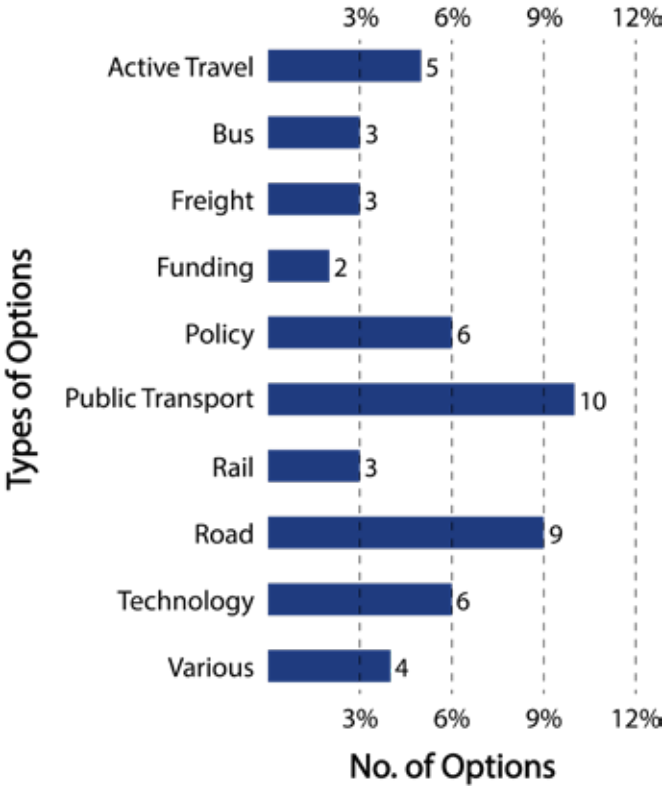


Figure 48: Number of options by type

Stage 2: Option Sifting

Sifting Approach

9.35 To facilitate sifting on the refined list of options, a spreadsheet-based tool was developed to sift the 51 options through four steps (Figure 45) against a wide series of criteria, such as TPOs, whether an option was within scope of the study and whether there are likely to be any modal issues.

Sifting Criteria

9.36 This study is a strategic transport pre-appraisal, and as such was to only consider options that are strategic in nature. To inform the process, definitions of strategic options were made as follows and each option was reviewed against them to determine whether it was strategic:

- Improve connectivity to/from Aberdeen and other key regional centres
- Connect areas of economic activity and regeneration areas of regional significance
- Provide connectivity to Aberdeen International Airport and the regional ports/harbours
- Improve connectivity to/from key tourist areas
- Facilitate longer distance freight connections
- Encourage regional change in travel behaviour

9.37 After reviewing each option against these definitions, two options were removed leaving **49 options remaining.** The options removed were as follows, and their associated Appraisal Summary Tables can be found in Appendix K Section K.2:

- *'Examine alternative transport governance options within the region and with transport operators to deliver efficiencies and release funding'.*
  - o This option was considered to be outside the remit of the study, therefore not in scope as it relates to the governance of transport in the Aberdeen CRD region, as such is recommended to be progressed elsewhere. It is suggested this option could be considered as part of the National Transport Strategy which is exploring transport governance 'Roles and Responsibilities' in Scotland. At the time of writing however, the extent of the Roles and Responsibilities at the national and regional level is unknown and dependent on the outcomes of the National Transport Strategy consultation period in late summer 2019.
- *'Revised approach to transport appraisal guidance which is proportionate to the type and scale of proposed scheme or policy'*
  - o This option was considered to be out side the remit of the study as trans port appraisal guidance cannot be changed at the regional level, therefore not in scope and is recommended to be considered elsewhere. This option would need to be taken forward by Transport Scotland separately for example as an update to STAG.

9.38 Although these options were sifted from the long list, they remain available to be taken forward for further consideration by member organisations or the Client Team through other channels.

