

Evaluation of Laurencekirk Railway Station Final Report



EVALUATION OF LAURENCEKIRK RAILWAY STATION

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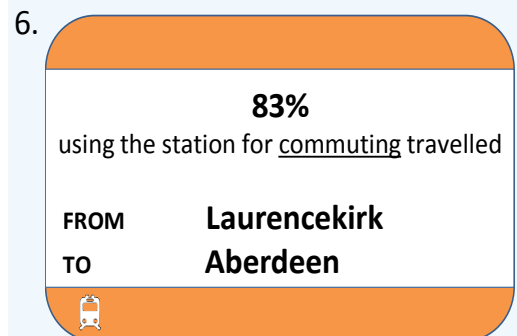
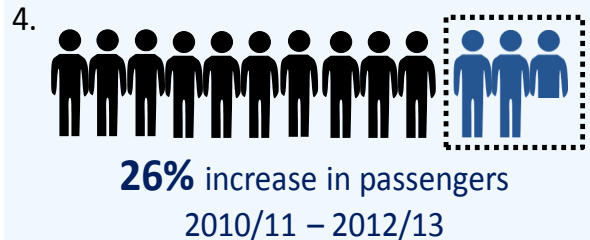
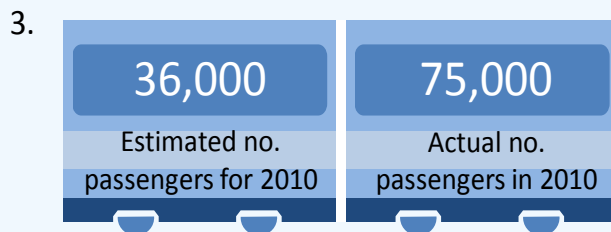
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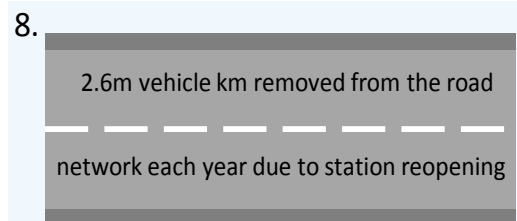
Evaluation of Laurencekirk Railway Station

1. Station closed in 1967
- 
- Reopened May 2009
- 

New station cost
£3.5 Million



7. **56%** of commuters using the station would have driven all the way to work had the station not reopened



9. **62%** of users who had **changed jobs** since the station reopened said that the station was the main or an important factor for having done so



10. A return of **£3.20** for every **£1** spent on the project



1. EXECUTIVE SUMMARY

Summary

- 1.1 In 2004 Aberdeenshire Council commissioned work to appraise transport options which could help meet the identified transport problems / constraints and deliver opportunities for the town of Laurencekirk and the surrounding area. The work was carried out in line with the Scottish Government / Transport Scotland's Scottish Transport Appraisal Guidance (STAG). The findings of the STAG appraisal pointed towards the re-opening of Laurencekirk Railway Station as a possible option which could deliver a value for money solution in line with the stated transport planning objectives, which were to:
- *Link rural commuters to centres of employment, educational establishments and other facilities;*
 - *Encourage greater use of public transport by connecting the township of Laurencekirk and its surrounding area to the rail network;*
 - *Encourage modal shift from private car to public transport by constructing a Park and Ride facility serving the new station; and*
 - *Improve road safety by encouraging a reduction in trips made by road and through reduced road traffic.*
- 1.2 Following the STAG Part 2 appraisal, a business case for the station was developed and the station was reopened in May 2009.
- 1.3 In December 2013 Transport Scotland commissioned a study to undertake an evaluation of the impact of the new station. This involved a process evaluation to assess the effectiveness of the implementation and delivery aspects of the project, and an outcome evaluation to determine whether the intended outcomes and objectives have been achieved.

As part of the evaluation, the commission required a number of specific issues to be considered. These included:

- *an information gathering exercise / survey to obtain a better understanding of users of Laurencekirk station and their travel behaviour prior to the station reopening;*
- *analysis to understand why outturn passenger numbers and ticket revenue have exceeded forecasts;*
- *analysis of the outturn costs and benefits to generate a retrospective Benefit Cost Ratio for the project;*
- *gaining a fuller appreciation of the 'Wider Economic Benefits' (WEBs) of the station and also how it has impacted on the local area; and, finally*
- *making recommendations on the Draft Guidance on Rail Evaluation being prepared by Transport Scotland.*

Process Evaluation

- 1.4 The process evaluation was heavily informed by information gathered from a series of interviews with the key organisations involved in the delivery and implementation of the project, as well as a number of stakeholders.
- 1.5 From the evidence gathered as part of the interview and consultation process, it can be concluded that the delivery of Laurencekirk railway station was a success. The project was delivered on time and on budget. Key factors that contributed to the success were:
- *Careful consideration being given to who is best placed to manage risks and take overall ownership of delivery;*
 - *A well thought out scope that is clearly understood by all parties;*
 - *Procurement methods specifically tailored to meet the needs of the project; and*
 - *A carefully thought out, well-designed and transparent stakeholder and community engagement process to generate participation and buy in.*

Outcome Evaluation

- 1.6 To inform the outcome evaluation and develop an understanding of users' travel behaviour an online user survey was undertaken. The recorded trips made by respondents were scaled up using the frequency of travel information provided to generate an overall figure of 52,745 recorded journeys over the previous 12 months. For context, this compares with the latest figure for the total number of exits and entries at the station in 2012-13 of 92,470.
- 1.7 The findings of the outcome evaluation show that the re-opening of the station at Laurencekirk has had a positive impact as measured against all the original transport planning objectives.
- 1.8 The re-opening has played an important role in linking the local community in the town and surrounding area to centres of employment, educational establishments and other facilities. It has also had a positive impact on those travelling for business purposes. The results of the survey show that a number of journeys would not be made if the station had not been reopened. Accessibility analysis carried out also demonstrated that facilities have become much more accessible, in terms of journey time, for those without access to a car. This has been particularly so for facilities in Aberdeen where some journey times by public transport have been reduced by up to 50 minutes.
- 1.9 The findings from the survey also show that the station has encouraged the use of public transport. The results reveal that the station re-opening has not only enabled people to make journeys by public transport that they would not have previously made, but it has also resulted in people making journeys that they would have previously made by car. In addition, 16% of people who travel out of the station reported that they had reduced the number of vehicles they owned as a direct result of the station reopening and less journeys being made by car. Furthermore, of those using the station, the majority travel to the station on foot, suggesting that the station reopening has also contributed to an increase in active forms of travel.
- 1.10 The findings of the survey also reveal that the availability of the Park and Ride facility at the station has encouraged a shift from the private car to public

transport. It is clear from respondents that a large share of people using Laurencekirk station also use the Park and Ride facility and a significant percentage of these previously made or would have made the journey by driving all the way to their destination. Without the Park and Ride facility it is likely, from the evidence gathered on the distance between home and station, that a number of people would drive all the way to their destination, i.e. it is too far to walk on a daily basis.

- 1.11 The findings show that the station re-opening has resulted in a small reduction in car trips. They also show that a large proportion of these trips would have been made in the peak periods and therefore most congested times. The resulting overall reduction in car kilometres on the network suggests it has had a small but positive impact on road safety, particularly on the A90 into Aberdeen, although this cannot be observed and attributed wholly to Laurencekirk station.

STAG Review

- 1.12 The original STAG appraisal was carried out in 2004. To understand why outturn passengers have exceeded forecasts, and to generate a retrospective Benefit Cost Ratio, a review of the original STAG report and analysis was undertaken.
- 1.13 In undertaking the review of the original 2004 STAG report it became apparent that it does not contain enough detailed information, and sufficient clarity on the assumptions made, to determine the precise reasons why the forecasts were lower than outturn passenger numbers.
- 1.14 Because the approach was high-level and not totally consistent with the expected methodological approach, it was also not possible to simply re-run the analysis using the outturn data. In addition, the approach recommended in the current appraisal guidance is different from that which existed in 2004. Consequently the cost benefit analysis was re-done in line with current guidance.
- 1.15 Using the outturn data, the revised BCR ranged from 2.5 to 4.4 depending on the scenario and assumptions used. This compares with the BCR in the original report of 1.5.

Wider Economic Benefits

- 1.16 Current transport appraisal guidance includes advice on techniques to capture impacts that have traditionally not been captured in conventional appraisal. This includes Wider Economic Benefits (WEBs). Analysis was therefore carried out to understand the impact of these Wider Economic Benefits from the re-opening of Laurencekirk railway station. The analysis revealed that agglomeration benefits are negligible. It also revealed that while there may have been labour supply impacts, as the new station encouraged people to move to more productive jobs or those not employed to enter the workforce, the impacts will be limited for projects similar to Laurencekirk i.e. a small station with relatively few users.

Wider Impacts Analysis

- 1.17 Overall there is no clear evidence from the data examined that the reopening of the station at Laurencekirk has had a significant and measurable wider

economic and social impact. While there have been some positive impacts across a number of the metrics considered in, for example, the housing and labour markets, the impacts in Laurencekirk post station reopening do not appear to be significantly different from those witnessed in other areas considered, e.g. Aberdeenshire and Scotland as a whole. In addition, some of the positive trends, for example population, tend to be continuations of what was being experienced prior to the station reopening.

- 1.18 While there is little evidence to suggest that the reopening of the station has had wider positive social and economic impacts, it must be noted that the impacts of the station may not have firmly bedded in and it may take a longer period for these to materialise.

Recommendations for Rail Evaluation Guidance

- 1.19 A number of recommendations have been made for inclusion in, and development of, Transport Scotland's Rail Evaluation Guidance. These are intended to improve the evaluations, both process and outcome, and help ensure more effective and value for money rail projects are delivered in the future.
- 1.20 The recommendations cover issues related to the development of SMART objectives, when to include WEBs analysis as part of the outcome evaluation and recording methodological assumptions related to the appraisal.
- 1.21 However, the key recommendations focus on timing and data collection. It is strongly recommended that the process evaluation is carried out early in the delivery and implementation stages of a project. This will help ensure that both experience and issues are fresh in the mind of those involved so that important lessons can be learned. Importantly, it will allow changes to be made if delivery is not going to plan, and also that key individuals involved in delivering the project are still in post and available to provide inputs to the evaluation.
- 1.22 The most important recommendation relates to data collection, in terms of what data is to be collected, the method of collection and the timing of collecting the data. Fully understanding the behaviour of users of rail schemes before the intervention and the details of the counterfactual are crucial to effective evaluations. The Laurencekirk outcome evaluation largely depended on the memories of users and their answers to the online survey to establish their travel behaviour before the station was reopened, and what they would have done had the station not reopened. Whilst this worked well, there are inherent risks with the accuracy and reliability of the responses. It is important that this baseline information is collected ahead of project implementation, or at the very least as quickly as possible after project opening, i.e. data should ideally be collected in advance of the outcome evaluation and not as part of it.
- 1.23 In addition, an outcome evaluation may not be able to rely on official published sources to inform pre and post project impacts. This is particularly so for projects that are small and / or in relatively rural areas as the socio-economic data may not be available at the required spatial level. Careful consideration of data requirements therefore needs to take place early, e.g. at appraisal stage, so that if the information is not available to compare the performance or outcomes of a scheme against the intended objectives then measures can be put in place to gather it.

2. INTRODUCTION

Overview

2.1 The town of Laurencekirk in Aberdeenshire lies on the East Coast Mainline between Aberdeen and Dundee and is in very close proximity to the A90 trunk road, which also links the two cities. In terms of distance, the town is situated approximately 30 miles south of Aberdeen and just over 35 miles north-east of Dundee. The town has a resident population of approximately 2,800 (rising to almost 5,000 in the wider Mearns area) and this is projected to increase by 11% by 2030 by the General Register Office for Scotland (GROS). Residents of the town and surrounding area have a high dependence on access to Aberdeen and Dundee for employment and other key facilities such as education, health and leisure.

2.2 Laurencekirk station was a calling point on the routes between the Central Belt and Aberdeen until 1967 when it was closed as part of the wide-ranging Beeching reforms.

2.3 In 2004 Aberdeenshire Council commissioned work to appraise transport options which could help meet the identified transport problems / constraints and deliver opportunities for the area of Laurencekirk. The work was carried out in line with the Scottish Government / Transport Scotland's Scottish Transport Appraisal Guidance (STAG). The findings of the STAG appraisal pointed towards the re-opening of Laurencekirk Railway Station as a possible option which could deliver a value for money solution in line with the stated transport planning objectives, which were to:

- *Link rural commuters to centres of employment, educational establishments and other facilities;*
- *Encourage greater use of public transport by connecting the township of Laurencekirk and its surrounding area to the rail network;*
- *Encourage modal shift from private car to public transport by constructing a Park and Ride facility serving the new station; and*
- *Improve road safety by encouraging a reduction in trips made by road and through reduced road traffic.*

2.4 Following the STAG Part 2 appraisal, a business case for the station was developed and the station was reopened in May 2009.

2.5 In line with the recommended appraisal and evaluation cycle of Rationale, Objectives, Appraisal, Monitoring, Evaluation and Feedback (ROAMEF), Transport Scotland commissioned this study to undertake an evaluation of the



re-opening of the station, to understand whether the project is meeting its intended objectives.

- 2.6 Transport Scotland is currently developing new guidance for carrying out evaluations of rail projects. This study is one of three¹ which have been commissioned by Transport Scotland to inform the development of the new guidance. The findings set out in this report will therefore play an important part in contributing to the guidance.

Evaluations

- 2.7 One of the key requirements of STAG is the undertaking of post-implementation evaluation. STAG refers to the term 'evaluation' as a detailed, objective-driven review or audit of a project's performance, which includes:
- **Process evaluation**, which concentrates on the effectiveness of the implementation and delivery aspects of the project;
 - **Outcome evaluation**, which assesses whether the outcomes have been achieved and how the project performs against identified targets and objectives, including the stated STAG criteria²; and
 - the preparation and completion of an **Evaluation Report**, based on the outputs from the Process Evaluation and Outcome Evaluation undertaken.³
- 2.8 The process and outcome evaluations for the reopening of Laurencekirk station form the main elements of this Evaluation Report.

Additional Analysis

- 2.9 As part of the STAG-based process and outcome evaluations, the Brief for the study identified a number of specific issues to be considered – these included:
- analysis to understand why outturn passenger numbers and ticket revenue has exceeded forecasts;
 - an information gathering exercise / survey to obtain a better understanding of users of Laurencekirk station and their travel behaviour prior to the station reopening;
 - analysis to determine the impacts of the project against the STAG criteria of economy, environment, accessibility, integration and safety;
 - analysis of the outturn costs and benefits to generate a retrospective Benefit Cost Ratio for the project;
 - gaining a fuller appreciation of the 'Wider Economic Benefits' (WEBs) of the station and also how it has impacted on the local area; and, finally
 - making recommendations on the Draft Guidance on Rail Evaluation being prepared by Transport Scotland.
- 2.10 These wider issues are considered in turn. The findings from the process and outcome evaluations are presented in chapters 3 and 4 respectively. Chapter 5 sets out the findings from the review of the 2004 Laurencekirk appraisal, including analysis of why the outturn passenger numbers have exceeded forecasts. Chapter 5 also includes the results of the assessment of the

¹ The other two evaluations relate to the improvements to the Larkhall – Milngavie route and the reopening of the Airdrie – Bathgate service.

² The five STAG criteria are Economy, Environment, Safety, Accessibility & Social Inclusion and Integration.

³ Scottish Transport Appraisal Guidance (Transport Scotland, 2008), p. 71.

impacts of the project against the STAG criteria, as well as a retrospective Benefit Cost Ratio applying the outturn impacts. The chapter culminates in presentation of the findings of the Wider Economic Benefits (WEBs) analysis. Chapter 6 reports on the analysis of how the station has impacted on other social and economic factors not captured in conventional STAG appraisal. Chapter 7, sets out recommendations for Transport Scotland's Rail Evaluation Guidance, while Chapter 8 provides a summary of the conclusions and findings.

3. PROCESS EVALUATION

Overview

- 3.1 STAG explains that an important aspect of the Evaluation Plan should be a process evaluation. A process evaluation is concerned with how well the project has been implemented and delivered, with a view to identifying what went well and what lessons could be learned for the planning, implementation and delivery of future projects. In this specific context, it is intended that the findings of this process evaluation will feed into Transport Scotland's appraisal and evaluation guidance for future rail investment projects.
- 3.2 The process evaluation was informed by a series of consultations with the project delivery partners and stakeholders, all of whom were involved in the implementation and delivery stages of the project. This included meetings with:
- *Aberdeenshire Council;*
 - *North East Scotland Transport Partnership (NESTRANS);*
 - *Transport Scotland; and*
 - *Network Rail.*
- 3.3 The remainder of this chapter sets out the findings of the process evaluation. It also includes a series of key learning points, set out in grey boxes, which have been gleaned from the exercise and can be used to inform future evaluations. The main focus is in the areas of :
- *Timing of Process Evaluation*
 - *The Project Team;*
 - *project scope;*
 - *project management - budget, programme and risk management; and*
 - *stakeholder engagement.*

Timing of Process Evaluation

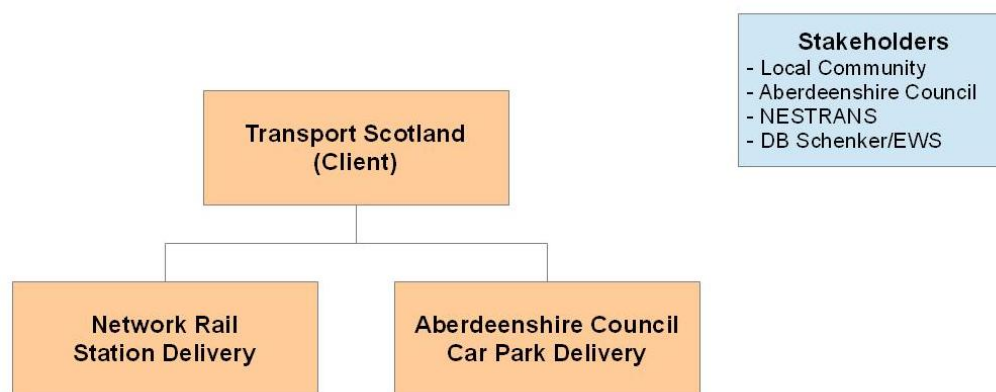
- 3.4 As explained in STAG, the process evaluation should be carried out at an early stage of the overall project. The benefit of this is that it will then be possible to amend a project early to make it more efficient and effective in terms of implementation and delivery. If left too late, then it may not be possible to change the delivery process and implement improvements.
- 3.5 Another benefit of conducting the process evaluation early is that the information is clear in the minds of those who have been involved. This is important if lessons learned are to influence future projects. If left too late then key lessons could be forgotten and missed. Perhaps more importantly, if left for a period of time then it is possible that those that were involved in the delivery stage could have moved on. During this process evaluation it was fortunate that those that were involved in the delivery stage were still employed in Government and were able to participate in the interviews and feed in their valuable comments and experience. While some no longer worked in Transport Scotland, they were still employed in the Scottish Government. Under other circumstances they could have left the organisation and it would not have been possible to glean their input. This would have made the process evaluation very much incomplete with important findings missed.

