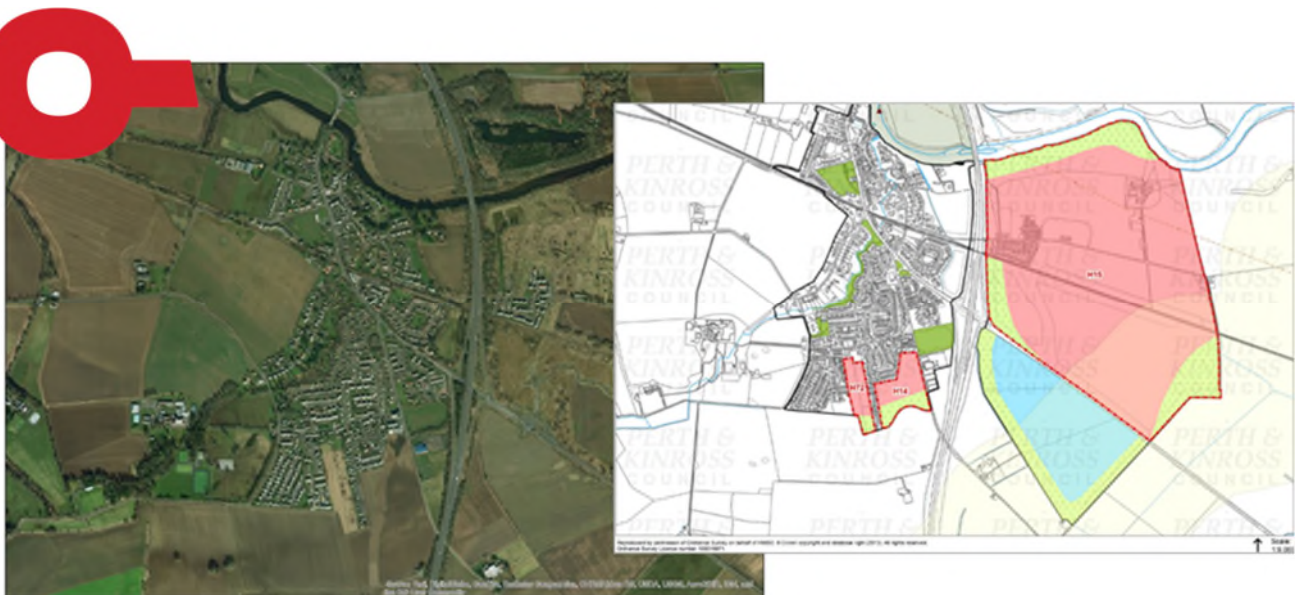


BRIDGE OF EARN TRANSPORT APPRAISAL – CASE FOR CHANGE



Bridge of Earn Transport Appraisal

Case for Change

Final Report

107754

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BRIDGE OF EARN TRANSPORT APPRAISAL

CASE FOR CHANGE

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EXECUTIVE SUMMARY

Overview

SYSTRA was commissioned by regional transport partnership Tactran to collate the evidence behind a Case for Change to undertake a transport appraisal of Bridge of Earn/Oudendarde. This study has a particular focus on sustainable travel to Perth, Edinburgh and Fife.

Improving sustainable transport to/from Bridge of Earn has been the focus for a number of recent studies, and this transport appraisal seeks to collate, review, and progress this agenda. The Local Rail Development Fund is a £2 million Scottish Government fund with the aim of providing funding to consider community led options to improve local rail connections. The Bridge of Earn study area has been awarded a proportion of this fund.

The purpose of this Case for Change report has been to review existing data and policy, consult with relevant stakeholders, and present the problems, opportunities, issues and constraints related to transport in the Bridge of Earn/Oudendarde area and with a particular focus on movements to Perth, Edinburgh, and Fife by sustainable modes.

The Identification of Problems, Opportunities, Issues and Constraints

The identification of problems, opportunities, issues and constraints has been informed by the stakeholder engagement programme which involved a workshop session with local representatives including elected members, community councils, public transport operators and council officers. This was supported by outputs from a Perth and Kinross Council Staff Travel Survey which gave recent views on transport in and around the study area.

The process highlighted the following:

- Socio-Economic Factors:
 - Population in the Perth and Kinross Council area is projected to increase above the national average;
 - Bridge of Earn has a higher proportion of under 16 and 16-64 population compared to the national average, suggesting a concentration of families in the area;
 - Nine zones in the 20% most deprived in Scotland are located in the Perth City area, no zones are located in Bridge of Earn, however, looking specifically at Geographical Access, two of the zones on the edge of Bridge of Earn are considered to be in the 20% most deprived;
 - The number of households with no access to a car is significantly below the Scottish average in Bridge of Earn, 12% compared to 34% suggesting a reliance on car for travel;
 - 11% of Perth's employees travel from Bridge of Earn, Edinburgh and Fife and car is the dominant mode and considerably above the Scottish average (85-94% compared to the Scottish average of 56%);

- 13% of Perth City employees travel from Bridge of Earn by bus which is above the Scottish average of 10%;
- Four percent of Perth City residents work in Bridge of Earn (1%), Fife (2%) and Edinburgh (1%); and
- The figures show that for longer journeys to work, and particularly where there is a constraint at the destination, for example, parking charges in Edinburgh city centre, then there is a propensity to use public transport.

○ Bus:

- The corridor is served by local and strategic bus services by Stagecoach and Citylink. Bridge of Earn has peak time express services to Fife and Edinburgh and a regular bus service to Perth. In the southbound direction, there are connections to Auchterarder and Glenrothes. The combined services result in a service between Bridge of Earn and Perth approximately every 15-20 minutes (Mon-Fri 0800-1800).
- Although there is a regular bus service to Perth the proportion of Bridge of Earn residents using it to access work in Perth remains small (although comparable with the Scottish average). Dashline outputs show that bus travel is not attractive for those travelling to work outside of Perth City Centre due to the majority of services terminating at Perth Bus Station and/or not serving the second most popular work destination in Perth - Hillyland, Tulloch and Inveralmond.
- In 2017, “everyday use or almost every day use” of local bus services in Perth and Kinross has increased by 1.6% when compared to 2014.

○ Rail

- Bridge of Earn is located on the Edinburgh to Perth railway line and was previously served by a station which closed in 1964.
- Improved journey times to Edinburgh from Perth are identified in the Scottish Government’s Strategic Transport Projects (Project 17).
- Office of Rail and Road reporting growths in entries and exits at Perth and Ladybank of 243% and 329% respectively since 1997-98.

○ Cycling:

- Perth Cycling Masterplan identified the corridor from Bridge of Earn to Perth city centre as requiring development however the study also suggested that the likely demand for this route may be low due to small settlements in the area and limited employment sites but could have major benefits for the national cycle network by connecting NCN 77 with NCN 75.

○ General Public Transport:

- Masterplan for the Oudenarde development includes land which has been allocated for a rail halt facility and park and ride facility.
- Journey time comparisons between car and public transport show that public transport can only compete with car journey times at the top end of the journey time range (peak delays impacting on car journey times).

- Road:
 - INRIX data identifies delays and congestion on many of the key routes into and around Perth during the morning peak period, including on the A912 Edinburgh Road corridor between Craigend and Marshall Place. In addition, the data identifies the delays on the approaches to Inveralmond and Broxden Roundabout.
 - Traffic related emissions have contributed to the Perth City area being identified as an Air Quality Management Area.

Opportunities to address the social, economic and environmental consequences arising from these problems exist within the area. These opportunities include the existing strategic road and rail networks and the scope to improve public transport choice. Planned development in the area (and wider Perth area) could also allow a range of transport solutions to be explored.

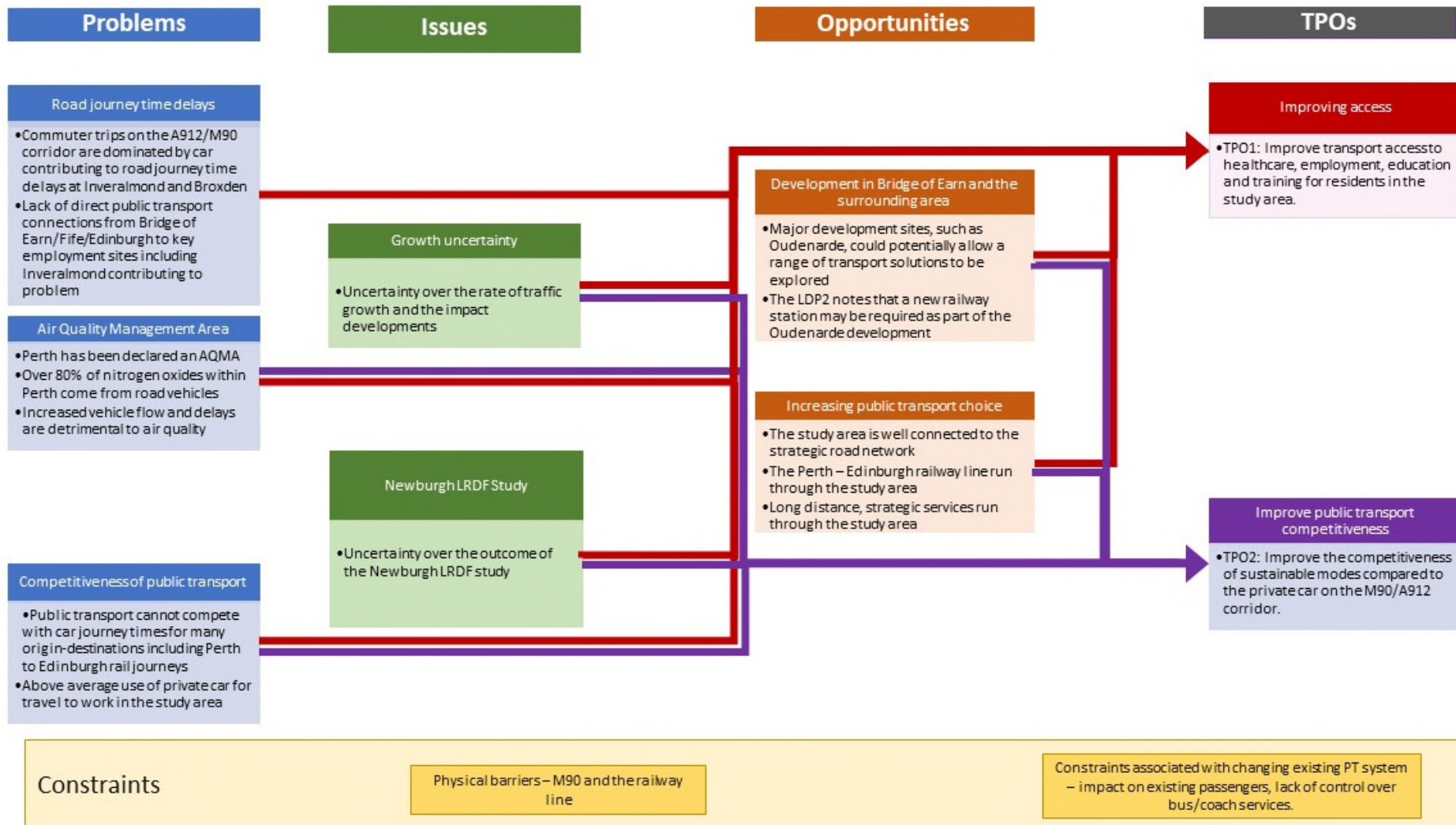
Issues to be considered which are outwith the scope of the study but may impact on transport include uncertainty over traffic growth from new developments and the ongoing study in Newburgh. In addition to Tactran receiving funding to progress this study, SEStran also received funding to appraise transport options in the Newburgh area. Transport options may include a new rail station. The two sites are 7.5 miles apart and the outcomes of the studies may directly impact on each other.

Constraints were also identified and considered at this stage including the physical constraints associated with the road and rail infrastructure and constraints associated with rail including timetabling constraints and impacts on existing passengers.

Transport Planning Objectives

Based on the problems, opportunities, issues and constraints identified through this process two Transport Planning Objectives were identified:

- **TPO 1: Improve transport access to healthcare, employment, education and training**
- **TPO2: Improve the competitiveness of sustainable modes compared to the private car on the M90/A912 corridor.**



TPO Mapping to Problems, Issues, Opportunities and Constraints

Option Generation

Following the development of the Transport Planning Objectives a wide range of options which could meet the Transport Planning Objectives were generated which could alleviate the identified problems and address the potential opportunities across the study area.

37 options were generated at this stage. Options were generated across all modes of transports and geographically across the study area, and beyond. Following the development of an initial long list the options were developed and cleaned. This involved clarifying the options to provide further detail and to remove duplicates. Where appropriate, options were also grouped by mode. At this stage 10 options remained.

The final stage of the Option Generation involved a high-level appraisal to determine suitability for further assessment. This appraisal was a qualitative assessment against the TPOs and determined if the option would have a positive, negative or neutral impact against the TPO. Options which would contribute to meeting the TPOs in conjunction with other options were identified as complementary options. Six options have been recommended for initial appraisal, three have been identified as complementary options and one has been recommended for rejection.

Table 1. Options Recommended for Initial Appraisal

MODE	OPTION	RATIONALE
Active Travel	Active travel improvements including: <ul style="list-style-type: none"> Improve the Tay Corridor active link identified in the TayPlan for recreational journeys; Develop the Perth to Bridge of Earn cycle route; Junction improvements at the M90 slips (Junction 9) to benefit pedestrians and cyclists; Cycle parking at bus stops/interchanges; Public cycle hire; and Improved signage. 	Option would support TPO1 by improving transport access through improvements to the active travel network.
Bus	Improve & increase local bus/services from Bridge of Earn and Oudenarde to destinations in Perth	Option would support both TPOs by improving transport access to a range of destinations and also improve competitiveness of PT by having more direct services.
Bus	Measures to increase the attractiveness of public transport including investment in new buses and live bus feed information at stops	Complementary - As a component of a wider range of measures to increase the attractiveness of public transport this option would support TPO2.
Bus	Improve and increase strategic bus and coach services on the corridor	Option would support both TPOs by improving transport access to a

MODE	OPTION	RATIONALE
		range of destinations and also improve competitiveness of PT by having more direct services for strategic trips.
Initiatives	Create a multi-modal ticketing system and optimise pricing structure	Complementary - As a component of a wider range of measures to improve the competitiveness this option would support TPO2 by improving the competitiveness of public transport.
Initiatives	Introduce initiatives to support more sustainable ways of travelling: <ul style="list-style-type: none"> improve car sharing offering and other initiatives in the study area by incentivising car sharing; promoting and encouraging more car clubs; and support the development of business travel plans. 	Complementary - Option would support TPO 1 by improving access to services.
Other	Use shuttle trains from Perth to Newburgh	Option would support both TPOs by improving access to services, encouraging modal shift and improving the competitiveness of public transport over car.
Park and Ride	New bus based park & ride site: <ul style="list-style-type: none"> Employment site south of A912 - Brickhall Farm 	Option would support both TPOs by improving access to services, encouraging modal shift and improving the competitiveness of public transport over car.
Rail	New rail station located at: <ul style="list-style-type: none"> Old Bridge of Earn station site; or Oudenarde with park and ride facilities 	Option would support both TPOs by improving access to services and improving the competitiveness of public transport over car.



1. INTRODUCTION

1.1 Overview

- 1.1.1 In August 2018, Tactran, a Regional Transport Partnership, was awarded funding from Transport Scotland's Local Rail Development Fund to undertake a transport appraisal of Bridge of Earn/Oudenarde with a particular focus on sustainable travel to Perth, Edinburgh and Fife.
- 1.1.2 Improving sustainable transport to/from Bridge of Earn has been the focus for a number of recent studies, and this transport appraisal seeks to collate, review, and progress this agenda. The Local Rail Development Fund is a £2 million Scottish Government fund with the aim of providing funding to consider community led options to improve local rail connections. The Bridge of Earn study area has been awarded a proportion of this fund.
- 1.1.3 This Case for Change Report provides the initial investigation of the study area from which to define the direction of the overall study and its required outcomes. It sets the scene by laying out an evidenced analysis of the problems, opportunities, issues and constraints related to transport in area, before considering the transport planning objectives (TPOs) informing the study, and a long-list of potential options to be appraised for their ability to deliver these objectives.
- 1.1.4 As the Case for Change has developed and evolved, so has the geographical scope of the study. At the outset, the study area was considered to be the Bridge of Earn area with cognisance given to movements passing by/through Bridge of Earn. The evidence gathering stage of the study highlighted that widening the study area to include the A912/M90 corridor south of Perth would increase the understanding of transport choices, problems, opportunities, issues and constraints between Bridge of Earn and Perth city centre, Fife and towards Edinburgh. The study area has therefore been identified as including this corridor to ensure data consistency and is shown in Figure 1.

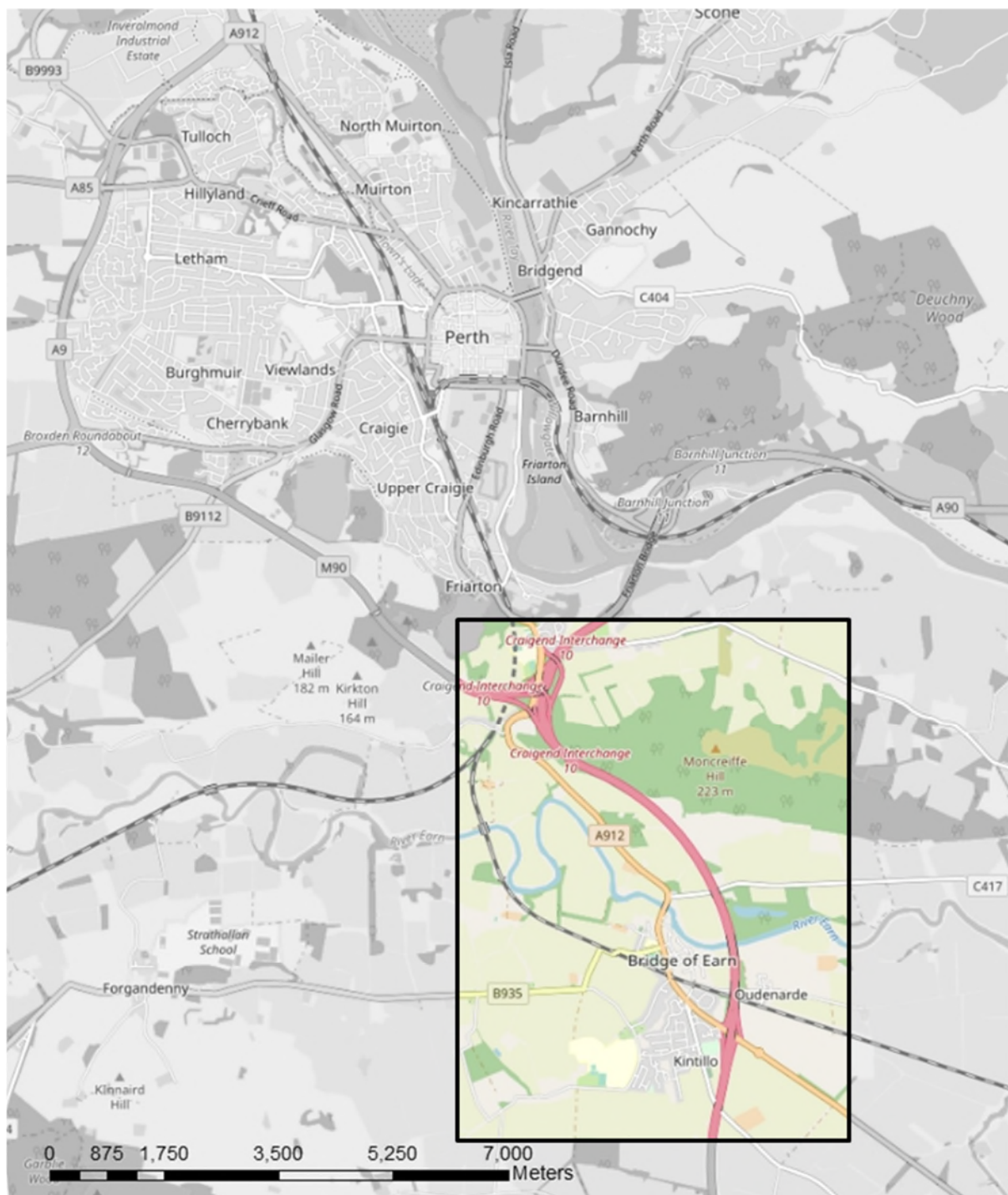


Figure 1. Study Area

2. METHODOLOGY

2.1 Scottish Transport Appraisal Guidance (STAG)

2.1.1 As required by the LRDF, the study has been undertaken in accordance with the Scottish Transport Appraisal Guidance (STAG) process, which provides a framework to assess the performance of different transport options to address identified problems and present the results in a consistent manner to inform decision makers. The STAG process comprises four stages as outlined below:

- **Pre-Appraisal (Initial Appraisal: Case for Change):** where the problems, opportunities, issues and constraints are identified and scoped. Study-specific Transport Planning Objectives (TPOs) are then identified and an 'optioneering' and sifting process undertaken to provide a list of possible options to address the problems;
- **Initial Appraisal (Preliminary Options Appraisal):** potential options are appraised against the TPOs, five STAG criteria, and factors concerning deliverability, to ensure that they are likely to fulfil the study's requirements;
- **Detailed Appraisal (Detailed Options Appraisal):** involving more detailed consideration of potential options taken forward following the Initial Appraisal, and presenting the outcomes to inform investment decision makers. The Detailed Options Appraisal also includes proposals for monitoring and evaluation; and
- **Post-Appraisal:** key elements of this stage involve the application of the monitoring and evaluation proposals developed as part of the appraisal.

2.1.2 The Case for Change identifies whether there is a problem to be solved. It collates and analyses relevant data and findings from consultation to develop the problems, opportunities, issues and constraints which in turn inform the development of TPOs. The TPOs are initially used to ensure options developed as part of the study will meet the TPOs and also, at a later stage will be appraised against these TPOs.

2.2 Stakeholder Engagement

2.2.1 Participation and consultation are key elements of a STAG study and ensure the interests of stakeholders are considered in an inclusive, open, transparent and appropriate manner. In particular, consultation is useful in the identification and analysis of transport problems and opportunities which forms the starting point of any STAG study.

2.2.2 Due to the geographical nature of the study which includes a corridor, city, planned developments and cross boundary movements (Fife/Perth and Kinross), identifying and consulting with relevant members of the public would be challenging. To address this issue, the study team agreed to hold a workshop and draw on existing consultation outputs in the area, to support the transport and socio-economic evidence available for the study.

2.2.3 For this purpose, a workshop was held with stakeholders including representatives from community councils, bus operators and local councillors. In addition, the Project Steering Group also held a workshop with a similar agenda.



2.2.4 In addition to the workshops, this study has been informed by recent consultation exercises undertaken by Perth and Kinross Council, including the Residents' Survey for all Perth areas (2015) and the PKC staff travel.

2.2.5 The outputs of the consultation processes have been detailed in Chapter 6.

2.3 Collation of Baseline Data

2.3.1 The initial stage of the STAG process is establishing the current situation within the study area. This includes developing an understanding of the policy background, socio-economic context, transport network including the current provision of transport and the implications of any planned development within the area. This data is then used to evidence the transport problems and opportunities. The analysis in the following chapters has been informed by a number of policy documents including the Perth Local Development Plan 2, Perth City Plan 2015-2035 and Tactran Regional Transport Strategy (2008-2023).

2.3.2 Additional sources for this study include:

- Census 2011;
- Scottish Household Surveys;
- Public transport timetabling data; and
- Tactran RTS Monitoring data.

2.4 Project Steering Group

2.4.1 The scope of the study was shaped by input from members of the Project Steering Group which included:

- Tactran;
- Perth and Kinross Council;
- SEStrans;
- Sustran;
- Transport Scotland; and
- Network Rail.

2.4.2 Representatives from SEStrans were invited to attend the Project Steering Group due, not only to the proximity of the SEStran area, but also because of their shared interest in the corridor when undertaking their own study in Newburgh. Newburgh is located 7.5 miles east of Bridge of Earn in Fife and has also been awarded funding from the Local Rail Development Fund to assess transport needs and opportunities in the area. The projects are currently progressing independently but both project teams are aware of interactions which may arise for certain options.

3. POLICY

3.1 Overview

- 3.1.1 There are a number of wider transport, planning, and economic policies and plans as well as existing studies that have been reviewed to identify any objective and option fit with established policy directives. These documents include:

National Policies and Plans:

- Strategic Transport Projects Review (STPR), Transport Scotland, 2008
- *Scottish Planning Policy*, Scottish Government, 2014
- National Planning Framework 3, Scottish Government, 2014
- Infrastructure Investment Plan, Scottish Government, 2015
- National Transport Strategy 2, Transport Scotland, 2020
- *Scotland Route Study*, Network Rail, 2016

Regional Policies and Plans:

- Regional Transport Strategy 2008 – 2023, Tactran, 2008
- Strategic Development Plan (SDP), TAYplan, 2015
- Park and Ride Strategy and Action Plan, Tactran, 2016
- Tay Cities Deal Heads of Terms Agreement, Tay Cities, 2018

Local Policies and Plans:

- *Oudenarde Masterplan and Design Principles*, Gillespies for GS Brown Construction & Taylor Wimpey, 2001
- *Shaping Perth's Transport Future*, Perth and Kinross Council, 2010
- *Perth West Masterplan Framework*, Ironside Farrar for Perth and Kinross Council, 2015
- *Perth City Plan 2015-2035*, Perth and Kinross Council, 2015
- Perth and Kinross LDP2 Main Issues Report (MIR), Perth and Kinross Council, 2015
- *Perth and Kinross Community Plan 2017-2027*, Perth and Kinross Community Planning Partnership, 2017
- *Perth and Kinross Adopted LDP2*, Perth and Kinross Council, 2019
- *Perth Cycle Network Masterplan*, SYSTRA for Perth and Kinross Council, 2018

3.2 National Policies and Plans

National Transport Strategy 2

- 3.2.1 The *National Transport Strategy* (NTS) was first published in 2006 and refreshed in 2016 to reconfirm the high-level objectives set out in the white paper entitled *Scotland's Transport Future* (2004), and the *National Transport Strategy* (2006). NTS2 was published in 2020 with the following priorities:

- Reduce inequalities:
 - Providing fair access to services we need;

- Easy to use for all; and
- Affordable for all.
- Take climate action:
 - Help deliver our net-zero target;
 - Adapt to the effects of climate change; and
 - Promote greener, cleaner choices.
- Help deliver inclusive economic growth:
 - Get people and goods where they need to get to;
 - Be reliable, efficient and high quality; and
 - Use beneficial innovation.
- Improve our health and wellbeing:
 - Be safe and secure for all;
 - Enable us to make healthy travel choices; and
 - Help make our communities great places to live.

3.2.2 The NTS2 delivery plan is now being prepared.

Relevance to Study: The scope of the study has the potential to support all four NTS2 priorities through improving sustainable travel choices to services and opportunities.

Strategic Transport Projects Review (STPR), Transport Scotland, 2008

3.2.3 The Strategic Transport Projects Review (STPR), published in December 2008, set out the Scottish Government's 29 transport investment priorities over the period to 2032.

3.2.4 The STPR identified those recommendations that most effectively contribute towards the Government's Purpose of increasing sustainable economic growth. The outcomes of the STPR were structured on a tiered approach to investment, based around the priorities of:

- Maintaining and safely operating existing assets
- Promoting a range of measures, including innovative solutions, that make better use of existing capacity; and
- Promoting targeted infrastructure improvements where these are necessary, affordable and practicable.

3.2.5 Through Transport Scotland, the Scottish Government is currently taking forward the next review of projects (STPR 2) which will be published in early 2020.

Relevance to Study: STPR identified a number of interventions which relate to this study including: a direct double track rail link between Halbeath and Inverkeithing, including new junctions at Inverkeithing and Halbeath which would reduce journey times between Perth and Edinburgh (retained) and direct dual-track rail link between

Perth and Inverkeithing, providing a more direct rail service to Edinburgh (not retained).

Climate Change Emergency Related Policies

3.2.6 A number of policies relate to the Climate Emergency and commitments at local and Scottish levels to address the emergency. Relevant policies include:

- Climate Change Plan 2018-2032 (RPP3)
 - The Climate Change Plan is the Scottish Government's third report on proposals and policies for meeting its climate change targets. It sets out how Scotland can deliver its target of 66% emissions reductions, relative to the baseline, for the period 2018–2032.
- *Scottish Planning Policy*, Scottish Government, 2014
 - SPP identifies a need to shift to more sustainable modes of transport to help meet the Scottish Government's greenhouse gas emission targets. Tackling congestion will also help support sustainable economic growth. The Policy requires that planning authorities should support development that reduces the need to travel and facilitates travel by walking, cycling and public transport and freight movement by rail and water.

Relevance to Study: The study's aim of promoting sustainable travel has the potential for supporting the Scottish Government greenhouse gas emission targets.

National Planning Framework 3, Scottish Government, 2014

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

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

Relevance to Study: NPF3 refers to Perth and Kinross as an area of high population growth with acute housing requirements and the need to match demand for land with infrastructure capacity. It recognises Perth as a strategically important gateway to the north and north east of the country due to its central location within Scotland's road and rail network and acknowledges Oudenarde as a strategic growth area. The

study's aim of improving sustainable travel options has the potential to make Scotland a more connected place and reduce carbon emissions.

Infrastructure Investment Plan, Scottish Government, 2015

- 3.2.8 The Infrastructure Plan was published by the Scottish Government 2015 and sets out the priorities for investment in public infrastructure in Scotland.

Relevance to Study: The Plan details the commitment to dual the A9 between Perth and Inverness by 2025 and notes that investment in the rail infrastructure between Aberdeen and the central belt will support improved connectivity and journey times for passenger services and an improved capability for rail freight. It further states that improved station environments will also be delivered at Perth and the Highland Main Railway Line between Perth and Inverness will be upgraded by adding passing loops and increasing line speeds.

Scotland Route Study, Network Rail, 2016

- 3.2.9 The Scotland Route Study presents a vision of the railway in 2043, and sets out a strategy “for realising this vision in ways that are deliverable and likely to provide value-for-money for passengers and funders”.
- 3.2.10 The strategic objectives set in the study aim to enable economic growth by:

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

Relevance to Study: The study's aim of promoting sustainable travel will support the Scotland Route Study's aims to reduce carbon and the transport sector's impact on the environment, while improving connectivity and accessibility.



3.3 Regional Policies and Plans

Regional Transport Strategy, Tactran, 2008-2023

- 3.3.1 The Tactran Regional Transport Strategy (RTS) was published in 2008 and sets out a vision and strategy for improving the region's transport infrastructure, services and other facilities, over the 15 years to 2023. Tactran's Vision is to deliver:

"a transport system, shaped by engagement with its citizens, which helps deliver prosperity and connects communities across the region and beyond, which is socially inclusive and environmentally sustainable and which promotes the health and well-being of all."

- 3.3.2 Six broad objective themes were developed to support this Vision, these are:

- Economy: To ensure transport helps to deliver regional prosperity.
- Accessibility, Equity and Social Inclusion: To improve accessibility for all, particularly for those suffering from social exclusion.
- The Environment: To ensure that the transport system contributes to safeguarding the environment and promotes opportunities for improvement.
- Health and Well-Being: To promote the health and well-being of communities.
- Safety & Security: To improve the real and perceived safety and security of the transport network.
- Integration: To improve integration, both within transport and between transport and other policy areas.

Relevance to Study: This study has the potential to consider interventions which support Tactran's RTS objectives relating to economy, accessibility, the environment and integration.

Strategic Development Plan, TAYPlan, 2017

- 3.3.3 The TAYplan Strategic Development Plan (SDP) was approved in October 2017. It sets out land use planning policies to guide the location of development across the whole Dundee and Perth area, North Fife and parts of Angus and Perth and Kinross over the next 20 years up until 2036.
- 3.3.4 The Plan's vision centres on improving people's quality of life. It highlights that growing and strengthening the TAYplan economy is a key priority underpinned by better connected places, new jobs, investment and strong community empowerment.