9.39 During this step, several options were also considered to be 'Local' and therefore not to be strategic on their own. They were however still deemed to be worthy of consideration as part of the study, if included as part of other options within the list. In collaboration and agreement with the Client Team, these options were consolidated into the following options:

- *Upgrade existing routes and develop a network of high quality and safe active travel routes across the region*
- *Local Transport Funding*
- *Improve City Centre connections between Bus and Rail Stations*
- *ITS to manage vehicle entry to lanes and zones based on vehicle types, time of day, real-time emissions and congestion levels*
- *Infrastructure measures to complement City Centre Masterplan proposals*

9.40 Furthermore in collaboration with the Client Team, air and ferry services were determined to be a key part of the strategic transport network for the Aberdeen City Region, as such two specific options relating to these transport modes have been included for consideration.

9.41 Appendix K Section K.3 provides a quick reference summary of options (9) which were consolidated into other options; and additional options (2) which were added.

9.42 The result of this was that **42 options** remained to be taken forward to Step 2 sifting. These were then sifted based on STAG whereby options that are not expected to meet the objectives satisfactorily are removed from further consideration. Conversely, whilst recognising that in most cases there is no quantifiable information

available, it is equally important to avoid sifting out any options too early until unequivocal evidence demonstrates the option will not deliver against the objectives or alleviate the identified problems and address the potential opportunities.

Sifting Criteria

9.43 Options were scored qualitatively against the six study TPOs on a 5-point scale – as defined in Table 9.7, with results summarised in Figure 49. For reference, the Transport Planning Objectives are as follows:

- **TPO 1:** Increase access to a sustainable transport system for all, recognising specific needs of disadvantaged and vulnerable users.
- **TPO 2:** Reduce the business costs of transport for all sectors of the economy to realise the aspirations of the Regional Economic Strategy.
- **TPO 3:** Reduce the adverse impacts of transport on public health and the natural and built environment.
- **TPO 4:** Improve the integration of transport and land use to reduce the need to travel by private car.
- **TPO 5:** Improve the relative competitiveness of public transport compared to the private car.
- **TPO 6:** Maintain and enhance a safe, resilient and reliable transport network

9.44 In summary, Figure 49 shows there are a broad spread of options across the TPOs and there are no gaps in any TPO not having a sufficient number of options able to meet it. This was due to the robust option generation process, particularly the options workshops, which was done in consideration of the TPOs.

9.45 As all options scored at least a minor contribution to one or more of the TPOs, no options were sifted out through this process and so **42 options remained.**

Table 9.7: List of TPO marking descriptors

Mark	Contribution to TPO
✓ ✓ ✓	Major
✓ ✓	Moderate
✓	Minor
O	Neutral
X	Does not meet TPO

9.46 In summary, Figure 5 1 shows there are a broad spread of options across the TPOs and there are no gaps in any TPO not having a sufficient number of options able to meet it. This was due to the robust option generation process, particularly the options workshops, which was done in consideration of the TPOs.

9.47 As all options scored at least a minor contribution to one or more of the TPOs, no options were sifted out through this process and so **42 options remained.**

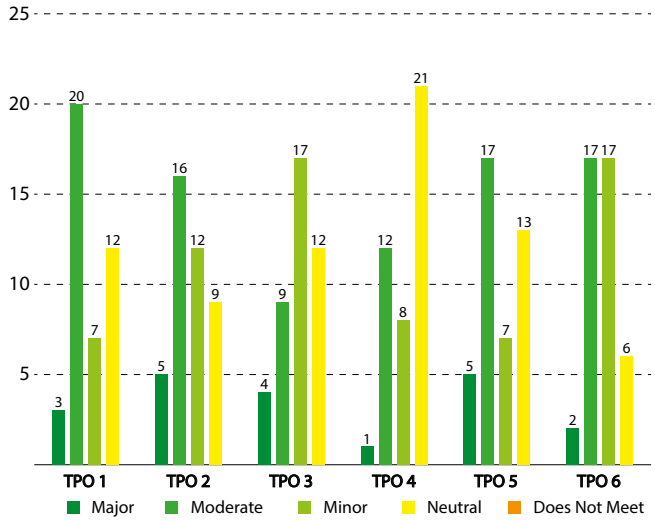


Figure 49: Graph showing the number of options scored against the TPOs, by their level of contribution to the TPO.