- 3.6 To maximise value from the process evaluation it is important that it is carried out at an early stage of a project. The exact timing will vary depending on the size of the project, but for small projects it should be no more than half way through the proposed delivery programme and for larger projects, with a lengthier delivery programme, this should be earlier. This will allow lessons to be learned early and changes / improvements made to the delivery process to reflect the findings. This will also ensure that individuals involved in the delivery phase can feed into the exercise and their experience recorded.

The Project Team

- 3.7 The chart below shows the team structure for the project to reopen Laurencekirk station:

Figure 1. Laurencekirk Station Reopening Team Structure



* DB Schenker and EWS (English, Welsh and Scottish Railway) are rail freight operators, although the former acquired the latter in 2007.

- 3.8 As noted in the introduction, the commitment to proceed with the reopening of Laurencekirk railway station was based on the STAG appraisal undertaken prior to the formation of Transport Scotland. Transport Scotland took over the project from Aberdeenshire Council when the agency was formed in 2005. The handover of the project to Transport Scotland occurred at the end of Network Rail's 'Governance on Rail Investment Projects' (GRIP) 3 stage, the point at which a single preferred option to be taken forward is identified.
- 3.9 The role of Transport Scotland as project lead (or Promoter) was seen by those interviewed to be an important reason for the successful implementation of the project. As a delivery agency, Transport Scotland had a wide range of skills in-house and its scale meant that it was better able to mitigate the risks and liabilities associated with a new-build station.
- 3.10 At the outset consideration should be given to which organisation is best placed to manage the delivery the project, in particular managing the considerable risks associated with rail schemes.
- 3.11 Transport Scotland was given a fixed level of investment approval and therefore had the challenge of bringing the project in on budget. Its role included managing public expectations and clearly defining the roles of individual delivery partners.
- 3.12 Network Rail was tasked with the delivery of the reopening of Laurencekirk station, Transport Scotland being the overall client / promoter. Network Rail progressed the project through its eight stage GRIP process.

- 3.13 Aberdeenshire Council was responsible for the delivery of the station car park, although both it only had a stakeholder role on the wider project. NESTRANS was a funding partner for the project.

Project scope

- 3.14 A key question in the process evaluation was the extent to which the scope was mutually agreed by all parties, both at the outset and throughout the duration of the planning and build.

The Challenge of a New Team

- 3.15 One of the initial challenges was that the Laurencekirk project brought together a series of partners who were bedding into new roles. NESTRANS became a statutory partnership in 2006, albeit it had existed as a voluntary partnership prior to that. Transport Scotland was formed in 2005 and was only beginning to develop relationships with Network Rail, which itself had only been created in 2002 following the demise of Railtrack. It is also important to note that First, the train operating company, had also only assumed control of the ScotRail franchise in October 2004.
- 3.16 As would perhaps be expected, it was explained that there was an element of uncertainty at the outset of the project, particularly with regards to funding. However, both Transport Scotland and Network Rail believe that the new arrangements were perhaps to the benefit of the Laurencekirk project overall, as they allowed a review of existing practices and a fresh approach, something which was reflected in the Implementation Agreement between Transport Scotland and Network Rail. Given the overall budget for the new station (around £4.25 million in 2009 prices), there was a view amongst the partners that the Implementation Agreement had to be proportionate to the project scale. It was also explained that this led to the development of what can best be described as a 'letters / memo' approach (based on short, succinct dialogue rather than lengthy contract documents), which set out the key Terms of Reference in a concise fashion. This proportionate Implementation Agreement ensured that the scope and Terms of Reference were appropriate for the scale and level of risk associated with the project. Indeed, Network Rail explained that this agreement is now the standard template for rail projects in Scotland of less than £10 million in value.
- 3.17 The development of a proportionate Implementation Agreement ensures that the scope is appropriate, clearly understood by all partners and is focused on project outcomes.

Engagement with Network Rail and the Operator

- 3.18 One important outcome stated by all consultees is to ensure that Network Rail and the operator(s) are integral to the project from its outset. Allowing these organisations early participation in the delivery process provided useful insight on a range of technical and operational issues that helped to maintain the delivery programme. It also helped in discussions with stakeholders by making the ongoing consultation transparent and informative.
- 3.19 It is helpful to have both Network Rail and the incumbent operator(s) as key stakeholders at the outset and part of the Steering Group

Construction of the Station Car Park

- 3.20 Network Rail explained that one of the key successes of the Laurencekirk station reopening was the decision for Aberdeenshire Council to assume responsibility for the car park build. First and foremost, as the local Roads and Planning Authority, Aberdeenshire Council had much of the expertise in-house to ensure that the car park was successfully delivered. However, in addition to this, procuring skilled civil engineers in the North-East can be challenging given the demand for labour from the oil and gas industry in particular. Aberdeenshire Council's local frameworks ensured that the most appropriate civil engineers could be procured at an affordable price. This prevented specialist Network Rail civil engineers being redirected onto the construction of the car park. Network Rail also explained that the key underlying message here is that the correct delivery partners are assessed and appointed on each project.
- 3.21 The findings from the consultation suggest it is important to undertake an objective assessment of which organisations are best placed to deliver each aspect of the infrastructure required in the project.

Overall Scope

- 3.22 The first major scoping issue faced by Network Rail was the land required for the construction of the access road. The land for the road was part of a strategic freight site leased by Network Rail to EWS, a rail freight operator. The site was used as a freight marshalling area by EWS and was on a 125 year lease (which had 109 years left to run). Network Rail worked closely with EWS to negotiate an agreed position on changes to the design of the site.
- 3.23 Overall, the consultees agreed that there was a clearly defined scope for the project at the conclusion of the GRIP4 stage. This included restoration of the listed station building, construction of two platforms and other elements related to rail operations. From this point onwards, the scope was understood by all parties and formed an effective basis for the design and build.
- 3.24 It is important, for effective delivery, that there is a clear scope for the project and that this is fully understood by all necessary organisations.

Project Management - Risks, Budget and programme

- 3.25 It was explained that the reopening of Laurencekirk station was delivered on-time and below-budget. A number of consultees also explained that the budget was well scoped, understood and agreed at the outset of the study. The authorised budget for the station reopening was £4.25 million but the outturn cost was around £3.50 million, some £0.75m under budget.
- 3.26 The key factors identified in the successful delivery of Laurencekirk station, in terms of time and cost, were:
- *controlled aspirations, which were realistic, well-scoped and informed by expert opinion; appropriate lead-in times;*
 - *consistent communication of the programme and budget to Ministers, elected Local Authority members, the media and the public; and*
 - *succinct, accessible and light touch reporting of progress and issues.*

Value Engineering

- 3.27 The consultees explained that there were a number of budget-related items that had to be resolved at the outset of the study, particularly related to the provision of the car park and the footbridge. The initial set of tenders for the study all came in with a price over the authorised budget. However, one of the claimed successes of the Laurencekirk project was the manner in which this issue was handled at the implementation stage.
- 3.28 Transport Scotland utilised its governance procedure to begin a 'challenge process', aimed at reducing overall costs. Every aspect of the project was assessed for potential savings related to value engineering. It was noted that there were two key successes in this regard:
- *Aberdeenshire Council assumed control of the car park construction, which it was better placed to do given that it was the local roads and planning authority; and*
 - *The proposed steel ramps at the station were designed to have a very shallow gradient, but they were not in keeping with the overall build, were very large and would cost around £1.2m, or a quarter of the allocated budget for the station. Through a process of engagement with local accessibility groups, Network Rail successfully secured a change to the ramp design, saving £0.70m, which, was approximately the amount of the project underspend.*
- 3.29 An effective tender challenge process and a pragmatic review of value engineering solutions can help to identify cost savings on a project.

Procurement

- 3.30 Network Rail identified an innovative approach to procurement which contributed to cost reductions. The contract for the reopening of Laurencekirk station was of a design and build format. With contracts of this nature, tenderers will likely price the risk of changes in the design (impacting on the build) into their bids.
- 3.31 However, Network Rail split the design and build process. Whilst the winning tenderer would secure the full design and build process, bidders were initially asked to provide a fixed price for the design work and outline cost for the build work. There was a break clause in the contract which allowed Transport Scotland not to proceed with the build should it chose not to (with a penalty clause to Network Rail of £66k). Once the design was finalised, the winning tenderer was then asked to provide a cost for the build based on an exact scope of work. It was claimed that this approach potentially saved a significant sum of money as it helped to address the scoping risks in a design and build contract.
- 3.32 Careful consideration should be given to the method of procurement. A procurement process specifically tailored to a project can help minimise risks, reduce costs and ensure the project is delivered on time and within budget.

Stakeholder Management

- 3.33 Network Rail noted that there is a need for all partners to be kept up to date with concise and realistic briefing. In particular, Network Rail believes that an

end / opening date should not be announced before detailed planning takes place, as the company has to build in a variety of factors, including track possessions. Unrealistic dates can drive unsafe behaviour and poor design practices. This was claimed to be one of the successes of the Laurencekirk project – expectations were effectively managed from the outset, which helped minimise unfair negative press for the project.

- 3.34 Detailed project planning should be undertaken before milestone dates are announced to the public. Announcements and press releases should also be communicated between, and jointly agreed by, the project partners.
- 3.35 It was explained that there was significant stakeholder engagement undertaken throughout the delivery phase of the project. Network Rail stressed the high importance of early engagement with stakeholders and the sharing of information. It was also explained that the Laurencekirk scheme had a high profile locally and involved building a station in a small town, mainly at night. It was explained that during that period not a single complaint was received.
- 3.36 The high level of engagement was enshrined in the Stakeholder Plan, which had been developed as part of the early GRIP and STAG processes. The plan involved public meetings, engagement with community councils and joint press releases with local representative bodies.
- 3.37 The consultees explained that there were very few issues with stakeholders. The programme of community engagement ensured that local people were well informed, although it was acknowledged that the small size of Laurencekirk also helped in this regard. It was also clear from the discussions that there was considerable and overwhelming local support for the reopening of the station which, it was also acknowledged, made the consultation process smoother and less challenging than could be faced in more controversial projects. Nevertheless, it was explained that a well-planned engagement and consultation process did contribute to the successful delivery of the project..
- 3.38 One general area of improvement that was suggested was more community consultation with the operator so as to understand the development of the train service timetable. For example, Laurencekirk to Stonehaven is seen as an important local journey but there are very few services that call at both stops. It was suggested there was limited opportunity throughout the implementation phase to discuss the timetable with the operator.
- 3.39 Extensive community engagement, as recommended in STAG, beginning early and continuing throughout the implementation stage, can be a key factor in the successful implementation of a project. It is a useful mechanism for sharing information with stakeholders. It also ensures openness and transparency and can help generate buy in from affected parties.
- 3.40 The timetable is a particularly important issue for potential users of the station and opportunities should be available to for them to discuss and feed in their views to the operator.

Conclusions

- 3.41 From the evidence gathered during the consultations, it can be concluded that the delivery of Laurencekirk station can be regarded as a success. The project was delivered on time and on budget. There were a number of factors

that contributed to that success which could be learned for future rail investment projects. The most important factors can be summarised as:

- *Careful consideration being given to who is best placed to manage risks and take overall ownership of delivery;*
- *A well thought out scope that is clearly understood by all parties;*
- *Procurement methods specifically tailored to meet the needs of the project; and*
- *A carefully thought out, well-designed and transparent stakeholder and community engagement process to generate participation and buy in.*

3.42 It is useful to note in concluding, however, that it is important that a process evaluation is carried out early in the process. This didn't happen in the case of Laurencekirk and it is fortunate that a number of important lessons were not missed due to, for example, the turnover of key and experienced staff involved in the delivery.

4. OUTCOME EVALUATION

Overview

- 4.1 Transport Scotland's guidance explains that 'an outcome evaluation should be conducted once the project has been in existence for a sufficient period to enable an examination to be undertaken of actual performance against identified targets'.
- 4.2 The purpose of this outcome evaluation is therefore to determine whether the reopening of Laurencekirk station is meeting the transport planning objectives, as developed within the original appraisal undertaken in 2004. The Transport Planning Objectives of the original STAG appraisal were to:
- *Link rural commuters to centres of employment, educational establishments and other facilities;*
 - *Encourage greater use of public transport by connecting the township of Laurencekirk and its surrounding area to the rail network;*
 - *Encourage modal shift from private car to public transport by constructing a Park and Ride facility serving the new station; and*
 - *Improve road safety by encouraging a reduction in trips made by road and through reduced road traffic.*
- 4.3 This chapter assesses the impact of the station since its reopening against these objectives, taking each objective in turn and determining the extent to which it has been delivered. The performance of the station against the transport planning objectives has been evidenced using a number of sources and tools. The main factor used has been an online passenger survey, but this was supplemented by, for example, accessibility analysis. At this stage, the analysis does not include the impact against the STAG criteria, which is covered in Chapter 5.

Users Surveys

- 4.4 The majority of the evidence used to develop this analysis has been gathered from an extensive online passenger survey. In summary, the online survey was designed to gain a better understanding of Laurencekirk rail user travel patterns, both currently and prior to the opening of the station.
- 4.5 The survey was 'live' over a six-week period. A very good response was generated, with a total of 204 people completing the questionnaire (compared to an initial target of 100 responses).
- 4.6 Following the survey, the recorded trips made by respondents were scaled up using the frequency of travel information provided to generate an overall figure of 52,745 recorded journeys over the previous 12 months. For context, this compares with the latest figure for the total number of exits and entries at the station in 2012-13 of 92,470 (see section 4.2 below) i.e. the number of journeys made by those surveyed accounted for over 55% of the total rail journeys to and from the station, so this can be viewed as a very good sample of station users.
- 4.7 It should be noted at the outset that the transport planning objectives in the original appraisal do not meet all of the SMART (Specific, Measurable, Achievable, Relevant and Time bound) criteria as set out in STAG and the HM

Treasury Green Book – *Appraisal and Evaluation in Central Government*. In particular, the objectives were not quantified and time bound, although we would acknowledge that setting fully SMART objectives is not always possible. It is therefore not possible to provide an assessment against whether specific quantified targets have or have not been met. However, the survey results do provide a useful indication of the impact the station has made towards the aims and objectives. The following sections set out the impact of the station against each objective.

- 4.8 To understand the true additional impacts of the scheme it is important to know the counterfactual, i.e. what would have happened to people’s travel behaviour and travel decisions if the station had not been reopened. To inform this, the survey included a series of questions about how people would have made their journeys, if at all, had the station not reopened. This covered all journey purposes. The results are used to inform the findings of this chapter.
- 4.9 To carry out an effective outcome evaluation it is important to know the travel behaviour of users of the station before it was reopened. Without the ‘before’ information it is not possible to compare the performance of the project against its objectives.
- 4.10 While the online survey was a useful tool to gather this information it does generate inherent risks with the accuracy and reliability of the data due to respondents not having accurate records of their travel behaviour before the station was reopened.
- 4.11 It is recommended that, for future evaluations, baseline information is gathered on the travel behaviour of users, either in advance of project opening or straight after opening.

Objective 1 - Link rural commuters to centres of employment, educational establishments and other facilities.

Table 1. Laurencekirk Passenger Entries and Exits Since Opening⁴

Year	Entries and Exits
2009-10	56,496
2010-11	73,594
2011-12	86,142
2012-13	92,470

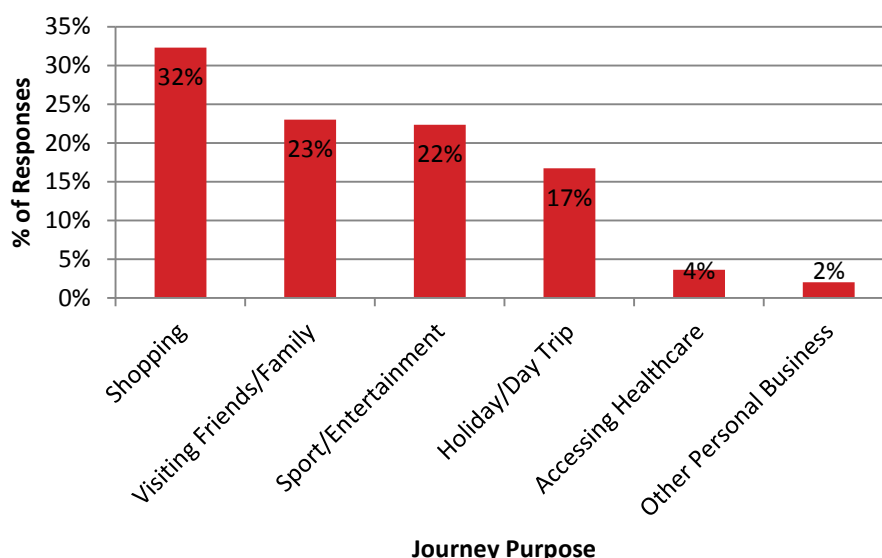
- 4.12 The Office of Rail Regulation (ORR) publishes estimates of station usage on an annual basis. The figures show that in the first year of reopening (2009-2010)⁵ there were 56,496 entries and exits at Laurencekirk station. This was followed by 73,594 in 2010-11, 86,142 in 2011-12 and 92,470 in 2012-13. On the face of it, therefore, the reopening of the station has resulted in a large and increasing number of rail journeys to and from Laurencekirk, growing by 26% between the full years 2010-11 and 2012-13. This would suggest that the station has made a positive contribution to a number of the objectives.

⁴ ORR Estimates of Station Usage, available at <http://orr.gov.uk/statistics/published-stats/station-usage-estimates>

⁵ The station was opened in May 2009 and therefore the 56,496 represents only a partial year to March 2010

- 4.13 As discussed above, scaling up our survey responses to account for the total number of journeys that were made by respondents accounts for over 52,700 journeys to or from Laurencekirk station, therefore representing more than half the total entries and exits in 2012-13.
- 4.14 The results of the survey indicate that the reopening of the station has provided a valuable link between Laurencekirk and a number of key centres and facilities in the surrounding area. Those travelling out from Laurencekirk use the station to access employment, education and other facilities in the surrounding centres, with 58% of those surveyed using it for commuter purposes (amounting to 16,578 outward journeys per year), 24% for business purposes (amounting to 1,345 outward journeys per year) and 86% using it for other journey purposes (amounting to 6,761 outward journeys per year)⁶.
- 4.15 Of these 'other' journey purposes, as shown in Figure 2 below, just under one third are made for shopping purposes (n⁷=257, 32%), just under a quarter (23%) for the purpose of visiting friends and/or family (n=183) and a similar proportion (22%) for the purpose of attending sporting events/other entertainment (n=178).