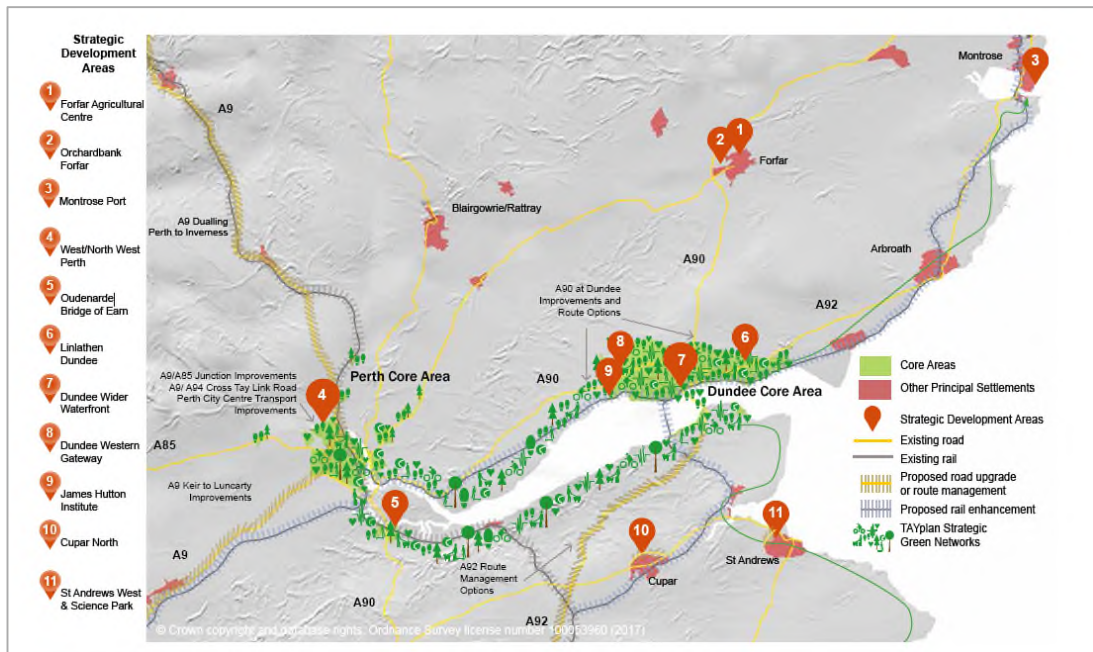


Figure 2. TAYPlan Strategic Development Areas¹

Relevance to Study: The plan refers to west/north west Perth, Bridge of Earn and Oudenarde as Strategic Development Areas, linked by TAYPlan Strategic Green Networks and proposed rail enhancements. The Plan proposes 1,200+ homes and 34ha of employment land for Bridge of Earn and Oudenarde and highlights opportunities to improve active travel links between Oudenarde Strategic Development Area and Newburgh.

Park and Ride Strategy and Action Plan, Tactran, 2016

3.3.5 The Tactran Park and Ride Strategy and Action Plan set out to complement and expand the RTS aspirations identified above and the planning objectives next within the overarching objectives of the RTS, as follows:

- Economy:
 - To ensure that Park & Ride improves access to town / city centres and areas of employment, helping to support economic growth.
 - To improve the efficiency and reliability of the transport system through reduced town and city centre traffic levels and associated economic costs.
- Accessibility:
 - To improve access to health, leisure and retail facilities by Park & Ride.
 - To improve the physical accessibility of the transport system through the provision of increased Park & Ride.

¹Adapted from: TAYPlan, *TAYPlan Strategic Development Plan, 2017, page 47*

- Environment:
 - To respect the built environment through reducing the need to build new town and city centre car parks.
- Health and Well-Being:
 - To help limit / manage travel by private car in urban areas to help meet statutory air quality requirements in the TACTRAN area.
- Safety & Security:
 - To provide the highest levels of safety and security of passengers and vehicles when using Park & Ride.
- Integration:
 - To ensure Park & Ride facilitates integration and is accessible by all modes of transport.
 - To ensure integration between land-use planning and provision of public transport.

Relevance to Study: The strategy supports the development of a new rail station at Oudenarde/Bridge of Earn with the provision of parking space sufficient to match the anticipated parking demand.

Tay Cities Region Deal Heads of Terms Agreement, Tay Cities, 2018

- 3.3.6 The aim of the Tay Cities Deal is to bring together public, private and voluntary organisations in council areas of Angus, Dundee City, Perth & Kinross and the North-East area of Fife, aiming to create “a smarter and fairer region”. These local authorities and their partners have negotiated with the UK and Scottish governments and secured investment and greater local powers which will be used to encourage skills development and progress infrastructure such as roads, rail links, buildings and communications networks. The deal was signed in November 2018.
- 3.3.7 The UK and Scottish governments will each invest up to £150 million over the next 10-15 years, subject to final approval of robust business cases. It is believed by the City Region Deal partners that this investment has the potential to secure over 6,000 jobs and lever in over £400 million in investment over the same period.
- 3.3.8 Additionally, the Scottish Government announced an additional £50 million package that would contribute £40 million towards the Cross Tay Link Road (CTLR) and £10million towards industrial investment. The investments within the Perth and Kinross area include:
- Up to £10 million for the Perth City Transformation project – to create a cultural offer in Perth which responds to both local audiences and tourism visitors, complementing other cultural attractions to produce a compelling, cohesive ‘brand’ for Perth as a major cultural city;
 - Up to £5 million in on-site infrastructure for the Regional, Logistics, Fulfilment and Business Innovation Park to the west of Perth;

- £1 million in rural Perth & Kinross to deliver a fibre asset re-use model through which public and private fibre infrastructure will be aggregated to create a common platform;
- up to £15 million in a Perth Bus and Rail Interchange project subject to detailed consideration of future plans for the rail infrastructure in and around Perth Station and completion and agreement of appropriate appraisal, business case and statutory processes; and
- £40 million for the Cross-Tay Link Road (CTLR).

Relevance to Study: The Tay Cities Region Deal has identified areas of progress infrastructure such as roads, rail links, buildings and communications networks to be improved with the allocated funding which may improve connections for those in Bridge of Earn.

3.4 Local Policies and Plans

Oudenarde Masterplan and Design Principles, Gillespie's for GS Brown Construction & Taylor Wimpey, 2001

- 3.4.1 The Oudenarde Masterplan and Design Principles report was prepared in 2001 and guides the development of the site.
- 3.4.2 The site is 122ha and lies to the east of the M90, which links Edinburgh and Perth. It is bounded along its southern edge by the A912 trunk road, connecting Bridge of Earn to Abernethy and Fife. The road network provides good and easy access to nearby settlements, thus making the site attractive for business and residential use.
- 3.4.3 The railway line from Edinburgh to Perth via Fife passes through the site. Whilst the line promotes the possible future introduction of a rail halt, which would facilitate alternative transport links to Perth and Edinburgh, as it divides the site into two distinct areas it has been identified as a major constraint. It also requires to be crossed at one location to allow access to the northern part of the site.
- 3.4.4 The Masterplan states that land has been allocated for a 'Park and Ride' facility to the south of the railway line, adjacent to the preferred location for a future rail halt facility. This would accommodate up to 250 cars and would operate as a bus Park and Ride until such time as the rail halt comes into operation. This land is protected for this purpose for a 10 year period following commencement of development on the mainstream housing element (as detailed in the Section 75 agreement for the site).
- 3.4.5 The Masterplan also discusses opportunities to provide links to external pedestrian and cycle networks. This includes closing Clayton Road for a vehicular through route to Bridge of Earn and utilising it as a pedestrian and cycle link between Oudenarde and Bridge of Earn.
- 3.4.6 The proposed masterplan is shown in Figure 3.



Shaping Perth's Transport Future, Perth and Kinross Council, 2010

3.4.8 This vision is supported by the following strategic objectives:

- To improve and maintain the efficiency of the strategic transport network;
- To improve and maintain the efficiency of the local transport network;
- To enable more effective management of incidents and events;
- To work towards meeting national air quality standards and prevent further breach/exceedance;
- To reduce transport emissions which contribute to climate change, in line with National Guidance;
- To improve the safety of the strategic and local transport network;
- To increase the proportion of short trips by more sustainable modes; and
- To improve accessibility to key facilities (e.g. health, education, leisure facilities, key employment areas, the City Centre and tourist attractions).

² As produced in: Gillespies for Perth and Kinross Council, *Oudenarde Masterplan and Design Principles*, 2001, page 7.

3.4.9 The strategy also identifies the existing key transport problems which include:

- Walking and Cycling – unattractive due to heavily trafficked roads in the city centre and on key routes leading to the centre, air quality problems and severance by the A9 to access to future growth areas.
- Bus network – congestion at key junctions impacting on reliability of journey times and compromising the operation of existing bus priority measures. Bus congestion at South Street and Mill Street bus stops.
- Local Road Network – congestion in the city centre due to the constraints imposed on the local road network by the Perth and Queen’s Bridges and the lack of a suitable alternative east-west route that avoids the centre of Perth. Crieff Road /Newhouse Road to the north-west of the city centre also experiences congestion.
- Air Quality – Perth Air Quality Management Area (AQMA) designated in Perth city centre and wider city region in 2006 as a result of air quality being below the required standards with transport identified as a key contributing factor.

Relevance to Study: The study supports Shaping Perth’s Transport Future objectives to increase the proportion of short trips by more sustainable modes, improve and maintain the efficiency of the strategic and local transport network, and work towards meeting national air quality standards and prevent further breach/exceedance. Being located to the south of Perth, Oudenarde/Bridge of Earn is ideally located to take advantage of measures to encourage sustainable trip making.

Perth and Kinross LDP2 (Adopted), Perth and Kinross Council, 2019

3.4.10 The Local Development Plan 2 (LDP2), which was adopted in 2019, is a statutory document that guides all future development and use of land. It shows which land is being allocated to meet the area’s development needs to 2029 and beyond and defines the planning policies and requirements that apply in promoting sustainable growth of the area. The LDP also provides the framework against which planning applications are assessed. Currently, it is reviewed every 5 years with its Action Programme being updated twice a year.

3.4.11 The LDP2 outlines the vision of a Perth and Kinross which is dynamic, attractive and effective which protects its assets whilst welcoming population and economic growth. It then promotes a Connected Place using the following four key objectives:

- Identify and provide for new and improved social and physical infrastructure to support an expanding and changing population.
- Establish clear priorities to ensure stakeholders and agencies work in partnership so that investment is co-ordinated and best use is made of limited resources to enable the delivery of the strategy, supporting the aims and objectives of the Strategic Transport Projects Review, the Regional Transport Strategy, and the Tay Cities Deal.
- Ensure investment in the renewal and enhancement of existing infrastructure is consistent with the strategy of the Plan in order to make best use of the investment embedded in our existing settlements.
- Provide a flexible policy framework to respond to changing economic circumstances and developing technology.

- 3.4.12 The LDP2 proposes to focus the majority of growth on Perth City and its Core area, which includes Bridge of Earn and Oudenarde. The LDP2 allocates 1,600 houses (an increase of 400 units from TAYPlan to reflect higher densities and the capacity of the site) and 35 ha of employment land in Oudenarde - separate planning permission exists for 35 ha of employment uses on adjacent land at Brickhall.
- 3.4.13 It is understood that, at the time of writing, the developer has agreed a way forward with both PKC and Transport Scotland and will shortly bring forward plans to get the initial phase of development underway.
- 3.4.14 A further 170 dwellings were allocated for Bridge of Earn, as follows (Figure 3):³
- Site H14 – Old Edinburgh Road/Dunbarney Avenue – 67-104 units
 - Site H72 – Kintillo Road – 60-93 units

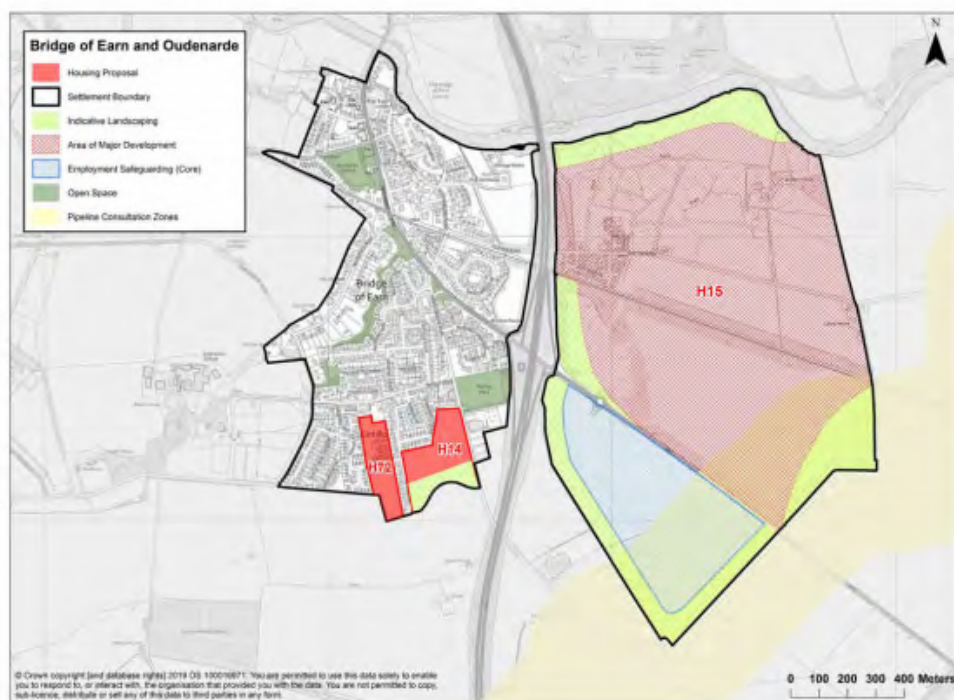


Figure 4. LDP Sites in Bridge of Earn and Oudenarde

Relevance to study: The LDP2 allocated 1,600 houses in the Oudenarde site and promotes a Connected Place to identify and provide for new and improved social and physical infrastructure to support an expanding and changing population.

³ Perth and Kinross Council, Perth and Kinross LDP (Adopted), Page 98

Perth West Masterplan Framework, Ironside Farrar for Perth and Kinross Council, 2015

- 3.4.15 The Perth West Masterplan Framework includes an area of land of approximately 285ha located to the west of Perth City. It is mainly an agricultural area with some areas of greenbelt which has been identified within the Perth and Kinross LDP as site H70 and proposed for the development of 3,000+ residential units, 25ha of employment land, 2 primary schools and community facilities. The site location is shown in Figure 5.

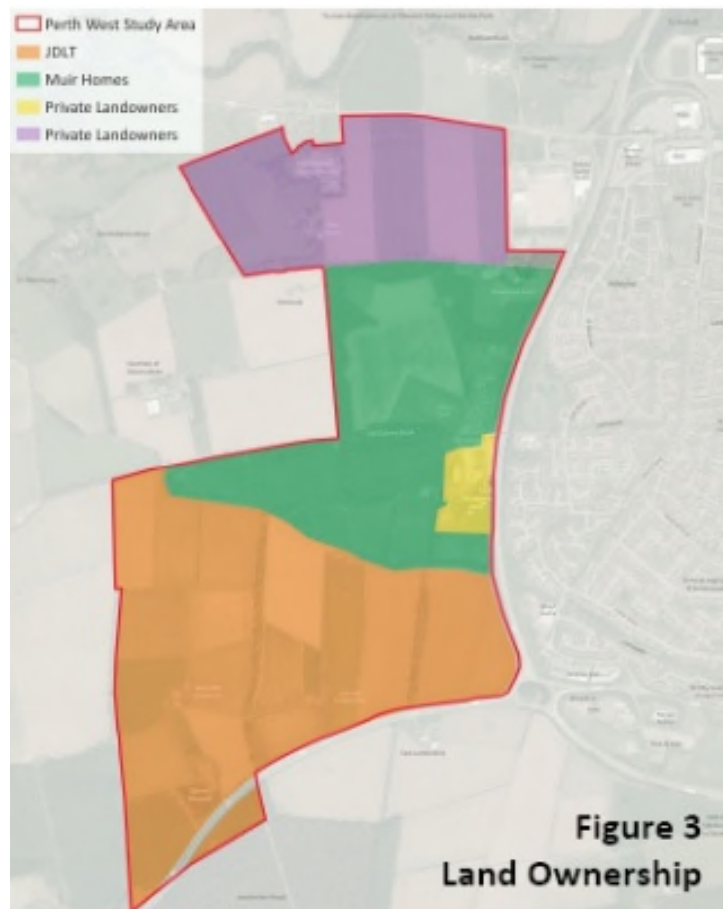


Figure 5. Perth West Site Location (Source: Perth West Masterplan Framework)

- 3.4.16 The vision set in Perth West Masterplan Framework looks to:

“Develop a place that is a distinctive and that offers a new vibrant mixed use community based on local centres and neighbourhoods, which promote new lifestyle opportunities developed through bold approaches to urban place-making integrating live, work, and play and supporting a low carbon future. Delivered through the phased provision of infrastructure and residential and employment land, supporting the sustainable growth of Perth City.”

3.4.17 The Masterplan outlines the following opportunities to ensure that Perth West supports the city's plan for sustainable growth:

- Green Network – protecting and enhancing the Green Network
- Residential Plus Neighbourhoods – adding diversity to the residential mix by providing variable needs housing.
- Low Carbon Futures – Perth West is a collection of new neighbourhoods that are expected to develop until 2050. There is a need to reduce emissions by providing low cost energy solutions and reducing car ownership.
- Employment and Quality Jobs – local jobs need to be created through a diversity of commercial, industrial and enterprise facilities which are closely integrated with community structures.
- Community Infrastructure – Perth West needs strong community structure to support the growth and to create a sustainable community.
- Healthy Active Communities – Provision/enabling infrastructures that promote and support active travel options.
- Well Connected Places – A strong public transport network providing connectivity to local communities.

Relevance to study: The Masterplan proposes the development of 3,000+ residential units, 25ha of employment land, 2 primary schools and community facilities. This development is expected to impact on transport demand to the northwest of the study area.

Perth City Plan 2015-2035, Perth and Kinross Council, 2015

3.4.18 The Perth City Plan sets out Perth and Kinross Council's long-term vision for Perth, outlining a framework for investment in strategic infrastructure, together with a 5-year delivery plan for economic development and placemaking.

3.4.19 The plan states it aims to ensure Perth is a place where:

- people live well, work in quality jobs and play in a great environment – a prosperous, balanced community not a commuter dormitory;
- environmental technologies will be a key driver of economic growth and innovation;
- the city will grow in a responsible way, reducing car dependency and encouraging the use of public transport;
- we take full advantage of digital technologies to create a city which is efficient and connected;
- low-carbon will be a way of life, founded on energy-efficient homes and businesses; and
- the unique characteristics of the historic city centre and Perth's natural setting will be celebrated and enhanced.

3.4.20 The Plan also notes the city's existing strength of its location at the heart of Scotland, with easy access to the major Scottish cities, UK and international markets via road, rail and air. It also outlines one of its three key priorities as Transport Infrastructure and notes projects such as the Cross-Tay Link Road (CTLR), and aspirations for a liveable, pedestrian-friendly city centre. It also highlights the need to integrate road more effectively into the fabric of the city,

the need to relieve congestion without fragmenting the city, and reducing dependency on car while encouraging sustainable modes of travel. Plans for upgraded rail services are also noted with a need for improvements to major cities and Edinburgh airport.

Relevance to study: The plan's stated aims are of relevance to any sustainable transport study, even though no specific is referenced for the Bridge of Earn and Oudenarde areas (as this lies outwith the study's immediate remit).

Perth and Kinross LDP2 Main Issues Report (MIR), Perth and Kinross Council, 2015

- 3.4.21 The MIR identifies the main land use planning issues within the area and highlights the main changes between LDP 1 and LDP2. The purpose of the MIR is to stimulate discussion and seek views on options for the now-Adopted LDP2.
- 3.4.22 Main Issue 5 in the MIR discusses the Perth City Plan and draft actions which include better trains, shorter journey times, more frequent services and support investment in track upgrades on the Bridge of Earn to Ladybank section. It recognises that one of the key constraints to the delivery of faster journey times is the single-track section from Bridge of Earn to Ladybank. To ensure that future development does not inhibit the improvement to the line, the MIR discusses identifying a corridor from south of Oudenarde to the Council boundary with policy backing to ensure that any development likely to inhibit the delivery of track improvements would not be permitted.
- 3.4.23 It also discusses that plans for the Cross-Tay Link Road (CTLR) were (then) at an advanced stage and identifies the emerging proposed route to have an intended start date of 2020-21. It highlights that the CTLR will allow for improvements to public transport and active travel routes across Perth by removing a proportion of through traffic from the city. Following more detailed design work on the CTLR, the MIR also proposes relocating the northern park and ride site to the north of the new A9 junction.
- 3.4.24 For the majority of smaller settlements in Perth & Kinross, including Bridge of Earn and Oudenarde, the MIR proposes no changes since the previous LDP.

Relevance to study: Main Issue 5 in the MIR discusses the Perth City Plan and draft actions which include better trains, shorter journey times, more frequent services and support investment in track upgrades on the Bridge of Earn to Ladybank section.

Perth and Kinross Community Plan 2017-2027, Perth and Kinross Community Planning Partnership, 2017

- 3.4.25 The 2017-2027 Community Plan / Local Outcomes Improvement Plan for Perth and Kinross, seeks positive outcomes for everyone in the area and in particular to tackle stubborn and persistent inequalities which can reduce life chances and opportunities for people. It looks to achieve this by working alongside local people and communities. Its development and delivery is overseen by the Community Planning Partnership (CPP) comprising public, private and 3rd Sector bodies.
- 3.4.26 The Plan highlights:
- The important role of transport access in terms of access to jobs, and notes that rural travel costs can limit opportunities for seeking or maintaining work;
 - The completion of the A9/A85 link road, to reduce traffic congestion, and open up land for economic development;
 - Delivery of improved cycling and walking routes into Perth City Centre;
 - Delivery of a low carbon hub at Broxden with alternative fuel logistics;
 - The important role of digital connectivity;
 - Improved connectivity by 2027/28 through better rail links and quicker journey times, and the completion of the Cross-Tay Link Road.
- 3.4.27 In particular the plan highlights principles for the CPP to work local with communities. Such a resource will likely be useful for future working together on sustainable transport opportunities in the area.

Relevance to study: The Community Plan highlights commitments to improved connectivity by 2027/28 through better rail links and quicker journey times, and the completion of the Cross-Tay Link Road. The Plan also includes delivery of improved cycling and walking routes into Perth.

Perth Cycle Network Masterplan, SYSTRA for Perth and Kinross Council, 2018

- 3.4.28 Perth Cycle Network Masterplan aims to coordinate current and future investment in cycling infrastructure in Perth, with the aim of creating a coherent and convenient cycle network, which will make cycling an attractive choice for everyday journeys, to work, to school, to the shop or for leisure. The study is focused on the City of Perth and its nearby towns and villages: Scone, Bridgend, Bridge of Earn, Almondbank, and Luncarty.
- 3.4.29 The Masterplan identifies major destinations across the area and assesses how well they are currently connected. It identifies a missing or inadequate cycling infrastructure from Bridge of Earn towards Perth as the NCN 775 shared use path along the A912 ends at the entrance to Bridge of Earn, directing cyclists back onto a busy carriageway.
- 3.4.30 Whilst it identifies opportunities for this new or improved cycle connection and recommends it is developed in the future, it is mindful of the physical barriers facing its delivery due to the

route serving a lower number of destinations and having limited interaction with other modes of transport.

Relevance to study: The Masterplan identified missing or inadequate cycling infrastructure from Bridge of Earn towards Perth as the NCN 775 shared use path along the A912 ends at the entrance to Bridge of Earn, directing cyclists back onto a busy carriageway.

3.5 Policy Summary

3.5.1 This policy section has highlighted relevant information from national to local level documents. Some of the key take-away points for this case for change include:

National Policies and Plans:

- National policies and plans consistently commit to a transport network which is inclusive, accessible to all and is working towards Scotland's net zero targets. This study supports these outcomes.
- A number of documents note the Perth area is a strategically important gateway to the north and north east, and the NPF3 highlights Oudenarde as a strategic growth area. Alongside walking, cycling and bus, investment in rail for the area is noted as important.

Regional Policies and Plans:

3.5.2 The themes highlighted for national level are echoed at a regional level, with some further additional information:

- The west/north west Perth, Bridge of Earn and Oudenarde, are Strategic Development Areas, linked by TAYPlan Strategic Green Networks and proposed rail enhancements. Planned developments and transport infrastructure enhancements will form the Reference Case for this study.
- The Strategic Development Plan proposes homes and employment land for Bridge of Earn and Oudenarde, and highlights opportunities to improve active travel links between Oudenarde Strategic Development Area and Newburgh. This is within the study area and will impact on the option development and Reference Case for the study.
- The Park and Ride Strategy supports the development of a new rail station at Bridge of Earn with the provision of parking space sufficient to match the anticipated parking demand.
- The Tay Cities Region Deal outlines £400 million of investments over 10-15 years, including the Perth City Transformation project, on-site infrastructure for the Business Innovation Park, Perth Bus and Rail Interchange Project, fibre infrastructure, and the Cross-Tay Link Road (CTLR).

Local Policies and Plans:

- 3.5.3 More detail of local problems, opportunities, issues, and constraints are provided in the local documents
- *Oudenarde Masterplan and Design Principles* note the potential for a new rail halt, but also the division of the site that the rail line causes. The need for external pedestrian and cycle links is also noted.
 - *Shaping Perth's Transport Future* notes the need for improvements to efficiency of the local and strategic transport networks, air quality and emission reduction needs (in particular for the AQMA), safety improvements, the need to encourage sustainable modes, and improve access to key facilities. Problems include congestion on roads in the city centre, and key routes, at key junctions, impacts of this on the bus network, issues related to Tay crossings points. Cognisance of the problems identified within the report has been taken.
 - The *Adopted Perth and Kinross LDP 2* highlights that there is significant development planned for the area. For example, the *Perth West Masterplan Framework* highlights development of 3,000+ residential units, 25ha of employment land, 2 primary schools and community facilities. This study takes note of the planned development, the impact it may have on transport in the study area and its inclusion in the Reference Case.
 - Under the site-specific developer requirements, the Adopted LDP 2 notes that, subject to strategic transport appraisal (i.e. this study), a new railway station may be required as part of the development at Oudenarde.
 - The *Perth Cycle Network Masterplan*, highlights identify inadequate cycling infrastructure from Bridge of Earn towards Perth, and makes recommendations for improved connections.
- 3.5.4 The review of policy documents from national to local level has identified a commitment to a transport network which is inclusive, accessible to all and is working towards Scotland's net zero targets. This review of relevant policy documents will contribute towards understanding how Transport Planning Objectives identified for this study fit with the Established Policy Directives.





4. SOCIO-ECONOMIC CONTEXT

4.1 Overview

- 4.1.1 The initial stage of the STAG process is establishing the current situation within the study area. This includes developing an understanding of the socio-economic context, transport network and the implications of any planned development within the area and the evidence this provides to develop problems, opportunities, issues and constraints.
- 4.1.2 As detailed in section 1.1.4, the study area has evolved as the study has progressed. Initially the focus was on the Bridge of Earn area, however, restricting the area to Bridge of Earn overlooked the impact travel movements on the A912 and M90 between Perth and Bridge of Earn have on people in Bridge of Earn, the corridor and the downstream effect. The data presented here will include Bridge of Earn/Perth to Edinburgh/Fife existing and forecast movements.
- 4.1.3 Bridge of Earn and Oudenarde lie approximately 5 miles south of Perth, with a population of close to 3,000. Bridge of Earn is located to the west of the M90, and Oudenarde lies on the opposite side and is a strategic development area. The considerable growth of Bridge of Earn during the 1980s expanded the settlement to the south and west away from its original form along what was the main road to Edinburgh.⁴
- 4.1.4 The M90 runs from Edinburgh to Perth passing through Fife. The road severs Bridge of Earn from Oudenarde where there are slip roads onto the local road network. The M90 is currently used by the coach network. The A912 is a local road connecting Fife and Perth and passing through Bridge of Earn and is used by the local bus network.
- 4.1.5 The Adopted LDP 2 identifies Bridge of Earn and Oudenarde as part of the Tier 1 Perth Core area, and suggests that good connections to Perth and the wider area, and to Edinburgh/Fife to the South, make the area attractive for new development. It identifies the potential for significant expansion, as follows:
- Employment land at Oudenarde (35ha);
 - Approximately 1,600 housing units at Oudenarde; and
 - 67-104 housing units at Old Edinburgh Road/Dunbarney Avenue.
- 4.1.6 Bridge of Earn has already seen a considerable amount of development in recent years and has good existing community facilities including a school, a hall and village centre with a good range of facilities and services; however, the Infrastructure Capacity Report⁴ undertaken in 2017 highlights that the Perth Core Villages have limited local infrastructure so they rely heavily on Perth for employment opportunities, shopping and accessing services.
- 4.1.7 Since this study commenced, the health facility in Bridge of Earn has been closed and 3,000 patients have been transferred to practices across Perth with associated transport impacts.⁵

⁴ Perth and Kinross Council, *Infrastructure Capacity Report – Perth Core Villages*, 2017

⁵ <http://perthcitymedicalcentre.co.uk/press-release-regarding-bridge-of-earn-surgery-closure/> Accessed 20/01/2



- 4.1.8 As described above, in addition to looking at transport in and around Bridge of Earn and Oudenarde, this study will also look at movements from the study area to Fife and Edinburgh. In particular, trips from the long-term strategic development areas to the north and west of Perth⁶:
- Bertha Park – 3,000+ homes and 25+ ha employment land
 - Almond Valley – 704-1,100 homes
 - Perth West – 2,392-3,738 homes and 25+ ha of employment land
- 4.1.9 Much of the data presented below is sourced from the 2011 Census. This is a robust data source in terms of sample and collection methodology, however, the extended periods between each collection/publication of this data means that this dataset is now over eight years old. In that period, the initial phase of the Oudenarde development has taken place and the affordable and social houses component has been constructed and occupied. The Census analysis does not include those already living at Oudenarde.
- 4.1.10 Figure 6 shows the geographical coverage for the data which will be presented in many of the sections below. These study areas follow the Intermediate and Data Zone boundaries which are used in many datasets including the Scottish Index of Multiple Deprivation and Census Data. The area has been allocated to Bridge of Earn, Perth City and Wider Perth Area. This allocation acknowledges the importance of Perth City and the Wider Perth Area and the impact they have on the A912 and M90 corridor. Please note that some of the Intermediate Zones are large, in particular, the Wider Perth zones, however their resident population is sparse.
- 4.1.11 Some data is only available at a local authority level and this has been stated where appropriate.

⁶ Perth and Kinross Council, Perth and Kinross Local Development Plan 2: Proposed Plan 2017

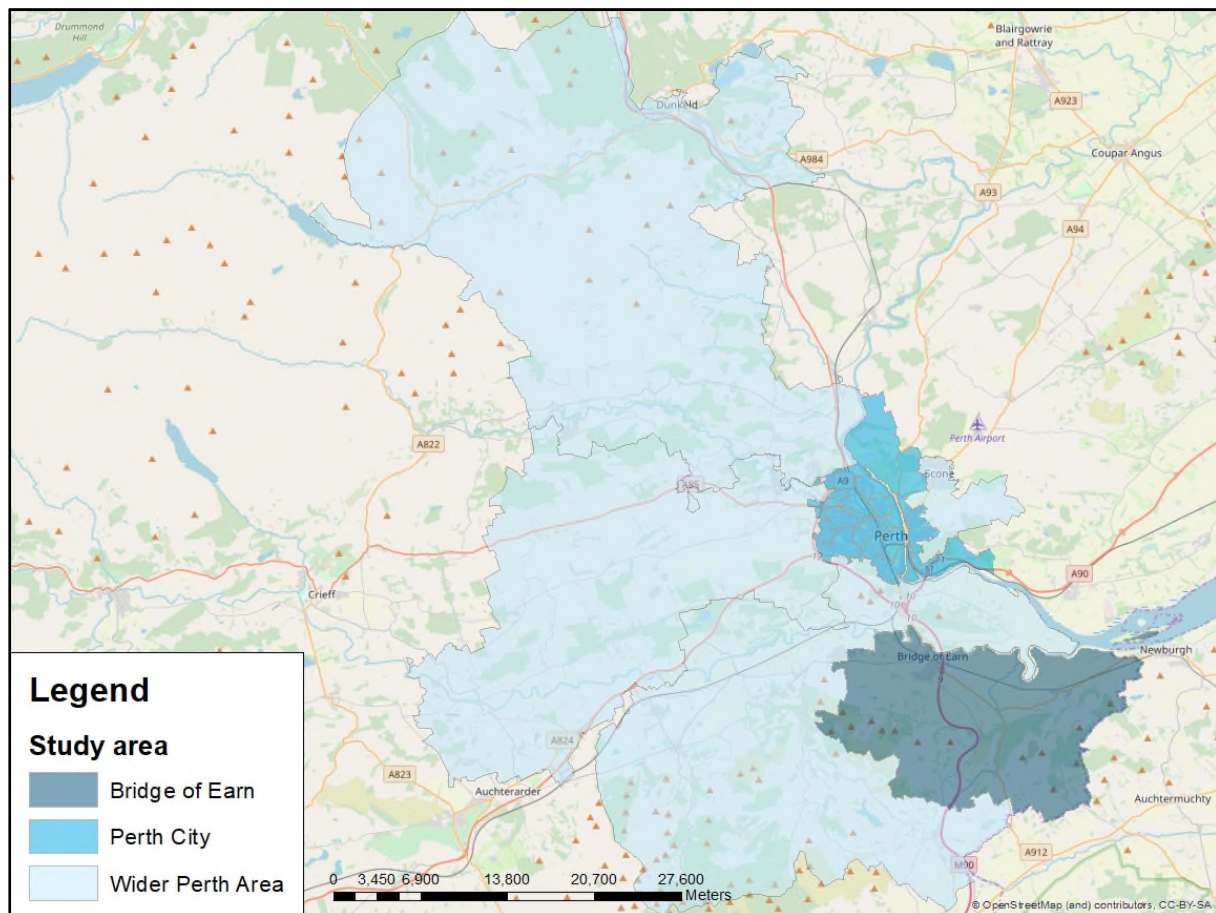


Figure 6. Intermediate Zone Groupings

4.2 Population

- 4.2.1 The National Records of Scotland provide details of the Perth and Kinross Council area population. The data shows that the population of the area has grown, and is forecast to continue to grow steadily to well above the Scottish average, as shown in Table 2. This is also reflected in the Perth and Kinross Council LDP2, which recognises that the area has experienced significant population growth in recent years and projections show this trend is expected to continue.⁷
- 4.2.2 The combined population of Bridge of Earn and Oudenarde (and Kintillo) was estimated to be 5,209 includes the completed social housing as part of the Oudenarde development (Table 3).