Step 3: Within the Region

9.48 Step 3 was not used to sift options out as such, but as a sense-check to highlight any options that had any significant cross-boundary or national component(s) outside the Aberdeen City Region area. The following two options were flagged as having components which are located outside the Aberdeen City Region area and would require the cooperation of Local, Regional and National Bodies in both the planning and delivery should they be progressed.

- *A90 Upgrade south of Aberdeen to Dundee (including the Kingsway)*
  - A90 south of Aberdeen routes through Angus and Dundee Local Authorities and TACTRAN Regional Transport Partnership area.
- *Improve Strategic Inter-City Rail Connections*
  - Aberdeen – Inverness rail line: routes through Moray Council, Highland Council and HITRANS areas.
  - Aberdeen – Central Belt rail line: routes through several Local Authority and Regional Transport Body areas such TACTRAN, SESTRAN (towards Edinburgh) and SPT (towards Glasgow).

Step 4: Modal Issues & 'Showstoppers' Sifting Citeria

9.49 As part of the sifting process, the Project Team also took into consideration 'Modal Issues'. This was to capture specific modal issues for each option as follows:

- Ownership – who is likely to have responsibility in the delivery and maintenance of the option, such as public or private sectors, or a mixture of both?
- Operations – to what extent does the option affect the operation of the existing transport network, and will it cause any operational issues that may cause it to be a 'showstopper'?
- Packaging – is the option able to be delivered on its own, or would it be more successful if delivered as a package with other options?

9.50 This allowed for options to be sifted based on whether it had significant issues which are unlikely to make it through latter appraisal stages and therefore considered a 'showstopper'. The modal issues were captured in the sifting tool as follows:

Ownership

- **Simple –** for options that have a single owner, such as public or private sector.
- **Intermediate –** for options that would have more than one owner, such as public/private partnerships.
- **Complex –** when there are a mix of owners involved in the delivery and operation of the option, such as rail-based options which involve a mix of (arms-length) public sector and private sector franchises.

Operations

- **Local –** options that would have an effect on local operations of the transport network (e.g. local active travel routes).
- **Regional –** options that would have effect on regional operations of the transport network *(e.g. Western Radial Routes Action Plan; and Implement BRT/Bus Priority schemes […] on key corridors in the City and Towns in the Region).*
- **National –** options that would have an effect on national operations of the transport network *(e.g. New rail stations on the existing rail network; development of an integrated, multimodal network of freight hubs across the region).*

Packaging

- **Standalone –** the option can be delivered on its own without the need or support from other interventions.
- **Complementary –** applied to options which could be delivered on their own, however would gain better value if delivered in conjunction of another intervention *(e.g. Improved marketing, information and digital connectivity for Public Transport services* could be delivered on its own, however would also benefit from other improvements such as increased frequency of services).
- **Packaged –** the option needs to be delivered with another option (or options) to be effective at a Regional and/or Strategic level. This is typical of the active travel options, such as the packaging of several types of active travel schemes into a single 'Strategic Active Travel Network' type of option; or the continued promotion of active travel in the region which should be delivered as part of a package of infrastructure measures.

Evidence of Working Elsewhere

9.51 This was used to provide evidence for unconventional, unproven, or 'newer' options which have not been typically implemented on a wider scale – particularly technology type options – to show that they have been implemented elsewhere in either the UK or Rest of the World with some degree of success. There are examples of these in the Active Travel, Policy, Road and Technology option types.

Showstopper

9.52 Based on the outcomes of the modal issues, options were either classified as:

- **No –** process did not identify any issues that should result in the option being sifted out of the process.
- **Unclear at this stage –** process identified issue(s) with the option, however it is indeterminate whether they would result the option in being a showstopper, therefore is not sifted out of the process.
- **Yes –** process identified issue(s) with the option which are considered to be showstopper(s), therefore recommends it is not progressed further in the process.

9.53 Following consideration of the modal issues, no options were considered to be showstoppers, however three were considered to be 'unclear at this stage', as follows:

- *Consider future ownership/regulation/ partnership models for buses – working with North East Bus Alliance*

- Uncertainty over the final provisions of the Transport (Scotland) Bill as further amendments may be lodged during the final consideration stage, although under the current provisions local authorities are to be granted more powers with respect to ownership, operation and provision of bus services.