Figure 2. Other Journey Purposes

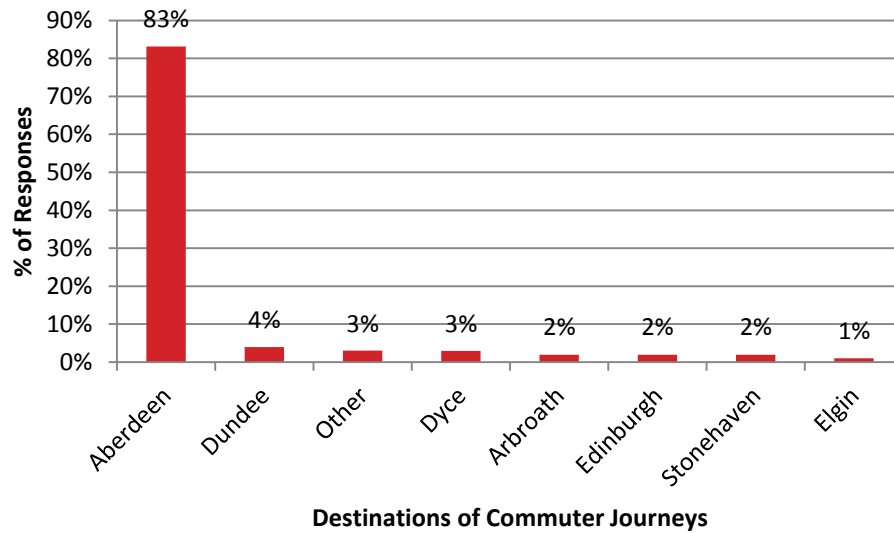


- 4.16 By far the most popular destination for commuter journeys was Aberdeen, which accounted for 83% (n=84) of named commuter destinations (see Figure 3). Smaller numbers also commute to Dundee (4%), Dyce (3%), Arbroath (2%), Edinburgh (2%), Stonehaven (2%) and Elgin (1%).

⁶ Respondents could select multiple options and therefore percentages do not sum to 100. For example, of all respondents, 58% said that they used Laurencekirk station for commuter purposes, while 86% used it for 'other' purposes. Therefore a number of people used it for both. In addition, those using it for commuter purposes will use the station more times per week than those using it for 'other' purposes. This results in a higher number of commuter journeys per annum.

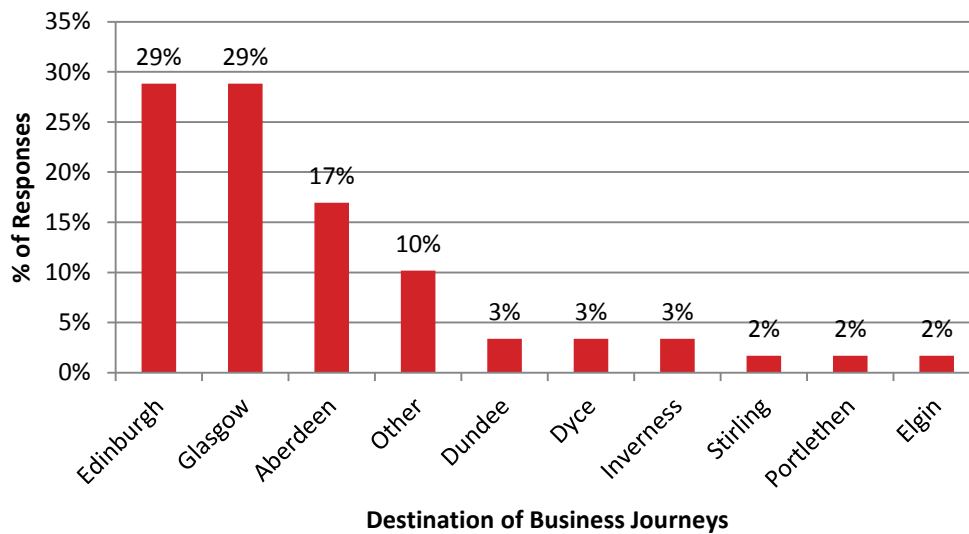
⁷ n = number

Figure 3. Destinations for Commuter Journeys



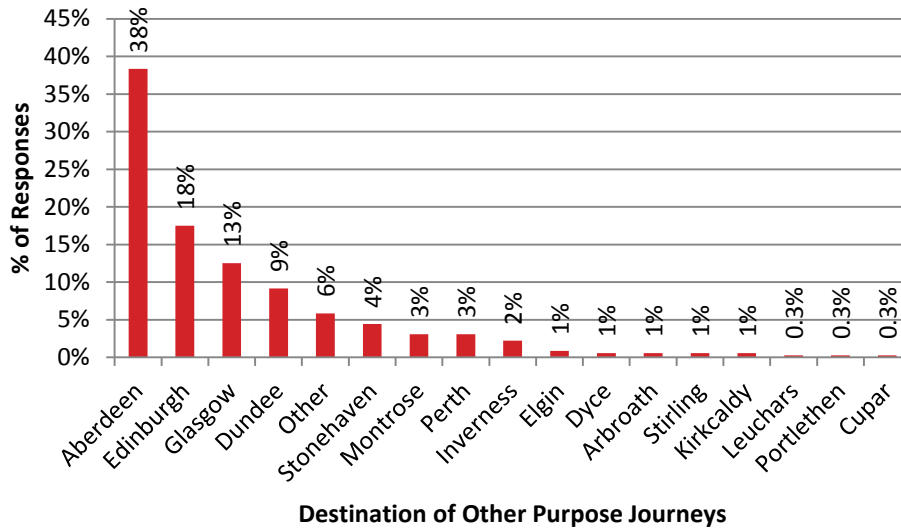
4.17 The pattern of destinations for business trips differs slightly from that of commuting (see Figure 4), with the main destinations for this purpose being Edinburgh and Glasgow which each account for 29% (n=17) of named business trips, followed by Aberdeen (n=10, 17%).

Figure 4. Destinations for Business Journeys



4.18 In terms of other purpose trips (see Figure 5), the most common destination is again Aberdeen (n=138, 38%), with Edinburgh the second most common (n=63, 18%), followed by Glasgow (n=45, 13%) and Dundee (n=33, 9%).

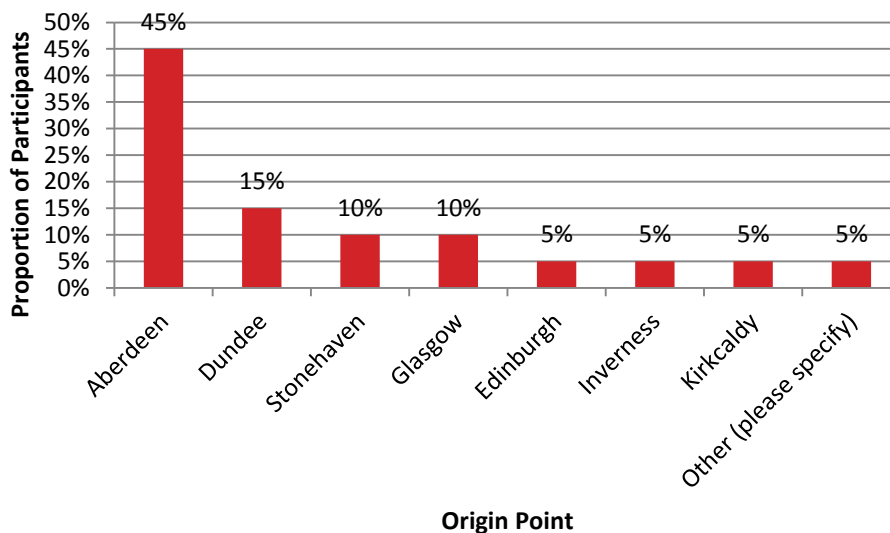
Figure 5. Destinations of Other Journey Purposes



4.19 The station is also used by a smaller proportion of individuals travelling into Laurencekirk from the surrounding areas⁸, with 1,760 such journeys per year reported via the survey and slightly less on the return leg at 1,552 trips. As with those travelling out, these individuals use the station for commuting to work and education, business purposes and other purposes such as shopping and visiting family and friends.

4.20 Figure 6 below shows the location where participants typically get on the train for the outward leg of the return journey ending in Laurencekirk. As shown, of those responding to this question, 45% (n=9) started their journey in Aberdeen, 15% (n=3) in Dundee and 10% (n=2) in both Stonehaven and Glasgow.

Figure 6. Origin Point for Outward Journeys ending in Laurencekirk



4.21 While all of the above provides clear evidence that the station is important in linking the rural community of Laurencekirk and the surrounding area to centres of employment, educational establishments and other facilities, it is

⁸ While the number of journeys being made into Laurencekirk are reported here, it should be noted that the number for those travelling into Laurencekirk is much smaller than those travelling out and the sample size for the latter is therefore much smaller.

also important to understand whether people would still make the trip if the station had not been reopened i.e. what would be the counterfactual situation. Would they simply access the facilities by another mode and the station is therefore not facilitating an increase in access?

4.22 To understand the counterfactual, respondents to the survey were divided into those who have lived in Laurencekirk for a lengthy period (68%), and those who moved just before or after the station reopened (32%). The former group were asked how they made their specified journeys prior to the reopening of Laurencekirk, while the latter were asked how they would have made the journeys if the station had not reopened.

4.23 The responses suggest that a number of individuals are now making journeys which they did not previously make or would not have made had the station not reopened, i.e. the station is having a positive impact on improving access to facilities. This is set out in Table 2 below.

Table 2. Numbers who would not make the Journey Prior to Station Reopening

Journey Purpose	Always Lived in Laurencekirk	Moved to Laurencekirk after station reopening
Commuting	12	6
Business	2	1
Other	30	18

4.24 For example, 21% (n=12) of commuters who have always lived in Laurencekirk did not make the journey prior to the station reopening and 14% (n=6) of those who recently moved to Laurencekirk would not have made the same journey had the station not reopened.

4.25 Similarly, 6% (n=2) of those travelling for business who have always lived in Laurencekirk did not previously make the trip prior to the station reopening and 4% (n=1) of those who recently moved to Laurencekirk would not have made the journey if the station had not reopened.

4.26 In terms of other purpose trips, 12% (n=30) of those individuals who have always lived in Laurencekirk did not make the journey prior to the reopening of the station and 17% (n=18) of those who recently moved to the area would not have made the journey had the station not reopened.

4.27 Those respondents that had always lived in Laurencekirk were also asked if they now make their specified business trips and/or other purpose journeys more or less often as a result of the station reopening. Responses indicated that 44% (n=16) of individuals travelling for business and more than half (n=135, 54%) of those travelling for other purposes now make their journeys more often.

Accessibility Analysis

4.28 In addition to the survey results, accessibility analysis was undertaken using Accession Software to assess how public transport journey times from Laurencekirk to key employment and education centres have changed since the reopening of the station. Note that this analysis does not consider car-based or mixed-mode (ie Park and Ride) journey times, but rather provides a

before and after analysis of the times of journeys made by public transport only.

4.29 The following data sources were used in the analysis:

Data	Description	Source
Origins	Postcode centroids	OS Code Point Open
Destinations	Key Employment and Education Centres	Geocoded manually
Road Network	Road Network with estimated speeds	OS Meridian
PT Network	National Public Transport Data Repository (NPTDR) data	NPTDR download
Population	2011 Datazone Population	General Register Office for Scotland (GROS)small area mid-year population estimates 2011

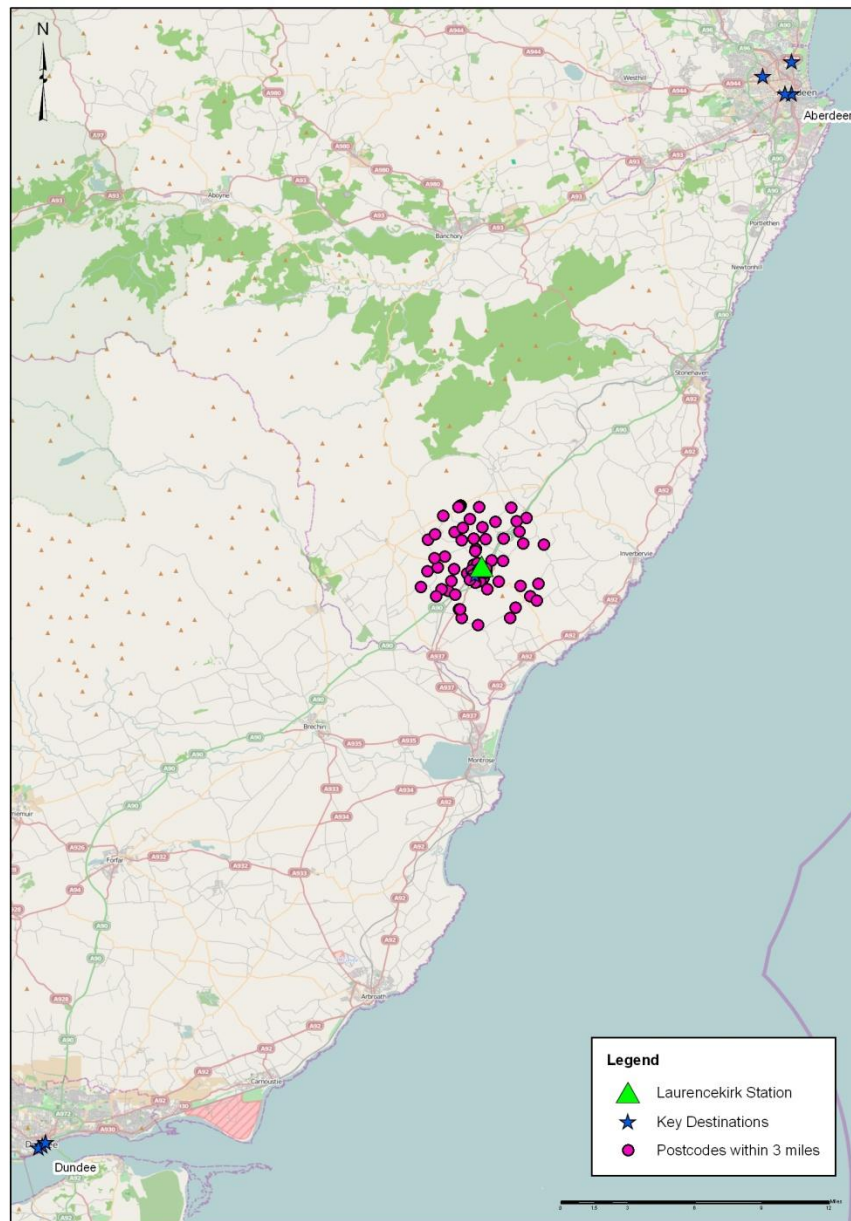
4.30 Postcodes were selected within a radius of three miles of Laurencekirk centre and the following destinations were used:

- *Aberdeen Station*
- *Union Street, Aberdeen*
- *Aberdeen Royal Infirmary*
- *University of Aberdeen*
- *Dundee Station*
- *Dundee High Street*
- *University of Dundee*

4.31 Tests were undertaken over the time period 07:00-10:00am.

4.32 The locations of each of the destinations in Aberdeen and Dundee and the three mile postcode catchment are shown in Figure 7.

Figure 7. Three Mile Postcode Catchment of Laurencekirk and Key Destinations in Aberdeen and Dundee



4.33 The results of the calculations are presented in terms of population within different time bands of the destinations (see Tables 2 and 3 below). The weighted average travel time by public transport per person to each of the destinations is included in Table 4.

Table 3. Percentage of Three Mile Catchment Population within Time Band Threshold of Destinations when Laurencekirk Station is Open

Destination	< 60 MINS	60-90 MINS	90-120 MINS	120-150 MINS	150-180 MINS	>180 MINS
Aberdeen Railway station	68%	12%	10%	4%	2%	4%
Union Street, Aberdeen	29%	47%	15%	4%	2%	4%
Aberdeen Royal Infirmary	0%	73%	7%	11%	2%	7%
University of Aberdeen	29%	47%	15%	1%	2%	7%
Dundee Station	3%	71%	7%	10%	4%	5%
High Street, Dundee	3%	71%	4%	13%	3%	5%
University of Dundee	3%	71%	4%	13%	4%	5%

Table 4. Percentage of Three Mile Catchment Population within Time Band Threshold of Destination without Laurencekirk Station

Destination	< 60 mins	60-90 mins	90-120 mins	120-150 mins	150-180 mins	>180 mins
Aberdeen Station	0%	0%	68%	11%	14%	7%
Union Street, Aberdeen	0%	0%	68%	11%	14%	7%
Aberdeen Royal Infirmary	0%	0%	0%	72%	12%	16%
University of Aberdeen	0%	0%	68%	3%	12%	16%
Dundee Station	0%	68%	13%	9%	1%	9%
High Street, Dundee	0%	68%	9%	13%	1%	9%
University of Dundee	0%	68%	9%	12%	1%	9%

Table 5. Weighted Average Journey Time (in minutes) per person to each Destination

Destination	Laurencekirk Station Open	Without Laurencekirk Station	Difference
Aberdeen Station	65	116	-50
Union Street, Aberdeen	75	123	-48
Aberdeen Royal Infirmary	84	137	-53
University of Aberdeen	73	121	-48
Dundee Station	80	91	-11
High Street, Dundee	81	93	-11
University of Dundee	82	93	-11

4.34 The results show that the reopening of Laurencekirk station has reduced the travel time by public transport to both Aberdeen and Dundee during this time

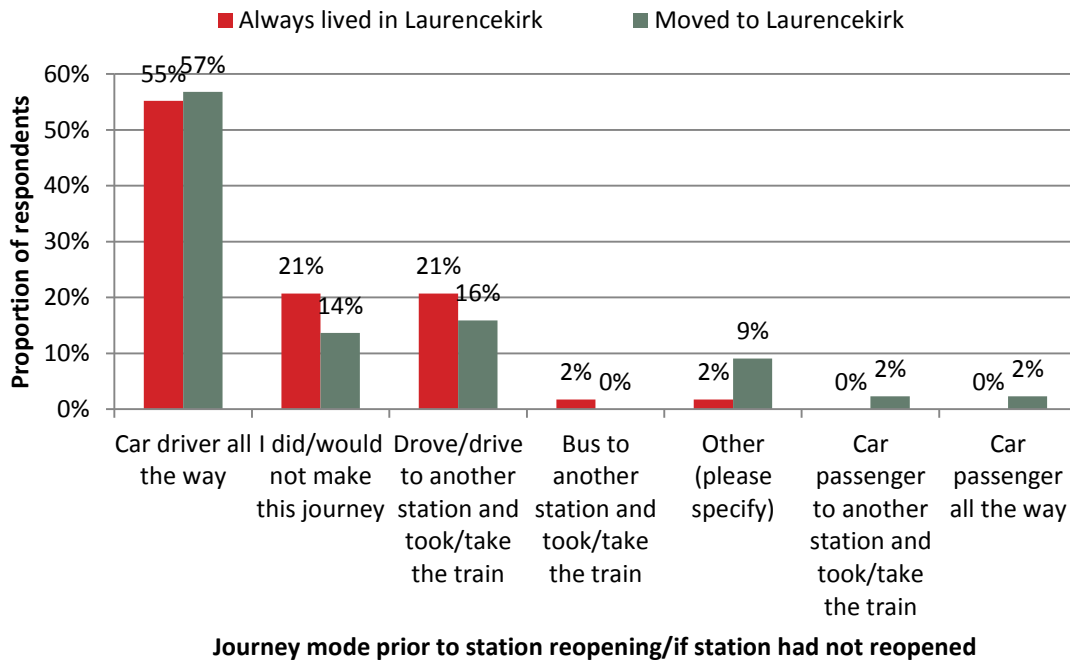
period. Some 68% of the population within a three mile radius of Laurencekirk can now reach Aberdeen Railway station in less than one hour, with an average journey time per person of 65 minutes. This compares to an average journey time of 115 minutes prior to the station reopening, a reduction of 50 minutes. Indeed, 78% and 73% of the catchment population can reach Aberdeen's Union Street and Royal Infirmary respectively by public transport within 90 minutes since the station reopened at Laurencekirk. Without the station 0% could have reached it within 90 minutes.