⁷ Population projections are not available at a Data or Intermediate Zone level

Table 2. Population Growth and Projections in Perth and Kinross⁸

YEAR	POPULATION (PROJECTIONS AFTER 2015)	% CHANGE FROM 2005	SCOTLAND % CHANGE FROM 2005
2005	138,060		
2010	145,600	5%	3%
2015	149,930	9%	5%
2020	153,537	11%	7%
2025	156,895	14%	8%
2030	159,429	15%	9%
2035	161,233	17%	9%

Table 3. Study Area Population Estimate (2018)⁹

AREA	POPULATION (2018)
Bridge of Earn	5,209
Perth City	46,168
Wider Perth Area	20,446

- 4.2.3 Demographic data varies across the study area. Perth City mirrors the Scottish values in terms of the proportion of the population in each age category, whereas Bridge of Earn has a notably higher proportion of children and working age population. This data suggests there is a concentration of families in the area. Table 4 shows how the age demographic can vary significantly at an output area level.

Table 4. Population – Age Demographic

AGE GROUP	AGED UNDER 16	16-64	OVER 65
Bridge of Earn	20%	19%	62%
Perth City	17%	17%	66%
Wider Perth Area	18%	21%	61%
Scotland	17%	17%	66%

⁸ National Records of Scotland Area Profile

⁹<https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/population/population-estimates/2011-based-special-area-population-estimates/small-area-population-estimates/time-series#2018>

4.3 Scottish Index of Multiple Deprivation

- 4.3.1 The Scottish Index of Multiple Deprivation (SIMD) is the Scottish Government's official tool for identifying and classifying the most deprived areas in Scotland.
- 4.3.2 SIMD shows where Scotland's most deprived areas are across a number of indicators including income, education, employment, health and access to services. The index can be used to help determine areas which may require specific targeting to improve deprivation.
- 4.3.3 Across the three study area sectors there are 92 zones, and in 2020 nine of those zones were within the 20% most deprived in Scotland. These zones were concentrated in Perth City, with none of the zones in and around Bridge of Earn being within the 20% most deprived. When looking at the 'Geographical Access' domain (Figure 7), the four datazones covering Bridge of Earn (which also extend out to Kintillo and other rural areas) range from being ranked in the lowest 20% (Decile 1) in terms of access up to 60% (Decile 2).¹⁰
- 4.3.4 In August 2019, the medical centre in Bridge of Earn closed and patients were redistributed to practices across Perth. The geographical access indicator should take account of this change in access to health facilities in the study area.

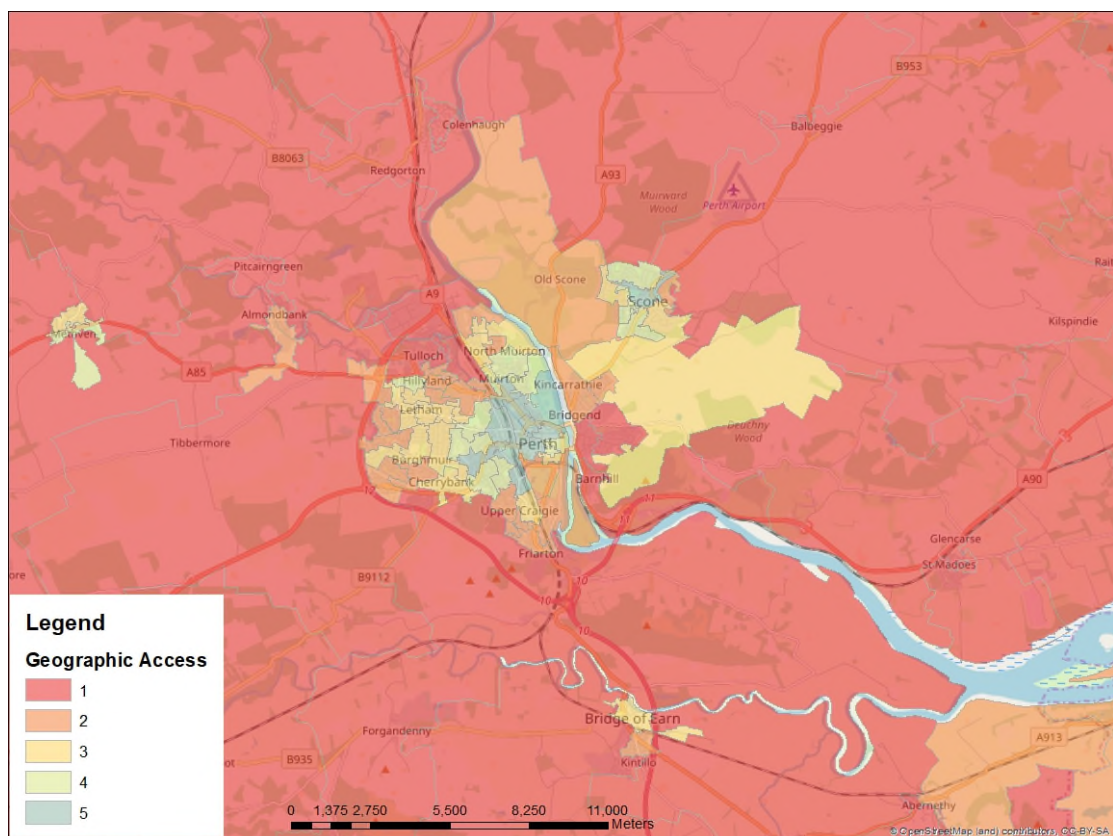


Figure 7. SIMD Geographic Access Deciles

¹⁰ Geographical access is calculated by ranking and standardising the following series of indicators: average drive time to a primary school; secondary school; GP surgery; post office; retail centre and petrol station; average public transport travel time to a retail centre; GP surgery and post office

4.4 Car Availability

- 4.4.1 Looking in more detail at some of the factors which influence the SIMD, the Census 2011 outputs show that the percentage of households with no access to a car is 12% in Bridge of Earn, 34% in Perth City and 13% in the Wider Perth Area compared to the national average of 31% for Scotland. Figure 8 shows car ownership at a datazone level across the study area.

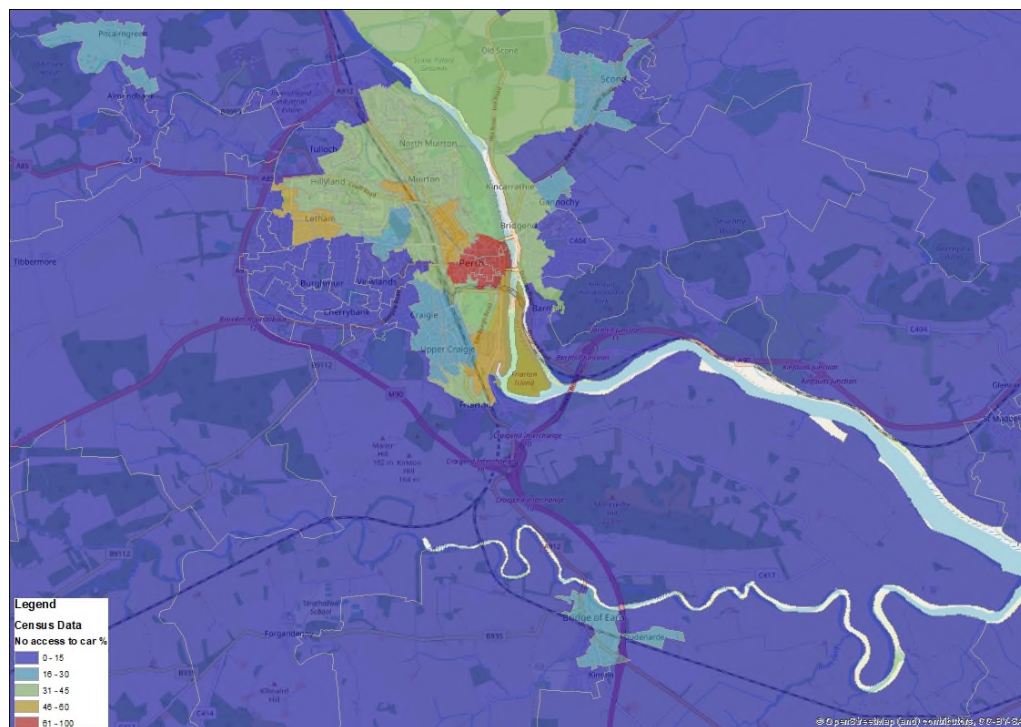


Figure 8. Census 2011 Households with No Access to a Car/Van (%)¹¹

4.5 Economic Activity

- 4.5.1 The proportion of unemployed persons in Perth City is 4%, 3% in the Wider Perth Area and 2% in Bridge of Earn, all below the Scottish average of 5%. Higher levels of unemployment are found in pockets of Perth city.

¹¹ <https://www.scotlandscensus.gov.uk/>

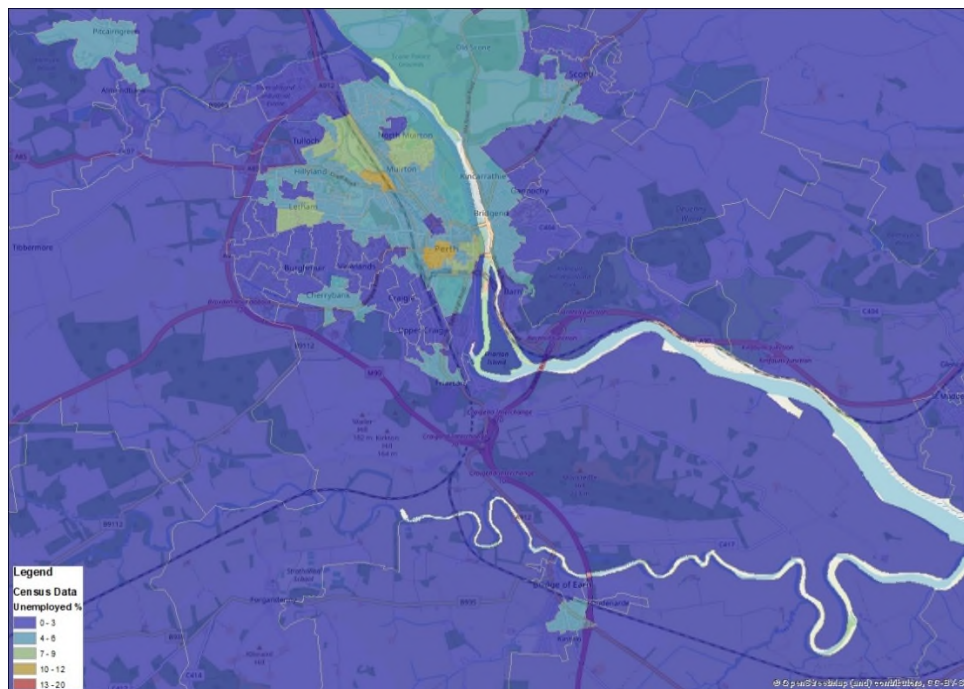


Figure 9. Census 2011 Households Economically Active: Unemployed (%)¹²

- 4.5.2 In 2017, according to the Annual Population Survey, there were 73,200 economically active people in the Perth and Kinross Council area, 76.7% of the working population, higher than the Scottish average of 74.3%. Table 5 presents the time series of economic activity in Perth and Kinross compared with Scotland and shows a general increase in economic activity over the last five years.
- 4.5.3 The industries that employed the highest proportions of the working age population in Perth and Kinross are retail (16%), human health and social work activities (14%), construction (9%), and hospitality (9%).

Table 5. Economically Active Population and Rate (Annual Population Survey)

	2013	2014	2015	2016	2017
Scotland	2,495,100 (70.8%)	2,558,800 (72.6%)	2,582,900 (73.1%)	2,581,000 (73.0%)	2,618,100 (74.3%)
Perth and Kinross	70,200 (75.5%)	71,900 (76.3%)	74,400 (78.8%)	73,200 (76.9%)	73,200 (76.7%)

- 4.5.4 Mean and median gross household income estimates are provided at Data Zone level for 2014 based on analysis of the Scottish Household Survey results. More up-to-date estimates are available for 2019 from the Office of National Statistics, however, the data is not disaggregated to Output Areas to allow for analysis at the study area level.
- 4.5.5 The 2014 data reflects the SIMD outputs and shows that the average weekly income is 14% above the Scottish average with Perth City showing that it is 6% below the Scottish average.

¹² Census 2011, <https://www.scotlandscensus.gov.uk/>, accessed on 25/02/2019

Table 6. Average Household Income¹³

	AVERAGE HOUSEHOLD INCOME (WEEK)	DIFFERENCE FROM SCOTTISH AVERAGE
Bridge of Earn	£745	14%
Perth City	£613	-6%
Wider Perth Area	£699	7%
Scotland	£651	

4.6 Employment and Travel to Work

4.6.1 To understand the role of commuter travel on the study area corridor we need to look at the movements between Perth City and the Wider Perth Area to Bridge of Earn, Fife and Edinburgh. This section reviews the Scottish Census 2011 which provides details of origins and destinations of workers. Analysis of this data shows that 26,088 people work in Perth City with 50% of those workers coming from within Perth City, 4% from Bridge of Earn, 6% from Fife and 1 % from Edinburgh. The flow of commuters from Bridge of Earn to Perth City represents 38%/955 of all employees living in Bridge of Earn (note 23% of employees work from home or have no fixed place of work).

4.6.2 The dominant mode for commuters travelling along the corridor to work in Perth City is car (ranging from 85-94%) and is considerably higher than the Scottish average of 56%. Bus use for Bridge of Earn residents travelling to work in Perth City is 13% compared to 4% for Fife and Edinburgh. Rail use for all destinations is low, with Dundee and Edinburgh destinations having the highest proportion of rail users at 4% which is equivalent to the Scottish average.

Table 7. Travel to Work Origins for Employees working in Perth City¹⁴¹⁵

	WORK IN PERTH CITY	% OF PERTH CITY EMPLOYEES	TRAIN	BUS	CAR	ON FOOT OR CYCLING
Scottish average			4%	10%	56%	11%
Bridge of Earn	955	4%	0%	13%	85%	1%
Fife	1,537	6%	1%	4%	94%	0%
Edinburgh	195	1%	4%	4%	92%	1%
Perth City	13,162	50%	0%	14%	52%	32%
Wider Perth Area	3,120	12%	0%	16%	79%	4%

¹³ <https://statistics.gov.scot/data/local-level-average-household-income-estimates-2014>

Average weighted based on full/part/self employed population from Census 2011

¹⁴ Other modes of travel not included. Figures may not sum to 100%

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

	WORK IN PERTH CITY	% OF PERTH CITY EMPLOYEES	TRAIN	BUS	CAR	ON FOOT OR CYCLING
Dundee	933	4%	4%	5%	91%	1%
Rest of P&KC	4,800	18%	0%	13%	83%	3%

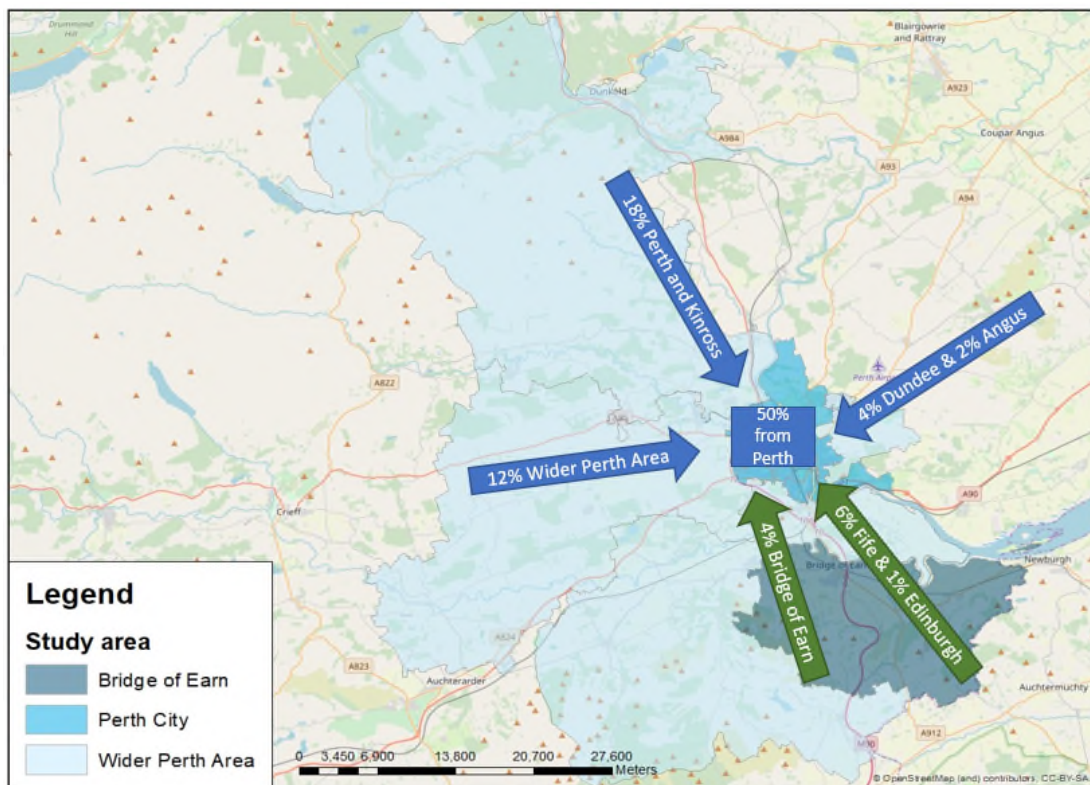


Figure 10. Origins of Perth City Employees

- 4.6.3 Looking at the reverse movement of where Perth City residents work, shows that 56% work within Perth City and 4% travel south east of Perth to Bridge of Earn (1%), Fife (2%) and Edinburgh (1%).
- 4.6.4 Although car use is still high for those travelling outside of Perth to work, there are destinations with a relatively high bus use, with 15% travelling to work in Bridge of Earn by bus and 18% to Edinburgh. As a destination, Edinburgh also has the highest proportion of rail users, at 8%.
- 4.6.5 In addition to those travelling from Perth City, there are also commuters likely to use the corridor travelling to and from the Wider Perth Area and the rest of Perth and Kinross Council area to Bridge of Earn, Fife and Edinburgh. 456 commuters travel from the Wider Perth Area to Bridge of Earn (60), Fife (199) and Edinburgh (197) with high levels of car use for all movements. Rail and bus use has a higher proportion of use for trips to Edinburgh (10% and 9%, respectively).

- 4.6.6 From the rest of the Perth and Kinross Council area 2,528 commuters travel to Edinburgh (942), Fife (1,501) and Bridge of Earn (85). Again, car use for all movements is high however, 11% of Edinburgh workers travel by train and 8% travel by bus.
- 4.6.7 The figures show that for longer journeys to work, and particularly where there is a constraint at the destination, for example, parking charges in Edinburgh city centre, then there is a propensity to use public transport.

Table 8. Census Travel to Work Destinations for Perth City Residents¹⁶¹⁷

	PERTH CITY RESIDENTS - PLACE OF WORK	PERTH CITY RESIDENTS - PLACE OF WORK %	TRAIN	BUS	CAR	ON FOOT OR CYCLING
Perth City	13,162	56%	0%	14%	52%	32%
Bridge of Earn	171	1%	0%	15%	81%	4%
Fife	404	2%	2%	2%	94%	0%
City of Edinburgh	334	1%	8%	18%	71%	2%
Dundee City	1,028	4%	8%	13%	77%	1%
Working at home	10,666	15%	0%	0%	0%	0%
No fixed place of work	7,159	10%	1%	3%	87%	5%

¹⁶ Other modes of travel not included. Figures may not sum to 100%

¹⁷ <https://www.scotlandscensus.gov.uk/>



Figure 11. Perth City Residents – Place of Work

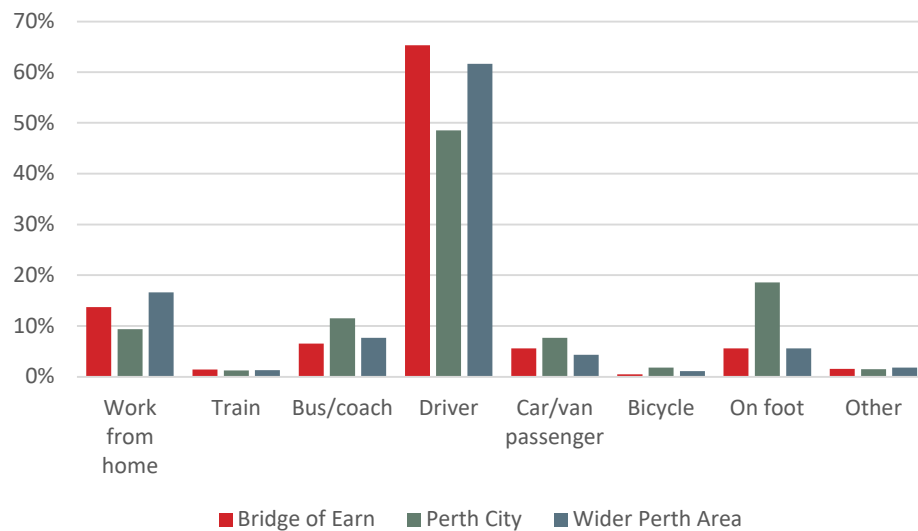


Figure 12. Method of Travel to Place of Work or Place of Study¹⁸

4.6.8 In terms of distance travelled to work, 2011 Census data indicates that 29% of the people in Bridge of Earn travel to work/ place of study between 5km to 10km. This is higher than the figure for Perth City (4%), Wider Perth Area (19%) and Scotland (17%).

¹⁸ Census 2011, <https://www.scotlandscensus.gov.uk/>, accessed on 25/02/2019

- 4.6.9 A further ten percent of the Bridge of Earn population reported that they travel less than 5 km. Figure 13 shows further details.

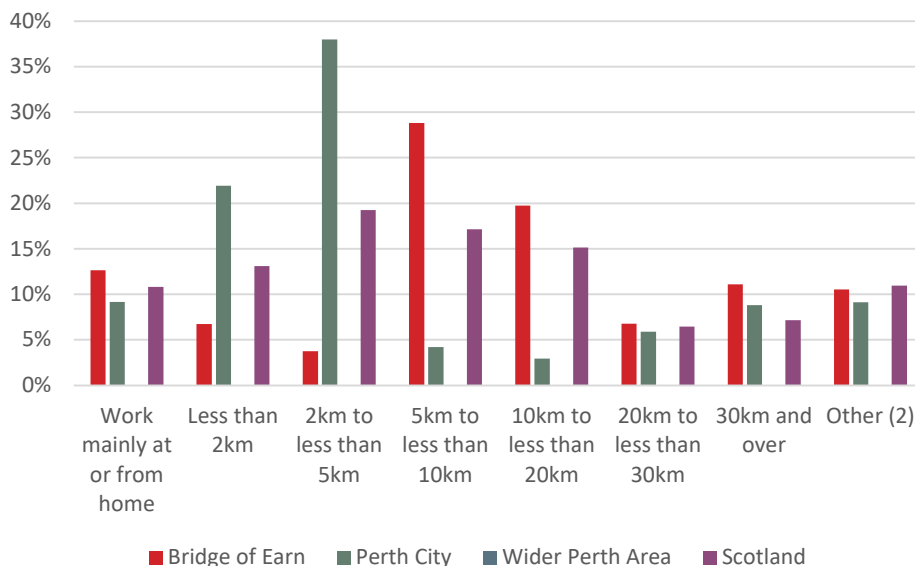


Figure 13. Comparison of Distance Travelled to Work Place

4.7 Accessibility

- 4.7.1 SYSTRA has recently undertaken accessibility analysis modelling for Tactran to inform the monitoring of Regional Transport Strategy. The analysis included the use of the accessibility software TRACC which measures and analyses the time taken to travel to various destinations using public transport. This modelling includes analysis of access to employment and the outputs have been summarised here.
- 4.7.2 The mapping shows accessibility to employment centres and a score of how many are within 30 minutes by public transport. The outputs have similarities to the SIMD access to Services mapping and show that although Bridge of Earn has access to a lower number of employment centres compared to Perth, it is similar to other towns and villages located outside of Perth.
- 4.7.3 The 800m walk distance within this analysis is the ‘real’ walk distance (i.e. via the road/paths network rather than crow-flies) and strikes a balance between access to bus, rail, rural services, and allowing ‘direct walk’ (i.e. not using public transport) trips to destinations. However, it should be noted that for access to bus, access to a bus stop within 400m should be the target for urban areas, and is standard for new developments.

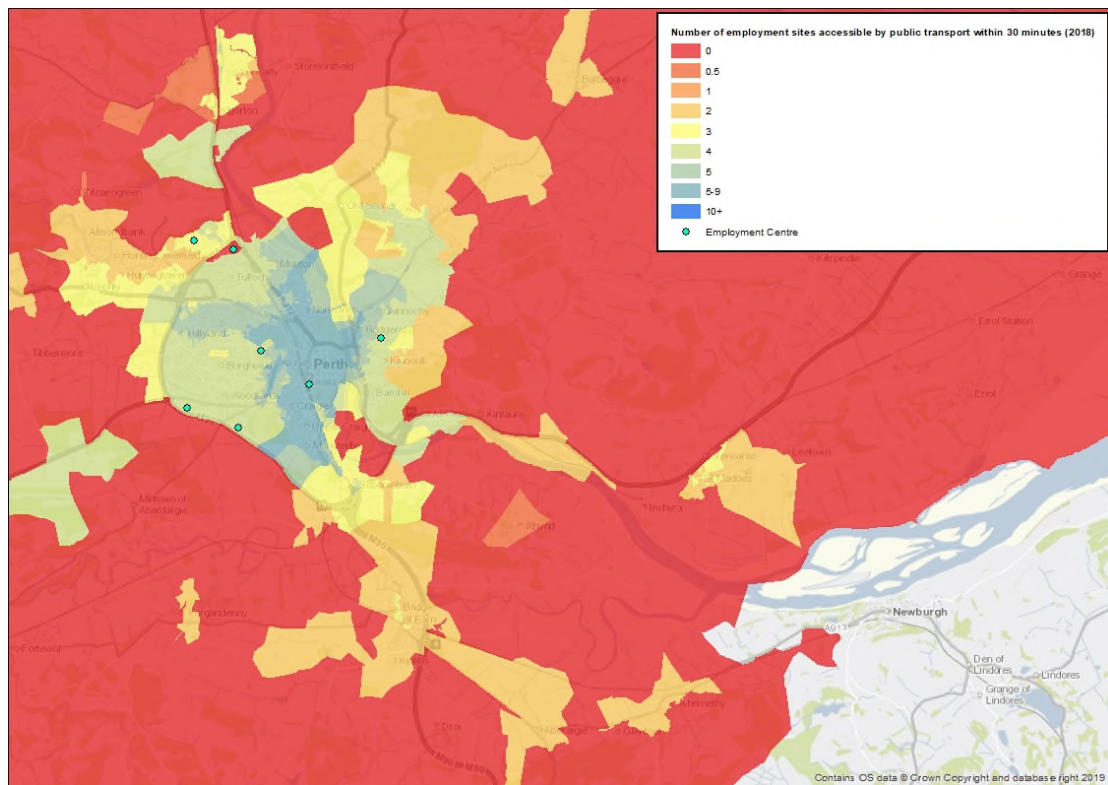


Figure 14. Accessibility to Key Employment Centres (Tactran RTS Monitoring)

4.8 Socio-Economic Summary

4.8.1 The key points arising from the socio-economic analysis are:

- Population in the Perth and Kinross Council area is projected to increase above the national average;
- Bridge of Earn has a higher proportion of under 16 and 16-64 population compared to the national average, suggesting a concentration of families in the area;
- Nine zones in the 20% most deprived in Scotland are located in the Perth City area, no zones are located in Bridge of Earn, however, looking specifically at Geographical Access, two of the zones on the edge of Bridge of Earn are considered to be in the 20% most deprived;
- The number of households with no access to a car is significantly below the Scottish average in Bridge of Earn, 12% compared to 34% suggesting a reliance on car for travel;
- 11% of Perth's employees travel from Bridge of Earn, Edinburgh and Fife and car is the dominant mode and considerably above the Scottish average (85-94% compared to the Scottish average of 56%);
- 13% of Perth City employees travel from Bridge of Earn by bus which is above the Scottish average of 10%;
- Four percent of Perth City residents work in Bridge of Earn (1%), Fife (2%) and Edinburgh (1%); and
- The figures show that for longer journeys to work, and particularly where there is a constraint at the destination, for example, parking charges in Edinburgh city centre, then there is a propensity to use public transport.





5. TRANSPORT NETWORK

5.1 Overview

- 5.1.1 Perth and Kinross is subject to significant development pressures, particularly in relation to the supply of residential and employment land around Perth. This demand, coupled with topography constraints and increasing traffic demand, has led to increases in journey time delays and queuing at various locations during peak travel times.
- 5.1.2 Core corridors between the market towns and Perth (and other key destinations such as Dundee and Stirling) have hourly daytime bus services six days a week. However, those living off these corridors can have limited access to public transport services. For many, this has led to a reliance on the private car as a means of transport, something that is particularly true for those with employment patterns that do not align with peak travel periods, such as hospital shift work. This is highlighted in the previous chapter which suggests Bridge of Earn has significantly higher car ownership than both Perth City and the national average. The Local Development Plan indicates that there's a need to ensure that alternative options to the car are available and that future development of the area is likely to require major road infrastructure investment as well as improvements to walking, cycling and public transport routes.¹⁹
- 5.1.3 This chapter explains how transport currently operates in the study area. The chapter focuses on active travel, public transport and road to understand the travel choices which were described in the preceding chapter.

5.2 Walking and Cycling

- 5.2.1 The Core Paths Plan for Perth and Kinross was adopted by the Council in January 2012 and revised in 2017. Figure 15 shows the network of paths in the Bridge of Earn area.

¹⁹ Perth and Kinross Council LDP (Adopted), page 33

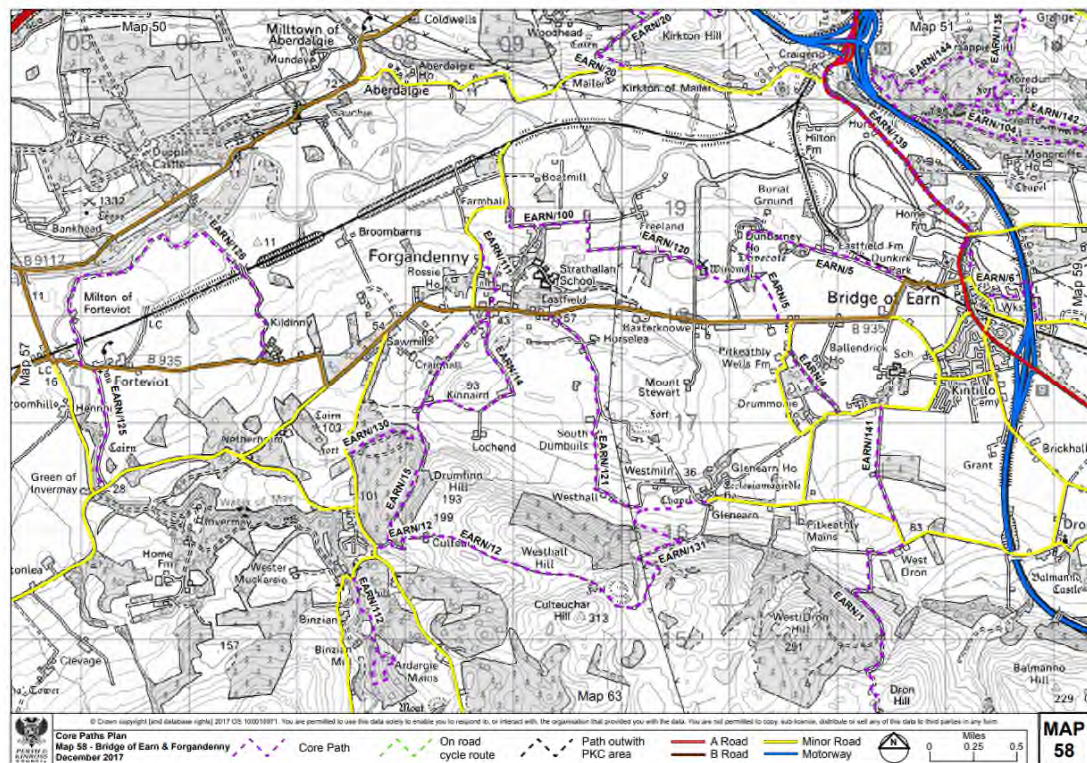


Figure 15. Core Paths Plan (Perth and Kinross Council, 2017)

- 5.2.2 One of the paths identified above is a national cycle route – NCN 775 runs through Kinross to Perth (via Bridge of Earn) where it links with NCN 77 which runs between Dundee and Pitlochry via Perth (Figure 16).