- Use price mechanisms to manage demand
  - Acceptability issues from the public in relation to road user charging and workplace parking levies.

- Local Transport Funding
  - Acceptability and policy/legislation issues in relation to implementing alter native methods of funding for transport.

9.54 The reasons for being unclear at this stage are because of the potential acceptability issues around pricing mechanisms; and requirements for changes in both Scottish transport and planning legislation. On this basis, these options were not been sifted out and therefore **42 options remain**.

The Aberdeen City Region

Results of Option Sift

Summary

9.55 Table 9.8 summarises the final list of Recommended Options for the Aberdeen CRD Pre-Appraisal, including the type of option, scores against Transport Planning Objectives and the Rationale for the outcome of each option. Appendix K provides full details of the options in the form of Appraisal Summary Tables, including those which were sifted out from the process.

Table 9.8: Summary Table of Recommended Options									
	Type	Option Name	Transport Planning Objectives						Rationale for Outcome
			1: Increase access to a sutainable transport system for all, recognising specific needs of disadvantaged and vulnerable users	2: Reduce the business costs of transport for all sectors of the economy to realise the aspirations of the Regional Economic Strategy	3: Reduce the adverse impacts of transport on public health and the natural and built environment	4: Improve the integration of transport and land use to reduce the need to travel by private car	5: Improve the relative competitiveness of public transport compared to the private car	6: Maintain and enhance a safe, resilient and reliable transport network	
1	Active Travel	Upgrade existing routes and develop a network of high quality and safe active travel routes across the region	✓✓	✓	✓✓✓	✓✓	✓	✓✓✓	Option is likely to require TS to act as National Lead, with responsibility for development and delivery most likely to be through the RTS and LTS.
2	Active Travel	Increase the provision and quality of active travel facilities across the Region	✓✓	O	✓	O	✓	✓✓	This option is recommended to progress to the RTS as it has positive benefits for both local and regional aspects of the active travel network in the North East.
3	Active Travel	Implement a regional cycle hire scheme	✓✓	O	✓	✓	✓	O	This option is recommended for consideration in the RTS due to the cumulative positive impact at the local level leading to a greater impact at regional level.
4	Active Travel	Continue develoment and roll out of Regional Active Travel Promotion Strategy with innovative awareness campaigns and incentives to encourage people to travel by active modes	✓	✓	✓✓✓	✓	✓	✓	This option is recommended for consideration in both STPR2 and the RTS due to the cumulative positive impact at the local level leading to a greater impact at regional level; and potential delivery as part of a national active travel promotional strategy.

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5	Bus	Implement BRT/Bus Priority schemes which improve bus service journey times and reliability on key corridors in the City and Towns in the Region	✓✓	✓✓	✓✓	✓	✓✓✓	✓✓	This option is recommended to be considered for the RTS. This option is likely to have positive benefits to journey time and journey time reliability for both local and regional bus services in Aberdeen City and towns across the region.
6	Bus	Consider future ownership/regulation/ partnership models for buses - working with North East Bus Alliance	✓✓	✓	✓	✓✓	✓✓	O	This option is recommended to be Progressed Elsewhere - Scottish Government - as it requires legislation change at Scottish Government level to give provisions for Local Authorities to implement new ownership/regulation models for bus services. The potential policy/legal challenges and the acceptability issues may mean Showstoppers.
7	Bus	Demand Responsive Services	✓✓✓	✓	O	✓	✓✓	O	This option is recommended for consideration in the RTS to build on current experience in the region. Considered as having a regional level of impact due to the cumulative positive impacts across the towns and city, and also likely to have a positive impact on equality.