- 4.35 Similarly, 74% of the population within three miles of Laurencekirk can reach Dundee Station within 90 minutes during this time period, with the average journey time per person falling by more than ten minutes, from 91 to 80 minutes, as a result of the reopening of the station. Prior to the station reopening only 68% of the catchment population could reach these destinations within 90 minutes.
- 4.36 In summary, the results of the accessibility analysis indicate that the reopening of the station has led to facilities becoming more accessible, in terms of journey time, particularly for those without access to a car. The greatest reduction in journey times has occurred between Laurencekirk and destinations in Aberdeen but there have also been improvements in journey times to key centres and facilities in Dundee.
- 4.37 The objective to '*Link rural commuters to centres of employment, educational establishments and other facilities improving accessibility*' has been met. Journey times by public transport have been reduced, and more journeys are being made.

Objective 2 - Encourage the use of public transport by connecting the township of Laurencekirk and its surrounding area to the rail network

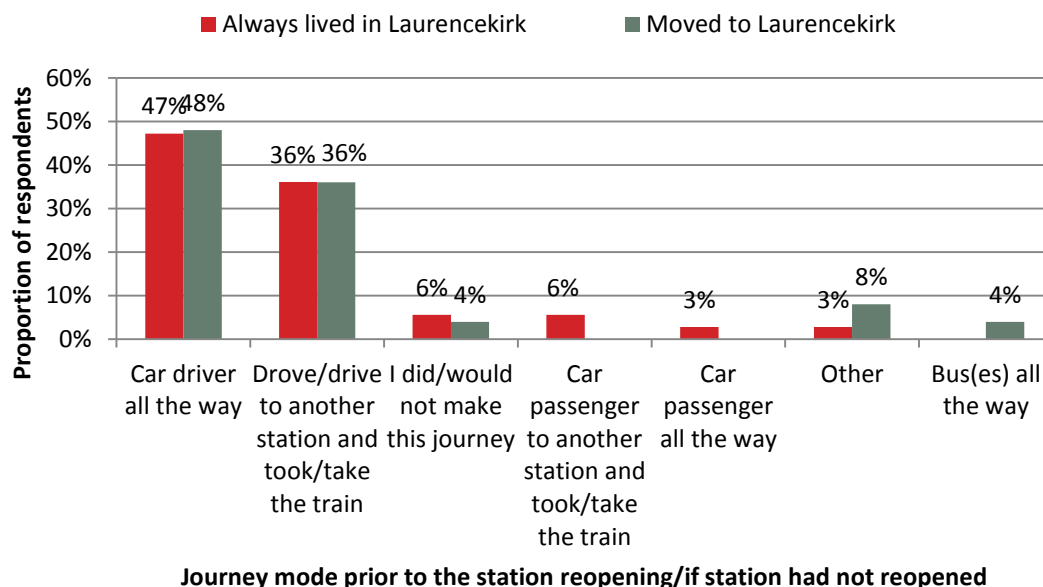
- 4.38 The reopening of the station does appear to have encouraged greater use of public transport. Figure 8 below shows the journey mode used prior to the station reopening for those commuters who have always lived in Laurencekirk. The Figure also shows the journey mode which commuters who recently moved to the area suggested they would have used if the station had not reopened.

Figure 8. Journey Mode Prior to Station Reopening/If Station had not Reopened – Commuting



- 4.39 Of those who have always lived in Laurencekirk, just over half (55%, n=32) indicated that prior to the station reopening they made this journey as a car driver all the way to their place of work and 21% (n=12) indicated that they drove to another station and took the train. Just one individual stated that they previously used public transport (by taking the bus to another station and taking the train). In addition, as noted in Section 4.2.13, a further 21% (n=12) of commuters did not make the journey prior to the station reopening.
- 4.40 Of those who relocated either just before or after the station reopened, just over half (57%, n=25) stated that they would have driven all the way to their employment destination had the station not reopened and a further 16% (n=7) would have driven to another station and taken the train. As stated in the previous section, 14% (n=6) of this group stated that they would not have undertaken the journey had the station not reopened.
- 4.41 Similar patterns were also evident for the business journeys undertaken by both groups, as shown in Figure 9 below.

Figure 9. Journey Mode Prior to Station Reopening / if Station Had Not Reopened – Business

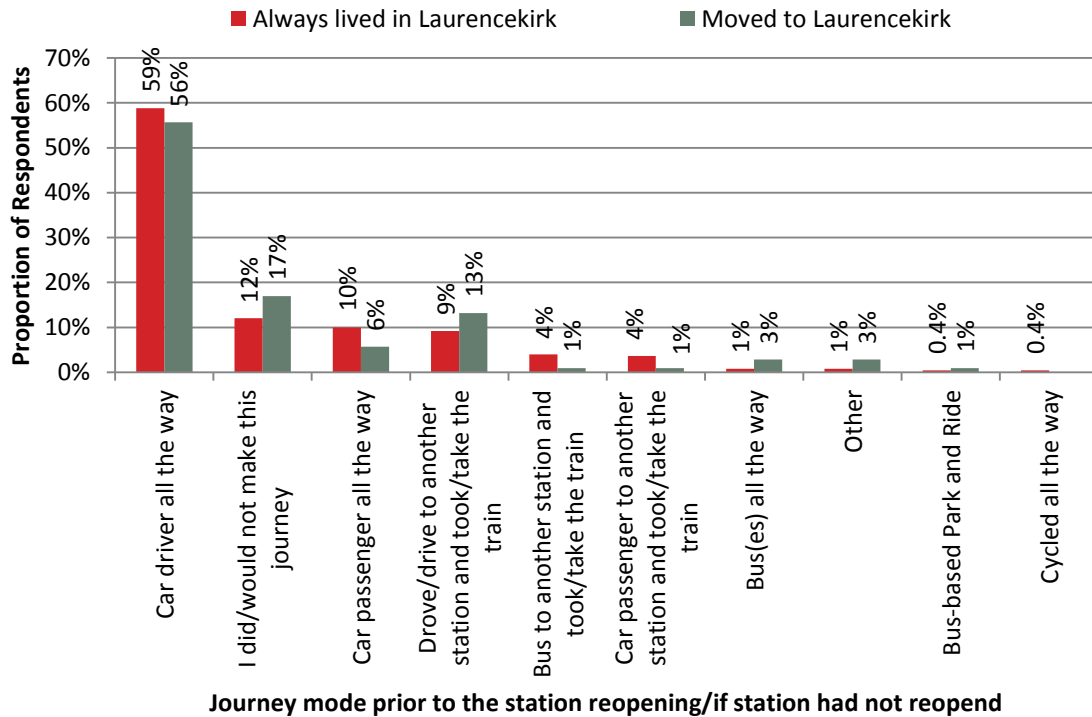


4.42 Of those travelling for business who lived in Laurencekirk before the station reopened, slightly less than half (47%, n=17) previously drove all the way to the destination, 36% (n=13) drove to another station and took the train, and 6% did not make the journey prior to the station reopening.

4.43 A similar pattern was evident for those who moved more recently to Laurencekirk. Slightly less than half (48%, n=12) stated that they would have driven all the way to the destination had the station not reopened and just over one third (36%, n=9) would have driven to another station and taken the train. Just 4% of this group would have undertaken their journey by bus and, as discussed above, 4% would not have made the journey had the station not reopened.

4.44 Figure 10 below shows the mode used for 'other purpose' trips prior to the station reopening / if the station had not reopened.

Figure 10. Journey Mode Prior to Station Reopening/if Station Had Not Reopened – ‘Other’



4.45 As shown, over half of both long-term residents of Laurencekirk and those who moved more recently previously made or would have made their journey by driving all the way to their destination. In addition 13% (n=14) of long-term residents and 9% (n=23) of new residents previously made or would have made their journey by driving a car to another station and catching the train.

4.46 While the bus was previously used / would have been used more frequently for other journey purposes than for commuter or business trips, the numbers are small and the car remains the dominant alternative when the train is not an option.

4.47 While sample sizes are small and therefore may not be representative of the total population, those travelling into the area also reported a pattern of car use for their journeys prior to the station reopening / if the station had not reopened.

4.48 Of those responding to this question who recently moved to the area, five (50%) stated that they would have made the journey by car (either as a driver or passenger) had the station not reopened. A further two (20%) stated that they would have been driven to another station from which they would have taken a train, one (10%) said they would not have made the journey and one (10%) said they would have made the journey by bus.

Impact of Station upon Car Ownership

4.49 Respondents were also asked whether the reopening of the station had impacted the number of vehicles owned or run in their household.

4.50 Of those respondents who typically travel outbound from Laurencekirk, the majority (n=141, 80%) stated that the station reopening had had no impact on household car ownership. However, 28 respondents (16%) did say that they had reduced the number of vehicles in the household as they can now walk to

the train station where they had previously required a second car to drive to, for example, Stonehaven or Montrose. A few who indicated 'other' at this question also went on to explain that, although they still own the same number of vehicles they now use them less often, with typical comments being as follows:

"Not relying on the car for several journeys a month, therefore saving on fuel."

"Still own two cars but we only run one during week, using the other intermittently over the weekend."

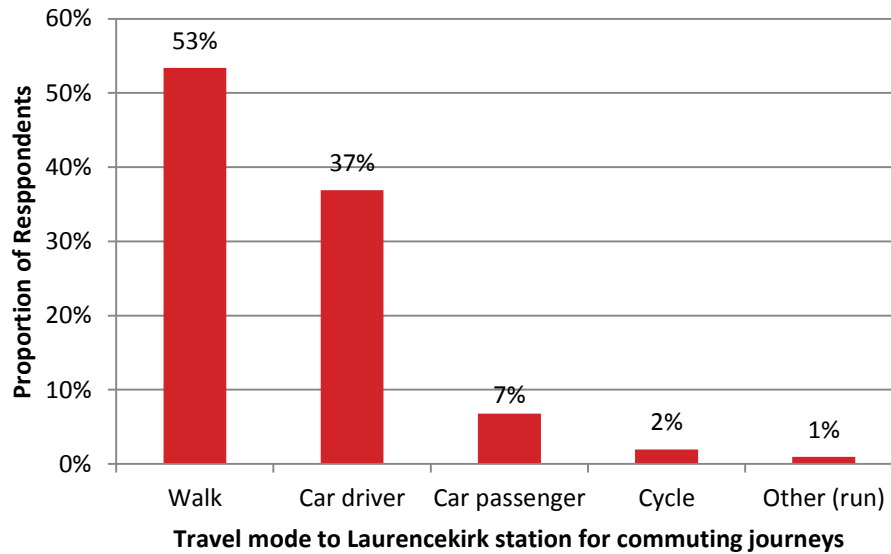
"We still have two cars, but they're used less."

- 4.51 Of those travelling into Laurencekirk who responded to this question the majority (n=17, 85%) stated that it had not had an impact. However, two people (10%) stated that it had resulted in a reduction in the number of vehicles because they can now walk to the station. One person indicated 'other' and went on to explain the reopening of the station had meant that they did not need to buy a car because of the rail link to Aberdeen.
- 4.52 Overall, the results from the survey of users of the station suggest that the reopening of the station at Laurencekirk has made a positive contribution to encouraging the use of public transport. Perhaps more importantly, the results indicate that a large proportion of people using the station would have previously made the journey by car and thus the greater use of public transport has been due to a shift away from private vehicle use.
- 4.53 The objective to '*Encourage the use of public transport by connecting the township of Laurencekirk and its surrounding area to the rail network*' has been met. Over half of journeys being undertaken via Laurencekirk station were previously made by car.

Objective 3 - Encourage modal shift from private car to public transport by constructing a Park and Ride facility serving the new station

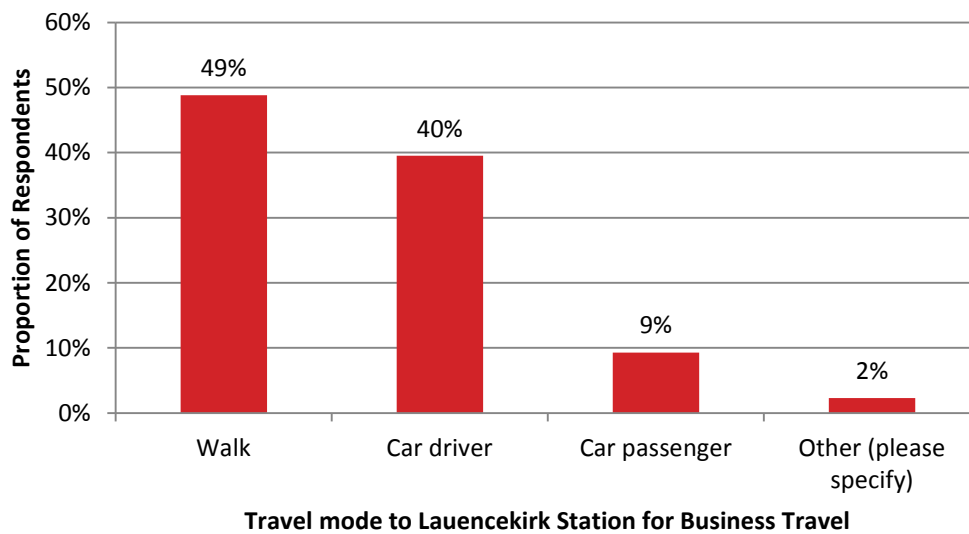
- 4.54 The survey results suggest that the majority of those using the station access it either on foot or as a car driver.
- 4.55 As shown in Figure 11, most of those using the station for the purpose of commuting access it by foot (n=55, 53%) with slightly less driving to the station (n=38, 37%).

Figure 11. Travel Mode to Laurencekirk Station for Commuting



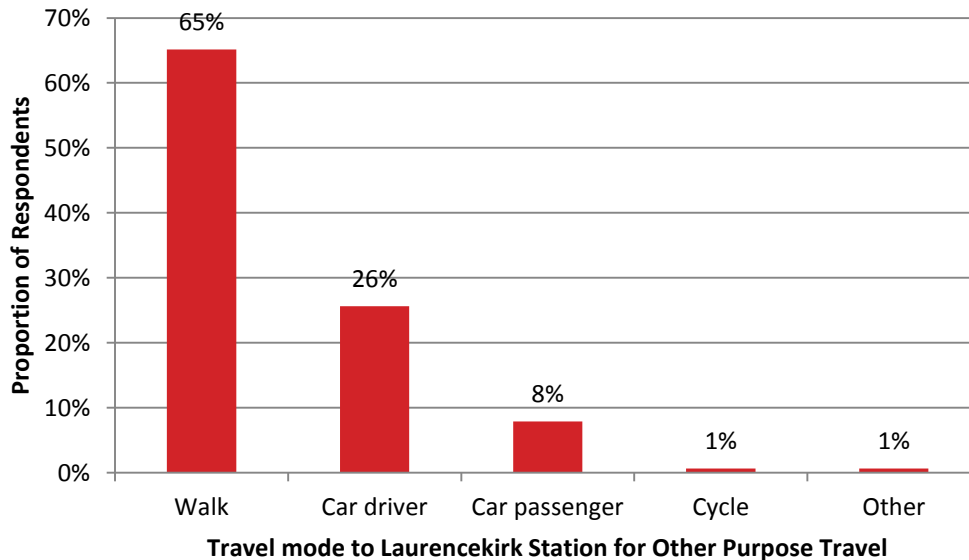
4.56 The pattern for business journeys is similar with 40% (n=17) driving to the station and 49% (n=21) electing to walk.

Figure 12. Travel Mode to Laurencekirk Station for Business Travel



4.57 In terms of other journey purposes, around two-thirds (n=99, 65%) access the station by walking, with the majority of the remaining users (n=51, 34%) travelling to the station by car, either as a driver or passenger.

Figure 13. Travel mode to Laurencekirk Station for Other Purpose Trips



- 4.58 While the above demonstrates that the Park and Ride facility is being used, it is also useful to examine how those driving to the station previously made or would have made their journey had the station not reopened. For example, did these individuals previously travel by car all the way to their destination, and therefore their use of the Park and Ride represents a shift towards public transport, or did they previously use public transport and therefore their use of the Park and Ride indicates a shift away from public transport for part of their journey?
- 4.59 To assess this, analysis was carried out to separately examine those who have always lived in Laurencekirk and those who more recently moved to the area after the station reopened. While this reduces the sample sizes for some indices, overall the responses suggest that the majority of those who currently drive to the station previously drove, or would have driven, to their final destination had the station not reopened.
- 4.60 For example, of those commuters who have always lived in Laurencekirk and currently drive to the station and use the Park and Ride, 54% (n=15) previously drove all the way to their destination, 21% (n=6) drove to another station and caught the train and 25% (n=7) did not previously make the trip.
- 4.61 Similarly, of those commuters who drive to the station who moved to Laurencekirk recently, 60% (n=6) would have driven all the way to their destination had the station not reopened, 30% (n=3) would have driven to another station and caught the train and 10% (n=1) would not make the journey.
- 4.62 The pattern is similar for business travel, with just over half (53%, n=9) of those driving to the station for business purposes who have always lived in Laurencekirk stating that they previously drove all the way to their destination. A further 35% (n=6) said that they previously drove to another station and caught the train, 6% (n=1) travelled as a car passenger all the way to their destination and 6% (n=1) did not make the journey.
- 4.63 Of those driving to the station for business journeys who recently moved to the area, 57% (n=4) would have driven all the way to the destination had the station not reopened and 43% (n=3) would have driven to another station and taken the train.