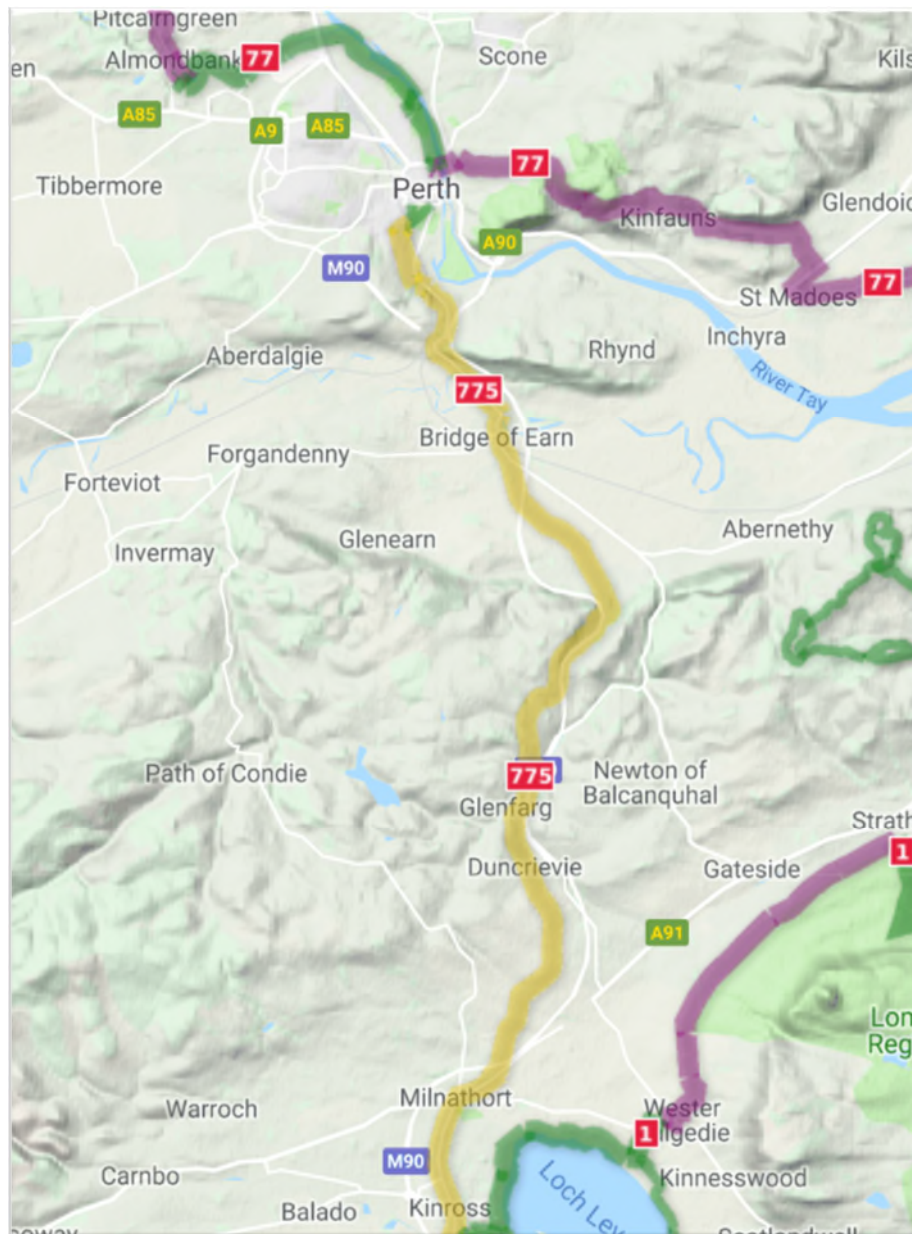


Figure 16. National Cycling Network Passing Through Perth and Kinross Council (Sustrans, 2018)

- 5.2.3 The Perth Cycle Network Masterplan summarises the key points outlined in the 2017 Annual Cycling Monitoring Report for Perth and Kinross Council which shows that the Perth and Kinross Council area is behind the Scottish average with cycling as the main mode of travel for 0.5% of journeys, compared to 1.2% across Scotland (Scottish Household Survey 2017). The percentage cycling to work "usually" or "regularly" declined from 4% in 2012-13 to 2.8% in 2014-15²⁰.
- 5.2.4 The Perth area is compact, with surrounding settlements (Scone, Luncarty, Bridge of Earn, Walnut Grove and Almondbank) within 3 to 7 km (approximately 2 to 5 miles) of the city centre, or a reasonable cycling distance. Journeys under 5km make up 49.1% of all journeys

²⁰ Note, 2017 data was not reported in SHS local authority tables due to low sample size.

in the council-wide area (Scottish Household Survey 2017) and the Perth Cycling Masterplan highlights that this distance can often be cycled in about 15 minutes. The Masterplan identified seven core route alignment options along the assessed corridors and these are presented in Figure 17.

- 5.2.5 One of the identified corridors is from Bridge of Earn to Perth city centre. The study suggested that the likely demand for this route may be low due to small settlements in the area and limited employment sites but could have major benefits for the national cycle network by connecting NCN 77 with NCN 75.

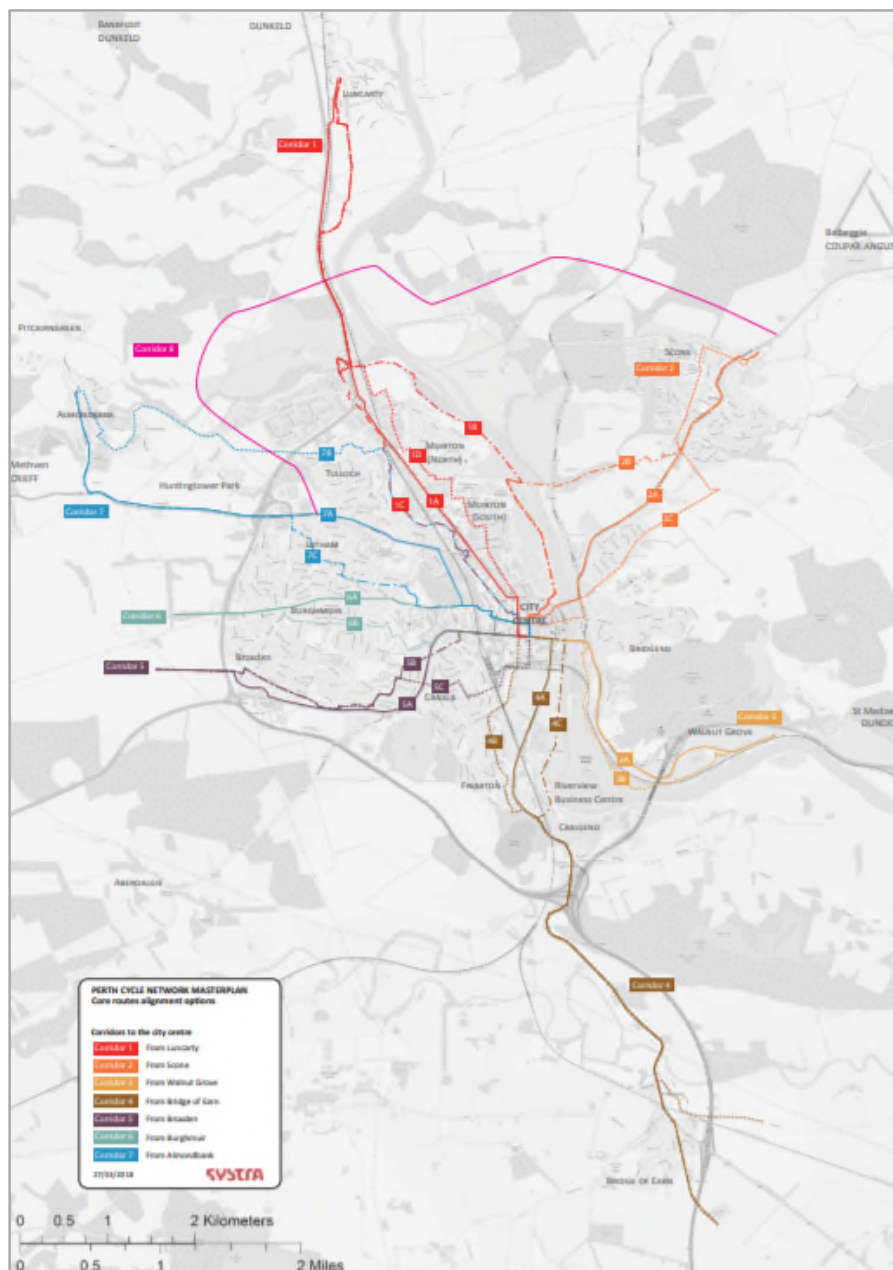


Figure 17. Map of Core Routes Alignment Options (Perth Cycling Masterplan, 2018)

5.3 Public Transport: Bus

Bus Services

- 5.3.1 The Infrastructure Capacity Report, 2017 – Perth Core Villages highlighted that Bridge of Earn has excellent connections to Perth by bus with frequent services (Service 17; 36; 56/56A; X56, 66) which, combined, run every 20 minutes in core periods (not clockface).
- 5.3.2 There is also a late evening service which runs from Perth to Bridge of Earn until 22:50. The principal services are run commercially by Stagecoach, with some of the off-peak and evening services operating with PKC's financial support.
- 5.3.3 Citylink operates a long-distance coach service between Perth and Edinburgh, on the route Edinburgh – Dunfermline – Perth – Dundee – Forfar and Aberdeen.
- 5.3.4 The Perth and Kinross Council area comprises diverse urban and rural elements and Stagecoach is the main bus operator across the Council area. Figure 18 shows the bus routes operated by Stagecoach. The southerly routes connect to Bridge of Earn, as described in Table 9. The majority of the services depart/terminate from/at Perth bus station which provides an opportunity to interchange with other services with associated time and fare penalties (if applicable). Interchange opportunities include the following:
- 23/27 – Aberfeldy/Pitlochry (hourly);
 - 57/A – Blairgowrie –(half hourly);
 - 19 - Blackford/Stirling (hourly);
 - 15 – Crieff/Comrie/St Fillans/Stirling (half hourly); and
 - 4 – Bertha Park (hourly).

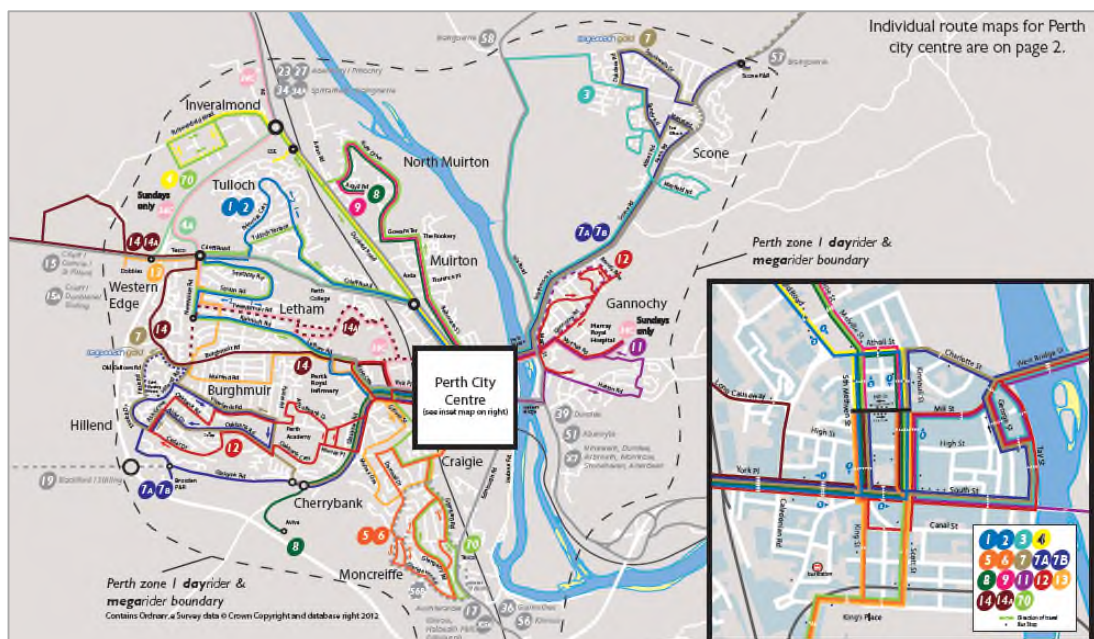


Figure 18. Bus Services Operated by Stagecoach in Perth City (Stagecoach, 2018)

Table 9. Bridge of Earn Bus Services²¹

SERVICE	ROUTE	FREQUENCY	NUMBER OF SERVICES WEEKDAY 0700-0900
Stagecoach 56/56A	Dunfermline – Kelty – Kinross – Bridge of Earn – Perth	2 Hourly service Monday – Saturday, limited service Sundays	1 – northbound only
Stagecoach X56B	Edinburgh – Ferrytoll P&R – Halbeath P&R – Kelty – Kinross – Milnathort – Bridge of Earn – Perth	Hourly service Monday – Saturday, stopping at BoE in the morning peak (Edinburgh-bound) and evening peak (Perth-bound) only, limited service Sundays (X56B)	1 – southbound only
Stagecoach 17	Auchterarder – Dunning – Bridge of Earn – Perth	4 Daily services Monday – Saturday. Two Sunday services	3 – northbound only
Stagecoach 36	Glenrothes – Newburgh – Bridge of Earn – Perth	Hourly service Monday – Saturday, limited service Sundays	2 – each direction
Service 66A	Perth – Auchtermuchty – Glenrothes	2 daily services on Saturday	No weekday service

- 5.3.5 The bus services operating in the Bridge of Earn/Kinross-shire area have been subject to significant changes in terms of both financial support and timetables over the last few years. The X56 service is a relatively new commercial initiative by Stagecoach East Scotland to introduce a ‘stopping’ express service between Perth and Edinburgh, which allowed the Council to subsequently review the scope and nature of their tendered network on the corridor.
- 5.3.6 The ability for bus operators to make operational changes/improvements quickly (circa 70 days) is a major opportunity in terms of addressing new demands; however, it is also a liability if the same services can be withdrawn at 70 days’ notice. Out of town areas, such as Bridge of Earn and Oudenarde, are traditionally subject to review of routing – again, this can be both an opportunity and a risk.
- 5.3.7 In terms of fares (at Mar-20), Stagecoach has a range of zone tickets for the area that covers:
- Perth Zone (Perth City), Dayrider £4 and Megarider £7.60;
 - Perth + Zone (wider Perth area including Bridge of Earn), Dayrider £4.50 and Megarider £10.60;
 - Fife Dayrider Plus (Covers from Perth/Bridge of Earn to Edinburgh), Dayrider £11.50 and Megarider £30;
 - A single from Bridge of Earn to Perth, Canal Street is £2.30; and

²¹ Stagecoach, <https://www.stagecoachbus.com/timetables>, accessed on 25/02/2019

- A single from Bridge of Earn to Edinburgh is £12.

5.3.8 Perth and Kinross Council recognise that accessible transport is a key driver for enabling sustainable transport network and Figure 19 indicates that for the period 2011/12, 93% of the households in Perth and Kinross were within an 800-metre straight line distance of a bus stop. It should be noted that this is most up to date readily available data, however, there has been a recent switch towards assessing accessibility within 400m of new developments. This point is highlighted in the Adopted Perth and Kinross LDP 2 (p103, “access to local bus routes with an appropriate frequency of service which involve walking no more than 400m are available”).

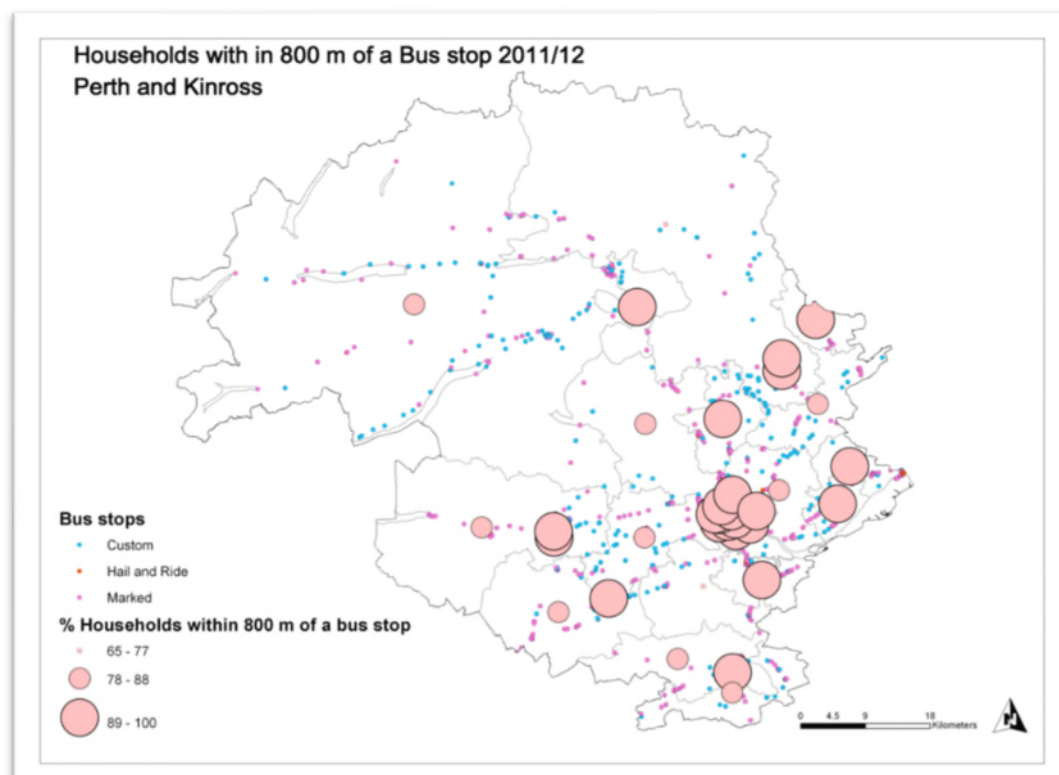


Figure 19. Households within 800m of Bus Stop 2011/12 (PKC, 2018)

5.4 Travel to Work by Bus

- 5.4.1 The bus service information above illustrates a regular and frequent bus service from Bridge of Earn to Perth with less frequent services to Edinburgh and Fife (note, these services to Edinburgh and Fife may not have existed in 2011 when Census data was collected). The Census Travel To Work data presented in the previous chapter, however, does not reflect this good service as only 13% of Bridge of Earn residents travel to Perth City by bus.
- 5.4.2 Looking in more detail at the bus routes and employment centres within Perth City provides some explanation of why the usage is low. The Datashine outputs suggest that Bridge of Earn residents travelling by bus are concentrated in Perth City Centre (see Figure 20). In contrast, Hillyland, Tulloch and Inveralmond is the second most popular work destination zone in Perth City from Bridge of Earn but is not served by a direct bus service from Bridge of Earn. The majority of services terminate or originate at Perth Bus Station requiring passengers to

connect with onward services, reducing the attractiveness of the mode (see section 5.3.4 for details of interchange options)). As a result, the majority of trips to Hillyland, Tulloch and Inveralmond are undertaken by other modes, 193 in total by modes excluding bus (Figure 21).

5.4.3 In addition, a further 493 travel from Edinburgh and Fife to Hillyland, Tulloch and Inveralmond which would require passing Bridge of Earn with only 5% currently using public transport.

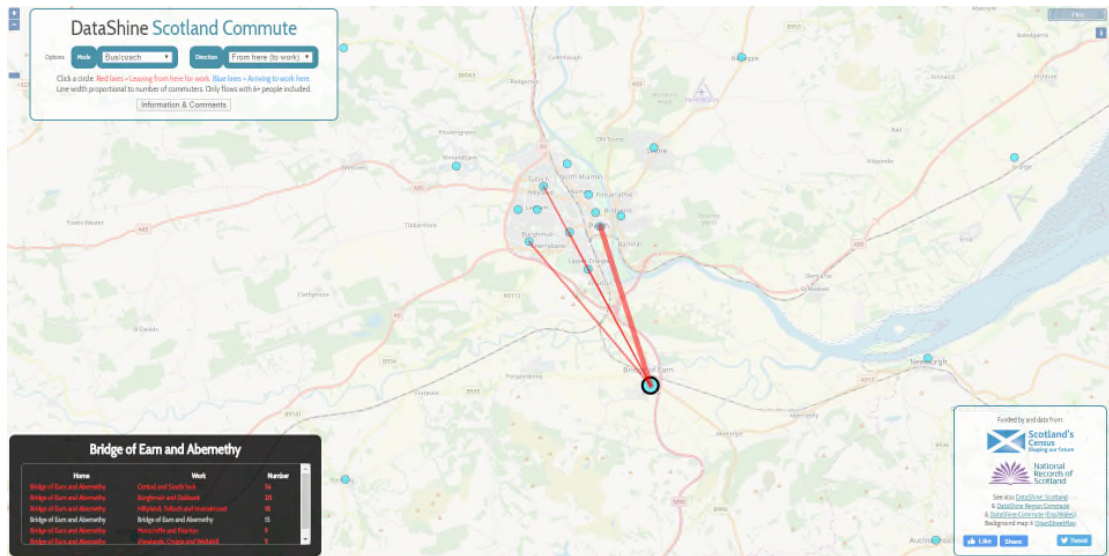


Figure 20. Datashine – Bus Commuters from Bridge of Earn to Place of Work²²

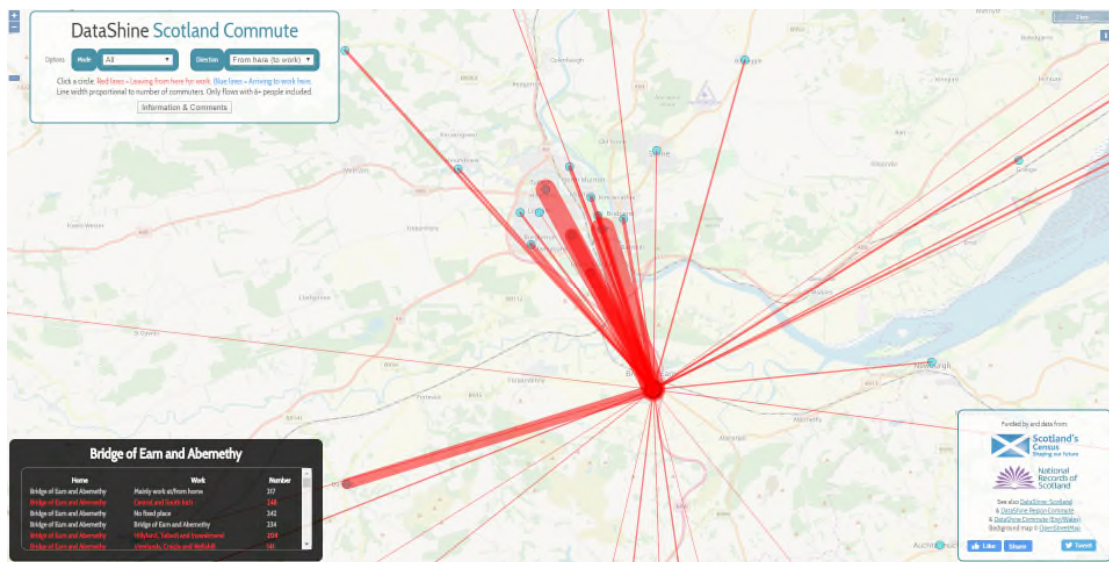


Figure 21. Datashine - Commuters Using all modes from Bridge of Earn to Place of Work

²² <https://scotlandcommute.datashine.org.uk/> Accessed on 10/02/2020

Bus Stops

- 5.4.4 Data from the 2008 Buses Strategy and Community and Demand Responsive Transport Action Plan suggests that across all of Perth and Kinross there were 1,715 active bus stops with 385 stops providing shelters (22%) and 41% include timetabling information. It should be noted that due to the rural nature of the wider Perth area, hail and ride is frequently operated and 22% of stops in Perth and Kinross operate on this basis.²³ It is recognised that this data is now relatively old, and updated information will be sought through further engagement with the Council's Public Transport Unit and internal analysis in later stages of the project if required.
- 5.4.5 Figure 22 shows the locations of the bus stops in Bridge of Earn. The majority of these stops are served by the 17, 36, 56/A and X56 and 66A Stagecoach services.

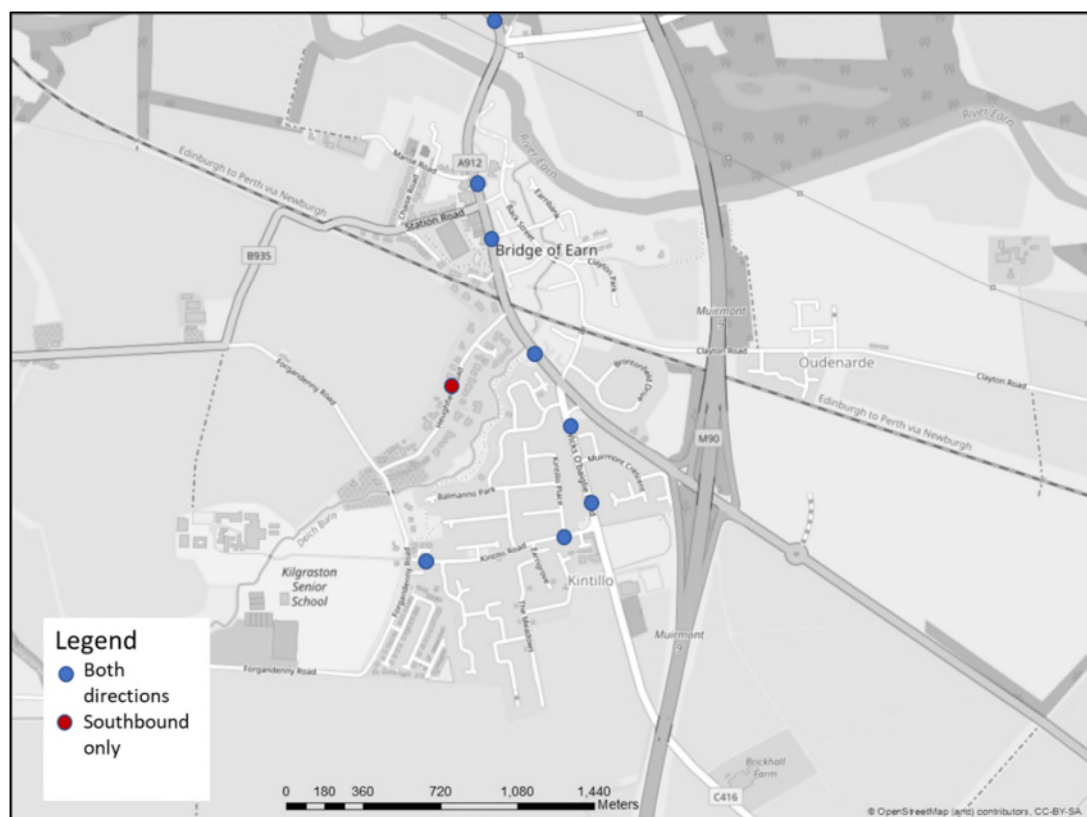


Figure 22. Bridge of Earn – Bus Stop Locations

Bus Patronage

- 5.4.6 In 2017, “everyday use or almost every day use” of local bus services in Perth and Kinross has increased by 1.6% when compared to 2014. National figures which have remained relatively stable (but higher) across all frequencies over the same time period. It should be noted that this data is based on the Scottish Household Survey compiled from a relatively small sample of surveys (240 for Perth and Kinross in 2017), and, may impact on the annual trends.

²³ Tactran, Buses Strategy and Community and Demand Responsive Transport Action Plan, 2008

Table 10. Use of Local Bus Services in Perth and Kinross & Scotland from 2014– 2017 (%)²⁴

	2014		2017	
	PERTH	SCOTLAND	PERTH	SCOTLAND
Every day or almost every day	5.1	9.7	6.7	9.7
2-3 times per week	7.7	11.3	9.0	10.6
About once a week	7.3	7.6	9.1	7.9
About once a fortnight or once a month	16.5	13.6	12.3	14.7
Not used in past month	63.4	57.7	62.9	57.1

5.5 Public Transport: Park and Ride

5.5.1 There are three Park & Ride sites operating in Perth and Kinross , which provide links for both buses to Perth City Centre and express coaches serving other Scottish cities. Broxden P&R is the most relevant site for this study due to its proximity to the corridor and the connections it offers to Edinburgh and Fife. Table 11 provides more details on the sites capacity and the links with the various bus services.

Table 11. Park and Ride Facilities (Perth and Kinross Council, 2018)

SITES	SERVICES/ LINKS	CAPACITY
Perth Park & Ride (Broxden)	Perth City Centre Express coaches to Edinburgh, Glasgow, Dundee, Aberdeen and Inverness	400
Scone Park & Ride	Perth City Centre	50
Kinross Park & Ride	Links to Edinburgh, Perth, Dundee, Aberdeen and Inverness	126 (including 8 disabled parking bays and 12cycle lockers)

5.5.2 The Oudenarde Masterplan proposes the creation of a ‘Park and Ride’ facility on its site, which would accommodate up to 250 cars. The facility could complement the other sites around Perth by intercepting car trips from the south.

²⁴ SHS Local Area Analysis

5.6 Public Transport: Rail

Access to Rail

- 5.6.1 Bridge of Earn is located on the Edinburgh to Perth railway line and was previously served by a station which closed in 1964. The former station has Perth station to the north and Ladybank to the south and is located on a single-track section of the line (from Ladybank to Hilton Junction).
- 5.6.2 The Masterplan for the Oudenarde development includes land which has been allocated for a rail halt facility and park and ride facility should this be required and recognises that this will have the potential to significantly improve connections to Perth as well as Fife and Edinburgh.
- 5.6.3 Improved journey times to Edinburgh from Perth are identified in the Scottish Government's Strategic Transport Projects (Project 17). However, there are currently no timescales for this proposal and progressing this project is likely to require joint working with Fife Council, the two Regional Transport Authorities, Transport Scotland, Network Rail and the franchise operators. The line is currently single track and this is a key constraint for additional stations on the line and the delivery of faster journey times.
- 5.6.4 The adopted Perth and Kinross LDP2 highlights the potential for a new station at Oudenarde and an improved station at Perth in its Connected Place Strategy Map, as per Figure 23 below.

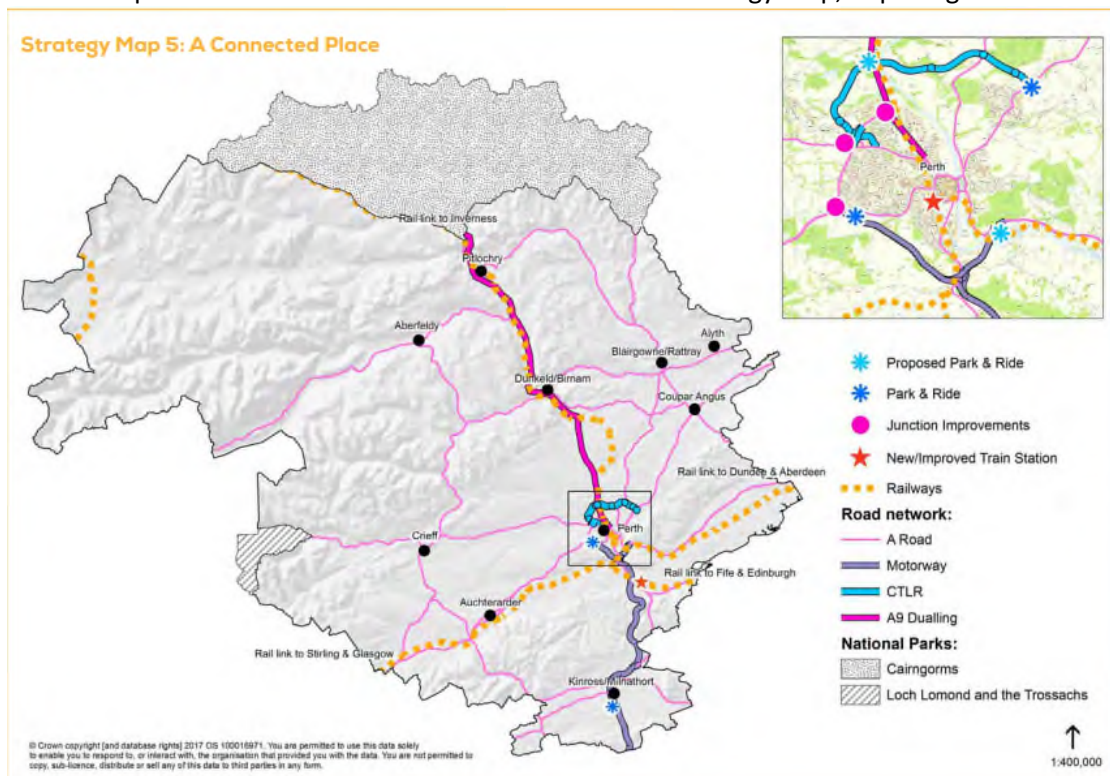


Figure 23. LDP2 Strategy Map: A Connected Place (P&K Council, Proposed P&K LDP2, 2017, p97)

- 5.6.5 According to the 2016 Scotland Route Study by Network Rail the number of passengers travelling by rail in Scotland has seen sustained growth since 1995/96, increasing by 96 per cent to 96.1 million journeys in 2014/15. The patterns for Perth and Ladybank stations are

similar with the Office of Rail and Road reporting growths of 243% and 329% respectively since 1997-98. In 2017-18 Perth had 1,117,248 and Ladybank had 84,470 entries and exits.