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8	Freight	Development of an integrated, multimodal network of freight hubs across the Region	O	✓✓✓	✓	O	O	✓✓	This option is recommended to be considered in both STPR2 and the RTS as implementation should be progressed at national and regional levels to positively influence the logistics chain, ensure consistency across regions, and optimise 'Hub' locations.
9	Freight	Review provision of Rest Stops on trunk roads and key freight routes for HGVs	O	✓	✓	O	O	✓✓	This option is recommended to be considered in both STPR2 and the RTS due to the positive impact it should have on both national and regional freight traffic, the need for consistency across the regions and to optimise rest stop locations.
10	Freight	Improve road access to all regional ports	O	✓✓	O	O	O	✓✓	This option is recommended to be considered in STPR2 and the RTS due to the significant contribution the region's ports have at the national level. Links to the Northern Isles will also presumably inform the national Ferries Plan work.

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11	Policy	Use price mechanisms to manage demand	O	O	✓✓	✓✓	✓✓	O	Recommended to be considered in STPR2 given there are tools within this option that would impact across the trunk road network as well as at the regional and local level. Scottish Government has a clear policy against the use of road and bridge tolls (Road User Charging) now or any time in the future on the trunk road network but can be delivered at the discretion of local roads authorities in relation to local roads. Powers for Workplace Parking Levys are being considered in the Transport Bill.
12	Policy	Revised approach to Development Planning Policy	✓✓✓	✓	✓✓	✓✓✓	✓✓	✓	This option is recommended for consideration in the RTS, in conjunction with Local and Regional Planning Bodies, as it should take into account the local and regional planning considerations that are specific to the North East, in order to create a new approach to transport in development planning policy.

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13	Policy	Maintain and expand routes* and destinations (domestic and international) served by Aberdeen International Airport *Note: scope of STPR2 extends only to domestic air routes.	O	✓✓	O	O	O	✓	This option is recommended for consideration in the RTS given the importance of air travel to the region. It is also recommended for consideration STPR2, however it is noted the scope of STPR2 only extends to domestic air routes.
14	Policy	Maintain and enhance maritime services serving Aberdeen, and connections to Orkney and Shetland	✓	✓✓	O	O	O	✓	This option is recommended for consideration in both STPR2 and the RTS given the regional importance of ferry routes to the NE region, the national importance of the connecting services to the Northern Isles and the potential for expansion of the visitor cruise ship market.
15	Public Transport	Provision of high quality Park and Ride and multimodal interchange facilities, and supporting services	✓✓	✓	✓✓	✓✓	✓✓	✓	This option is recommended to be considered in both STPR2 and RTS as park and ride sites exist (and new ones as part of this intervention) on regional and nationally significant routes (i.e. rail network/stations, intercity bus services).

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16	Public Transport	Improved marketing, information and digital connectivity (on and off) Public Transport services	✓✓	✓	O	O	✓✓	✓	This option is recommended for consideration in both STPR2 and the RTS as it involves increasing provision of public transport information across modes. This is not restricted to services within the North East region so should be considered at a national level to take into account regional and cross-border services, consistency of standards, hardware, comms etc.
17	Public Transport	Introduce new fares model for public transport (potentially linked to MaaS)	✓✓	✓✓	O	O	✓✓	O	This option is recommended for consideration in both STPR2 and the RTS as it involves the integration of tickets across modes, simplification of fare structures across modes/services that are not restricted to the North East region, as well as regional specific services.

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18	Public Transport	Development of fully integrated public transport services across the region, including timetabling and multimodal interchanges/attractors	✓✓	✓✓	✓	✓	✓✓	✓	This option is recommended for consideration in both STPR2 and the RTS as the intervention involves improving timetable integration between all modes (bus, rail, ferry and air) within the North East, other regions, Nationally and Internationally
19	Public Transport	Timetable and capacity enhancements to deliver faster/more frequent services on core corridors	✓✓	✓✓✓	✓	O	✓✓✓	✓	This option is recommended for consideration in both STPR2 and the RTS as the intervention involves improving timetable and capacity enhancements to bus and rail services within the North East and extending to other regions in Scotland (and to England for cross-border bus and rail services).
20	Public Transport	Light Rail/Tram	✓✓	✓	✓✓	✓	✓✓✓	✓	Recommended for consideration in the RTS as similar examples of Fastlink (Glasgow) and Tram (Edinburgh).
21	Public Transport	Improve City Centre connections between Bus and Rail Stations	✓✓	✓	✓	✓✓	✓✓	✓	This option is recommended to be considered in the RTS as the intervention is of Regional significance and likely be delivered at this level.