- 4.64 In terms of other journey purposes, the majority (66%, n=48) of those who have always lived in Laurencekirk and who drive to the station for these trips previously drove all the way to their destination, 15% (n=11) drove to another station and caught the train, 5% (n=4) travelled as a car passenger all the way to the destination and 10% (n=7) did not make the journey. Just two individuals (2%) stated that they previously undertook their journey by public transport, either directly to their destination or via bus based Park and Ride.
- 4.65 Similarly, of those driving to the station for other purpose journeys who recently moved to the area, 45% (n=5) stated that they would have driven all the way to the destination had the station not reopened, 45% (n=5) would have driven to another station and taken the train and 9% (n=1) would not have undertaken the journey.
- 4.66 Finally, in order to determine whether the construction of the Park and Ride facility has specifically resulted in modal shift, the home locations (postcodes) for former end-to-end car drivers who now use Laurencekirk station are mapped below. These locations are shown separately in Figures 14 and 15 for those who now walk to the station and those who drive to the station. It can be seen from Figure 14 that those who walk to the station reside within close proximity. From Figure 15, however, it is clear that a number of those that use the Park and Ride facility live a relatively greater distance from the station.

Figure 14. Home Location of former drivers, now walking to station

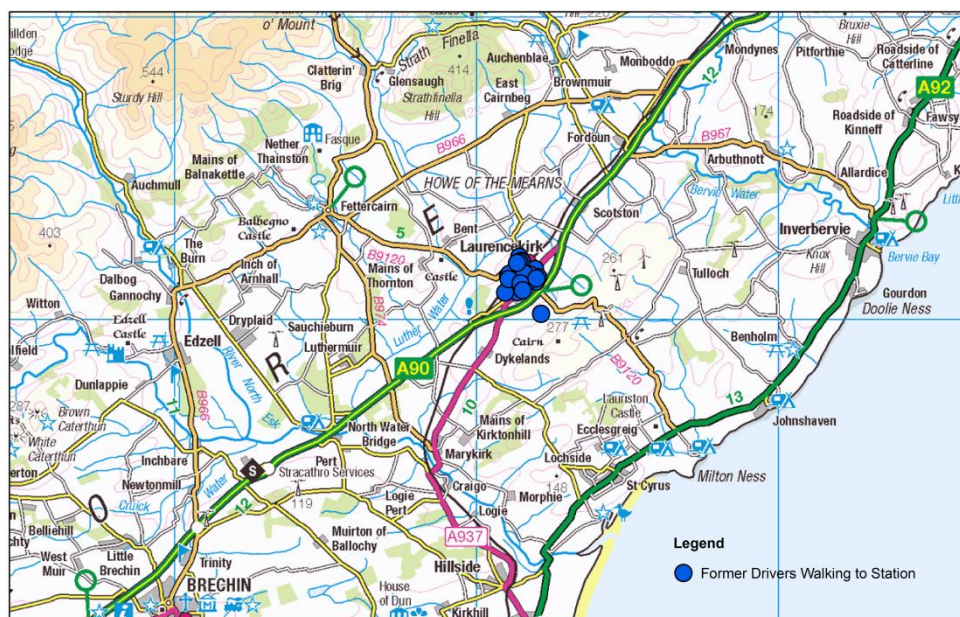
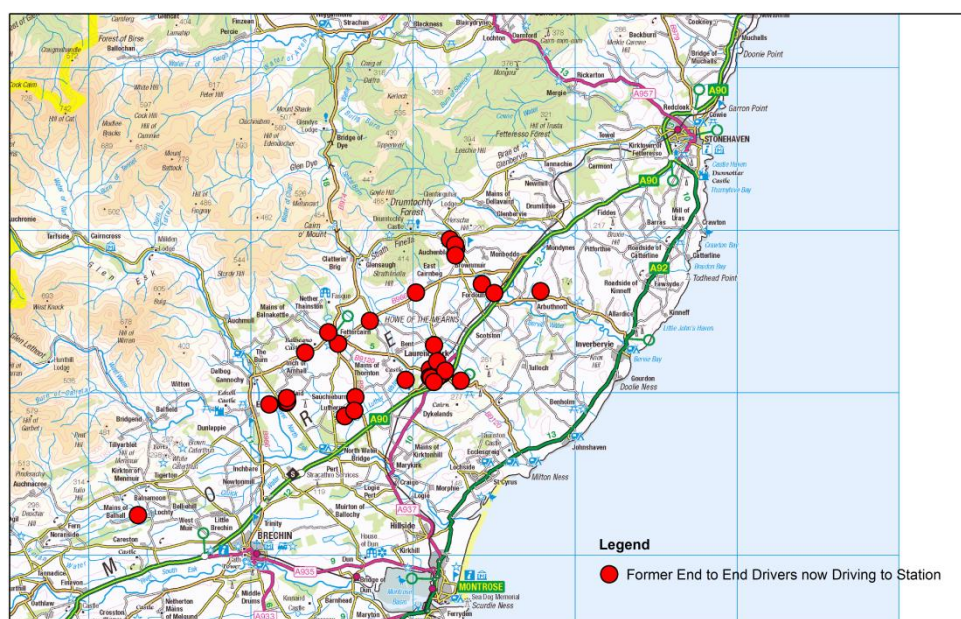


Figure 15. Home Location of former drivers, now using P&R car park at station



4.67 It can therefore be assumed that the construction of the Park and Ride facility itself has indeed encouraged modal shift from private car to public transport, i.e. most of those at the 'red' postcode locations identified in Figure 15 are too far away from the station to walk, and would have continued to drive for their whole journey. The only caveat to this is that people may have still switched from car to Park and Ride without the provision of a new car park by parking on-street in Laurencekirk. However this in itself can create problems locally, leading to the implementation of measures to deter this practice.

4.68 Overall the survey results suggest that the construction of the Park and Ride facility at the station has encouraged a shift from the private car to public transport. A large share of travellers use the Park and Ride facility and the majority of these previously made or would have made the journey by driving all the way to their destination. The presence of the facility has therefore likely led to a reduction in car miles travelled as more people choose to complete at least part of their journey using rail.

4.69 The objective to '*Encourage modal shift from private car to public transport by constructing a Park and Ride facility serving the new station*' has been met as many users of the station car park would previously have undertaken their whole journey by car, and they live too far from the station to walk. This suggests that they would have continued to drive to their destination if the Park and Ride facility was not there.

Objective 4 - Improve road safety by encouraging a reduction in trips made by road and through reduced road traffic

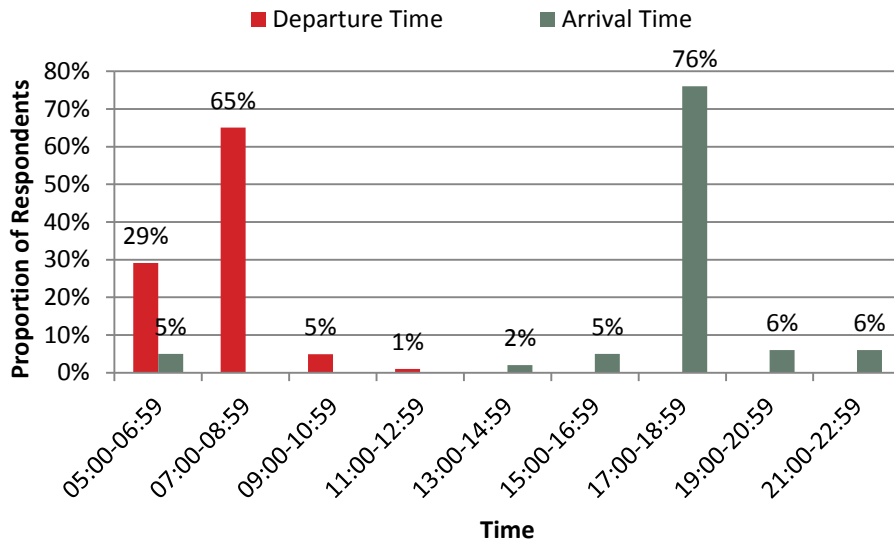
4.70 The previous section showed that a number of people using Laurencekirk station would have made their journey using a car prior to the station reopening. The evidence showed therefore that there has been some modal shift to public transport as a direct consequence of the station reopening and a reduction in the number of journeys made by car.

4.71 This section will show that the majority of journeys made to and from Laurencekirk by rail are made in the peak period. If the station had not been reopened it is likely that many of these trips would have been made by car,

thereby increasing congestion levels at peak periods and having a negative impact on safety.

4.72 Figure 16 below shows the typical departure and arrival times for those commuting out of and returning to Laurencekirk station.

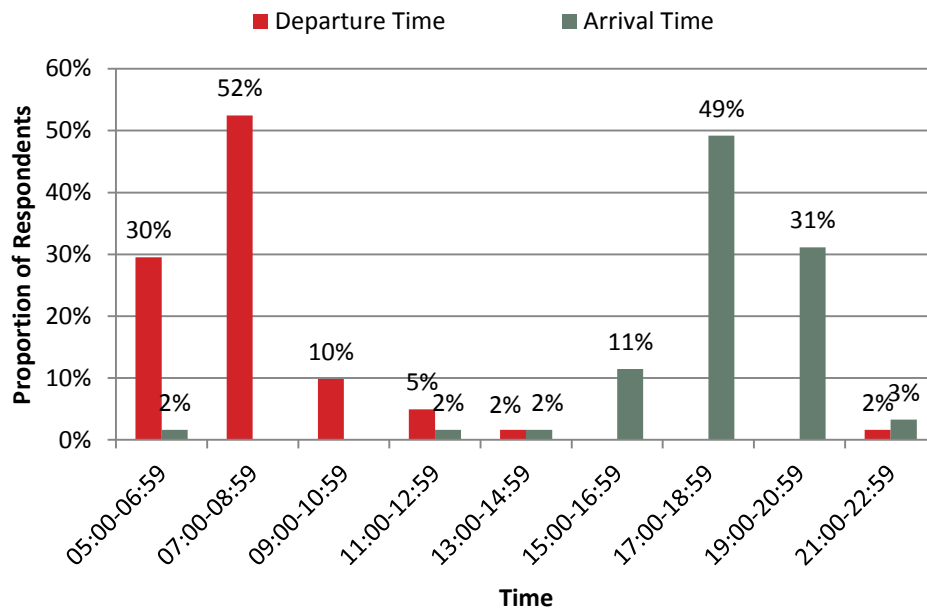
Figure 16. Typical Departure and Arrival Times at Laurencekirk Station for Commuting Trips



4.73 As would be expected, commuting trips are generally concentrated in the peak periods with most respondents departing between 07:00 and 08:59 (65%, n=67) and returning between 17:00 and 18:59 (76%, n=76).

4.74 A similar pattern is evident for business travel, with 52% (n=32) of respondents indicating that they departed Laurencekirk between 07:00 and 08:59 and 49% (n=30) indicating that they returned between 17:00 and 18:59.

Figure 17. Typical Departure and Arrival Times at Laurencekirk Station for Business Trips



4.75 Unlike commuting and business travel, other journey purposes generally take place after the morning peak, with return journeys occurring over a wider

period. However, those travelling by train into Laurencekirk station also appeared to be concentrated in the peak period, with most respondents arriving between 07:00 and 08:59 (n=5, 25%) and departing between 17:00 and 18:59 (n=8, 40%). Although, as stated above, the sample size for this group is relatively small and therefore this result may not be representative of the population as a whole.

- 4.76 The findings suggest that there has been a reduction in road miles as users of the station have shifted mode from the private car to rail and that a significant proportion of this reduction has occurred within the morning and evening peak periods.
- 4.77 It is clearly not possible to ascertain the quantitative impact of this on road safety using road accident statistics as available statistics are limited to local authority level, and any observed change in accident rates could in any case be attributable to many different factors. However, it is clear that the station re-opening has resulted in less people driving on routes with high levels of traffic, such as the A937 / A90 at-grade junction, and Bridge of Dee. Note however that the limited scale of any change in volumes would not be perceptible within the day to day variations in traffic levels.
- 4.78 The estimated impact of these traffic reduction is considered further in Chapter 5 below.
- 4.79 Whether the objective to '*Improve road safety by encouraging a reduction in trips made by road and through reduced road traffic*' has been achieved cannot be conclusively proved via accident statistics. However a reduction in road traffic has been established via the surveys.

Conclusions

- 4.80 The findings of the outcome evaluation show that the re-opening of the station at Laurencekirk has had a positive impact as measured against all the original transport planning objectives.
- 4.81 The re-opening has played an important role in linking the local community in the town and surrounding area to centres of employment, educational establishments and other facilities. It has also had a positive impact on those travelling for business purposes. The results of the survey show that a number of journeys would not be made if the station had not been reopened. The Accessibility Analysis also demonstrates that facilities have become much more accessible, in terms of journey time, for those without access to a car. This has been particularly so for facilities in Aberdeen where some journey times by public transport have been reduced by up to 50 minutes.
- 4.82 The findings from the survey also show that the station has encouraged the use of public transport. The results reveal that the station re-opening has not only enabled people to make journeys by public transport that they would not have previously made, but it has also resulted in people making journeys that they would have previously made by car. In addition, 16% of people who travel out of the station reported that they had reduced the number of vehicles they owned as a direct result of the station reopening and less journeys being made by car. Furthermore, of those using the station, the majority travel to the station on foot suggesting that the station reopening has also contributed to an increase in active forms of travel.

- 4.83 The findings of the survey also reveal that the availability of the Park and Ride facility at the station has encouraged a shift from the private car to public transport. It is clear from respondents that a large share of people using Laurencekirk station also use the Park and Ride facility and a significant percentage of these previously made or would have made the journey by driving all the way to their destination. Without the Park and Ride facility it is likely, from the evidence gathered on the distance between home and station, that a number of people would drive all the way to their destination i.e. it is too far to walk on a daily basis.
- 4.84 The findings show that the station re-opening has resulted in a small reduction in car trips. They also show that a large proportion of these trips would have been made in the peak periods and therefore most congested times. The resulting overall reduction in car kilometres on the network suggests it has had a small but positive impact on road safety, particularly on the A90 into Aberdeen, although this cannot be observed and attributed to Laurencekirk station.
- 4.85 While the evidence suggests that the scheme has made a positive contribution to the objectives, it is not possible to conclude that the scheme has been a success. The objectives developed as part of the appraisal process are not SMART and do not have any quantified targets. It is therefore difficult to determine whether the scheme has resulted in alleviating the transport problems or generating opportunities.
- 4.86 A recommendation to ensure useful and effective evaluations of the outcomes of rail schemes is for the appraisal to develop SMART transport planning objectives so that the performance of a project can be measured and assessed quantitatively. Without such objectives or targets, it is not possible to measure the performance of a scheme against objectives 'to link', 'to improve' or 'to encourage'. Objectives with quantified targets should therefore be developed (reflecting the identified problems that the transport scheme is being designed to tackle) so that the success of the scheme can be quantified.
- 4.87 We have noted though that defining SMART objectives (which are rooted in evidence rather than being arbitrary or aspirational values) can be challenging in the STAG context. Transport Scotland may wish to consider how further Guidance could be provided for Objective setting in STAG. For example, STAG could provide a 'menu' of typical objectives, or recommendations on how objectives can be presented in a SMART format.

5. REVIEW OF LAURENCEKIRK STAG APPRAISAL

Introduction

- 5.1 In addition to the wider outcome evaluation set out Chapter 4, an important element of the study scope was to review the economic elements of the original STAG appraisal, with a view to understanding:
- *why the passenger and revenue figures for Laurencekirk station exceeded those forecast in the STAG appraisal;*
 - *Revised STAG, including Transport Economic Efficiency / Benefit Cost Ratio (BCR) for the scheme;*
 - *the 'Wider Economic Benefits' (WEBs) of the project; and*
 - *Wider Impacts of station reopening.*

Review of STAG

- 5.2 Evidence from a range of new rail line and rail station openings demonstrates a repeated weakness in passenger demand and revenue forecasting. This problem is prevalent across different geographies and station types – forecasts often significantly under or over-estimate demand with no clear reason as to why. Laurencekirk is an example of where the patronage forecasts underestimated outturn demand as will be detailed below.
- 5.3 This section comprises a brief review of the original STAG appraisal of August 2004 and the focus is on the quantification of costs and benefits with a view to comparing these with the outturn values derived in part from the survey of Laurencekirk station users.
- 5.4 The purpose is also to understand the methodology employed in generating the original passenger and revenue forecasts with a view to explaining why passenger numbers were under forecast. It is important to note however that the guidance on transport appraisal has also been updated since the original STAG work of 2004 and parts of the methodology were not necessarily inconsistent with the guidance at the time.

Laurencekirk Station Train Service Appraised

- 5.5 The train services envisaged in the STAG was as follows:
- *15 northbound station calls (i.e. Dundee–Laurencekirk–Aberdeen); and*
 - *14 southbound calls (i.e. Aberdeen–Laurencekirk–Dundee) per day.*
- 5.6 These services were specified to be a mix of Glasgow-Aberdeen and Edinburgh-Aberdeen services, based on the timetables in operation at the time. No other station stops were dropped to accommodate the additional stop at Laurencekirk⁹.
- 5.7 On a weekday, there are currently 12 northbound and southbound trains calling at Laurencekirk, so the outturn service is somewhat less than originally envisaged in terms of frequency. In addition, there are only two direct trains per day between Laurencekirk and Glasgow with the other trains all being

⁹ While no stops were dropped, it was explained by NESTRANS that opportunities for additional stops elsewhere were lost due to including a stop at Laurencekirk

Edinburgh (or Dundee) services. Indeed several respondents to the survey did note that more direct links to Glasgow would be beneficial.

- 5.8 The outturn service is therefore slightly less frequent to that considered in the appraisal. Note though that STAG appraisal does not appear to have been linked to specific timetables / train times in the way that, for example a network modelling exercise would be.

Demand and Revenue Forecasting

- 5.9 The 2004 STAG report does not lay out the calculations underlying the demand forecasting in any detail. However, the process is described as follows:

- *Identify existing patterns of trip movements in each of the study corridors;*
- *Identify existing origins and destinations of trips in each of the corridors;*
- *Identify the modes used by the existing trips in each of the corridors;*
- *Evaluate the numbers of car trips transferred from road to rail when the station is opened; and*
- *Calculate the effects of these modal transfers.'*

- 5.10 The report outlines that TEMPRO-based trips rates (TEMPRO v4.2, DfT, 2002) for 2001 were extracted for the Laurencekirk area, resulting in a trip rate of 5.5 trips per household per day (combined car driver and passenger, not stated whether these are one-way or return trips). It is then stated that *'in some respects, the application of aggregate forecasts to a specific rural area may be open to question, given the impact of location and relative distance to prime facilities and services'*, so an assumed figure of 2.5 trips per household per day is used, cited as a conservative estimate.

- 5.11 From these trip rates, an estimated patronage of 36,000 one-way rail trip is derived which at an assumed £7.20 per trip provides a revenue estimate of £259,000 revenue (2003 prices). The figure of 36,000 is significantly lower than the outturn passenger numbers discussed in chapter 4, which showed almost 75,000 passengers using the station in the first full year of 2010-11, rising to over 92,000 by 2012-13.