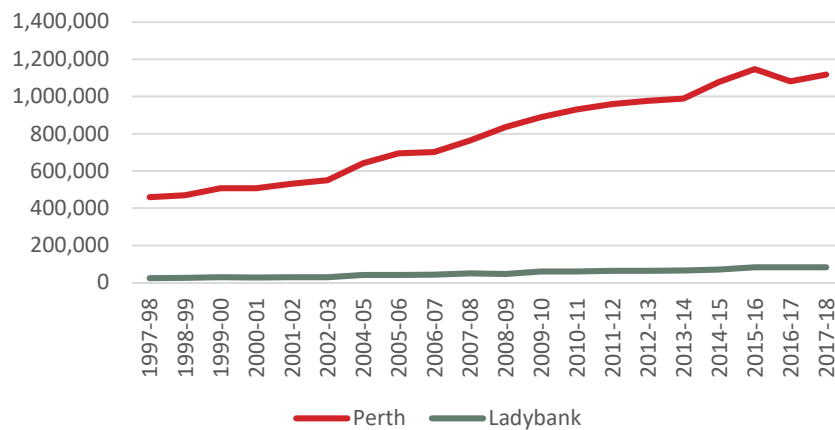


Figure 24. Entries and Exits Time Series for Perth and Ladybank rail stations²⁵

- 5.6.6 Data from the *Scottish Household Survey*, summarised in Table 12, indicates that the uptake of rail services in the Perth and Kinross area is significantly lower than the Scottish average and reducing further, although it should be recognised that these figures are based on a small sample size, and it is therefore likely that the ORR data above, is more representative of uptake in area.

Table 12. Use of local train services in Perth and Kinross and Scotland from 2014 – 2017 (%)²⁶

	2014		2017	
	PERTH AND KINROSS	SCOTLAND	PERTH AND KINROSS	SCOTLAND
Every day or almost every day	0.4	2.2	** ²⁷	2.6
2-3 times per week	0.2	2.1	**	2.2
About once a week	2.4	5.0	**	4.3
About once a fortnight or once a month	17.9	21.2	12.9	21.9
Not used in past month	79.0	69.5	85.7	69.0

- 5.6.7 From Perth railway station, there are regular ScotRail services to and from Stirling, Dundee and Pitlochry with a journey time around 30 mins. Direct trains to and from Edinburgh run at

²⁵ Office of Rail and Road, Estimations of Station Usage, <https://orr.gov.uk/statistics/published-stats/station-usage-estimates>, accessed on 26/02/2019

²⁶ SHS Local Area Analysis

²⁷ Sample sizes below 5 not reported

approximately one-hour intervals with journey times around 1 hour and 25 minutes. Direct services to and from Glasgow run hourly from Queen Street and take around an hour. The two other rail operators that serve the station are:

- Caledonian Sleeper providing services between London Euston and Scotland serving Gleneagles, Perth, Pitlochry and Rannoch Station
- LNER providing daily return services between Inverness, Pitlochry, Perth, Gleneagles and London.

5.6.8 The rail station is located approximately 200 metres from Perth Bus Station where the majority of bus services serving Bridge of Earn terminate (as identified in Table 9). This creates an interchange opportunity for Bridge of Earn residents and others using the corridor to access the strategic rail network.

5.6.9 The 2016 *Future Rail Developments in Perth*²⁸ report, by Perth and Kinross Council Enterprise and Infrastructure Committee, identifies the electrification of the lines between Perth and Dunblane, and Perth and Edinburgh, as a key priority for enhancing the rail network.

Newburgh and Oudenarde: Initial Rail Demand Feasibility Study (2015)

5.6.10 A Working Group comprising SEStran, Tactran, Fife Council and Perth & Kinross Council commissioned a feasibility study in 2015 of potential new station openings at Oudenarde and/or Newburgh in the Fife Council and Perth & Kinross Council areas.

5.6.11 This feasibility work was designed to examine if there was sufficient evidence to undertake a much fuller appraisal. The early work was also to investigate the potential impacts on existing services and identify any impacts on aspirations for an improvement to journey times between Inverness and Edinburgh. The study was also designed to gather the early views of the rail industry on any new station on this section of the route, as ultimately the rail industry would be required to manage, maintain and operate any new service.

5.6.12 The study looked at the introduction of an hourly stopping service on Edinburgh – Perth services with options tested for Newburgh only and Oudenarde only. Although boarding and alighting levels were predicted to be considerably higher at Oudenarde, the much higher benefits per passenger for users of Newburgh station resulted in a greater total economic benefit for Newburgh station. Benefits per passenger for users of Newburgh station were predicted to be greater due to the relative difference between existing and future generalised cost being greater for Newburgh users than Oudenarde. This was due to the less-attractive existing public transport and car journey times to/from Newburgh compared to Oudenarde. This approach looked at improved rail transport but did not consider improved bus services.

²⁸ Perth and Kinross Council Enterprise and Infrastructure Committee, *Future Rail Developments in Perth*, March 2016, [https://www.pkc.gov.uk/media/35404/16-03-23-Item-9-16-132-/pdf/16-03-23_-_Item_9_\(16-132\)](https://www.pkc.gov.uk/media/35404/16-03-23-Item-9-16-132-/pdf/16-03-23_-_Item_9_(16-132)), accessed on 05/02/2019

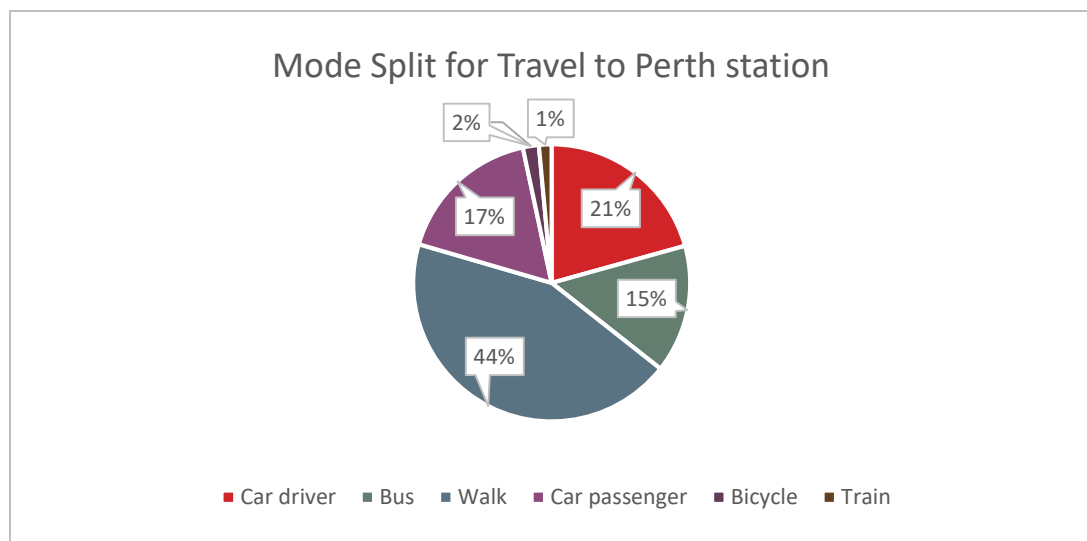
5.7 Rail User Surveys

Perth Railway Station

- 5.7.1 In March 2018, TACTRAN undertook a number of rail passenger surveys for the Tay Cities Region. Undertaken via postcard surveys, the results provide a useful overview of how rail stations are used in the area, how people travel to the stations and where they come from.
- 5.7.2 Perth Rail Station is located to the southwest of the city centre. It features two, unmanned, car parks: one at the main entrance (accessed from Leonard Street), and another at the back of the station (accessed from Glasgow Road). There are a total of 60 spaces, including dedicated spaces for blue badge holders and electric car charging points.
- 5.7.3 Over the survey period 1,494 passengers were observed boarding train services in Perth station. Of the 1,494 boarding passengers, 521 returned valid responses, giving an effective sample rate of 35%.
- 5.7.4 Table 13 summarises the key statistics for Perth which show that 38% of users arrive by car at Perth with 40% of travellers originating in Perth and 1% coming from Bridge of Earn. The top three destinations were Glasgow (21%), Edinburgh (19%) and Dundee (18%). Over a third of the respondents (35%) indicated commuting was the main reason for their journey followed by a quarter who answered employer's business. Fifteen per cent interviewed indicated that they travelled to the station by bus.
- 5.7.5 Respondents were also asked the reasons for deciding to travel from Perth railway station over other possible stations. All of the reasons passengers found applicable when choosing this particular station were recorded, so multiple answers were selected by individual participants. Over two thirds (67%) pointed to convenience, in terms of proximity of the station, followed by 18% who said proximity to their destination.

Table 13. Perth Key Statistics

PERTH KEY STATISTICS



PERTH KEY STATISTICS

Top Origins	40% Perth	9% Edinburgh
Top Destinations	21% Glasgow	19% Edinburgh

5.8 Network Rail: Scotland Route Study

- 5.8.1 The Scotland Route Study provides an evidence base that informs funders when considering rail industry investment choices for Control Periods 6 and 7 between 2019 and 2029.
- 5.8.2 The long-term planning process is designed to consider the role that the railway plays in supporting the UK economy over the next 30 years. This includes addressing the demands that are likely to be placed in that time, capturing stakeholder aspirations to develop new or improved train services and to present investment choices for funders to accommodate these demands and future aspirations.
- 5.8.3 The following stages in relation to Bridge of Earn/Perth outline a number of options that have been appraised and discussed for inclusion in future control periods.
- 5.8.4 Options that have been recommended for progression included in the study area:
- Central Belt to Inverness Enhancement
 - Ladybank to Hilton enhancement to improve capacity and journey times.

5.9 Public Transport and Car Journey Time Comparison

- 5.9.1 To understand the travel mode split for journeys to work in Perth and Edinburgh the journey times for car, bus and rail journeys have been identified and are presented in Table 14 and Figure 25. A range of destinations have been identified including cities and major employers (Aviva – 1,100 employees, SSE – 2,000 employees). The journey times are taken from Google and represent the car and public transport journey time estimates for travel between 0800 and 0900 on a Tuesday. The car journey times show a large variance representing potential delays on approach to Edinburgh in the AM peak. These times do not represent any time spent locating a parking space at the destination. The journey time comparisons show that public transport can only compete with car journey times at the upper end of the car journey time range.
- 5.9.2 Fares and frequencies are also shown in Table 14 and highlight that rail fares are significantly above the bus fares identified.

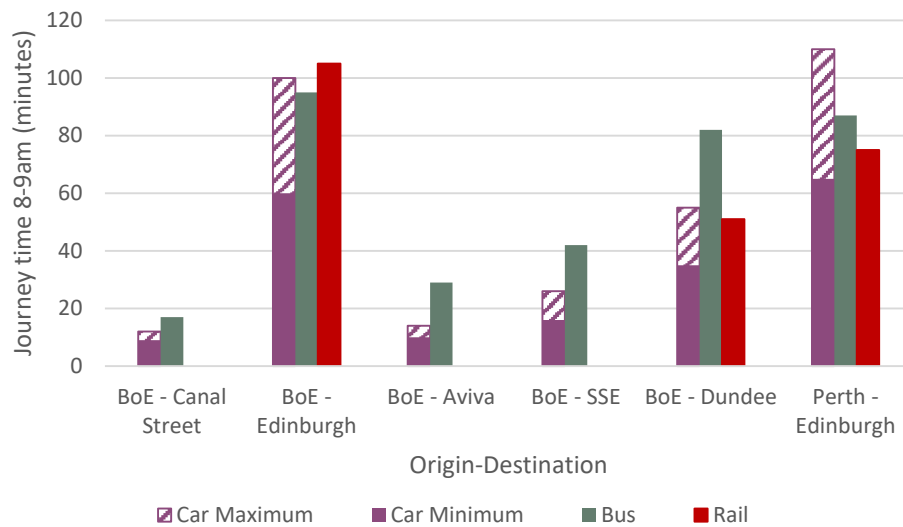


Figure 25. Journey Time Comparisons

Table 14. Journey Time Comparisons²⁹

ORIGIN	DEST	CAR	BUS			RAIL		
		JT	JT	FARE	FREQ P/HR	JT	FARE	FREQ P/HR
Bridge of Earn	Perth – Canal Street	9-12	17-23	£2.30	6			
	Edinburgh	60-100	95	£12	1	105-114 (Bus service 36 to Perth station)	£20.40	2
	Aviva	10-14	29-32	£2.30	2			
	SSE	16-26	42-57 (1 change)	£4.40	3			
	Dundee	35-55	82 (1 change)	£7	1	51-77 minutes (Bus service 36/17 to Perth then train)	£11.10	2

²⁹ Google.com/maps (accessed 17/02/2020 for travel options between 8am-9am) and Traveline Scotland

ORIGIN	DEST	CAR	BUS			RAIL		
		JT	JT	FARE	FREQ P/HR	JT	FARE	FREQ P/HR
Perth station	Edinburgh	65-110	87-99	£12	6	75	£18.10	1

5.10 Transport Network: Road

- 5.10.1 The road network around Perth includes the M90 and the A9 trunk roads which connect it with the Central Belt, the A85 which provides links to Crieff and further west, the A90 which links it to Dundee, and the A9 connecting Pitlochry and further north.
- 5.10.2 The local road network in Perth is characterised by the A989 inner ring road around the city centre, the Perth and Queen's Bridge crossings over the River Tay and, to the west, three main corridors accessing the city centre from the direction of the A9 - Dunkeld Road, Crieff Road and Glasgow Road. The main focus of this study, however is the corridor to the south of Perth – the A912 and M90 corridor. The network is shown in Figure 26 with the area of interest highlighted.



Figure 26. Road Network Around Perth

- 5.10.3 The road network around Bridge of Earn and Oudenarde includes the M90 Junction 9 and the A912 that runs through Bridge of Earn and links to Perth to the north and the A91 to the south. Proposed improvements in the area include an upgrade of Junction 9 to traffic signals at the on/off slips and the A912, and potentially lengthening of the northbound on slip. These proposed improvements are the subject of discussion between the developer and both local and trunk road authorities and would be delivered as part of the Oudenarde development.
- 5.10.4 Although somewhat dated now, the Shaping Perth's Transport Futures report identified areas where significant queuing occurred in the PM Peak (see Figure 27, the red lines represent observed queuing in the PM Peak). This presented a picture of delays resulting from the conflict between local traffic and traffic travelling through the city, constraints imposed on the local road network by the Perth and Queen's Bridges and the lack of a suitable alternative east-west route that would avoid the centre of Perth. Areas where queuing were observed included:
- **Trunk Road Network** - A9, Inveralmond Roundabout, Broxden Roundabout, A85 (Crieff Road).
 - **Local approach roads** - A93, A94, A90 (Dundee Road).
 - **Town Centre** - Perth Bridge, Queen's Bridge, Glasgow Road, Dunkeld Road, Atholl Street

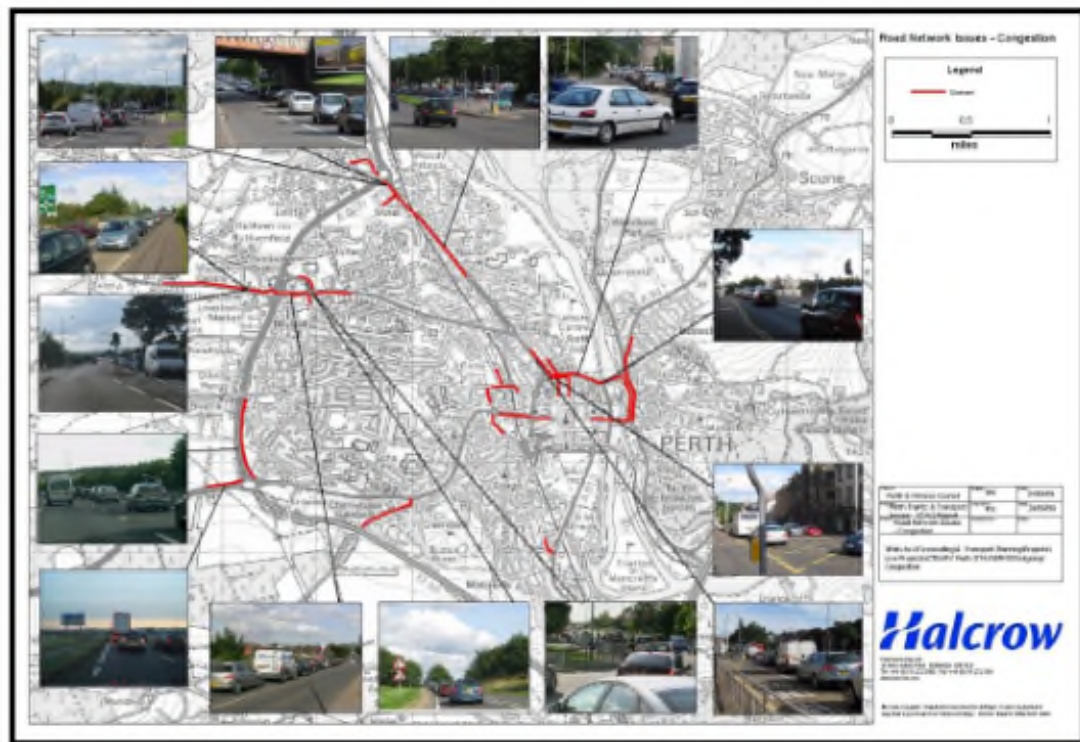


Figure 27. Observed Congestion – PM (August 2009), Shaping Perth's Transport Future

- 5.10.5 As part of the development of the Tay Cities Regional Transport Model, speed data was collected and is presented in Figure 28 below. The figure shows the difference between AM and IP speed data to identify sections where delays occur. The outputs reflect the significant delays and queues that develop during the morning peak, specifically in the Gannochy and Bridgend to the east of the city, on A9 approaches to Broxden Roundabout in the west, A9 approaches to Inveralmond Roundabout in the north and A912 Edinburgh Road in the south.

Although these delays are outwith the study area they are expected to be influenced by transport choices made on the M90/A912 corridor.

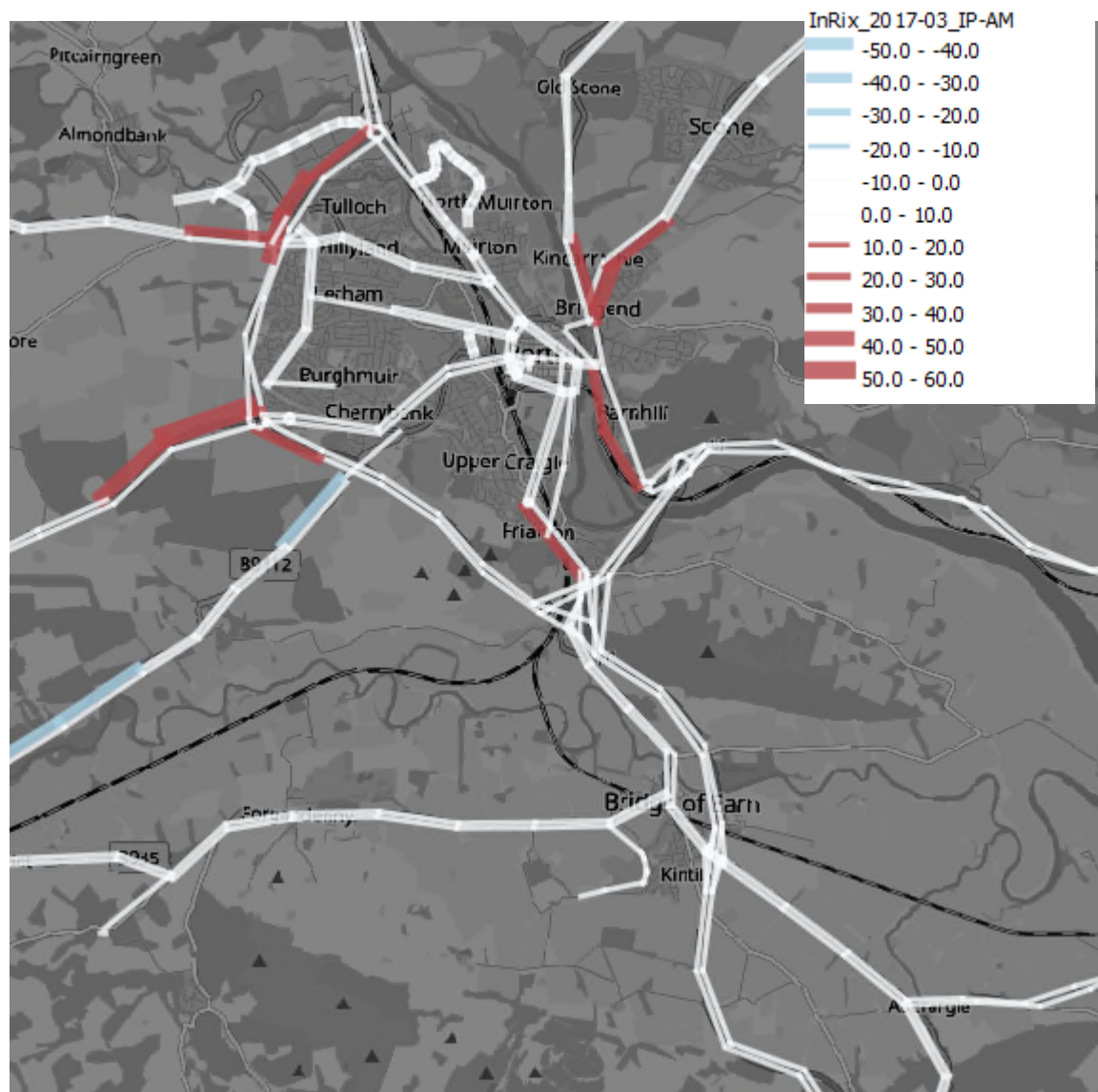


Figure 28. Speed Difference Between AM and IP – 2017 INRIX Data

5.11 Air Quality Management Area

- 5.11.1 Increased vehicle flow and delays are detrimental to air quality within the city's Air Quality Management Area (AQMA). The AQMA was designated in 2006 as a result of a series of air quality investigations within the city, which predicted that the national objective for nitrogen dioxide would not be achieved at a number of locations. The AQMA comprises the whole built up area of Perth, an area much greater than the minimum required by legislation. Nitrogen oxides react to form nitrogen dioxide, and in Perth over 80% of nitrogen oxides within the AQMA originate from road vehicles. The 2009 Air Quality Action Plan included initiatives on

bus and freight quality, green travel planning, eco driver training, Park + Ride, integration of air quality and planning and the Cross Tay Link Road scheme.³⁰

5.12 Perth Transport Futures – Measures

5.12.1 The data presented above is from 2017, however, this does not take into consideration the impact planned developments are forecast to have on journey times in the area and may have on air quality. Perth and Kinross Council has been working with Tactran in consultation with Transport Scotland to identify solutions which would facilitate the long-term development of the City and the wider region and ensure that the strategic trunk road network is not compromised. The package of measures identified are outlined in the Perth's Transport Futures document and in terms of road infrastructure includes:³¹

- Improvements to the A9/A85 Crieff Road junction (this phase was delivered in 2018);
- Cross Tay Link Road (CTLR) which, when complete, will connect the A9 to the A93 & A94, requiring the construction of a new bridge across the River Tay north of Perth (this phase is now at an advanced stage, with funding confirmed, and is due to open in 2024);
- a package of measures to reduce congestion and improve air quality within Perth City Centre;
- improvements to public transport including new Park & Ride sites serving Perth; and
- improved pedestrian and cycle facilities.

5.13 Summary of Transport Network

5.13.1 This review of transport in the study area identified a number of key points to be considered:

- Cycling - Perth Cycling Masterplan identified the corridor from Bridge of Earn to Perth city centre as requiring development however the study also suggested that the likely demand for this route may be low due to small settlements in the area and limited employment sites but could have major benefits for the national cycle network by connecting NCN 77 with NCN 75.
- The corridor is served by local and strategic bus services by Stagecoach and Citylink. Bridge of Earn has peak time express services to Fife and Edinburgh and a regular bus service to Perth. In the southbound direction, there are connections to Auchterarder and Glenrothes. The combined services result in a service between Bridge of Earn and Perth approximately every 15-20 minutes (Mon-Fri 0800-1800).
- Although there is a regular bus service to Perth the proportion of Bridge of Earn residents using it to access work in Perth remains small (although comparable with the Scottish average). Dashline outputs show that bus travel is not attractive for those travelling to work outside of Perth City Centre due to the majority of services terminating at Perth Bus Station and/or not serving the second most popular work destination in Perth - Hillyland, Tulloch and Inveralmond.
- In 2017, “everyday use or almost every day use” of local bus services in Perth and Kinross has increased by 1.6% when compared to 2014.
- Bridge of Earn is located on the Edinburgh to Perth railway line and was previously served by a station which closed in 1964.

³⁰ Perth and Kinross Air Quality Action Plan, 2009

³¹ LDP2, page 257



- Masterplan for the Oudenarde development includes land which has been allocated for a rail halt facility and park and ride facility.
- Improved journey times to Edinburgh from Perth are identified in the Scottish Government's Strategic Transport Projects (Project 17).
- Office of Rail and Road reporting growths in entries and exits and Perth and Ladybank of 243% and 329% respectively since 1997-98.
- Journey time comparisons between car and public transport show that public transport can only compete with car journey times at the top end of the journey time range (peak delays impacting on car journey times).
- INRIX data identifies delays and congestion on many of the key routes into and around Perth during the morning peak period, including on the A912 Edinburgh Road corridor between Craigend and Marshall Place. In addition, the data identifies the delays on the approaches to Inveralmond and Broxden Roundabout.
- Traffic related emissions have contributed to the Perth City area being identified as an Air Quality Management Area.





6. CONSULTATION

6.1 Workshop Consultation

- 6.1.1 Participation and consultation are key elements of a STAG study and ensure the interests of stakeholders are considered in an inclusive, open, transparent and appropriate manner. In particular, consultation is useful in the identification and analysis of transport problems and opportunities which forms the starting point of any STAG study.

6.2 Workshops

- 6.2.1 Two workshops were held:

- The Steering Group was invited to take part in a Workshop focussing on Problems, Opportunities, Issues and Constraints, Transport Planning Objectives and Option Generation. The workshop took place on 16th January 2019 at Tactran's offices in Perth;
- A stakeholder workshop was held on 21st January 2019, covering similar topics to the first workshop, but extending to key stakeholders beyond the Steering Group. Attendees included representatives from:
 - Tactran;
 - Perth and Kinross Council (officers);
 - Stagecoach;
 - Earn Community Council;
 - Abernethy and District Community Council; and
 - Perth and Kinross Council (elected members).

- 6.2.2 Prior to the workshop the study team had undertaken a thorough review of evidence based problems, opportunities, issues and constraints. These were presented to participants who were invited to comment on initial findings which also included key themes. This set the foundations for a discussion on Transport Planning Objectives (Steering Group only) and Option Generation which was informed by the draft TPOs. Full details of the sessions are included in Appendices A and B, and the presentation given by SYSTRA is included as Appendix C.

6.3 Perth and Kinross Council Employee Travel to Work Survey

- 6.3.1 In addition to the workshops additional engagement was undertaken with the Perth and Kinross Council and a review of recent, relevant public engagement was carried out. This included the Perth and Kinross Council Employee Travel to Work Survey.
- 6.3.2 The PKC survey was distributed online to employees in 2019 and had 754 responses. These responses were refined and allocated to the geographies referred to earlier in the report: Bridge of Earn, Wider Perth Area and Perth City, resulting in 413 relevant responses.
- 6.3.3 Employees were asked to provide details of the main mode of travel to work, reasons for this choice and any factors influencing their decision not to use sustainable modes of travel (where applicable).

6.3.4 On the question of current mode of travel to work, the survey reflects the outputs from the Census Travel to Work which showed that car travel dominated commuting patterns for Bridge of Earn and Wider Perth residents with a higher proportion of more sustainable travel, including walking, cycling and bus for Perth City residents.

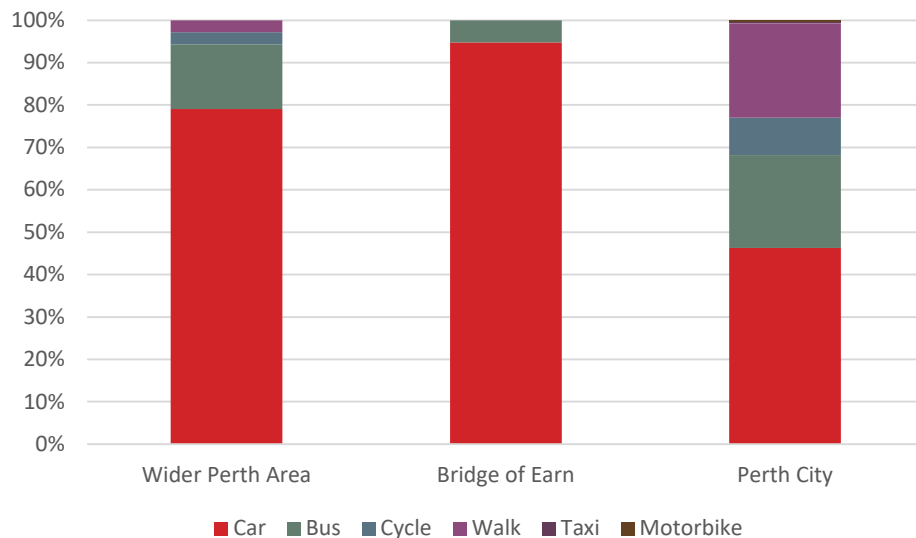


Figure 29. Mode of Travel to Work

6.3.5 Car commuters were asked to provide reasons for their mode of travel to work (more than one answer could be selected). The answers to this question showed significant variation across the three geographies identified. Of those Bridge of Earn respondents who drove to work (18 car commuters in total), convenience (94%), speed (61%) and affordability (39%) were considered the main reasons. Although speed (38%) and convenience (50%) were the most popular reasons highlighted by Perth City residents, the proportions were significantly lower with a wider spread of reasons. Other significant reasons included work purposes (31%) and family reasons (22%).

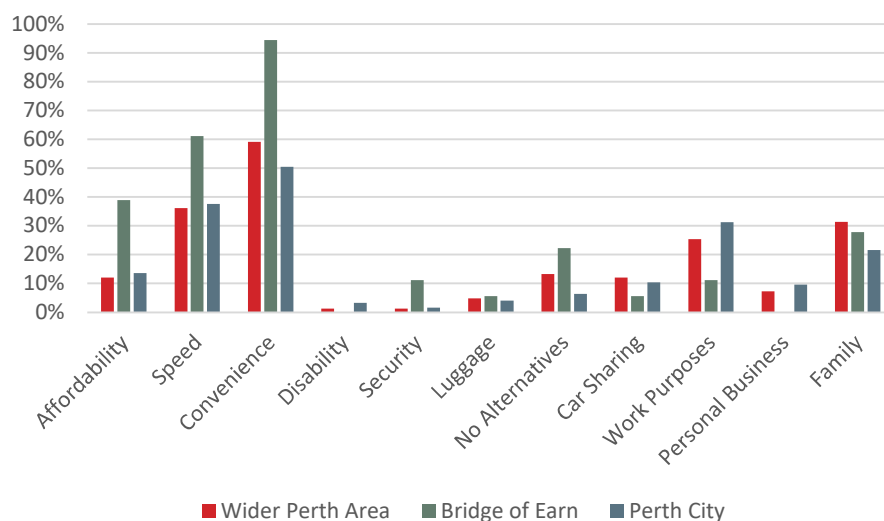


Figure 30. Main Reasons for Driving to Work?