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22	Public Transport	Public Transport Connections to Airport	✓	✓✓	✓✓	✓✓	✓✓✓	✓	This option is recommended to be considered in both STPR2 and the RTS as the intervention would have regional and national importance - both for staff working at the airport, and for domestic/international air journeys
23	Rail	Expand the rail network in the North East (to the benefit of both Passenger and Freight users) via new and/or reinstated railway lines	✓✓	✓✓	✓	✓✓	✓✓✓	✓✓	This option is recommended for consideration in both STPR2 and the RTS as the intervention would likely have implications on across the wider national rail network, as well as the rail network within the region.
24	Rail	New Local Rail Stations on existing local routes	✓✓	✓✓	✓	✓✓	✓✓	✓	This option is recommended for consideration in both STPR2 and the RTS as the intervention would likely have implications on across the wider national rail network, as well as the rail network within the region.
25	Rail	Improve Strategic Inter-City Rail Connections	✓✓	✓✓	✓	✓✓	✓✓	✓✓	This option is recommended for consideration in both STPR2 and the RTS as the intervention would likely have implications on across the wider national rail network, as well as the rail network within the region.

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26	Road	A90/A952 Upgrade Ellon to Peterhead/ Fraserburgh	O	✓✓✓	O	O	O	✓✓	This option is recommended for consideration in both STPR2 and the RTS as the intervention would involve changes to the trunk road network between Aberdeen and Fraserburgh - a key corridor for commuter, freight and strategic movements - therefore of regional and national significance.
27	Road	A90 Upgrade south of Aberdeen to Dundee (including the Kingsway)	O	✓✓✓	O	O	O	✓✓	This option is recommended for consideration in both STPR2 and the RTS as the intervention would involve changes the trunk road network to the south of Aberdeen - a key corridor for commuter, freight and strategic movements - therefore of regional and national significance.
28	Road	North/North West Radial Route Action Plans, including A947 Route Action Plan	O	✓✓	O	O	O	✓✓	This option is recommended for consideration in the RTS as the North/North West radial routes, notably the A947, perform a regionally significant function.
29	Road	Western Radial Routes Action Plans (A944, A93)	O	✓✓	O	O	O	✓✓	This option is recommended for consideration in the RTS as these routes perform a regionally significant function.

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30	Road	Route Action Plan on former A90/newly designated A92 between Blackdog and Stonehaven following AWPR completion	O	✓✓	O	O	O	✓✓	This option is recommended for consideration in both STPR2 and the RTS because of the significant role this section of the A90/newly designated A92 has at a regional and national level on access (for example, the Dee and Don crossings, and access to Aberdeen). It is recognised, however, this option is currently very wide ranging and should be refined at the next stage with specific schemes which can more robustly be appraised against the study objectives.
31	Road	Consolidated Asset Management and Prioritisation System	O	✓✓	✓	O	O	✓✓✓	This option is recommended as part of the RTS as it is the largely the remit of Local Authorities to maintain transport infrastructure (excl. for example Trunk Roads and Rail Network). This could however be incorporated into a National Asset Management and Prioritisation System, therefore, is also recommended for consideration in STPR2.

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32	Road	Introduce 20mph zones	✓	O	✓✓	O	O	✓✓	This option is recommended to be included as part of the RTS as it takes a region-specific approach to implementing 20mph speed limits, although it is likely to have positive impacts at the local level.
33	Technology	ITS to manage vehicle entry to lanes and zones based on vehicle types, time of day, real-time emissions and congestion levels	✓	✓	✓✓	O	✓✓	✓	This option is recommended to be considered in the RTS as aspects of it are region-specific and would need to be administered by the Local Authorities. Aspects would most likely be implemented on key access routes to the city and larger towns, and is likely to affect local and regional movements.
34	Technology	Wayfinding App for Tourists	✓	O	✓	O	O	✓	This option has been recommended to be considered in the RTS as it should consider the local and regional visitor hotspots and linking them with transport routes to create the trails.