- 5.12 No further details are provided as to the derivation of the forecasts. It could be assumed that the trip rate of 2.5 trips per household has been applied to a catchment area of households. An estimate of how many of these trips go to Dundee and Aberdeen could have been made and then some proportion of these taken as rail trips. This raises a number of questions:

- *are all new rail trips assumed to have transferred from car?;*
- *are all new rail trips from Laurencekirk new to rail, i.e. no transfer (via Park and Ride) from existing stations?;*
- *are any entirely new trips generated?;*
- *has any change in destination choice occurred?; and*
- *is there an assumed loss of revenue to other modes (eg bus)?*

- 5.13 The trip volumes are used to estimate the number of car km removed from the network, and a figure of 4.3 million vehicle kilometres per annum is reported. As a result of these reduced traffic levels, accident savings (£69,700 per annum) and vehicle operating cost savings (£139,600 per annum) are also reported.

- 5.14 MOIRA was used to estimate the revenue impacts on existing services of stopping trains at Laurencekirk, and it was also used to estimate monetised delays to remaining passengers.
- 5.15 Using the above results, the total revenue and benefits per annum used the appraisal are as follows:
- *Revenue : +£259,000 per annum (at 2003 prices);*
 - *Accidents savings (accidents prevented due to reduced traffic levels): +£69,700 per annum (at 2003 prices);*
 - *Vehicle Operating Cost (VOC) savings: + £139,600 per annum (at 2003 prices);*
 - *Abstraction (reduced rail boardings due to increased journey times associated with the additional station stop): –£26,000 per annum (at 2003 prices); and*
 - *Delay (monetised time delays to remaining passengers due to increased journey times associated with the additional station stop): –£95,000 per annum (at 2003 prices).*
- 5.16 This would suggest a net positive annual benefit of £347,300 per annum at 2003 prices.
- 5.17 The MVA Report of 2003 is included as an Appendix to the main STAG report. It includes an estimated figure of 25,000 single journeys originating in Laurencekirk and a similar number of returns, i.e. a total of 50,000 journeys. A total annual revenue of £240,000 is also forecast. It is notable that both forecast revenue figures (£240,000 by MVA and £259,000 by Scott Wilson) are similar, yet these are derived from very different patronage forecasts (50,000 for MVA and 36,000 from SW).
- 5.18 The STAG Report notes that ‘however, there are several aspects of the methodology used by MVA that are worthy of highlighting as they have led to quite low estimates of demand and revenues’. However the patronage forecast used by SW is actually lower than that developed by MVA, albeit the revenue forecasts are similar. This suggests there may have been some misunderstanding in the interpretation of these figures between SW and MVA, but it is not possible to fully understand this apparent discrepancy with the information available in the STAG report.
- 5.19 This review of the benefits cited in the original STAG report suggests:
- *A fairly limited range of benefits were estimated, and these were primarily financial;*
 - *Most notably there was no estimate of travel time savings;*
 - *A very simple assumption of transfer of existing car trips to rail underlay the analysis. No other aspects of behavioural change appear to have been considered;*
 - *The appraisal period, price base and discount rates have been updated since the appraisal was undertaken; and*
 - *The key underlying assumptions and calculations underlying the demand forecasts in particular need to be more clearly laid out. As it stands, it is not possible to follow a full trail of logic through to the derivation of the key figures.*

- 5.20 The STAG Report does not therefore contain sufficient detailed information to allow us to determine precise reasons why forecast passenger numbers were lower than seen in the outturn.
- 5.21 The approach taken in the STAG appears to have been fairly high level, and not based on, for example, specific population projections or planning data assumptions for Laurencekirk which may not have materialised. As such, the previous approach cannot simply be re-run with new data to see how this would have affected the forecast.
- 5.22 The key conclusion here is that the key underlying cause and effect assumptions and analysis must be recorded and laid out clearly in a STAG Report (or supporting annex) if a later evaluation process is to understand why outcomes may have diverged from forecast.

Outturn values

5.23 As outlined above, the Laurencekirk STAG study estimated economic benefits associated with:

- *Increased rail revenue (£357,000 per annum, 2013 prices¹⁰), based on assumed yield of £9.93;*
- *Reduced vehicle operating costs (£193,000 per annum, 2013 prices); and*
- *Reduced costs associated with road accidents savings (£96,000 per annum, 2013 prices).*

5.24 Outturn values for each of these are estimated below, based on LENNON and the Laurencekirk user survey data.

5.25 The STAG also estimated disbenefits associated with:

- *Delay to existing passengers due to the additional station stop at Laurencekirk (£131,000, 2013 prices); and*
- *Loss of existing passengers due to the additional station stop at Laurencekirk (£36,000, 2013 prices).*

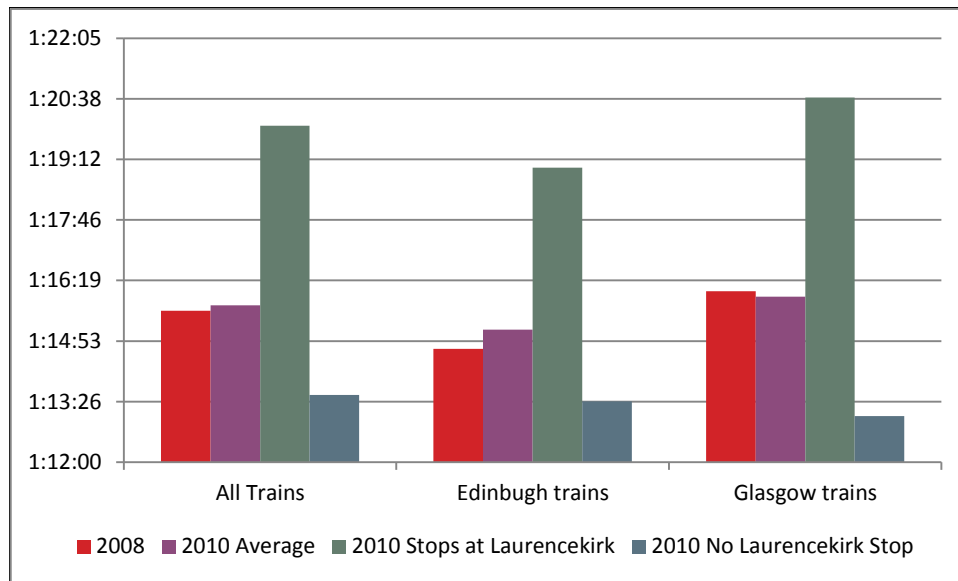
5.26 The STAG states that the time penalty associated with the extra station stop is three minutes, and it is assumed here that the above values are derived from this three minute penalty. It is assumed that those trains which do not stop at Laurencekirk incur no time penalty. In order to assess whether this timetable impact was borne out, historic MOIRA files have been examined for December 2008 (i.e. pre Laurencekirk) and December 2010 (post Laurencekirk opening).

5.27 Figure 18 below shows the average timetable journey time across the day between Dundee and Aberdeen for 2008 and 2010. The results are shown for all trains, then Aberdeen-Glasgow services and Aberdeen-Edinburgh services separately.

5.28 It also shows the results separately in each case for trains which stop at Laurencekirk and for trains which do not stop at Laurencekirk.

¹⁰ The STAG reported in 2003 prices, these values have been updated to 2013 using RPI.

Figure 18. Before and After Laurencekirk – Dundee-Aberdeen Travel Times (hours)



5.29 These figures therefore suggest that overall, there was little change in average journey times between 2008 and 2010 for all rail travel between Dundee and Aberdeen following the opening of Laurencekirk station (i.e. comparing '2008' with '2010 average'), despite around one third of trains now stopping at Laurencekirk.

5.30 Trains stopping at Laurencekirk see journey times increase by around five minutes, greater than the value assumed in the STAG. However, other trains see faster journey times. This suggests that following the opening of Laurencekirk, or around this time, there was a wider reorganisation of stopping patterns on the line to create 'stopper' trains (slower than 2008) and 'express' trains with fewer stops (i.e. faster than 2008). Indeed the May 2014 timetable sees between two and six station stops between Aberdeen and Dundee, which supports this. It should be acknowledged however that these changes may or may not have been solely attributable to Laurencekirk station coming into operation.

5.31 Though stopping in itself would obviously add a minute or two to journey times, this apparent wider reorganisation means it is impossible to isolate the outturn timetable impacts associated solely with Laurencekirk station. However, using this analysis, average journey times between Dundee and Aberdeen increased by only eight seconds or 0.2% between 2008 and 2010, so overall the impact can be seen as negligible, when seen in the context of these wider timetable changes.

Rail Revenue

5.32 LENNON data for the 2012/13 financial year reports a total of 92,500 single journeys and £571,000 of revenue associated with rail travel via Laurencekirk station, an average yield (i.e. total revenue divided by total journeys) of £6.70.

5.33 The outturn patronage and revenue is therefore far higher than forecast although yield is significantly lower than envisaged.

5.34 However, analysis of the survey returns suggests that 18% of this total revenue figure has been displaced from other stations. Hence the net figure for additional revenue is £469,000. The STAG Report makes no reference to

net / gross revenue in this way, but this net figure has been used in the benefit cost calculations which follow.

Change in Vehicle Kilometres: Vehicle Operating Costs & Safety

- 5.35 Both these sets of benefits (vehicle operating costs and safety) are directly aligned with the quantum of vehicle kilometres removed from the network as a result of the new station. Overall, around 70% of rail trips made via Laurencekirk have come about through a switch from car-based travel, either to another station (15%, primarily Montrose and Stonehaven) or all the way to the final destination (55%).
- 5.36 The resulting lower traffic levels will clearly lead to reduced vehicle operating costs and will also have led to a reduction in the number of accidents (as discussed in Chapter 4), primarily with respect to the A90.
- 5.37 The STAG Report states that the opening of the station would reduce vehicle kilometres travelled on the network by 4.3m per annum, and this is associated with 36,000 rail passenger trips. This implies that each single rail trip has taken 119km of car travel off the network. This value does seem very high given that the road distance from Laurencekirk to Aberdeen (which accounts for around 75% of all trips) is only 50km. In addition, this high figure does not align with previous MVA analysis undertaken in 2003 (and included in the STAG Report as an appendix) where very low rates of modal shift from car to rail are forecast (also in contrast to the outturn findings).
- 5.38 The annual level of car kilometres associated with all of the trips recorded in the customer survey undertaken as part of this research has been estimated using details of the journeys' origins and destinations, and also the frequency of travel. This analysis has been carried out for both:
- *journeys undertaken in the present day using the new station; and*
 - *the equivalent journeys based on the same journeys undertake either before the station had reopened, or hypothetically if the new station had not reopened.*
- 5.39 This analysis suggests a lower figure of around 2.6m vehicle kilometres per annum has been removed from the network. Some reasons for this difference are:
- *the original STAG may have assumed that all new Laurencekirk rail journeys replaced end-to-end car journeys, whereas in reality only around half of rail trips have replaced end to end car journeys; and*
 - *the figures in the STAG analysis do appear high as noted above and the derivation of the figure reported in the STAG is not clear.*
- 5.40 These figures are used to analyse vehicle operating cost and accident savings below.

Vehicle Operating Costs

- 5.41 The STAG report forecasts a reduction of 4.3m vehicle kilometres and a reduction in vehicle operating costs of £193,000 in 2013 prices. This suggest a vehicle operating cost of around £0.04 per kilometre. Current WebTAG guidance suggests a vehicle operating cost of £0.15 (non work) and £0.19 (in work). Appraisal Guidance has changed significantly since the STAG was

undertaken and these figures reflect that, particularly in light of several years of above inflation fuel price rises, although these have been compensated for to some extent by improved vehicle efficiency.

- 5.42 Applying these new values to the estimated reduction in vehicle kilometres derived from the survey gives an annual saving of £432,000 in today's prices. This figure is higher than that in the STAG despite the lower estimate of reduced car kilometres due to the higher pence per kilometre saving derived from WebTAG.

Accident Benefits

- 5.43 The STAG report estimated an annual saving in accident costs of £69,700 per annum (2003 prices), sourced from the NESA Manual (DMRB Vol. 15, 2002). STAG currently recommends that NESA / COBA values are used to determine the quantity, severity and cost of this reduction in accidents, and also references the NESA manual. When the values in the current NESA manual are applied to the quantum of accident reductions reported in the STAG, the monetary values reported in the STAG are reproduced, i.e. the valuations of accidents by type have not changed since the original STAG was produced.
- 5.44 It is therefore reasonable to assume that the outturn accident benefits will be lower than those estimated in the STAG in proportion to the lower outturn reductions in vehicle kilometres as shown below:
- *STAG estimate: £96,000 per annum (2013 prices); and*
 - *Outturn estimate: £96,000 * 2.6m/4.3m = £58,000 per annum.*

Benefit Cost Ratio

- 5.45 Using the above parameters, it is possible to re-calculate the Benefit Cost Ratio (BCR) on the same basis as the original STAG report. A proportionate, relatively high level, approach has been taken to this task, focussing on the main parameters, and retaining consistency with the original STAG where possible.

Benefits

- 5.46 The STAG reported a Present Value of Benefits¹¹ (PVB) value of £5.0m based on 2003 prices, a 30 year appraisal period and a 3.5% discount rate (assumed discounted to 2002).

Costs

- 5.47 The STAG Report developed a construction cost figure of £3.2m in 2003 prices for the new station, with this value including an optimism bias of 34%. The optimism bias figure was adjusted downwards from 44% to 34% as the capital costs provide to the STAG study already had an element of optimism bias / risk adjustment included. The approach and figures used are in line with the guidance of the day. The original 44% figure is not reflected in the current STAG though, i.e. the optimism bias values have been updated since the original study. Outturn construction costs for the new station were £3.5m

¹¹ In appraisal, to allow a like-for-like comparison of options where costs are incurred and benefits accrue over different time periods these are discounted to a common price base of the day. This is defined as the present value.

(2009 prices) or £3.0m in 2003 prices, so outturn costs were actually very close to the costs used in the appraisal, if optimism bias is taken into account.

5.48 The STAG also reported annual operating costs of £60,000, comprising station leasing charges, maintenance costs and train calling costs. We have no new information with respect to these charges so have assumed the £60,000 is correct in the analysis which follows.

BCR Analysis

5.49 Table 6 below shows the Present Value of Benefits , Present Value of Costs (PVC), Net Present Value (NPV) and Benefit Cost Ratio (BCR) figures as reported in the STAG (Table 8-2), and as recalculated here on the basis of the analysis described above.

5.50 In the 'core' test, we have assumed that the timetable disbenefits associated with the new station identified in the STAG are valid. The exclusion of these disbenefits (as suggested in the outturn analysis) is explored in a sensitivity test. In all cases, net rather than gross additional rail revenue has been used in these calculations.

5.51 To retain consistency with the STAG, figures here are reported in 2003 prices, and a 30 year appraisal period from the opening year of 2009 has been assumed for the core test. The wholly new trips have been attributed with half the average benefits where relevant.

5.52 Sensitivity tests are also included here as follows:

- *the appraisal has been reconfigured with a 60 year appraisal period, as recommended by the latest STAG guidance, including the current 3.5% / 3.0% discount rates;*
- *the STAG also assumed no growth in benefits over time. The '60 year growth scenario' below includes an assumed population growth of 0.6% per annum based on GROS projections for Aberdeenshire; and*
- *it was noted above that the timetable related disbenefits to through passengers may not have transpired. This test excludes these disbenefits, i.e. it is assumed that the only costs are associated with construction and maintenance.*

Table 6. Benefit Cost Ratio, STAG and Outturn (2003 prices)

	STAG REPORT (£M)	CORE OUTTURN 30 YEAR (£M)	OUTTURN 60 YEAR (£M)	OUTTURN 60 YEAR (POP GROWTH) (£M)	OUTTURN 60 YEAR (NO TIMETABLE DISBENEFIT) (£M)
	5.0	8.3	11.4	13.1	15.8
PVC	3.3	3.3	3.6	3.6	3.6
NPV	1.7	5.0	7.8	9.5	12.2
BCR	1.5	2.5	3.2	3.6	4.4

5.53 On a like-for-like basis, the outturn BCR of 2.5 is a significant improvement on the STAG Report value of 1.5. The BCR is further improved to 3.2 when a 60 year appraisal period is considered, and then improved again to 3.6 if an allowance is made for population growth. If it is assumed that the timetable related disbenefits to through passengers did not materialise, then a BCR of 4.4 is achieved.

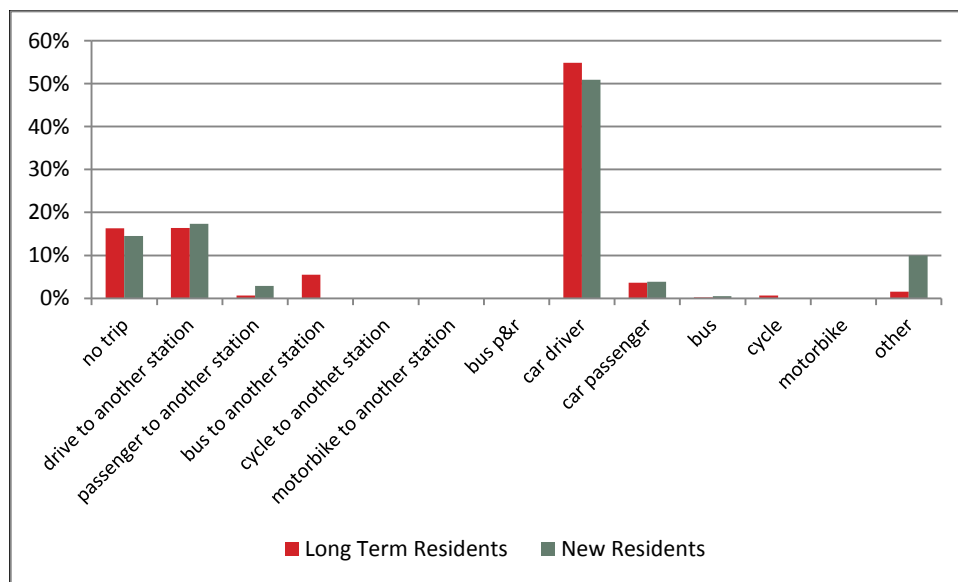
5.54 It can therefore be concluded that the outturn benefit cost ratio of the new station is significantly higher than that reported in the STAG.

Travel Time Savings

5.55 In many transport appraisals, monetised travel time savings typically comprise the *majority* of the economic benefits. However, the Laurencekirk STAG report did not report any benefits associated with changes in travel time.

5.56 To recap, Figure 19 below shows the previous or hypothetical journeys undertaken by long term and new residents of Laurencekirk respectively. This underlines that the majority of rail trips have transferred from car driver / car passenger or are mixed mode / Park and Ride from Laurencekirk as opposed to another previously used station.