6.3.6 Car commuters were also asked if they experience unacceptable congestion on their route to work. The responses to this question are subjective and relative as they required an interpretation of congestion and also a view on what is considered “unacceptable”, however, the outputs do give a useful insight to the views of traffic and delays in the study area. The pattern of responses shows that 48% of residents in Bridge of Earn do not experience any unacceptable congestion. This is considerably above the 23% reported by Wider Perth and 26% reported by Perth City residents.

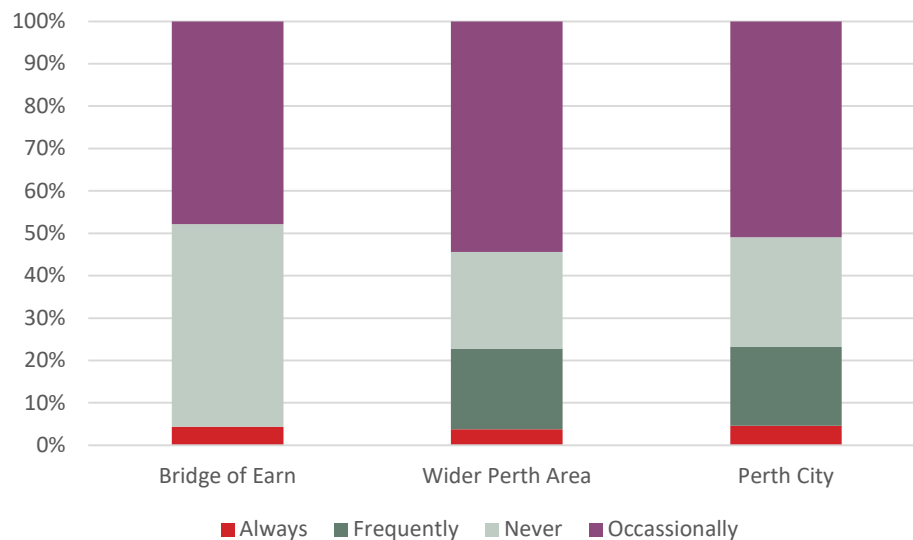


Figure 31. How Often do You Find Yourself Stuck in Unacceptable Congestion?

6.3.7 To understand why car use remains the most popular mode for travel to PKC sites respondents were asked for details of their current public transport provision and also the reasons for not using public transport.

6.3.8 96% of Bridge of Earn respondents reported that there is a suitable bus to work. This is considerably above the 88% and 87% reported by the Wider Perth Area and Perth City respectively.

6.3.9 When asked for further details of how public transport could be made more inviting the main considerations for Bridge of Earn were cost, reliability and frequency. Cost was highlighted by the majority of respondents in all areas as being the main reason public transport is not attractive.

6.3.10 When considering the relevance of cost on choice of mode it is important to note that 67% of Bridge of Earn residents reported that they do not pay for parking. 70% of Wider Perth and 57% of Perth City residents also reported no parking fees.

Table 15. Public Transport Provision

	SUITABLE BUS SERVICE TO WORK	SUITABLE TRAIN TO WORK	CURRENTLY USE P&R
Bridge of Earn	96%	0%	4%
Wider Perth Area	88%	3%	8%
Perth City	87%	2%	4%

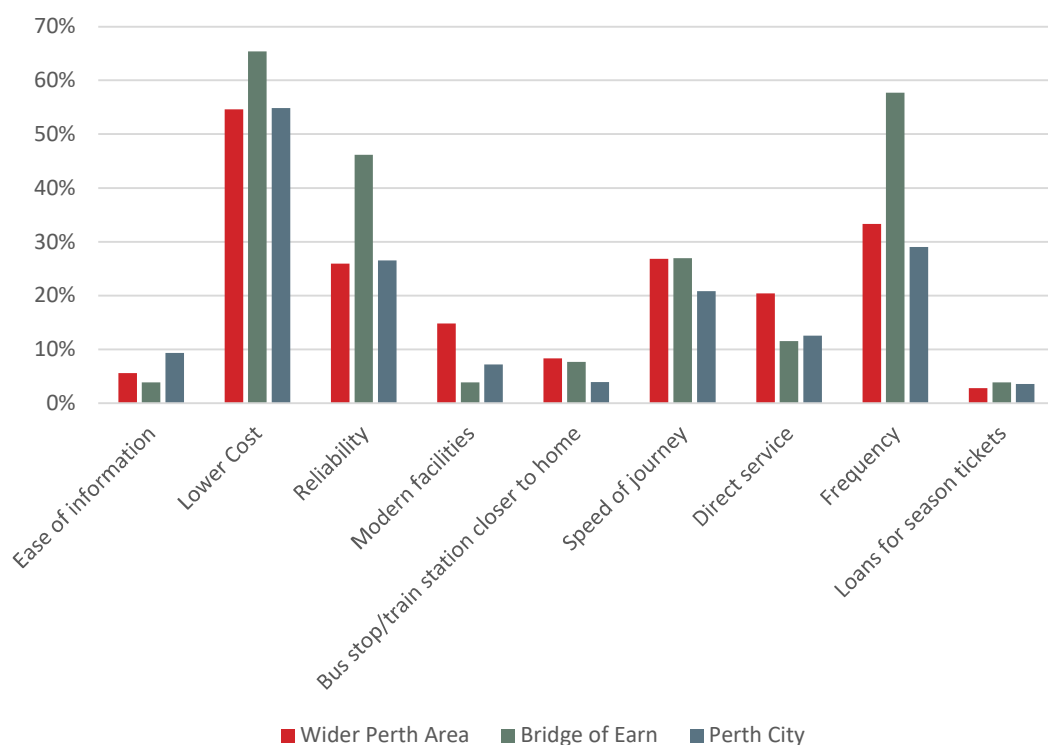


Figure 32. How Could Public Transport Options be Made More Inviting for You?

6.3.11 This summary of travel to work patterns and reasons for mode choice gives a useful overview of perceptions of public transport and transport conditions in Perth however it is noted that this data is a snapshot of PKC employees to central Perth sites and does not reflect some of the other patterns and issues identified previously in this study.

6.4 Summary of Key Findings

6.4.1 The workshop consultations provided the opportunity to validate the initial baseline and identification of problems, opportunities, issues and constraints. In particular, the study team was keen to gather views on problems, issues, opportunities and constraints which were not highlighted in the data collation. For example, the location of Oudenarde in relation to Bridge of Earn and the potential isolation of residents given the lack of public transport options there and the reasons for not using public transport options from the area.



6.4.2 Key themes from the two workshops included:

○ Public transport:

- Recognition that there was a regular bus service to Perth City Centre from Bridge of Earn but more rural areas, including Abernethy did not have a frequent service;
- Acknowledgement of the X56B service which provides a connection to Edinburgh (limited service);
- The convenience of Halbeath and Inverkeithing park and ride sites for accessing Edinburgh;
- Length of journey time for rail journey from Perth to Edinburgh was seen as unattractive compared to coach P&R.
- Public transport access to Oudenarde was also highlighted. Although school transport is provided for both secondary and primary pupils into Perth, in relation to this and the proposed development, no developer funding has been set aside to support local public transport and there has, as yet, been no commercial response from a bus operator.

○ Access to services:

- The closure and relocation of health services from Bridge of Earn was a concern highlighted by all at the workshop. The attendees highlighted that access to health services would be challenging for the elderly, those without access to a car and those with mobility issues.

6.4.3 Key themes from the PKC consultation included:

- The review of highlighted that 96% of PKC employee respondents from Bridge of Earn have access to a bus to work but only 5% of respondents travel by bus. Reasons for not taking the bus include frequency, reliability and cost.
- Of particular significance to the cost factor is that 67% of PKC employees from Bridge of Earn do not pay for parking.



7. PROBLEMS, OPPORTUNITIES, ISSUES AND CONSTRAINTS

7.1 Overview

7.1.1 The identification of actual and perceived problems and opportunities form the starting point and ultimately the rationale for a STAG study. It is important for problems and opportunities to be considered in the wider context, and issues and constraints are therefore also taken into consideration.

7.1.2 Problems, Opportunities, Issues and Constraints, as defined by the STAG guidance, are:

- **Problems:** existing and future problems with the transport system which result in a shortfall in meeting objectives, e.g. lengthy journey times, poor transport access to services;
- **Opportunities:** possibilities to improve the transport system and the way it is used, e.g. improve journey times;
- **Issues:** uncertainties that the study may not be in a position to resolve, but must work in the context of, e.g. impact of new developments; and
- **Constraints:** the bounds within which the study is being undertaken, e.g. available funding, policy or environmental designations.

7.1.3 The identification of problems, opportunities, issues and constraints has been informed by the Socio-Economic Context Chapter 4 and the review of the Transport Network found in Chapter 5.

7.2 Problems

Problem 1: Car Dependency Resulting in Road Journey Time Delays

7.2.1 On approach to Perth, a number of key junctions and approach road experience journey time delays in the AM and PM peak period. INRIX (speed data) has been analysed and shows that constraints are impacting road vehicle speeds on approaches to Broxden and Inveralmond Roundabouts to the north and west of Perth (as shown in Section 5.10). Although these locations are outwith the geographical scope of the study, they are influenced by travel choices made on the study corridor. In particular, travel from Bridge of Earn to the second highest employee zone of Hillyland, Tulloch and Inveralmond requires travel either through the city centre or along the M9/M90 to the Industrial Estates and employment locations to the north of the city.

7.2.2 This travel choice is reinforced by the lack of direct public transport options to these employment opportunities which makes car travel the most attractive choice for many. Although Hillyland, Tulloch and Inveralmond is the second most popular work destination zone in Perth City for travel from Bridge of Earn, it does not have a direct bus service from Bridge of Earn as the majority of services terminate or originate at Perth Bus Station. There are opportunities to interchange at Perth Bus Station however this will impact on the attractiveness of the mode from a cost and journey time perspective. As a result, the majority of trips to Hillyland, Tulloch and Inveralmond are undertaken by other modes, mainly car, which is impacting on journey times at Broxden and Inveralmond, including coach journey

times on the corridor. According to the Census Travel to Work data 208 people travelled from Bridge of Earn to Hillyland, Tulloch and Inveralmond with a further 493 travelling from Edinburgh and Fife which would require passing Bridge of Earn.

Problem 2: Competitiveness of Public Transport

- 7.2.3 For many destinations, public transport does not compete favourably with car travel in terms of journey time. From Perth railway station, there are regular train services to and from Stirling, Dundee and Pitlochry with a journey time around 30 mins. These are roughly equivalent to journey times by car, however, the connection required from Bridge of Earn to reach Perth to access these services extends this for public transport beyond the direct journey time by car (see Section 5.9).
- 7.2.4 Direct trains to and from Edinburgh Waverley run at approximately one-hour intervals with journey times around 1 hour and 25 minutes. Car journeys can take between 65-110 minutes in the AM peak from Perth. For those travelling from Bridge of Earn, public transport journeys would require a connecting journey to Perth, further increasing this gap in journey times between modes. Coach connections between Perth and Bridge of Earn to Edinburgh have a journey time of 87-99 and 95 minutes respectively (limited direct service for Bridge of Earn). For journeys to Edinburgh, public transport can only compete with the upper journey time estimates for peak travel.
- 7.2.5 Direct services to and from Glasgow run hourly from Queen Street Station and take around an hour. Car journey times are roughly equivalent to this, however, journeys from Bridge of Earn and Oudenarde, or those not to the city centre, would require connections.
- 7.2.6 As discussed above, there is also a lack of direct public transport from Bridge of Earn to key employment sites in the north and north west of Perth (Hillyland, Tulloch and Inveralmond).
- 7.2.7 Figure 33 summarises the journey time comparisons across modes to a range of destinations using the corridor.
- 7.2.8 This lack of competition in journey time between public transport and car results in an above average proportion of journeys to work being undertaken by car compared to the Scottish average (85% of Bridge of Earn to Perth commuter trips are by car compared to the Scottish average of 56%) which is contributing to increased journey times on certain routes (highlighted in Problem 1) and air quality concerns (discussed in Problem 3, below). In addition, to access the strategic rail network Bridge of Earn residents are required to travel on the A912 which has journey time delays for private cars and buses (Problem 1).



Figure 33. Journey Time Comparisons

- 7.2.9 In addition to the reasons highlighted above, the PKC employee survey also highlighted that even when a bus service was available to work, car remained the most attractive mode. Reliability, frequency and cost were highlighted as the reasons for using car over public transport.

Problem 3: Air Quality Management Area

- 7.2.10 Perth City was declared an Air Quality Management Area (AQMA) in 2006 as result of a series of air quality investigations within the city, which predicted that the national objective for nitrogen dioxide would not be achieved at a number of locations. Nitrogen oxides react to form nitrogen dioxide, and in Perth over 80% of nitrogen oxides within the AQMA originate from road vehicles. To address the impact road vehicles have on air quality the 2009 Air Quality Action Plan was developed and included initiatives on bus and freight quality, green travel planning, eco driver training, Park + Ride, integration of air quality and planning and the Cross Tay Link Road scheme.³²
- 7.2.11 As highlighted in Problems 1 and 2, public transport competition and choice (including the need to travel into Perth to access the strategic rail network) in the study area is contributing towards unsustainable mode choice and reliance on car travel for journeys to work which is above the national average. Increased vehicle flow and delays are detrimental to air quality within the AQMA and are directly impacted by this above average reliance on car.

³² Perth and Kinross Air Quality Action Plan, 2009

7.3 Opportunities

Opportunity 1: Development in Bridge of Earn and the Surrounding Area

- 7.3.1 Major development sites, such as Oudenarde, Perth West, Betha Park and Almond Valley could potentially allow a range of transport solutions to be explored. The LDP proposes to focus the majority of growth on Perth City and its core area, which includes Bridge of Earn and Oudenarde. The LDP2 allocates 1,600 houses (an increase of 400 units from TAYPlan to reflect higher densities and the capacity of the site) and 34 ha of employment land in Oudenarde - separate planning permission exists for 35 ha of employment uses on adjacent land at Brickhall Farm. The LDP2 also notes that, subject to strategic transport appraisal (i.e. this study), a new railway station may be required as part of the development at Oudenarde.
- 7.3.2 A total of 170 dwellings are allocated for Bridge of Earn, as follows:³³
- Site H14 – Old Edinburgh Road/Dunbarney Avenue – circa 100 units
 - Site H72 – Kintillo Road – circa 70 units (under construction in 2019/20)
- 7.3.3 Development can often lead to a critical level of demand for transport service improvements that make them viable. Also, there is an opportunity for the Council to maximise developer contributions to fund bus services and thus provide early opportunities for residents to use sustainable modes.
- 7.3.4 In addition, there is significant planned development to the north and west of Perth with the long-term strategic development areas identified in the Local Development Plan³⁴ which is likely to indirectly impact on travel in corridor:
- Bertha Park – 3,000+ homes and 25+ ha employment land
 - Almond Valley – 704-1,100 homes
 - Perth West – 2,392-3,738 homes and 25+ ha of employment land

Opportunity 2: Increasing Public Transport Choice

- 7.3.5 The study area is well connected to the strategic road network, such as the M90 and A912. The Edinburgh – Perth railway line runs through the area, although there is no local station. Long distance and more local bus and coach services do run in proximity to the Bridge of Earn and Oudenarde area, although only some services currently stop in Bridge of Earn.
- 7.3.6 Coach operator Citylink operates a long-distance coach service between Perth and Edinburgh, on the route Edinburgh – Dunfermline – Perth – Dundee – Forfar and Aberdeen. This runs close to, but not into, Bridge of Earn. At present, only some of the Stagecoach Edinburgh – Perth (X56B) services stop in Bridge of Earn.
- 7.3.7 The Oudenarde Masterplan proposes the creation of a ‘Park and Ride’ facility on its site, which would accommodate up to 250 cars. The service, routing and mode is not confirmed.

³³ Perth and Kinross Council, Perth and Kinross LDP (Adopted), Page 98

³⁴ Perth and Kinross Council, Local Development Plan 2: Proposed Plan 2017

- 7.3.8 The existing public transport network, with improved infrastructure and detailed discussions with commercial operators, could be improved to address the current lack of competition between public transport and car travel for a number of origins and destinations.
- 7.3.9 The development aspirations both south of Perth and to the north and west of Perth have the potential to encourage additional transport choices.

7.4 Issues

Issue 1: Uncertainty over the Rate of Traffic Growth and Impact of Developments

- 7.4.1 The growth of traffic in future years is uncertain for a number of reasons but primarily linked to the extent of population and speed of growth; how house prices will change in the future, particularly as transport, housing and employment developments come forward; and whether there is the capacity within the construction industry to achieve the build out rates. The Oudenarde Masterplan was published in 2001 however only a small proportion of the development is currently built and occupied.
- 7.4.2 As noted above, at the time of writing, it is understood that the developer has reached agreement with both PKC and Transport Scotland and will likely bring forward proposals for developing the site. The appraisal will need to work around this.

Issue 2: Newburgh station

- 7.4.3 In addition to Tactran receiving funding to progress this study, SEStran also received funding to appraise transport options in the Newburgh area. Transport options may include a new rail station. The two sites are 7.5 miles apart and the outcomes of the studies may directly impact on each other. The projects are currently progressing independently but both project teams are aware of interactions which may arise for certain options.

7.5 Constraints

Constraint 1: Public transport constraints

1a): There are rail capacity constraints on approach to Edinburgh (number of trains and capacity on trains).

- 7.5.1 Capacity on approach to Edinburgh, in particular the Forth Bridge was identified as a constraint in the Strategic Transport Projects Review. Restrictive signalling headways between Edinburgh and Fife, and in particular over the Forth Bridge, limit the number of trains that can operate over the corridor and can result in increased delays³⁵.

³⁵ Transport Scotland, Strategic Transport Projects Review, Report 1, Section 7.14

1b): Bridge of Earn is located on a single-track section of the line (from Ladybank to Hilton Junction) which currently restricts timetabling capabilities.

- 7.5.2 Bridge of Earn is located on the Edinburgh to Perth railway line and was previously served by a station which closed in 1964. From Ladybank to Hilton Junction the line is single-tracked which restricts timetabling capabilities.
- 7.5.3 As mentioned above, the line is single track and this is a key constraint for additional stations on the line and the delivery of faster journey times. Network Rail have advised there are currently no plans to double track this section.

1c): Commitment to reduce journey times on the Highland Mainline and impact on existing passengers.

- 7.5.4 The Highland Mainline is currently being upgraded with measures to improve journey time. The introduction of a stop at Bridge of Earn would potentially conflict with planned journey time improvements between Edinburgh/Glasgow and Inverness.
- 7.5.5 Any additional bus or rail stop will impact on existing passengers by either increasing the overall journey time or reducing the number of stops served to address any journey time increases.

Constraint 2: Physical constraints

- 7.5.6 A number of physical constraints exist within the study area including the following:
- The M90 motorway currently limits the access points between Bridge of Earn and Oudenarde;
 - The identified Park and Ride site is constrained by the railway line and the A912; and
 - The railway line from Edinburgh to Perth via Fife passes through Bridge of Earn and the development site at Oudenarde, with limited crossing points. The Oudenarde Masterplan notes that the line divides the site into two distinct areas and has been identified as a major constraint. A bridge is planned but its deliverability is dependent on the developer.

7.6 Summary

- 7.6.1 In summarising this chapter, the following are evident:

Problems:

- High dependency on trips to and from work in Perth including outside of the city centre;
- Lack of competitiveness between car and public transport for long distance trips; and
- Congestion on routes into and around Perth contributing to exceedance of AQMA limits.



Opportunities:

- Oudenarde and wider development aspirations offer opportunities to grow alternative transport offers.

Issues:

- Developers for the Oudenarde development have reached agreement with PKC and Transport Scotland and will be seeking to bring the development forward; and
- More widely, development aspirations to the north and west of Perth will potentially have a significant impact on travel patterns on the west of the city

Constraints:

- Limited capacity on the rail network both locally and regionally (into Edinburgh);
- Provision of new station at Oudenarde would impact on aspiration for reduced journey times on the Highland Main Line; and
- M90 motorway restricts opportunities to integrate Oudenarde with Bridge of Earn.



8. TRANSPORT PLANNING OBJECTIVES

8.1 Overview

- 8.1.1 STAG appraisals are objective-led rather than solution-led. Therefore, Transport Planning Objectives (TPOs) have been developed to reflect the problems, opportunities and parameters analysed in Chapter 7 and also the established national, regional and local policy directives set out in Chapter 3. The TPOs essentially reflect the outcomes sought and will directly inform the appraisal of the performance of any emerging options.
- 8.1.2 In accordance with STAG, TPOs should be developed with SMART principles in mind, i.e. objectives should be:
- Specific: saying in precise terms what is sought;
 - Measurable: it will be possible to measure whether or not the objective has been achieved;
 - Attainable: there is general agreement that the objective can be achieved;
 - Relevant: it is a sensible indicator or proxy for the change which is sought; and
 - Timed: it will be associated with an agreed future point by which it will have been met.
- 8.1.3 It is acknowledged that TPOs may not be fully SMART at the earlier stages of the appraisal process, however, they should be subject to review and refinement as the process develops and more detail comes forward. This is important to ensure study objectives provide a framework against which performance can be assessed as part of monitoring and evaluation activities following the implementation / construction of measures.

8.2 Study Objectives

- 8.2.1 The evidence gathered in preceding chapters covers the social, economic and transport context and informed the analysis of the problems, opportunities, issues and constraints. These highlighted:
- Problems associated with direct and timely accessibility to destinations from the study area contributing to less-sustainable mode choice
 - A significant proportion of employees travel to work by car, above the Scottish average
 - The lack of competition between car travel and public transport options (long journey times and indirect journeys)
 - Congestion on the A912 corridor conflicting with the Air Quality Management Area of Perth City.
- 8.2.2 The consideration of the inter-related problems and opportunities led to the development of the following TPOs:
- For those living in the study area, direct access to employment opportunities and to services outside of Perth City Centre are limited. These problems, combined with an understanding that there is an AQMA in Perth City and above average use of private vehicles to travel to work have led to the development of **TPO 1: Improve transport access to healthcare, employment, education and training.**

- Measurements: Accessibility mapping comparing baseline and future year public transport timetables to a range of destinations/services.
- The study area is well located on the strategic transport network, however, for those living in the study area there are limited opportunities to access the network directly. Connections to Perth station are required to access the rail network and there are limited direct services to destinations other than Perth City Centre from Bridge of Earn. Currently, the transport network does not provide a competitive alternative to private car travel. TPO2 was developed to build upon these problems and opportunities. **TPO2: Improve the competitiveness of sustainable modes compared to the private car on the M90/A912 corridor.**
 - Measurements: Generalised journey time comparison between car (modelled times or INRIX journey times) and public transport including interchange and service interval penalties.

8.3 STAG Criteria

8.3.1 In addition to the TPOs outlined above the options will be appraised against five STAG criteria:

- Environment;
- Safety;
- Economy;
- Integration; and
- Accessibility and Social Inclusion.

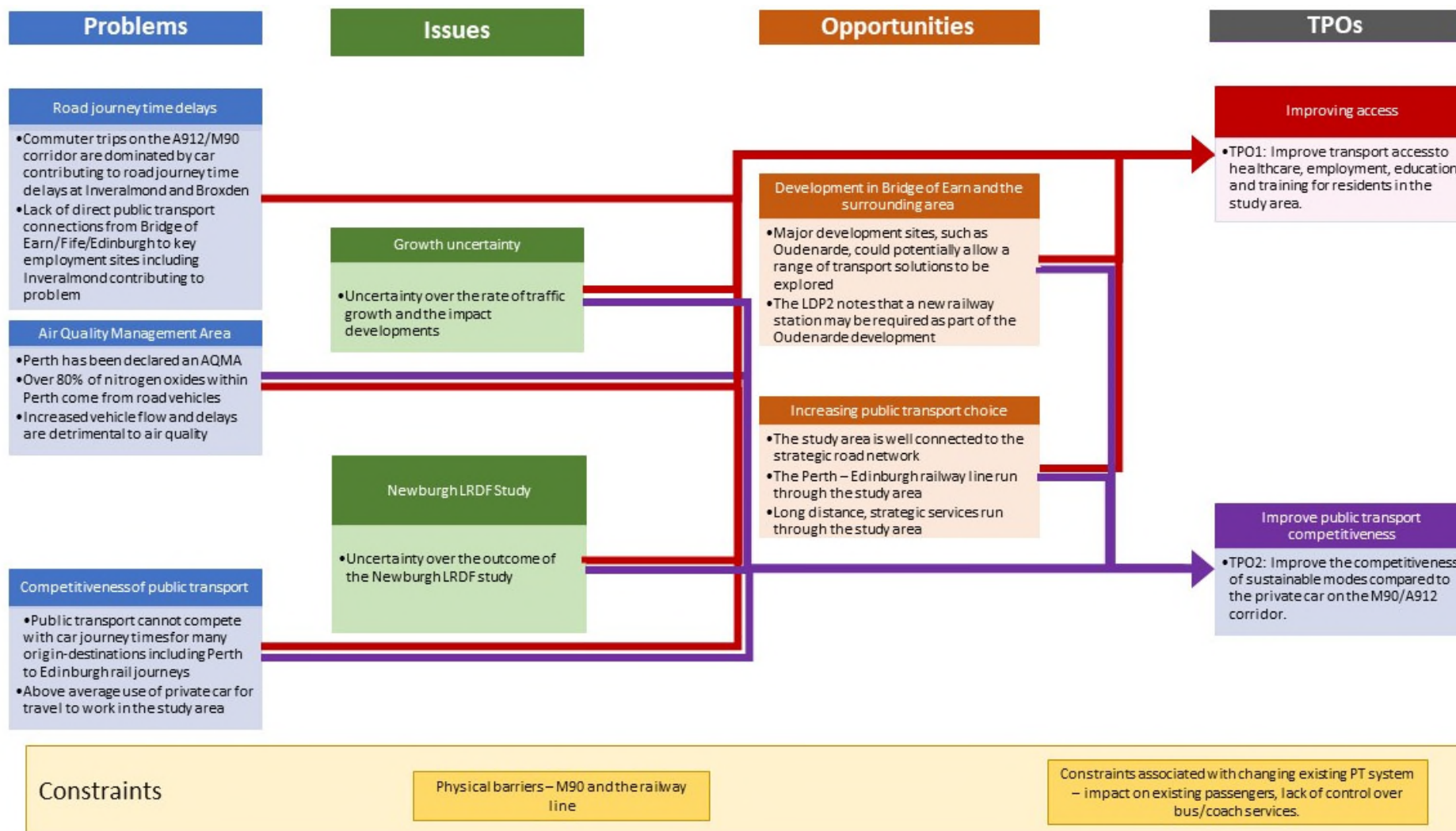


Figure 34. Problems, Opportunities, Issues and Constraints Mapped to TPOs



9. OPTION GENERATION

9.1 Overview

9.1.1 This chapter describes the option generation process undertaken. The purpose of this stage is to derive a range of options which should be informed by the study's Transport Planning Objectives (TPOs), STAG Criteria and alleviate the problems or address the opportunities identified. It is important that the option generation, and the subsequent sifting and development that follows, is carried out in a logical and transparent manner.

9.2 Option Generation Process

9.2.1 In line with STAG, options were informed by the TPOs and were generated through a number of methods, including:

- consideration of previous studies
- through the statutory planning process (transport and land use plans)
- consultation workshops
- consideration of known problems and opportunities
- a gap analysis of the existing transport network and committed measures
- professional judgement flowing from a structured decision making process by the study team.

Consideration of Previous Studies

9.2.2 While it was important not to approach the study with pre-conceptions, it was also prudent to draw on the findings of previous work that looked into the transport problems and future requirements of Bridge of Earn.

The Statutory Planning Process

9.2.3 Documents produced through the statutory planning process, such as the Local Development Plan, include examination of transport problems and opportunities within the study area. As such, potential transport solutions presented in these documents were considered in relation to the study's TPOs and, where appropriate, were used as inspiration for the options generated.

9.3 Option Generation

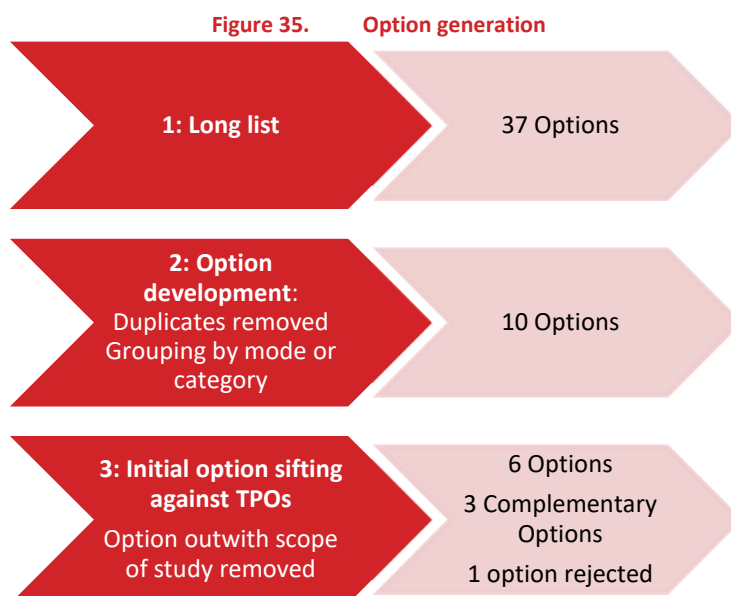
9.3.1 Through this option generation process, 37 individual interventions were generated as part of the initial long list of interventions (details of all "long-list" options are in Appendix D). Options were generated across all modes of transport and geographically across the study area, and beyond. To appraise these options comprehensively a process was developed to consolidate these individual interventions to a manageable number of clean options. This process enabled options and combinations of options to be sifted using the following steps:

- Following the development of an initial long list, the options were developed and cleaned. This involved clarifying the options to provide further detail and to remove

duplicates. Where appropriate, options were also grouped by mode. At this stage 10 options remained.

- The final stage of the Option Generation involved a high-level appraisal to determine suitability for further assessment. This appraisal was a qualitative assessment against the TPOs and determined if the option would have a positive, negative or neutral impact against the TPO. Options which would contribute to meeting the TPOs in conjunction with other options were identified as complementary options.

9.3.2 This process is summarised in Figure 35 below:



9.3.3 Table 16 presents the output of this high-level appraisal and recommends 6 options are progressed for further appraisal alongside three complementary options (which would contribute to TPOs as part of a package) and one option is recommended for rejection as the feasibility and deliverability of such a project is outwith the scope of this study.

Table 16. Option Generation and Sifting

OPTION NO.	MODE	OPTION DESCRIPTION	TPO1 – IMPROVE TRANSPORT ACCESS	TPO2 – IMPROVE PT COMPETITIVENESS	SELECT/ REJECT	RATIONALE
1	Active Travel	Active travel improvements including: <ul style="list-style-type: none"> Improve the Tay Corridor active link identified in the TayPlan for recreational journeys; Develop the Perth to Bridge of Earn cycle route; Junction improvements at the M90 slips (Junction 9) to benefit pedestrians and cyclists; Cycle parking at bus stops/interchanges; Public cycle hire; and Improved signage. 	✓	-	Select	Option would support TPO1 by improving transport access through improvements to the active travel network.
2	Bus	Improve & increase local bus/services from Bridge of Earn and Oudenarde to destinations in Perth	✓	✓	Select	Option would support both TPOs by improving transport access to a range of destinations and also improve competitiveness of PT by having more direct services.
3	Bus	Measures to increase the attractiveness of public transport including investment in new buses and live bus feed information at stops	-	✓	Select - complementary	As a component of a wider range of measures to increase the attractiveness of public transport this option would support TPO2.
4	Bus	Improve and increase strategic bus and coach services on the corridor	✓	✓	Select	Option would support both TPOs by improving transport access to



OPTION NO.	MODE	OPTION DESCRIPTION	TPO1 – IMPROVE TRANSPORT ACCESS	TPO2 – IMPROVE PT COMPETITIVENESS	SELECT/ REJECT	RATIONALE
						a range of destinations and also improve competitiveness of PT by having more direct services for strategic trips.
5	Initiatives	Create a multi-modal ticketing system and optimise pricing structure	-	✓	Select - complementary	As a component of a wider range of measures to improve the competitiveness this option would support TPO2 by improving the competitiveness of public transport.
6	Initiatives	Introduce initiatives to support more sustainable ways of travelling: <ul style="list-style-type: none"> improve car sharing offering and other initiatives in the study area by incentivising car sharing; promoting and encouraging more car clubs; and support the development of business travel plans. 	✓	-	Select - complementary	Option would support TPO 1 by improving access to services.
7	Other	Use shuttle trains from Perth to Newburgh	✓	✓	Select	Option would support both TPOs by improving access to services, encouraging modal shift and improving the competitiveness of public transport over car.