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35	Technology	Implement new technologies strategy for the region, across modes	✓✓	O	✓✓✓	O	✓	✓	This option has been recommended for consideration in STPR and the RTS as it should consider the local and regional needs and benefits of such technology, as well as consider local knowledge/research (e.g. alternative energy & fuels - Hydrogen) which could assist in the delivery of new technologies across the region. At the national level this should consider for example the impact of alternative fuels including Hydrogen for ferries, and the need for consistency of standards and optimisation of a national network of charging/fuelling stations.
36	Technology	Enhance network monitoring capability to collect real-time user information across all modes, to input to journey planning tools and real-time network management	✓	✓✓	✓	O	✓✓	✓	This option is recommended to be progressed to the RTS as it is a regional-based system. It could however complement a National Monitoring System

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37	Technology	Policy support for a digital working strategy (including Broadband Connectivity Improvements) for the region to reduce peak-time travel, and encourage communities to develop potential working hubs	O	✓✓✓	✓✓✓	✓✓	✓	✓	This option is recommended to be progressed to the RTS as it is seen as a key option in influencing travel decisions and expanding travel choices. Not by itself a direct transport function or responsibility but will have a significant part to play in the future development of the region. Also needs close engagement with Scottish Government on broadband connectivity roll-out programmes.
38	Technology	Promotion of shared mobility services, including car clubs and facilitation of MaaS (mobility-as-a-service) providers	✓✓	✓✓	✓	O	✓✓	O	This option is recommended for consideration the RTS and Progress Elsewhere - NTS. The North East is already investigating MaaS Technology, however it is considered that Scottish Government/Transport Scotland would need to take a national lead on MaaS Technology, and examine the impacts (may be positive and/or negative) from a transport perspective.

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39	Various	Infrastructure measures to complement City Centre Masterplan proposals	✓✓	O	✓✓	✓	✓	✓✓	This option has been recommended to be progressed to the RTS and Progress Elsewhere - CCMP - as it identifies interventions which mainly have a local focus, with regional benefits.
40	Various	Improved access to healthcare strategy	✓✓	O	✓	✓✓	✓✓	✓✓	This option has been recommended to be considered both in the RTS and 'Progress Elsewhere'. - The RTS should consider the healthcare needs across the region, the different levels of care and emergency provision, and the catchments served; and - Progress Elsewhere which references working with NHS and Third Sector Partners
41	Various	Programme of access for all improvements at all key public transport points, and within urban areas, to benefit those who may have mobility impairment	✓✓✓	O	✓	✓	✓✓	✓✓	This option has been recommended to be considered in the RTS to improve the local and regional mobility access, ensure consistency across the region in terms of implementation and provision.

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42	Funding	Local Transport Funding	✓✓	✓	O	✓✓	✓✓	✓✓	This option has been recommended to be considered in the RTS and also Progress Elsewhere - Scottish Government, LTS - as it consists of funding mechanisms that may be specifically tied to development planning, and what provisions may or may not be contained in the Planning Bill. - It would also be for the relevant authorities to consider and implement as a 'ring-fenced' funding stream. - Would require legislation to Progress Elsewhere - Scottish Government - and acceptability barriers may be Showstoppers for this option.

Option Generation & Sifting

Next Steps

9.56 This option generation and sifting stage completes the Aberdeen City Region Deal Strategic Transport Appraisal: Pre-Appraisal stage, in line with STAG guidance. It sets the context for the further appraisal of transport options for the Aberdeen City Region Deal, the Regional Transport Strategy and the second Strategic Transport Projects Review.

STAG Initial Appraisal (Part I Appraisal)

9.57 STAG Part I Initial Appraisal is the stage that follows Pre-Appraisal (or Case for Change) in the STAG appraisal process. The purpose of the Initial Appraisal will be to undertake an initial qualitative appraisal of the recommended options from Pre-Appraisal and would include an assessment of:

- the likely impacts of the options against the Transport Planning Objectives;
- the likely impacts of the options against STAG criteria (i.e. Environment, Safety, Economy, Integration, and Accessibility and Social Inclusion);
- options against established policy directives; and
- feasibility, affordability and public acceptability of the options.