Figure 19. Details of Equivalent Journeys Undertaken prior to Laurencekirk Opening



5.57 In the appraisal of public transport improvements, economic benefits materialising through travel time savings are typically derived from:

- *reduced journey times for existing public transport users, e.g. through faster trains or buses;*
- *modal shift between bus and rail, e.g. from bus to rail; and*
- *modal shift from car to public transport - in practice though, even complex multi-modal models tend to forecast a low modal shift between car and public transport, and this therefore tends to be a lower order impact.*

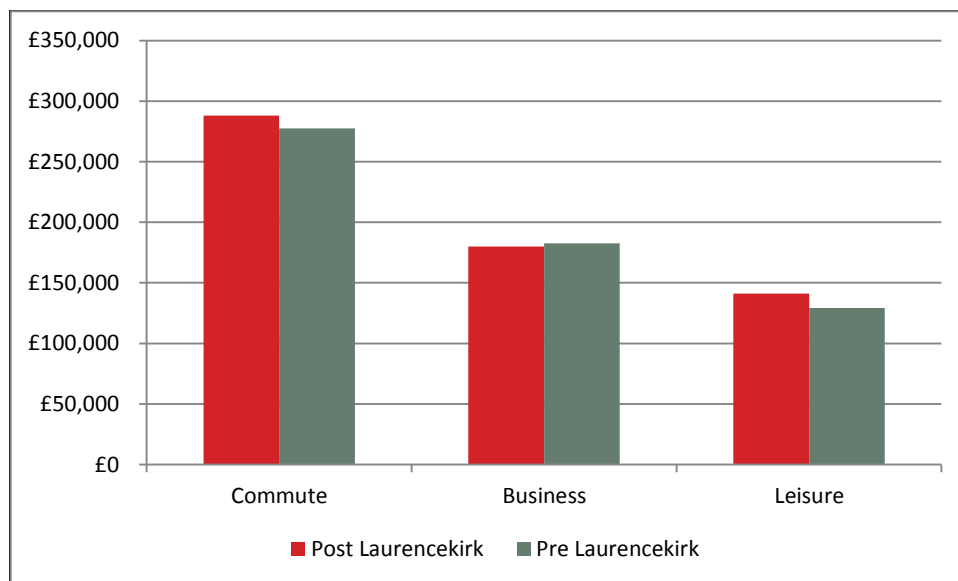
5.58 In the case of Laurencekirk, the opening of the new station brings no benefits to existing rail users (indeed existing rail journeys using Park and Ride are likely to increase in length / duration as users switch from Stonehaven / Montrose to Laurencekirk), and there is a negligible switch from bus to rail as seen above. Instead there is a mix of:

- *switchers from car end-to-end to car / rail or walk / rail;*
- *a change in Park and Ride location from Stonehaven / Montrose to Laurencekirk; and*
- *a significant number of newly generated trips.*

- 5.59 This makes the appraisal more complex in terms of travel time savings.
- 5.60 Travel times by car from Laurencekirk to Aberdeen city centre are typically reported as being 40-45 minutes in the peak, figures also found in Aberdeen Subarea Model (ASAM) transport model results. However, there may be substantial upwards variability around this average figure caused by congestion at key locations such as Bridge of Dee and Anderson Drive. We do not have definitive survey data with respect to this, but for example, Google Maps suggests there is typically more than one kilometre of northbound stationary queuing traffic on the A90 at the Bridge of Dee in the AM peak. In practice therefore, those requiring to arrive at a specific time in e.g. Aberdeen or Dyce may require to allow significantly more time for their journey, and this is not readily captured in conventional appraisal.
- 5.61 The average time by train from Laurencekirk to Aberdeen is 33 minutes, but to this must be added station access time (walk / drive), wait time, and onward travel to the final destination from Aberdeen railway station. In appraisal, walk and wait times are also weighted to reflect the fact that people tend to seek to minimise these aspects of any journey, adding further to the perceived journey time.
- 5.62 In pure time terms, for many of the journeys recorded in the survey, switching from car to train therefore actually increases journey times. When a fare is added, this also means that the generalised cost of travel via Laurencekirk by rail can be greater than the generalised cost of travelling end-to-end by car. However, this 'revealed preference' travel behaviour does indicate that these individuals must be gaining a benefit, otherwise they would not have switched mode. In practice, there are a range other factors which account for people choosing rail over car, which may not be captured in a conventional generalised cost such as:
- *car parking cost and availability at destination;*
 - *household car ownership;*
 - *ability to work or relax on the train; and*
 - *relative reliability of train over car on a congested network – rail offers relative certainty of travel time.*
- 5.63 Here, the data obtained from the user survey has been used to estimate travel times for:
- *journeys undertaken in the present day using the new station; and*
 - *the equivalent journeys undertaken either before the station was reopened or hypothetically had the station not reopened.*
- 5.64 These estimated travel times include:
- *the walk time to station (derived from home postcode);*
 - *drive / bus time to station (derived from home postcode);*
 - *transfer penalty from car to train;*
 - *time on train;*
 - *walk time from train to final destination;*
 - *end to end car journey time (estimated from ASAM model, or Google Maps for long distance trips); and*
 - *assumed walk time from parking to end destination.*

- 5.65 It has been assumed that those walking or making short drives to Laurencekirk would time their journeys such that wait time would be minimal. Note that if a typical MOIRA derived wait time (derived with respect to what is a relatively infrequent service) was applied, this would make the end-to-end journey time even more uncompetitive with the car option.
- 5.66 These journey times have been monetised using WebTAG values of time for commute, business and leisure. Figure 20 below shows the results of this analysis for the pre and post Laurencekirk trips, shown as an annual aggregate total.

Figure 20. Total Annual Monetised Journey Times by Purpose – Pre & Post Laurencekirk



- 5.67 It can therefore be seen that the new station has had a broadly neutral impact on travel times, using the assumptions outlined here. Note that these findings are sensitive to assumptions surrounding car travel times, parking costs, and train wait times, so should only be seen as indicative.
- 5.68 However this analysis does serve to illustrate that for new stations located some distance from major settlements (i.e. where there is very little existing bus use), travel time savings are perhaps unlikely to form a major component of the economic benefits. In other words, very few people are using the mode from which the greatest time saving would be derived, i.e. the bus, presumably due to the prohibitive journey times and / or service frequency associated with this mode.
- 5.69 The impact of the new station on before and after journey times has been broadly neutral.

Ideas for Further Research

- 5.70 There are many examples around Scotland where new stations or station re-openings are being promoted and the data collected via the Laurencekirk user survey provides an invaluable insight into how new stations affect travel patterns.
- 5.71 New station openings, particularly in rural areas, also present particular challenges for transport modelling. Successfully modelling a new station such as Laurencekirk would require a high level of detailed base year data, beyond

that which would normally be achieved in a strategic model. In addition, the survey has revealed behavioural changes which a conventional model would not necessarily be able to reproduce.

- 5.72 The Laurencekirk dataset could therefore be used as a test bed to undertake research into how strategic multi-modal modelling would have to be improved in terms of data, spatial detail and calibration to 'match' this outturn behavioural change. The Aberdeen Sub Area Model (ASAM) covers this area and would be a suitable model to undertake this research. The findings could then be applied in other models across the country which are being or could be used to appraise the impacts of new station proposals.
- 5.73 The Laurencekirk survey respondents were asked for contact details and their willingness to take part in further research. To assist in understanding these issues further and calibrating the model, the survey respondents could be approached with a further, more detailed, survey examining their before and after travel choices (including for example parking cost / availability, perceived journey times, household car availability etc), or this could also be undertaken via focus groups.

Wider Economic Benefits

- 5.74 This section provides a summary of the findings of the analysis looking at the Wider Economic Benefits (WEBs) associated with the reopening of the station at Laurencekirk. Wider Economic Benefits (WEBs) are a relatively new feature of economic appraisal within the transport sector and they were not formally considered within STAG at the time the Laurencekirk appraisal was undertaken. The aim would be to investigate whether there are additional impacts that were not covered in the original appraisal that would have a significant bearing on the results if they were captured today.
- 5.75 WEBs contribute to the positive impact of transport on productivity and GDP and are caused by the existence of market imperfections in transport using industries.
- 5.76 The analysis focused on two areas¹²:
- *Agglomeration Impacts; and*
 - *Wider benefits arising from improved labour supply.*
- 5.77 Given the limited impact the reopening of the station will have on WEBs, a proportionate and qualitative exercise was carried out in line with STAG. The key aim was to understand whether a project of this size and nature is likely to have wider economic impacts not captured in the conventional Transport Economic Efficiency appraisal, and therefore feed the findings back to Transport Scotland to inform future appraisal and evaluations of similar schemes. While the existence and scale of the impacts was of interest, the precise monetary value of the impacts was of secondary importance for the evaluation and these have not therefore been quantified.

¹² The analysis did not consider the impacts of 'increased competition as a result of better transport' as the position under STAG is that this is neutral, and 'increased output in imperfectly competitive markets' as this is accounted for as an uplift in the CBA.

- 5.78 In order to provide the required data for the WEBs analysis, we undertook an extensive survey of local businesses, with a view to understanding the impact of the station reopening. A summary of the business survey is provided here.
- 5.79 Interviews were carried out with 20 businesses, details of which were provided by Aberdeenshire Council. The businesses covered a wide range of sectors and accounted for 7% of all businesses in Laurencekirk and the surrounding area area.
- 5.80 Interviews were undertaken with a senior member of the business, typically the business owner, manager or director with the discussion focussing on the following areas:
- *business performance;*
 - *business turnover and profitability;*
 - *business access to key services;*
 - *access to customers;*
 - *journey time to and from key markets;*
 - *business competition;*
 - *staff recruitment;*
 - *staff retention;*
 - *business travel; and*
 - *supply chain linkages.*
- 5.81 The businesses interviewed were also asked about the impact of the reopening of the station on the wider local economy and the likely consequences had the station not reopened (i.e. the counterfactual position).
- 5.82 A key question in the surveys was whether the business had been located in Laurencekirk prior to the reopening of the station. Businesses that set up in the town after the station was reopened were asked the extent to which the station impacted on their decision to locate in the town. Of the 20 businesses contacted, 15 were already operating in Laurencekirk prior to the station reopening, while five located to the area after the reopening.
- 5.83 In the interests of completeness, interviews were also carried out with the Laurencekirk Business Club and Mearns Academy, one of the largest employers in the town.

Agglomeration Impacts

- 5.84 Transport can alter the accessibility of firms in an area to other firms and workers. Agglomeration benefits arise because firms derive productivity benefits from being close to one another and from being located closer to larger labour markets. If transport investment brings firms closer together and closer to their workforce this may generate an increase in labour productivity above and beyond that which would be expected from the direct user benefits alone as measured in conventional Transport Economic Efficiency analysis.
- 5.85 The results from the business survey suggest that, while the station has had a positive impact in terms of access to suppliers, markets and customers, agglomeration benefits have been limited and are likely a reflection of the relatively small number of firms located in Laurencekirk.

Labour Supply Impacts

5.86 Transport costs can affect the overall costs and benefits to an individual from working:

- *more people can choose to work if the costs of commuting (time and / or fare) fall;*
- *people may choose to work more hours if their commuting time falls; and*
- *improved transport can open up new opportunities and lead to better matching of labour supply with demand, leading to higher productivity.*

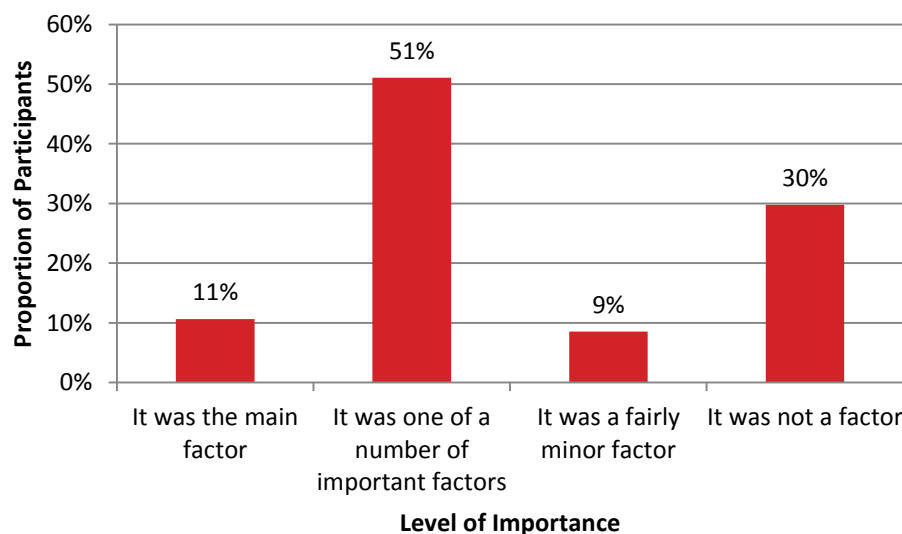
5.87 The findings from the Accessibility analysis reported in section 4.2 showed that the station reopening had resulted in a reduction in public transport journey times to a number of areas of employment. This was particularly so for Aberdeen, where journey times by public transport to the city centre had fallen from 115 minutes to 65 minutes. In practice, due to the mix of car / Park and Ride travel behaviour observed in the surveys, the impact on observed travel times is less significant.

5.88 A number of questions were included in the user survey to understand whether the station reopening had contributed to people entering the workforce or moving job, whether people could get to work quicker, or whether they had used the time to work more hours.

5.89 Respondents were asked whether they had moved jobs since the station reopened in 2009. Of those responding to this question, the majority (65%, n=129) indicated that they had not moved jobs, 24% (n=47) stated that they had moved jobs and 12% (n=23) indicated they were not in employment.

5.90 For those that had moved jobs, Figure 21 below indicates how significant the re-opening of Laurencekirk Station was in participants' decision to change employment.

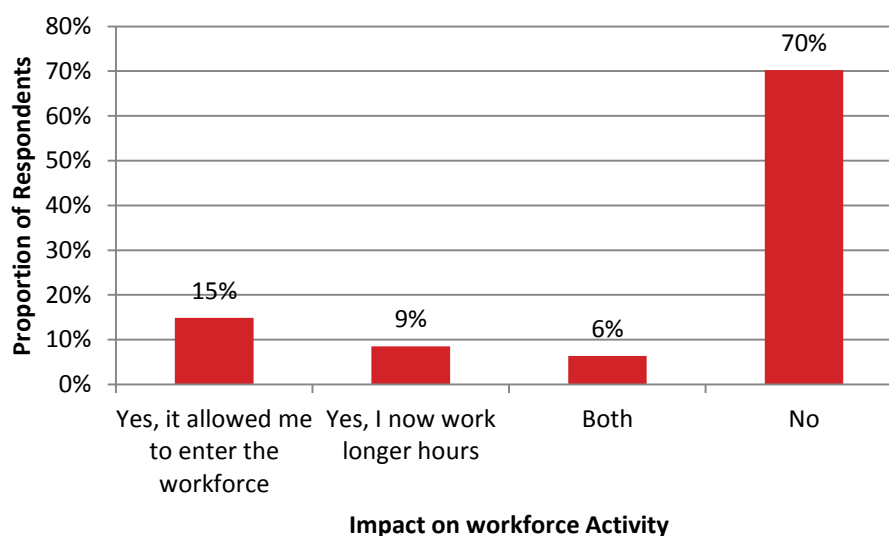
Figure 21. Significance of Station Reopening on Decision to Change Jobs



5.91 As shown, the majority of those who moved jobs stated that the reopening of the station was a factor in their decision, with 11% (n=5) stating it was the main factor, 51% (n=24) indicating that it was one of a number of important factors and 9% (n=4) stating it was a fairly minor factor.

- 5.92 Of those who moved jobs, 30% (n=14) stated that the re-opening of the station was not a factor. Various reasons were given for this including participants' old and new job both being in Laurencekirk, working abroad or driving as part of their role.
- 5.93 Respondents were also asked whether the re-opening of the station encouraged them to enter the workforce or work more hours because the commute to work was now quicker. As shown in Figure 22, of those who responded to this question, 70% (n=33) stated that it had not had an impact, 15% (n=7) said it had allowed them to enter the workforce, 9% (n=4) said it allowed them to work longer hours and 6% (n=3) said it had allowed them to both enter the workforce and work longer hours.

Figure 22. Impact on Workplace Activity



Conclusions

- 5.94 One of the key tasks was to explore why the forecast number of passengers using Laurencekirk station were less than half of the outturn passenger numbers. However, in undertaking the review of the original 2004 STAG report it became apparent that it does not contain enough detailed information, and sufficient clarity on the assumptions made, to determine the precise reasons why the forecasts were lower than outturn passenger numbers.
- 5.95 While the approach does appear to be generally consistent with the proportional approach recommended in STAG, the high-level nature makes it difficult to interrogate thoroughly.
- 5.96 It is an important lesson learned that, if future outcome evaluations are to explore in detail why outturn numbers diverge from forecasts then the key underlying cause and effect assumptions must be recorded and clearly laid out in the STAG Report.
- 5.97 Because the approach was high-level and not totally consistent with the expected methodological approach, it was not possible to simply re-run the analysis using the outturn data. In addition, the approach recommended in the current appraisal guidance is different from that which existed in 2004. Consequently the cost benefit analysis was re-done in line with current guidance.

- 5.98 Using the outturn data, the revised BCR ranged from 2.5 to 4.4 depending on the scenario and assumptions used. This compares with the BCR in the original report of 1.5. Given the costs used are the same in both approaches, the increase in the BCR is generated by a higher level of benefits.
- 5.99 Current transport appraisal guidance includes advice on techniques to capture impacts that have traditionally not been captured in conventional appraisal. This includes Wider Economic Benefits (WEBs). Analysis was therefore carried out to understand the impact of these Wider Economic Benefits from the re-opening of Laurencekirk railway station. The analysis revealed that agglomeration benefits are limited. It also revealed that while there may have been labour supply impacts, as the new station encouraged people to move to more productive jobs or those not employed to enter the workforce, the impacts will be limited for projects similar to Laurencekirk, i.e. a small station with relatively few users. In light of these findings, in the spirit of the proportional approach to appraisal emphasised in STAG, it is recommended that WEBs impacts are not required to be analysed as part of future appraisals of projects of this nature. It should still be considered for large and / or urban rail projects.