OPTION NO.	MODE	OPTION DESCRIPTION	TPO1 – IMPROVE TRANSPORT ACCESS	TPO2 – IMPROVE PT COMPETITIVENESS	SELECT/ REJECT	RATIONALE
8	Park and Ride	New park & ride site: <ul style="list-style-type: none"> Employment site south of A912 - Brickhall Farm 	✓	✓	Select	Option would support both TPOs by improving access to services, encouraging modal shift and improving the competitiveness of public transport over car.
9	Rail	New rail station located at: <ul style="list-style-type: none"> Old Bridge of Earn station site; or Oudenarde. 	✓	✓	Select	Option would support both TPOs by improving access to services and improving the competitiveness of public transport over car.
10	Rail	Re-build line from Perth to Edinburgh	✓	✓	Reject	Option would support both TPOs by improving access to services and improving the competitiveness of public transport over car however the feasibility and deliverability of such a project is outwith the scope of this study.



10. DO-MINIMUM

Do-Minimum Case

- 10.1.1 In order to further develop the options, and propose and appraise improvements to transport for the Bridge of Earn/Oudendarde area, it is necessary to first understand the Do-Minimum case.
- 10.1.2 A Do-Minimum scenario should include relevant transport and planning developments that may affect the study, and will be the baseline against which each option is appraised in future stages of the study. This represents the outcome scenario if no options from this study are taken forward.
- 10.1.3 Schemes to be included in the Do-Minimum include:
- Cross Tay Link Road and associated accommodation works
 - Perth and Kinross Council Local Development Plan 2
 - PKC to confirm inclusion of Broxden and Inveralmond upgrade
 - M90/A912 signalisation (delivered as part of the Oudendarde development)



11. SUMMARY & FINDINGS

11.1.1 SYSTRA was commissioned by regional transport partnership Tactran to collate the evidence behind a Case for Change to undertake a transport appraisal of Bridge of Earn/Oudendarde. This study has a particular focus on sustainable travel to Perth, Edinburgh and Fife.

11.1.2 Improving sustainable transport to/from Bridge of Earn has been the focus for a number of recent studies, and this transport appraisal seeks to collate, review, and progress this agenda. The Local Rail Development Fund is a £2 million Scottish Government fund with the aim of providing funding to consider community led options to improve local rail connections. The Bridge of Earn study area has been awarded a proportion of this fund.

11.1.3 The purpose of this Case for Change report has been to review existing data and policy, consult with relevant stakeholders, and present the problems, opportunities, issues and constraints related transport in the Bridge of Earn/Oudendarde area and with a particular focus on movements to Perth, Edinburgh, and Fife by sustainable modes.

11.1.4 This review highlighted the following problems, opportunities, issues and constraints:

○ Problems:

- High dependency on trips to and from work in Perth including outside of the city centre;
- Lack of competitiveness between car and public transport for long distance trips; and
- Congestion on routes into and around Perth contributing to exceedance of AQMA limits.

○ Opportunities:

- Oudendarde and wider development aspirations offer opportunities to grow alternative transport offers.

○ Issues:

- Developers for the Oudendarde development have reached agreement with PKC and Transport Scotland and will be seeking to bring the development forward; and
- More widely, development aspirations to the north and west of Perth will potentially have a significant impact on travel patterns on the west of the city

○ Constraints:

- Limited capacity on the rail network both locally and regionally (into Edinburgh);
- Provision of new station at Oudendarde would impact on aspiration for reduced journey times on the Highland Main Line; and
- M90 motorway restricts opportunities to integrate Oudendarde with Bridge of Earn.

11.1.5 These problems, opportunities, issues and constraints demonstrate that there is a case for change and the following Transport Planning Objectives have been built upon them. As the

study progresses, they will be SMARTened to ensure they are relevant and effective for both the appraisal and any subsequent monitoring and evaluation:

- For those living in the study area, direct access to employment opportunities and to services outside of Perth City Centre are limited. These problems, combined with an understanding that there is an AQMA in Perth City and above average use of private vehicles to travel to work have led to the development of **TPO 1: Improve transport access to healthcare, employment, education and training.**
- The study area is well located on the strategic transport network, however, for those living in the study area there are limited opportunities to access the network directly. Connections to Perth station are required to access the rail network and there are limited direct services to destinations other than Perth City Centre from Bridge of Earn. Currently, the transport network does not provide a competitive alternative to private car travel. TPO2 was developed to build upon these problems and opportunities. **TPO2: Improve the competitiveness of sustainable modes compared to the private car on the M90/A912 corridor.**

11.1.6 The opportunities identified were built upon to develop options which would meet the Transport Planning Objectives. These options have been identified to address the problems highlighted above and have been refined to be taken forward for Initial Appraisal.

Report Appendix A – Steering Group Workshop

INFORMATION NOTE

BRIDGE OF EARN TRANSPORT APPRAISAL

STEERING GROUP WORKSHOP

IDENTIFICATION TABLE	
Client/Project owner	Tactran
Project	Bridge of Earn Transport Appraisal
Title of Document	Steering Group Workshop
Type of Document	Information Note
Date	29/01/2019
Reference number	107754
Number of pages	8

1. INTRODUCTION

- 1.1.1 SYSTRA Limited (SYSTRA) was commissioned by Regional Transport Partnership Tactran in November 2018 to undertake a transport appraisal of Bridge of Earn/Oudenarde with a particular focus on facilitating sustainable travel to Perth, Fife and Edinburgh..
- 1.1.2 This study allows for the investigation of opportunities for sustainable strategic trips, and in particular, movements from the major development sites to the north and west of Perth. It also provides the opportunity to look at multi-modal solutions. The approach will ensure that the work is better aligned with Transport Scotland's Scottish Transport Appraisal Guidance (STAG).
- 1.1.3 As part of the Pre-Appraisal (Case for Change) stage of the study, the Steering Group was invited to take part in a Workshop focussing on Problems, Opportunities, Issues and Constraints, Transport Planning Objectives and Option Generation. The workshop took place on January 16th at Tactran's offices in Perth.
- 1.1.4 This note summarises the discussions at this workshop and should be read in conjunction with Appendix A Workshop Presentation on which the group were commenting. This presentation was amended to take into consideration the points made at the workshop.

1.2

Attendees

ATTENDEE	ORGANISATION
Carol Barclay	Network Rail
Ross Miller	Sustran
Tony Maric	PKC
Jana Haspicova	SYSTRA
Iain Clement	SYSTRA
Claire Mackay	SYSTRA
Niall Gardiner	Tactran
Jonathan Padmore	Tactran
Andrew Warrington	SYSTRA (Independent Consultant)
David Torrance	Transport Scotland
Stuart Tilston	Transport Scotland



2. PROBLEMS, OPPORTUNITIES, ISSUES AND CONSTRAINTS

2.1 Overview

The identification of actual and perceived problems and opportunities form the starting point and ultimately the rationale for a STAG study. It is important for problems and opportunities to be considered in the wider context, and issues and constraints are therefore also taken into consideration.

Problems, Opportunities, Issues and Constraints, as defined by the STAG guidance, are:

Problems: existing and future problems with the transport system which result in a shortfall in meeting objectives, e.g. lengthy journey times, poor transport access to services;

Opportunities: possibilities to improve the transport system and the way it is used, e.g. improve journey times;

Issues: uncertainties that the study may not be in a position to resolve, but must work in the context of, e.g. impact of new developments; and

Constraints: the bounds within which the study is being undertaken, e.g. available funding, policy or environmental designations.

2.1.1 The baseline transport conditions were presented by the SYSTRA project team to the Steering Group. Attendees were then invited to comment on or contribute to the initial Problems, Opportunities, Issues and Constraints identified by SYSTRA.

2.1.2 Additional Problems, Opportunities, Issues and Constraints are noted below and supporting data will be sourced where possible.

2.2 Problems

- The Perth to Edinburgh rail journey times and location next to the M90 are both a problem and an opportunity.

2.3 Opportunities

- Congestion on the road network could encourage a move towards sustainable modes of travel;
- LEZs in Edinburgh and Dundee may deter people from driving to the cities; and
- Improvements to public transport offerings at Bridge of Earn could reduce demand for parking at Inverkeithing (PT from Bridge of Earn instead of driving to Inverkeithing P&R).
- Reduced end-to-end journey times for those living along the Carse (not having to drive into Perth)
- To input to Network Rail's Ladybank to Hilton route improvement programme (medium to long term).

2.4 Issues

- Potential funding sources of new services which may not be commercially viable;

- With the introduction of a new station at Bridge of Earn, travellers to Dundee would still require a change at Perth;
- Introducing new stops (rail and bus) could have a knock on effect on other users – increased journey times or stops removed; and
- A new Park and Ride could abstract from Broxden.

2.5 Constraints

- The Highland Mainline Improvements could be a constraint because it limits the opportunity to introduce more stops;
- No current plans to double track the rail section between Ladybank and Hilton; and
- Rail capacity constraints on approach to Edinburgh (number of trains and capacity on trains).



3. TRANSPORT PLANNING OBJECTIVES

Transport Planning Objectives clarify what the study aims to achieve and are the basis for directing and guiding the study process. They can evolve through the life of the study and must reflect the evidence base and established policy directives. The following points were made by the attendees:

- TPOs should take into consideration the door-to-door trip with a focus on the final mile (possibility of a park and ride site being used by those local to the site and driving there)
- Consideration should be given to the two communities, Oudenarde and Bridge of Earn, with two different requirements but an aim to bring them together

3.1.1 The following TPOs were discussed and proposed by the group to be refined further:

- Improve door-to-door connectivity by sustainable modes for strategic trips:
 - Bridge of Earn and Perth West to Scotland's Cities
- Improve door-to-door connectivity by sustainable modes and modal shift to local destinations :
 - Bridge of Earn to Abernethy, Perth and Newburgh
- Reduce congestion on routes into Perth on the A90 and A912

3.2 Option Generation

Active travel:

- Improve the active link TayPlan has around the Tay Corridor for recreational journeys;
- Cycling Masterplan Perth to Bridge of Earn cycle route;
- Junction improvements at the M90 slips at Bridge of Earn (Junction 9) to suit active travel;
- Improve local cycle routes; and
- Public cycle hire.

Bus:

- Improving local bus and coach services; and
- Live bus feed information at bus stops. This led to a further discussion about the cost and benefit of real time information at bus stops given the availability of smart phones.

Rail:

- New rail station located in Oudenarde or at the old Bridge of Earn station; and
- Opportunity to develop a Parkway station.



Integration

- Integrated ticketing linking local and strategic services; and
- Cycle parking at strategic bus stops.

General PT:

- Improving PT between Perth and Bridge of Earn;
- Improving PT between Perth and Oudenarde;
- Improving PT between Perth and Abernethy;
- Improve links to Edinburgh Airport; and
- Improved connectivity between Perth and Edinburgh (rail or bus), faster and/or more frequent services.

Smarter Travel:

- Car clubs;
- Liftshare; and
- Travel Plans.

3.3 Other Comments

3.3.1 The following additional points were raised during discussion:

- Investigate the change in rail entries and exits at Perth station (and other stations in Tactran area) over the period 2014-2018.
- Consider the impact of the Cross Tay Link Road on transport network
- The Scottish Household Survey shows a decline in bus use and satisfaction however the sample size is small and the group discussed that the bus service offering is good with a mixture of commercial and subsidised services in Bridge of Earn.
- If a Park and Ride was developed at Bridge of Earn what purpose would it serve – trips to Perth, trips to Edinburgh or both?
- Costs associated with passing loops would have to be considered as part of a new station.



APPROVAL

Version	Name		Position	Date	Modifications
1	Author	Claire Mackay	Principal Consultant	29/01/2019	
	Checked by	Ralph Anderson	Associate	27/02/2019	
	Approved by	Iain Clement	Associate Director	27/02/2019	



Report Appendix B – Stakeholder Workshop 2

INFORMATION NOTE

BRIDGE OF EARN TRANSPORT APPRAISAL

STAKEHOLDER WORKSHOP

IDENTIFICATION TABLE	
Client/Project owner	Tactran
Project	Bridge of Earn Transport Appraisal
Title of Document	Stakeholder Workshop
Type of Document	Information Note
Date	27/02/2019
Reference number	107754
Number of pages	6

1. INTRODUCTION

- 1.1.1 SYSTRA Limited (SYSTRA) was commissioned by Regional Transport Partnership Tactran in November 2018 to undertake a transport appraisal of Bridge of Earn/Oudendarde with a particular focus on facilitating sustainable travel to Perth, Fife and Edinburgh..
- 1.1.2 This study allows for the investigation of opportunities for sustainable strategic trips, and in particular, movements from the major development sites to the north and west of Perth. It also provides the opportunity to look at multi-modal solutions. The approach will ensure that the work is better aligned with Transport Scotland's Scottish Transport Appraisal Guidance (STAG).
- 1.1.3 As part of the Pre-Appraisal (Case for Change) stage of the study stakeholders were invited to take part in a Workshop focussing on Problems, Opportunities, Issues and Constraints and Option Generation. The workshop took place on February 20th 2019 at the Bridge of Earn Institute.
- 1.1.4 This note summarises the discussions at this workshop.
- 1.1.5 Representatives from the following organisations attended:
- Earn Community Council;
 - Abernethy Community Council;
 - Perth and Kinross Planning Department;
 - Councillors; and
 - Stagecoach.

2. PROBLEMS, OPPORTUNITIES, ISSUES AND CONSTRAINTS

2.1 Overview

The identification of actual and perceived problems and opportunities form the starting point and ultimately the rationale for a STAG study. It is important for problems and opportunities to be considered in the wider context, and issues and constraints are therefore also taken into consideration.

Problems, Opportunities, Issues and Constraints, as defined by the STAG guidance, are:

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Opportunities: possibilities to improve the transport system and the way it is used, e.g. improve journey times;

Issues: uncertainties that the study may not be in a position to resolve, but must work in the context of, e.g. impact of new developments; and

Constraints: the bounds within which the study is being undertaken, e.g. available funding, policy or environmental designations.

2.1.1 The baseline transport conditions were presented by the SYSTRA project team to the Stakeholders. Attendees were then invited to comment on or contribute to the initial Problems, Opportunities, Issues and Constraints identified by SYSTRA.

2.1.2 Problems, Opportunities, Issues and Constraints identified by the Stakeholders are noted below.

2.2 Problems

- Oudenarde residents don't currently have a bus service.
- Poor rural bus services that do not integrate with rail/coaches services to Edinburgh, Glasgow and Dundee.
- Already a high volume of car sharing and village is congested- survey to assess numbers?
- Car is seen as vital for rural life and would require a behaviour change for the public.
- Long rail journey times to Edinburgh.
- Ad hoc car parking for car sharing currently.
- BoE Health centre may move to Broxden or Oudenarde. Public transport improvements would be required to maintain access to the health centre.
- Required improvements to bus services serving Abernethy were also highlighted.
- There was some disagreement regarding the convenience of existing Bridge of Earn bus services.

2.3 Opportunities

- Local shopping opportunities to reduce trips into Perth.
- Opportunity to provide better bus service to provide connection for affordable houses.



- Opportunity to reduce cars travelling from the South into Perth City Centre by park & ride would result in air quality benefits.
- New rail halt in a more sustainable location for the rural community – would reduce travel into the City.
- To link strategic cycling infrastructure proposals to/from Perth- see work by PKC and Sustrans.
- To make more use of the M90 to other park & ride areas.
- To have fewer vehicles in Perth Centre.
- It was suggested that Perth may face some form of congestion charging in the future, which would make bus and or rail travel from Bridge of Earn/Oudenarde more attractive.
- Perth may need to have a low emission zone strategy in the future and this will impact on the traffic mix travelling into and through the City.

2.4 Issues

- Access from Oudenarde onto the road network.
- People's love affair with their car.
- Electric cars charging limits.
- Not being allowed to take bicycles onto buses.
- Ease of walking/cycling to/from park & ride site.
- Emissions being moved around- not eroded or reduced.
- No data on current usage of bus, coach and rail.
- Oudenarde scheme being undeveloped is a risk.
- Fears of living in a transport corridor. Just displacing traffic congestion from Perth to BoE.
- BoE Health centre may move to Broxden or Oudenarde.
- It was noted that the location of Perth Station, which is not in the centre of the City, was an inhibitor to people using the train at present.
- Concerns that traffic from the major house sites to the west and north-west of Perth could have a major impact on Bridge of Earn due to additional traffic - and not just to the proposed park & ride facility.
- Suggestion made that local residents from Bridge of Earn will drive to the Oudenarde park & ride site. To avoid this, the local bus network needs to be reviewed - and improved - to ensure that the park & ride site can be served sustainably by buses, cycling and walking.
- The issue of congestion on the rail network nearer Edinburgh was highlighted as being an inhibiting factor for any rail development at Oudenarde.

2.5 Constraints

- Capacity at Broxden Roundabout - constraining in short to medium term.
- Oudenarde Masterplan too old for modern planning.
- Impact of additional rail halt(s) on existing train service timetabling and associated time/economic impacts.
- Train speed restrictions on east Fife section.
- The identified park and ride site is constrained by the railway line and the A912 and may require controls to ensure the car park is used for P&R parking, not long term parking/car share parking.



3. OPTION GENERATION

Bus:

- Bus exhaust reductions
- Improve and increase local bus services

Rail:

- New halt at Bridge of Earn or Newburgh
- Re-build line from Perth to Edinburgh

Park and Ride:

- Park & ride included on industrial ground opposite Oudenarde- more land for growth
- Are we looking at the right location for park & ride - should it not be to facilitate Bertha Park
- If the park and ride is not a rail park and ride then the identified site may no longer be the best location.

Other

- Oudenarde isolation- needs urgent transport link
- Co-ordinated traffic lights
- Build car park not houses on Oudenarde
- Do nothing- nothing significantly broken currently
- Use shuttle trains from Perth to Newburgh
- Better signage to promote Green Routes in Bridge of Earn
- Lift-sharing web-sites
- Autonomous helicopters

3.1 Other Comments

3.1.1 The following additional points were raised during discussion:

- Further analysis of travel to work data and home working trends.
- Further analysis of current public transport usage
- Analysis of travel to work traffic- home working trends
- Travel times into central Edinburgh by bus from Halbeath and Kinross was viewed positively - and particularly when compared to the rail journey times through Fife.
- It was noted that express coach was the best way to go between Perth and Edinburgh.
- Some express journeys to/from Edinburgh in the peak periods serve Bridge of Earn direct and these are popular.
- It was acknowledged that off-peak express coaches were previously withdrawn from Bridge of Earn.
- Any park & ride site must also have a clear management policy/strategy regarding usage, which may involve a charging regime being implemented to prioritise key uses.

APPROVAL

Version	Name		Position	Date	Modifications
1	Author	Claire Mackay	Principal Consultant	27/02/2019	
	Checked by	Ralph Anderson	Associate	27/02/2019	
	Approved by	Claire Mackay	Principal Consultant	27/02/2019	



Report Appendix C – Steering Group Presentation

16th January 2019

Bridge of Earn Transport Appraisal Steering Group Workshop



Agenda



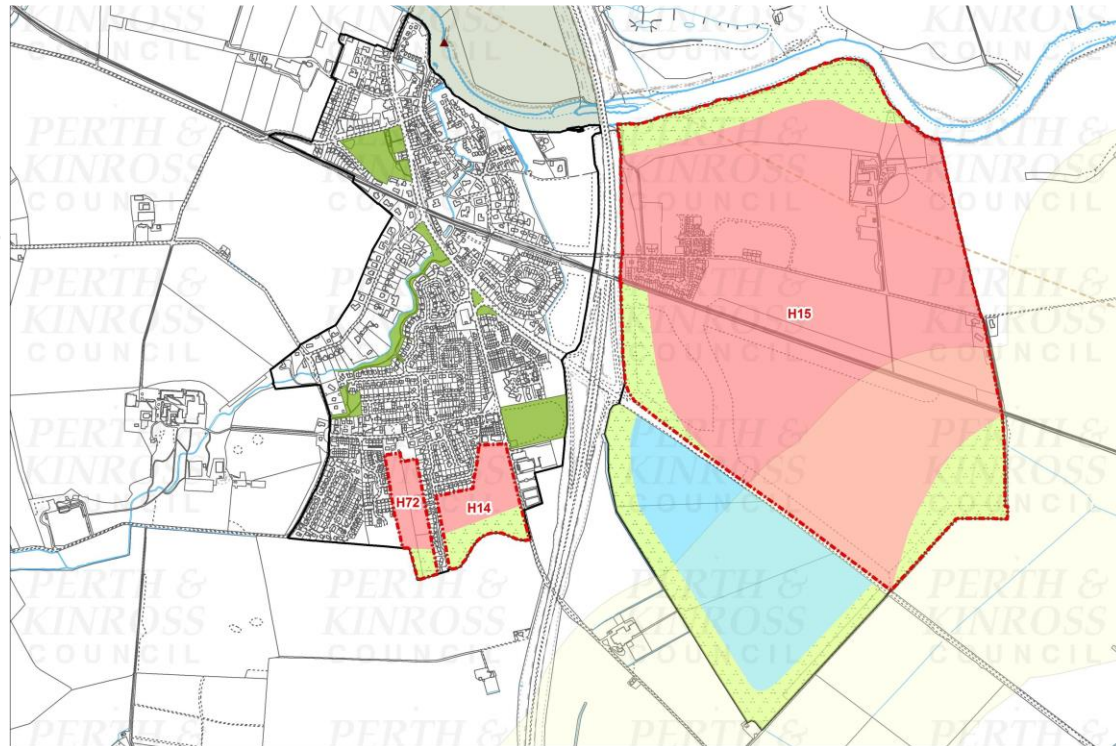
Time	Session
10.00-10.10	Introductions and background
10.10-10.45	Problems, opportunities, issues and constraints
10.45-11.30	Setting the Transport Planning Objectives
11.30-11.40	Tea and coffee break
11.40-12.25	Option Generation Workshop

Introductions and background



Study Background

- Oudenarde Masterplan:
 - The LDP allocates 1,600 houses and 34 ha of employment land
- Oudenarde and Newburgh Pre-feasibility Study
- Study identified to investigate issues further and appraise interventions to improve access to sustainable travel from and in Bridge of Earn to Perth, Edinburgh and Fife and also trips generated by strategic development sites to the west/north of Perth City Centre.
- Funding has been provided as part of the LRDF from Transport Scotland

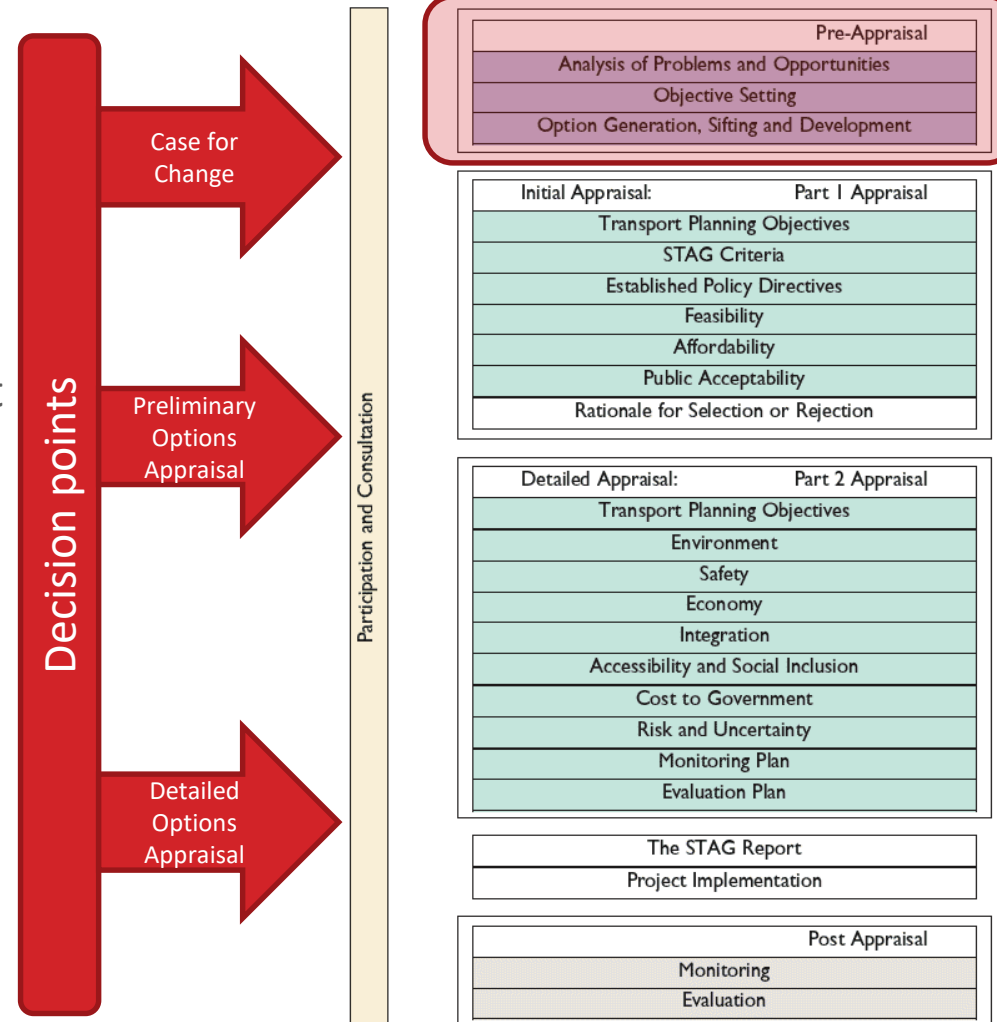


Where are we?

LRDF Study will follow the STAG process

Input from this Steering Group

There will be decision points throughout the study



Baseline Review, Problems, Opportunities, Issues and Constraints



Baseline Review: Policy

Transport Policy

- Tactran Regional Transport Strategy 2008-2023
- Park and Ride Strategy and Action Plan (2016) Tactran
- Transport Scotland National Transport Strategy
- Infrastructure Investment Plan, 2015
- Strategic Transport Projects Review (STPR), 2008
- Scotland Route Study, Network Rail, 2016
- Tay Cities Deal
- Perth LDP2 Main Issues Report (MIR), 2015
- Shaping Perth's Transport Future
- Perth Cycling Masterplan, 2018

Planning Policy

- National Planning Framework 3
- Scottish Planning Policy, 2014
- TAYPlan Strategic Development Plan (SDP)
- Perth Local Development Plan
- Perth West Masterplan, 2015
- Oudenarde Masterplan, 2001
- Perth City Plan

Other Policies

- Perth AQMA/AQAP
- PKC Active Travel Strategy
- Tay Cities Economic Strategy
- PKC Local Outcome Improvement Plan

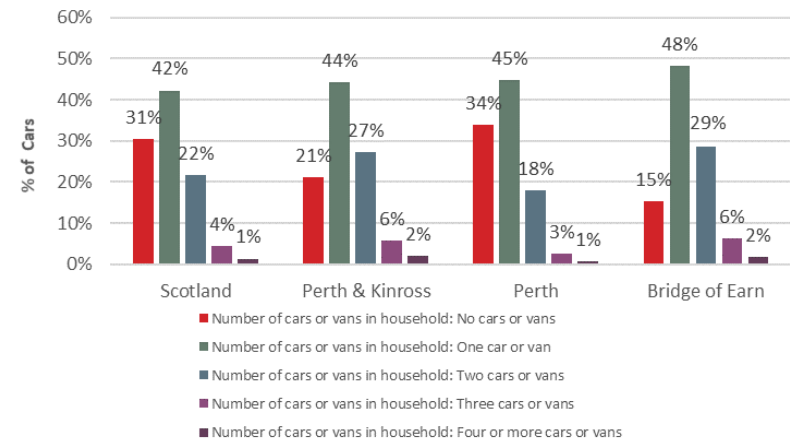
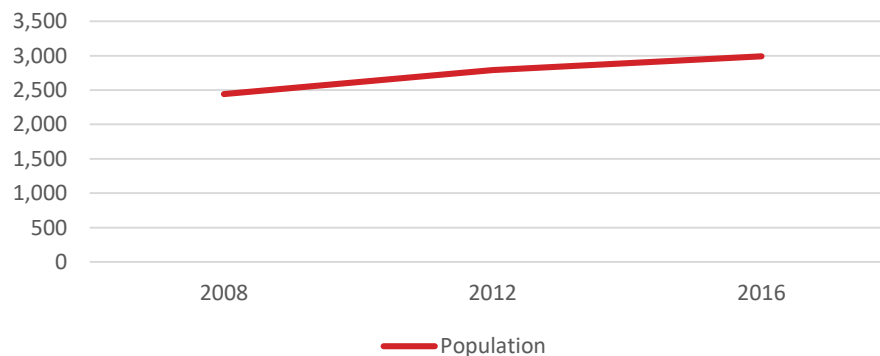
Baseline Review: Previous Relevant Studies

- Newburgh and Oudenarde: Initial Rail Demand Feasibility Study (2015)
- Extended Tay Estuary Rail Study (2009)
- West/North West Perth Strategic Development Framework

Baseline Review: Socio-economic

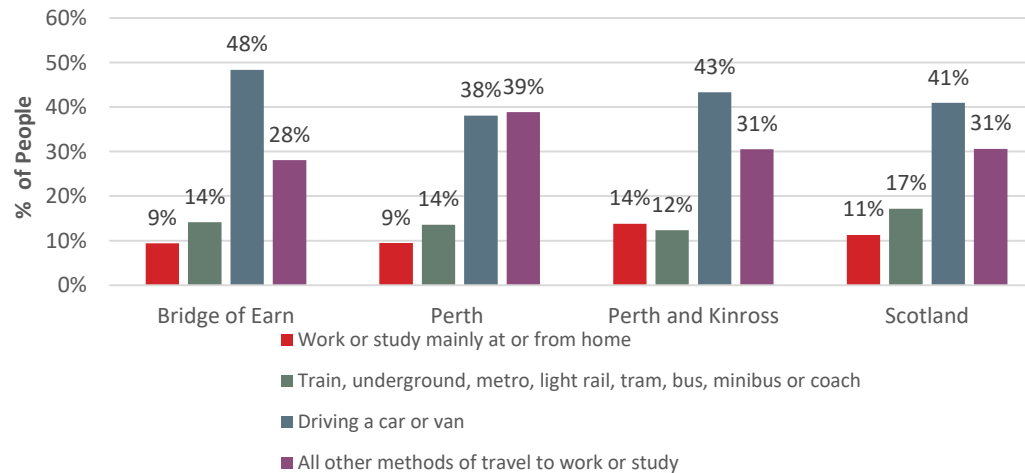
- Population growth above Scottish average
- Above average access to 1+ car
- Below average level of unemployed persons in PKC and Bridge of Earn
- Strategic Development Sites
 - Bertha Park – 3,000+ homes
 - Almond Valley – 1,500 homes
 - Oudenarde – 1,600 homes

Bridge of Earn change in population (Source: NRS)



Baseline Review: Travel to Work (Source: Census TTW)

Destination	Distribution	
	2018 Observed	2011 Census
Bridge of Earn & Abemethy	4%	10%
Perth city centre	61%	58%
Glenfarg	4%	8%
M90 South	9%	3%
A9 North	7%	12%
A9 South	3%	3%
Dundee	11%	6%



Baseline Review: Transport

Bus use – Scottish Household Survey

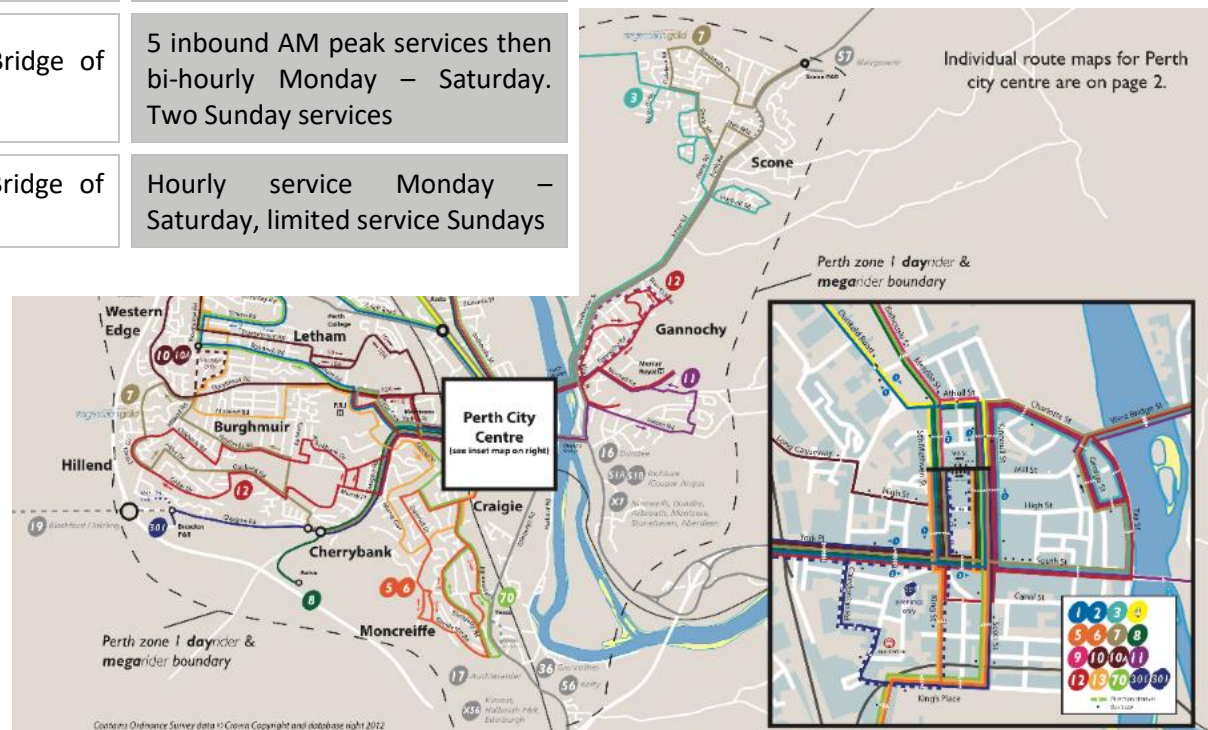
- “everyday use or almost every day use” of local bus services in Perth and Kinross has increased by 1.6% compared to 2014
- It should be noted that this data is based on the Scottish Household Survey compiled from a relatively small sample of surveys (240 for Perth and Kinross in 2017), and, may impact on the annual trends.

	2014		2017	
	PERTH	SCOTLAND	PERTH	SCOTLAND
Every day or almost every day	5.1	9.7	6.7	9.7
2-3 times per week	7.7	11.3	9.0	10.6
About once a week	7.3	7.6	9.1	7.9
About once a fortnight or once a month	16.5	13.6	12.3	14.7
Not used in past month	63.4	57.7	62.9	57.1

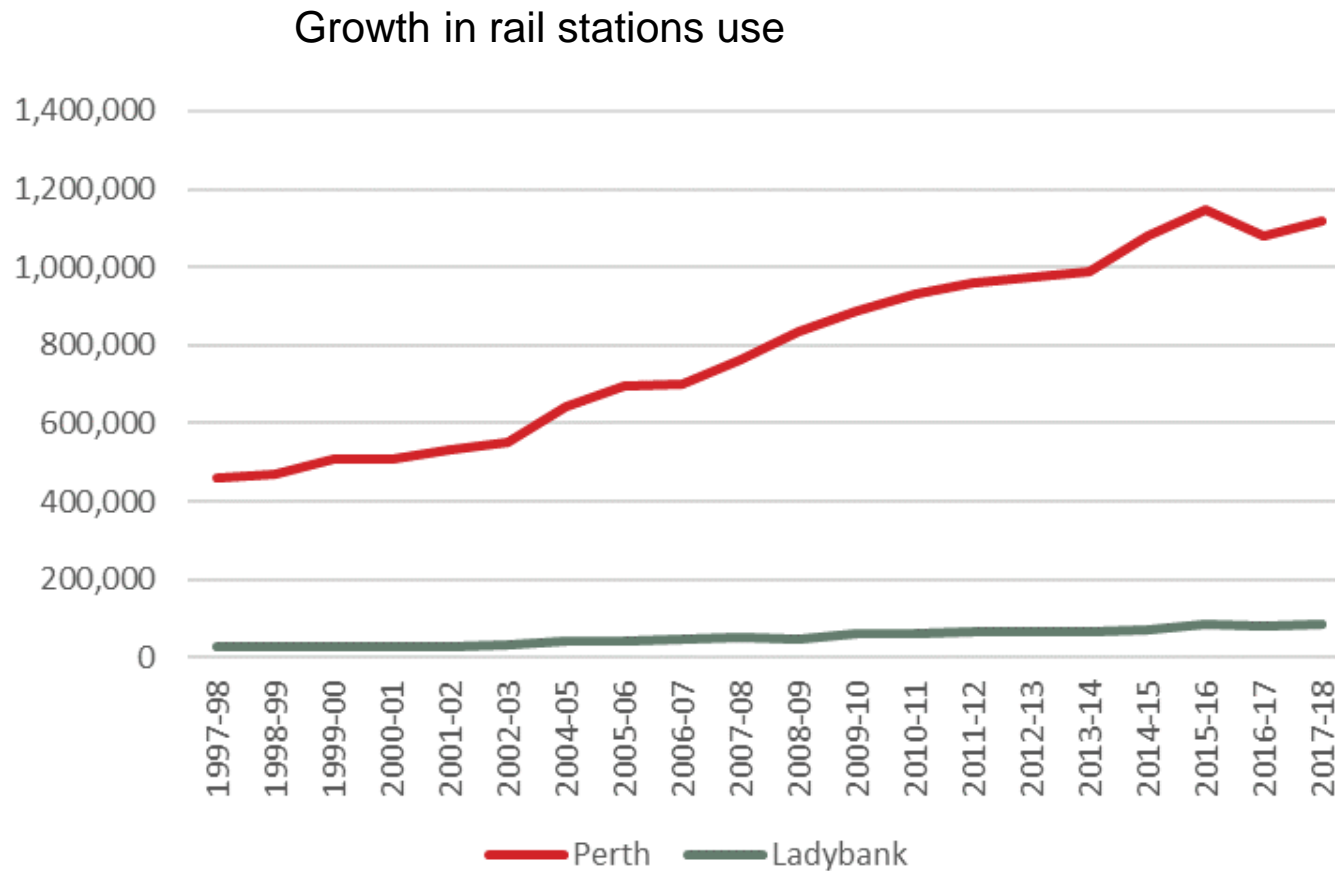
Baseline Review: Transport

SERVICE	ROUTE	FREQUENCY
Stagecoach 56/A	Dunfermline – Kelty – Kinross – Bridge of Earn – Perth	2 Hourly service Monday – Saturday, limited service Sundays
Stagecoach X56	Edinburgh – Kelty – Kinross – Bridge of Earn – Perth	Hourly service Monday – Saturday, limited service Sundays
Stagecoach 17	Auchterarder – Dunning – Bridge of Earn – Perth	5 inbound AM peak services then bi-hourly Monday – Saturday. Two Sunday services
Stagecoach 36	Glenrothes – Newburgh – Bridge of Earn – Perth	Hourly service Monday – Saturday, limited service Sundays

- Broxden to City Centre services
- Megabus Perth to Edinburgh services



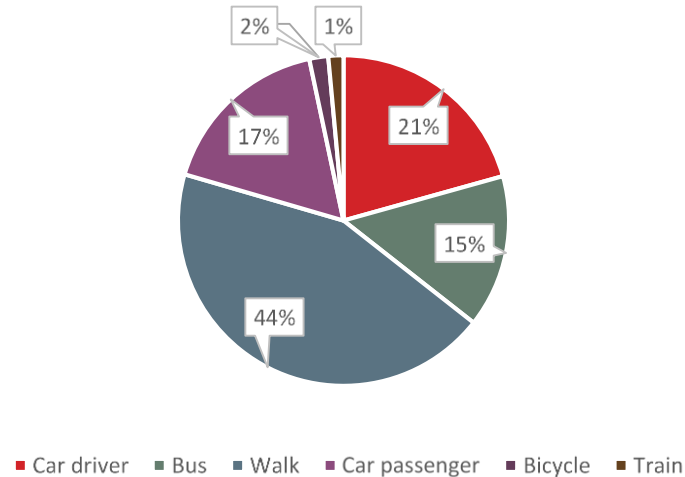
Baseline Review: Transport (Source: ORR)



Baseline Review: Transport: Rail Users Survey

PERTH KEY STATISTICS

Mode Split for Travel to Perth station



Top Origins

40% Perth

9% Edinburgh

Top Destinations

21% Glasgow

19% Edinburgh
15% Dundee

Entries and Exits (ORR)

1,117,248 (17-18)

Reasons for using Perth

67% closest to starting point

18% closest to destination

Baseline Review: Parking and Park & Ride

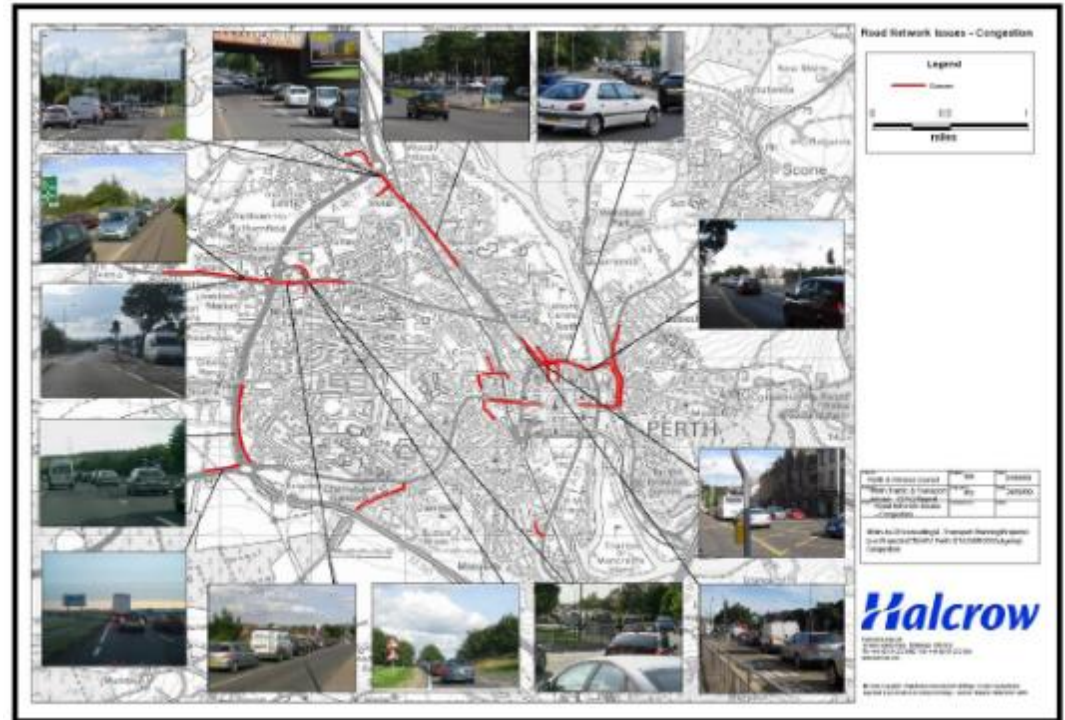
- The Oudenarde masterplan proposes a 'Park and Ride' facility on its site, which would accommodate up to 250 cars.

SITES	SERVICES/ LINKS	CAPACITY
Perth Park & Ride (Broxden)	Perth City Centre Express coaches to Edinburgh, Glasgow, Dundee, Aberdeen and Inverness	400
Scone Park & Ride	Perth City Centre	50
Kinross Park & Ride	Links to Edinburgh, Perth, Dundee, Aberdeen and Inverness	126 (including 8 disabled parking bays and 12 cycle lockers)

Baseline Review: Road

Shaping Perth's Transport Future highlighted congestion on the following routes:

- Trunk Road Network - A9, Inveralmond Roundabout, M90 Broxden Roundabout, A85 (Crieff Road).
- Local approach roads - A93, A94, A90 (Dundee Road).
- Town Centre - Perth Bridge, Queen's Bridge, Glasgow Road, Dunkeld Road, Atholl Street



Problems

Above average increase in over-65s population

Above average 1+ car ownership

Congestion impacts on the local economy

Parking at Perth Station at or over capacity

Incomplete cycle network from Bridge of Earn towards Perth

Perth to Edinburgh rail journey times are not competitive compared to other modes

Reliance on private car for journeys to work (48% from Bridge of Earn)

Congestion in peak hours

Location next to the M90 makes it challenging to incentivise public transport use

Congestion impacts on the quality of place and air quality;

Congestion impacting on reliability of bus journey times

Congestion acting as a barrier to the movement of traffic around and into the city

LEZs in Edinburgh and Dundee may deter people from driving to the cities

Opportunities

Perth Cycling Masterplan highlighted a core route from Bridge of Earn to Perth

Developments (Bertha Park, Almond Valley, Oudenarde) allow exploration of a range of transport solutions

Location on the Edinburgh to Perth rail line provides the opportunity for a new rail station

Tay Cities Deal provides the scope to improve infrastructure within the region and support a thriving economy

Existing long distance bus and coach services passing existing or suitable new park and ride sites

Bridge of Earn is currently served by a range of regular bus services.

Bus use in Perth and Kinross is growing

CTRL is at an advanced stage and will support the delivery of the LDP growth

LDP supports investment in track upgrades on the Bridge of Earn – Ladybank section

M90 location

Scotland Route Study

STPR2

Congestion on the road network could encourage switch to sustainable modes

LEZs in Edinburgh and Dundee may deter people from driving to the cities

Improvements to public transport offerings at Bridge of Earn could reduce demand for parking at Inverkeithing

Issues

Uncertainty over the rate of traffic growth as a consequence of:

- population growth
- build rates

Uncertainty of funding priorities for significant transport interventions

Introducing new stops (rail or bus) could effect existing users - increased journey times or fewer stops

Any changes to existing services or new services need to be able to operate on a commercial basis.

Lack of a suitable alternative east-west route that avoids the centre of Perth contributes to congestion as both local and strategic traffic travels through Perth

Potential funding sources of new services which may not be commercially viable


Bridge of Earn has excellent connections to Perth by bus, likely to compete with any future rail provision

Uncertainty of delivery of the cycle link between Bridge of Earn and Perth due to the route serving a lower number of destinations and having limited interaction with other modes

With the introduction of a new station at Bridge of Earn travellers to Dundee would still require a change at Perth

A new park and ride could abstract from Broxden

Constraints



The M90 motorway, in particular the route between Bridge of Earn and Oudenarde (active travel movements)

Located on a single track section of line (Ladybank to Hilton Jtn) restricting timetabling capabilities

The Edinburgh to Perth railway line limiting the crossing points (active travel movements)

Expansion of rail infrastructure is constrained by land ownership

Commitments to reduce journey times on the Highland Mainline.

Rail capacity constraints on approach to Edinburgh (number of trains and capacity on trains)

- ◉ Existing long distance bus and coach services passing existing or suitable new park and ride sites
- ◉ Bridge of Earn is currently served by a range of regular bus services.
- ◉ Timetabling and long distance journey times – impact of new station
- ◉ Perth to Edinburgh rail journey times are not competitive compared to other modes
- ◉ Reliance on private car for journeys to work (48% from Bridge of Earn)
- ◉ Location next to the M90 makes it challenging to incentivise public transport use
- ◉ Location on the Edinburgh to Perth rail line provides the opportunity for a new rail station

Transport Planning Objectives



Transport Planning Objectives

Purpose of TPOs:

- ◉ Clarifies what the study aims to achieve
- ◉ Basis for directing and guiding the study process
- ◉ Provide basis for appraisal of alternative options
- ◉ Central to monitoring and evaluation
- ◉ Facilitate accountability of the decision maker
- ◉ Can evolve through the study
- ◉ Objectives should:
 - Reflect evidence base and established policy directives
 - Reflect multi-modal nature of study
 - Be SMART
(Specific, Measurable, Attainable, Relevant, Timed)
 - Be manageable in number

Transport Planning Objectives



Emerging TPOs:

- ◉ Improve door-to-door connectivity by sustainable modes for strategic trips:
 - Bridge of Earn and Perth West to Scotland's Cities
- ◉ Improve door-to-door connectivity by sustainable modes and modal shift to local destinations :
 - Bridge of Earn to Abernethy, Perth and Newburgh
- ◉ Reduce congestion on routes into Perth on the A90 and A912

Option Generation



Option Generation

- To derive a range of options which should provide the solutions to meet the Transport Planning Objectives and alleviate the problems or address the opportunities identified.
- Derive options which fully reflect the range available.
- Option generation should not be constrained at this stage.
- Measures can be packaged if appropriate

Existing options have been collated from:

- previous studies; and
- the statutory planning process (transport and land use plans);

Option Generation - Workshop

Active travel:

- Improve the active link TayPlan has around the Tay Corridor for recreational journeys;
- Cycling Masterplan Perth to Bridge of Earn cycle route;
- Junction improvements at the M90 slips at Bridge of Earn (Junction 9) to suit active travel;
- Improve local cycle routes; and
- Public cycle hire.
- Aspirational NCN 777 Cycling Route: Bridge of Earn to Newburgh (Tactran RTS)

Bus:

- Improving local bus and coach services; and
- Live bus feed information at bus stops. This led to a further discussion about the cost and benefit of real time information at bus stops given the availability of smart phones.
- Provide and maintain bus infrastructure, such as bus stops, bus shelters and associated infrastructure, including CCTV, lighting, buildouts, laybys, raised kerbs, etc. and ensure it meets the needs of the elderly, disabled and other encumbered passengers (Tactran RTS)
- Coach park and ride site at Bridge of Earn/Oudenarde

Option Generation - Workshop

Rail:

- ◉ New rail station located in Oudenarde or at the old Bridge of Earn station; and
- ◉ Opportunity to develop a Parkway station.
- ◉ New Rail Station at Bridge of Earn/Oudenarde (Tactran RTS)

Integration

- ◉ Integrated ticketing linking local and strategic services; and
- ◉ Cycle parking at strategic bus stops.

General PT:

- ◉ Improving PT between Perth and Bridge of Earn, Oudenarde and Abernethy;
- ◉ Improve links to Edinburgh Airport; and
- ◉ Improved connectivity between Perth and Edinburgh (rail or bus), faster and/or more frequent services.

Smarter Travel:

- ◉ Car clubs;
- ◉ Liftshare; and
- ◉ Travel Plans.

Report Appendix D – Option Generation

Table 1. Option Generation and Sifting

MODE	OPTION	TPO1 – IMPROVE TRANSPORT ACCESS	TPO2 – IMPROVE PT COMPETITIVENESS	SELECT/ REJECT	RATIONALE
Active Travel	Active travel improvements including: Improve the Tay Corridor active link identified in the TayPlan for recreational journeys; Develop the Perth to Bridge of Earn cycle route; Junction improvements at the M90 slips (Junction 9) to benefit pedestrians and cyclists; Cycle parking at bus stops/interchanges; Public cycle hire; and Improved signage.	✓	-	Select	Option would support TPO1 by improving transport access through improvements to the active travel network.
Bus	Improve & increase local bus/coach services and range of destinations, including to Oudenarde	✓	✓	Select	Option would support both TPOs by improving transport access to a range of destinations and also improve competitiveness of PT by having more direct services
Bus	Measures to increase the attractiveness of public transport including investment in new buses and live bus feed information at stops	-	✓	Select complementary	As a component of a wider range of measures to increase the attractiveness of public transport this option would support TPO2
Bus	Improve and increase strategic bus and coach services	✓	✓	Select	Option would support both TPOs by improving transport access to a range of destinations and also improve competitiveness of PT by having more direct services

MODE	OPTION	TPO1 – IMPROVE TRANSPORT ACCESS	TPO2 – IMPROVE PT COMPETITIVENESS	SELECT/ REJECT	RATIONALE
Initiatives	Create a multi-modal ticketing system and optimise pricing structure	-	✓	Select - complementary	As a component of a wider range of measures to improve the competitiveness this option would support TPO2 by improving the competitiveness of public transport.
Initiatives	Introduce initiatives to support more sustainable ways of travelling: improve car sharing offering and other initiatives in the study area by incentivising car sharing; promoting and encouraging more car clubs; and support the development of business travel plans.	✓	-	Select - complementary	Option would support TPO 1 by improving access to services
Other	Use shuttle trains from Perth to Newburgh	✓	✓	Select	Option would support both TPOs by improving access to services, encouraging modal shift and improving the competitiveness of public transport over car.
Park and Ride	New park & ride site: Employment site south of A912 - Brickhall Farm	✓	✓	Select	Option would support both TPOs by improving access to services, encouraging modal shift and improving the competitiveness of public transport over car.
Rail	New rail station located at: Old Bridge of Earn station site; or Oudenarde.	✓	✓	Select	Option would support both TPOs by improving access to services and improving the competitiveness of public transport over car.

MODE	OPTION	TPO1 – IMPROVE TRANSPORT ACCESS	TPO2 – IMPROVE PT COMPETITIVENESS	SELECT/ REJECT	RATIONALE
Rail	Re-build line from Perth to Edinburgh	✓	✓	Reject	Option would support both TPOs by improving access to services and improving the competitiveness of public transport over car however the feasibility and deliverability of such a project is outwith the scope of this study.
Active Travel	Cycling Masterplan Perth to Bridge of Earn cycle route			Reject	Duplicate see option 1
Active Travel	Junction improvements at the M90 slips at Bridge of Earn (Junction 9) to suit active travel			Reject	Duplicate see option 1
Active Travel	Improve local cycle routes			Reject	Duplicate see option 1
Active Travel	Public cycle hire, including the potential for electric bikes			Reject	Duplicate see option 1
Bus	Live bus feed information at bus stops			Reject	Duplicate see option 4
Rail	New rail station located at the old Bridge of Earn station			Reject	Duplicate see option 5
Rail	New rail station located in Oudenarde			Reject	Duplicate see option 5

MODE	OPTION	TPO1 – IMPROVE TRANSPORT ACCESS	TPO2 – IMPROVE PT COMPETITIVENESS	SELECT/ REJECT	RATIONALE
Integration	Integrated ticketing linking local and strategic services			Reject	Duplicate Option 3
Integration	Cycle parking at strategic bus stops.			Reject	Duplicate see option 1
Smarter Travel	Car clubs			Reject	Duplicate see Option 7
Smarter Travel	Liftshare and			Reject	Duplicate see Option 7
Smarter Travel	Travel Plans.			Reject	Duplicate see Option 7
Other	Better signage to promote Green Routes in Bridge of Earn			Reject	Duplicate see Option 1
Rail	Opportunity to develop a Parkway station			Reject	Duplicate see Option 5
Park and Ride	A park & ride to facilitate Bertha Park.			Reject	Duplicate see Option 5 and 8

MODE	OPTION	TPO1 – IMPROVE TRANSPORT ACCESS	TPO2 – IMPROVE PT COMPETITIVENESS	SELECT/ REJECT	RATIONALE
General Public Transport	Improved connectivity between Perth and Edinburgh (rail or bus), faster and/or more frequent services.			Reject	Duplicate see Option 5 and 8
Other	Co-ordinated traffic lights			Reject	Option rejected as it does not address the TPOs
Other	Build car park not houses on Oudenarde			Reject	Option rejected as it does not address the TPOs
Other	Autonomous helicopters.			Reject	Option rejected as it does not address the TPOs
Other	Lift-sharing web-sites			Reject	Duplicate see Option 7
Other	Do nothing- nothing significantly broken currently			Reject	Do Nothing option will be included in the Do-Minimum
General Public Transport	Improving PT between Perth and Bridge of Earn			Reject	Rejected as it is not a specific option
General Public Transport	Improving PT between Perth and Oudenarde			Reject	Rejected as it is not a specific option

MODE	OPTION	TPO1 – IMPROVE TRANSPORT ACCESS	TPO2 – IMPROVE PT COMPETITIVENESS	SELECT/ REJECT	RATIONALE
General Public Transport	Improving PT between Perth and Abernethy			Reject	Rejected as it is not a specific option
General Public Transport	Improve links to Edinburgh Airport and			Reject	Rejected as it is not a specific option
Other	Oudenarde isolation - needs urgent transport link			Reject	Rejected as it is not a specific option
Bus	Bus exhaust reductions			Reject	Rejected as it is not a specific option

Report Appendix E – Environmental Baseline

Bridge of Earn - Environmental Pre-Appraisal

In this appraisal we have provided a broad assessment using the seven-point scale assessment, considering the following environmental sub-criteria:

- Noise;
- Global air quality - carbon dioxide (CO₂);
- Local air quality - particulates (PM₁₀) and nitrogen dioxide (NO₂);
- Hydrology, Hydrogeology and Flooding;
- Geology;
- Biodiversity and habitats;
- Landscape;
- Visual amenity;
- Agriculture and soils; and
- Cultural heritage.

The key purpose of this stage of the STAG appraisal is to allow a comparison of the alternative options and to filter out those options which are unsuitable on environmental grounds.

Noise

Due to Bridge of Earn's small size it means that shops, restaurants, transport, employment and entertainment are all within close proximity to one another. Major noise contributors within Bridge of Earn comprise predominately of road and railway traffic, with surrounding agricultural activity also being a dominant source.

Air Quality

Bridge of Earn is not located within an Air Quality Management Area (AQMA). Perth AQMA lies approximately 2.5 km to the north of Bridge of Earn and was declared for exceedances of annual mean NO₂ and PM₁₀ concentrations. There is no air quality monitoring data available for Bridge of Earn, but it is likely that air quality concentrations throughout the town will be good, even close to the main roads. Modelled background pollutant concentrations produced by the Scottish government indicate that NO₂ and PM₁₀ concentrations are well below their relevant objectives in Bridge of Earn.

Hydrology, Hydrogeology and Flooding

Hydrology

The main surface water features around the Bridge of Earn include the River Earn, located north of the town, running west to east with a SEPA overall classification of Moderate (2017). Deich Burn (waterbody ID 6700) runs south west to north east through the town and has a SEPA overall status of Moderate (2017). In addition, an unnamed drain/watercourse runs along the eastern edge of the town, and like the Deich Burn, connects into the River Earn north of the town.

Hydrogeology

SEPA Records the groundwater body beneath the site to be the Bridge of Earn aquifer (ID: 150510), this groundwater body has an overall status of Good (2017). In the vicinity the Strathearn Sand and Gravel aquifer (ID:150811) is recorded, with an overall status of Good (2017). The BGS records the aquifer beneath the site to be part of the Strathearn Group. This aquifer is characterised as being moderately productive, comprising predominantly pebbly sandstones. This aquifer is known to

produce moderate amounts of groundwater. The groundwater is within a Drinking Water Protected Area.

Published BGS borehole records are largely limited to the M90 corridor, however the records viewed do not suggest a shallow groundwater table, with groundwater encountered in places in excess of 10m depth.

DWQR mapping does not record private water supplies around Bridge of Earn, neither is it within a Surface Water Drinking Water Protected Area, however several Type B supplies are found just over 1km from the area. No special designated areas are located on site or in the vicinity.

Flooding

According to SEPA's Flood Risk Management Map¹ fluvial flooding, up to a High risk, is recorded along the channels of the River Earn and Deich Burn, with the threat to existing urban areas more apparent from the Deich Burn. Discrete areas of medium to high risk surface water flooding are recorded around Bridge of Earn, predominantly in a band running north west to south east. The town is within an area where groundwater could influence the duration and extent of flooding from other sources. The study area is not shown to be at risk from coastal flooding.

Geology

The soils in around Bridge of Earn are predominantly recorded as having a moderate to high topsoil organic carbon concentration and comprise mineral soils with no peatland vegetation, excluding the built up areas, which have no recorded soil. No special designated areas are located in the vicinity of Bridge of Earn, the closest features are over 2.5km away and include the River Tay, Pitkeathly Mires and Turflundie Wood.

Superficial deposits are dominated by Post-Glacial and Late-Glacial Raised Marine Deposits, the former comprising mainly intertidal silt and clay, the latter comprising littoral & deltaic sand, silt and subtidal clay. Alluvium is recorded along river channels, predominantly in the north, with the wider surrounds recorded as Glacial Till. Published BGS borehole are largely limited to the M90 corridor but confirm the presence of sand, silt and clays, apparently in excess of 40m thick.

Geologically the study area sits upon Upper Devonian fluvial sandstones of the Glenvale Formation. These sandstones are described as red in colour and pebbly. This formation is fault bounded on all sides, with the Moncreiffe Fault to the north and South Tay Fault to the south. To the south is an area of Calcareous Sandstone Measures of the Ballagan Formations, whilst the wider surrounds are recorded to comprise extrusive igneous rocks including basic pyroxene-andesite and hypersthene-andesite.

The site is not within a Coal Authority Coal Mining Reporting Area. Other potential historic sources of contamination and risk include former railways running through Bridge of Earn in approximately north-south and west-east directions, several smithies, a gas works and agricultural use across the wider rural surrounds.

Biodiversity and Habitats

Within 5 km of the Bridge of Earn area, three sites have been statutorily designated for their biodiversity and/or habitat interest (Table 1). These statutorily designated nature conservation sites

¹ SEPA (2015), <http://map.sepa.org.uk/floodmap/map.htm>

must be considered when developments have the potential to impact on their qualifying features. The following designations are included:

- Special Areas of Conservation (SAC) are designated under EU Habitats Directive and safeguard populations of species listed in the directive and the best examples of habitats listed in the directive;
- Sites of Special Scientific Interest (SSSI) are designated under the Nature Conservation (Scotland) Act 2004 and safeguard nationally important species populations or habitats.

Within 5 km of the Bridge of Earn area, there are two SACs and one SSSI (Table 1). Depending on the location, nature and scale of any proposed development, the qualifying features of these sites are potentially vulnerable to adverse impacts due to direct damage/loss of habitats, habitat fragmentation, barriers to species movement, loss of connectivity between important sites/habitats and disturbance to or degradation of the qualifying feature. The principal potential impacts that may affect these sites are listed in Table 1.

There are thirteen areas listed on the Ancient Woodland Inventory (AWI) within a wider 2 km buffer of Bridge of Earn but no AWI sites in Bridge of Earn itself (Map 2). Scottish Planning Policy identifies ancient woodland as *'an important and irreplaceable national resource that should be protected and enhanced'*. AWI sites within the Bridge of Earn area are vulnerable to direct loss and damage, fragmentation, loss of connectivity and degradation and should be considered at an early stage of any proposed development.

In line with the Perth and Kinross Local Development Plan, proposed developments should take account of Policy 36: Environment and Conservation, Policy 38: Forestry, Woodland and Trees, Policy 39: Biodiversity and Policy 40: Green Infrastructure. Collectively, these policies aim to ensure that developments take account of designated sites, other important nature conservation sites/areas and species of conservation importance.

Table 1: Designated Sites

Protected Area	Designation	Qualifying features (biological)	Potential effects associated with development
River Tay	SAC	River lamprey Brook lamprey Sea lamprey Otter Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels Atlantic salmon	Loss of connectivity Degradation
Pitkeathly Mires	SAC	Fens: Basin fen Slender green feather-moss Very wet mires often identified by an unstable 'quaking' surface	Degradation
Kinnoull Hill	SSSI	Upland oak woodland Non-montane rock habitats: Rocky slopes Igneous petrology: Carboniferous-Permian igneous	Loss of connectivity Degradation

Landscape and Visual Amenity

Bridge of Earn lies on the south bank of the River Earn, 3km to the south of Perth. It is in the valley setting of Strathearn, a Broad Valley Lowland landscape character type (LCT) running from west to east where the river joins the Firth of Tay. The settlement lies on the south side of the meandering river and to the west of the M90 motorway. The surroundings are predominantly flat agricultural land with scattered farms and small settlements. The built-up area is currently expanding to the east of the motorway in the Oudenard area which is designated a strategic expansion area for housing.

The settlement comprises predominantly modern housing, although there is an older village core in the north close to the river Earn, with some listed buildings. There are a number of greenspaces including a small park and a corridor along the Deich Burn.

The settlement and Strathearn are separated from Perth and Strath Tay by the Gask/Dupplin Ridge and Moncreiffe Hill, a Lowland Hills LCT. The higher and steeper Ochil Hills, an Igneous Hills LCT, lie to the south of Strathearn.

Bridge of Earn itself does not lie within a designated landscape, although two local landscape designations bracket the river valley, lying within 2km of the settlement: the Ochil Hills SLA to the south and southwest and the Sidlaw Hills SLA to the north and northeast.

The Perth greenbelt lies immediately to the north of the settlement, its southern boundary defined by the river.

There is an inventory Garden & Designed Landscape on the southern edge of Strathearn, 2km to the south of the settlement. Other GDLs are at least 5km distant.

Potential visual receptors include:

- residents of/ visitors to the settlement
- users of the A912 and B935 passing through
- cyclists on Cycle Route 775
- drivers on the M90
- users of core paths surrounding Bridge of Earn, including those overlooking the setting of Bridge of Earn and Strathearn from Moncreiffe Hill and the northern edge of the Ochils.

Agriculture and soils

Scotland Environment Web's 'National Scale Land Capability for Agriculture Map' shows the land within/surrounding Bridge of Earn comprises of land with the following classifications:

- Class 3.1 - Land capable of producing consistently high yields of a narrow range of crops and/or moderate yields of a wider range. Short grass leys are common; and

The Bridge of Earn area has a proud agricultural history and is an important area for livestock and crop farming in Scotland.

Cultural heritage

The village of Bridge of Earn is relatively recent, having been established in the late eighteenth century "for the accommodation of strangers frequenting the [mineral] wells" (Cumming 1845, 797). The parish church for Dumbarny was relocated in 1689 to "near the bridge of Earn" (Beatson 1793, 404) and that building was itself replaced by the present building in 1787. The bridge after which the village is named is a Scheduled Monument which is "supposed to be of great antiquity" (Beatson

1793, 401) and is believed to date from the fourteenth century (Cumming 1845, 811). The new bridge, which is part of the A912, was designed by John Rennie and built in 1819. The village of Bridge of Earn contains 13 category C Listed Buildings that date from the eighteenth and nineteenth centuries. The cropmark of a possible prehistoric settlement is located approximately 1 km west of the village.

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