6. IMPACT ON THE WIDER ECONOMY

- 6.1 This section looks at the wider impact on the local economy of the station reopening. It considers factors such as population, the housing market and the labour market.
- 6.2 Chapter 4 on the Outcome Evaluation included details of the counterfactual, i.e. what users of the station would have done, in terms of their travel choices, if the station had not reopened.
- 6.3 The purpose of this section is to discuss and present the findings of the analysis undertaken to measure how the station has impacted on the local economy. It is important to also understand the counterfactual in these circumstances, i.e. what would the economic impact on the local area have been if the station had not been reopened. Identifying and isolating the impacts of a transport scheme is a challenging process as there are likely to be a number of factors acting simultaneously which have contributed to the outcomes. To account for this we have defined 'control group' areas where the impacts in these areas can be compared against those in Laurencekirk. The aim of selecting control groups is to help understand whether any impacts that have occurred locally in Laurencekirk have been directly due to the reopening of the new rail station. It does this by comparing impacts against areas that have faced similar economic experiences, therefore isolating the impact of the station and using it as a differentiating factor. While the approach applied in this context is not perfect, it is regarded as reasonable within the principle of proportionality emphasised in STAG.
- 6.4 The control groups adopted for this study were the wider Aberdeenshire area and national averages i.e. Scotland as a whole. The reason for selecting Aberdeenshire is to consider a wider group of similar areas i.e. factors affecting local areas in Aberdeenshire will be common to both groups, with the reopening of the station being the key isolating factor. Similarly, considering Scotland as a whole will, again, mean that both groups are likely to be affected by similar impacts, with the impact of the station being an important differentiating factor.
- 6.5 For each measured output (see below), the trend in the Mearns and Laurencekirk area has therefore been compared against the Aberdeenshire and Scottish averages over the same period.
- 6.6 There is a limited number of socio-economic factors that are collected and can be compared across these areas. However, the outputs for which the comparisons were drawn were:
- *population;*
 - *house prices, sales, and completions; and*
 - *benefit claimants and Jobs Seekers Allowance claimants.*

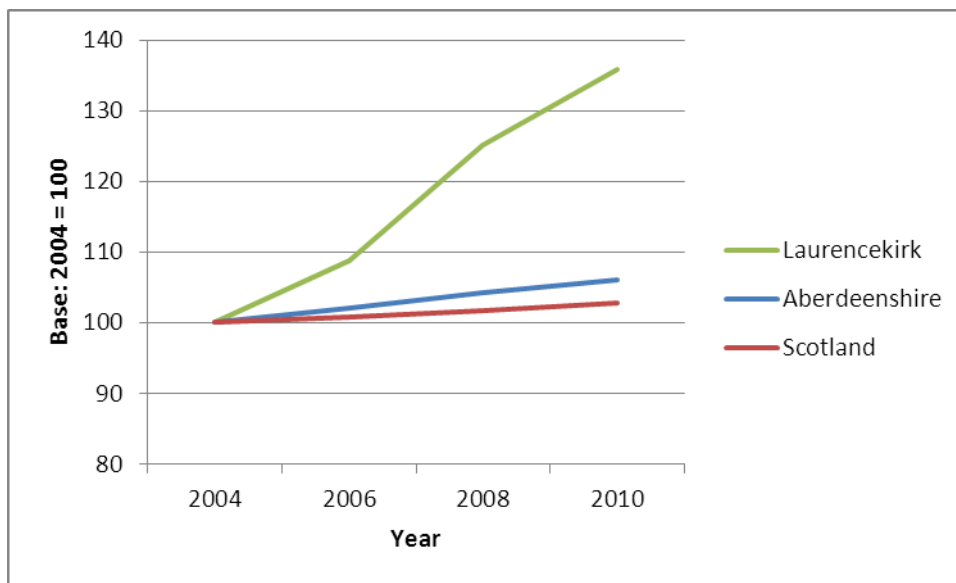
Population

- 6.7 It is often claimed that a new rail line or station will, over time, increase the population of surrounding settlements by virtue of improved accessibility. This is likely to vary depending on the extent of the travel-to-work market, service frequency, access to services, available substitutes etc. It will also be dependent on the length of time since the station was reopened, with, other

things being equal, the longer the period since the station was opened resulting in a greater increase in population. While the impact on population size may take longer than five years to materialise (due to the planning and development time required to supply the necessary housing) we have analysed population change over time to identify whether there are any noticeable trends.

- 6.8 The General Register Office for Scotland produces mid-year population estimates for settlements in Scotland. The change in population in Laurencekirk over the period 2004-2010 according to this data (most recent available) is shown in Figure 23 below.

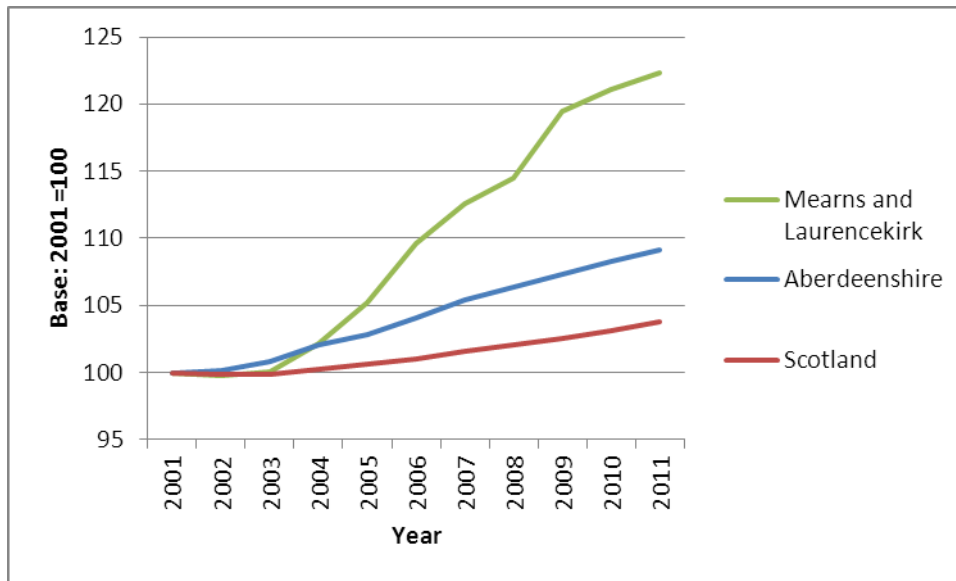
Figure 23. Percentage change in Population 2004 - 2010



- 6.9 As shown, the rate of population growth has been far quicker in Laurencekirk, growing by 36% between 2004 and 2010, compared to that of Aberdeenshire (6%) and Scotland as a whole (3%). Between 2004 and 2008, i.e. before the station reopened, the growth in population in Laurencekirk was 25%, compared to 4% and 2% in Aberdeenshire and Scotland respectively. Between 2008 and 2010, i.e. after the station reopened, the growth in Laurencekirk was 9%. This compares with growth of 2% in Aberdeenshire and 1% in Scotland as a whole. Therefore, while the population growth in Laurencekirk post the reopening (or in anticipation of the reopening) was much higher than in Aberdeenshire or Scotland as a whole, this appears to be a continuation of the growth which was being experienced prior to the station reopening rather than the station itself. It should be emphasised that the 2010 figures will not provide a true reflection of the impact however, as it is too soon after the station reopened, and this should be revisited when further figures become available.

- 6.10 This pattern of growth is also evident at the 'intermediate geography' (IG) level which forms the basis of reporting for much of Scottish Neighbourhood Statistical releases. Laurencekirk station is located in the IG 'Mearns and Laurencekirk' and the change in population for this area over the 2001-2011 period is shown in Figure 24 below.

Figure 24. Percentage change in Population 2001-2011

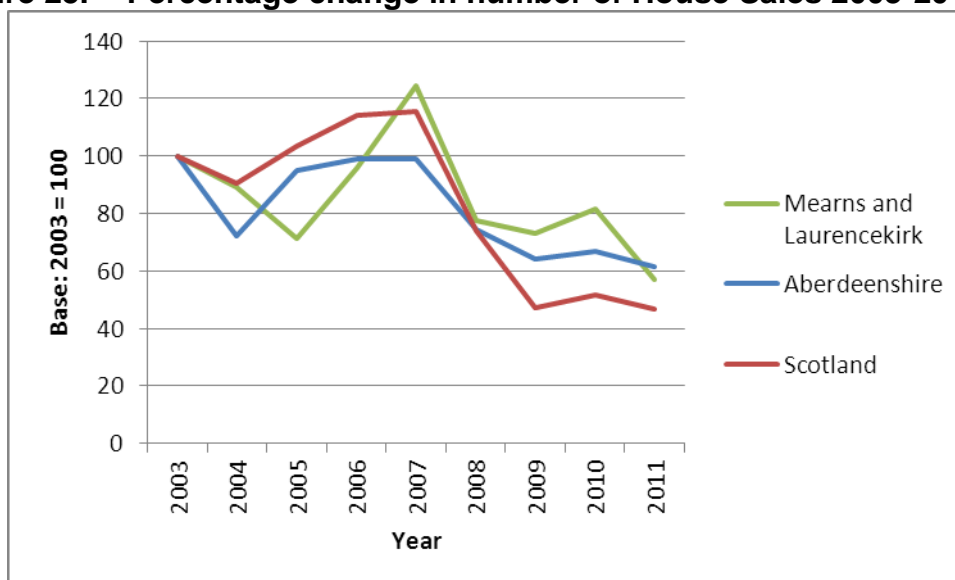


- 6.11 The population of Mearns and Laurencekirk increased by 22% between 2001 and 2011 while, over the same period, the population of Aberdeenshire grew by 9% and Scotland by 4%. However, between 2001 and 2008 the population growth in Mearns and Laurencekirk was 15%. Indeed growth of 15% was experienced between 2003 and 2008. The growth between 2008 and 2011 was 7%. Again, the figures suggest that the population growth post 2008 was very much a continuation of the relatively high rate of growth experienced in the years prior to the station reopening, rather than the impact of the station reopening itself. Further, looking at other areas in Aberdeenshire, the high rate of growth pre and post 2009 is not unusual. While the average for the area was 6% and 3% respectively, there were parts of the local authority area which witnessed levels of growth in excess of Mearns and Laurencekirk.
- 6.12 The Mearns and Laurencekirk areas have been experiencing high population growth relative to Aberdeenshire and Scotland. However, the growth post 2008 could easily be a continuation of the strong growth witnessed prior to the station reopening and the evidence is therefore inconclusive.

Housing / House Sales

- 6.13 Information on house sales at the intermediate geography level is available through Scottish Neighbourhood Statistics. Figure 25 below shows the change in the house sales in Mearns and Laurencekirk between 2003 and 2011 as recorded in this dataset.

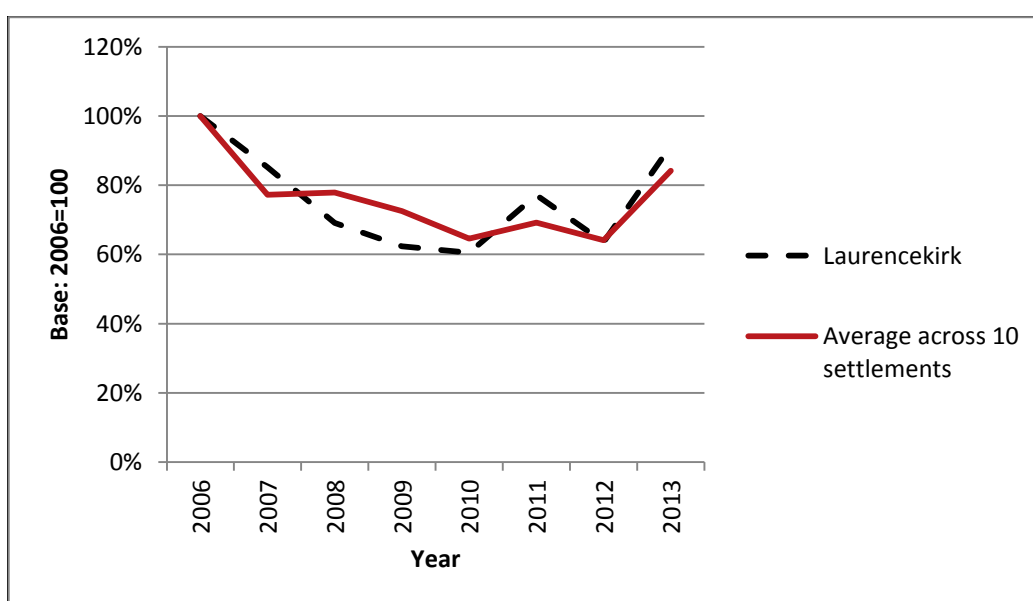
Figure 25. Percentage change in number of House Sales 2003-2011



6.14 The figure shows a fairly similar pattern across the three areas, with the downturn in sales post 2007 following the trend in economic activity over the same period. Between 2007 and 2011, the number of house sales in Mearns and Laurencekirk declined by 51%. This compares with figures of 59% and 35% for Scotland as a whole and Aberdeenshire respectively i.e. the decline was less than that witnessed across the country generally but much higher than in Aberdeenshire as a whole. The figures from 2008 show a similar trend, with declines of 14%, 23% and 36% for Aberdeenshire, Mearns and Laurencekirk and Scotland respectively.

6.15 Data on house sales at the settlement level is available from Zoopla Property Search¹³. Figure 26 below shows the change in the number of house sales for Laurencekirk between 2006 and 2013 compared to the average for the ten settlements in Aberdeenshire with population levels most similar to that of Laurencekirk¹⁴.

Figure 26. Percentage change in number of House Sales 2006-2013



¹³ See <http://www.zoopla.co.uk/house-prices/>

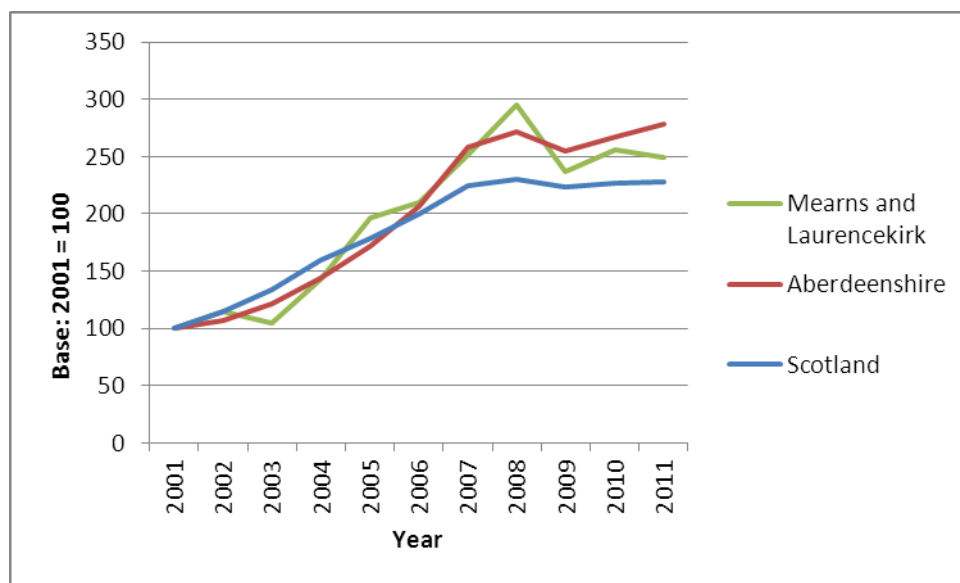
¹⁴ Based on the 2010 mid-year population estimates, the ten settlements in Aberdeenshire with population levels most similar to Laurencekirk are Banff, Kemnay, Newtonhill, Oldmeldrum, Blackburn, Mintlaw, Newmachar, Aboyne, Balmedie, and Alford.

- 6.16 As shown the number of house sales in Laurencekirk, similarly to the average, fell between 2006 and 2010, with the 2010 figure around 60% of the 2006 figure in both areas. Laurencekirk did witness a large increase in 2011, however this was followed by a relatively large decline in 2012 and a large increase in 2013.
- 6.17 Overall, while there was a difference in the pattern of growth in house sales in 2011 there is no clear evidence that the reopening of the station has had a measurable impact on the pattern of house sales in Laurencekirk.

House Prices

- 6.18 Figure 27 shows the percentage change in median house prices in Mearns and Laurencekirk, Aberdeenshire, and Scotland over the period 2001-2011.

Figure 27. Percentage change in median house prices 2001-2011



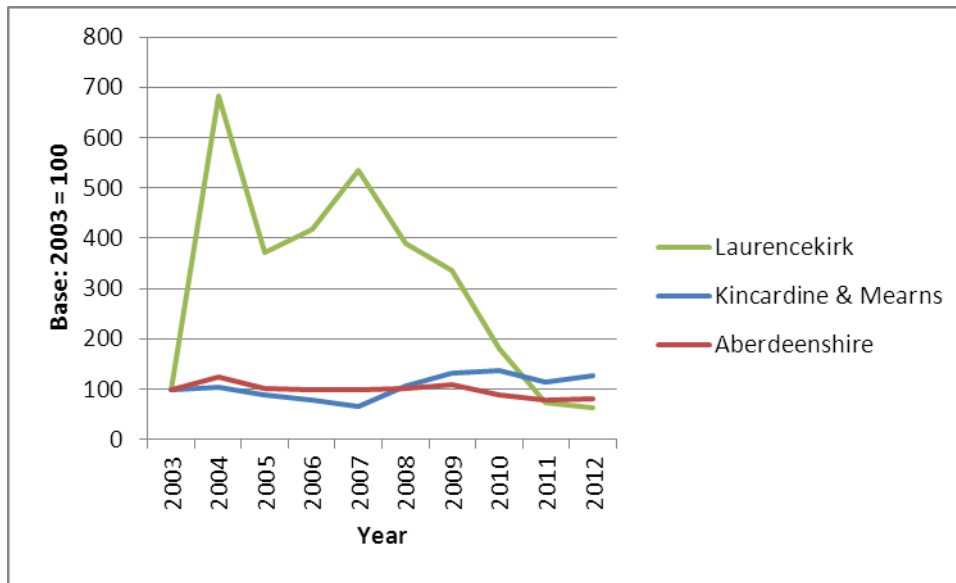
- 6.19 Median house prices across the three areas grew steadily between 2001 and 2008. The growth in house prices over that period was 195% in Mearns and Laurencekirk. The figures for Aberdeenshire and Scotland were 171% and 130% respectively, largely reflecting the strong growth in the housing market across Scotland and the UK.. Post 2008, Laurencekirk and Mearns has witnessed a more volatile pattern of increases and declines compared to the more steady prices witnessed across Scotland as a whole. Between 2008 and 2011 median house prices have declined by 16% in Mearns and Laurencekirk. This compares with figures of 3% decline for Aberdeenshire as a whole, and a fall of 1% across Scotland. Again, these trends reflect the trend in house prices across the country following the onset of the economic downturn (and burst housing 'bubble) following the financial crisis in 2008.
- 6.20 Overall there is no clear evidence that the reopening of the station has had a significant impact on house prices in the Laurencekirk area.

Housing completions

- 6.21 Aberdeenshire Council publishes data on the number of housing completions for each settlement within the authority in their Housing Land Audit.

6.22 Figure 28 below shows the percentage change in the number of completions in Laurencekirk, Kincardine and Mearns, and Aberdeenshire as a whole.

Figure 28. Percentage change in Completions 2007 - 2012



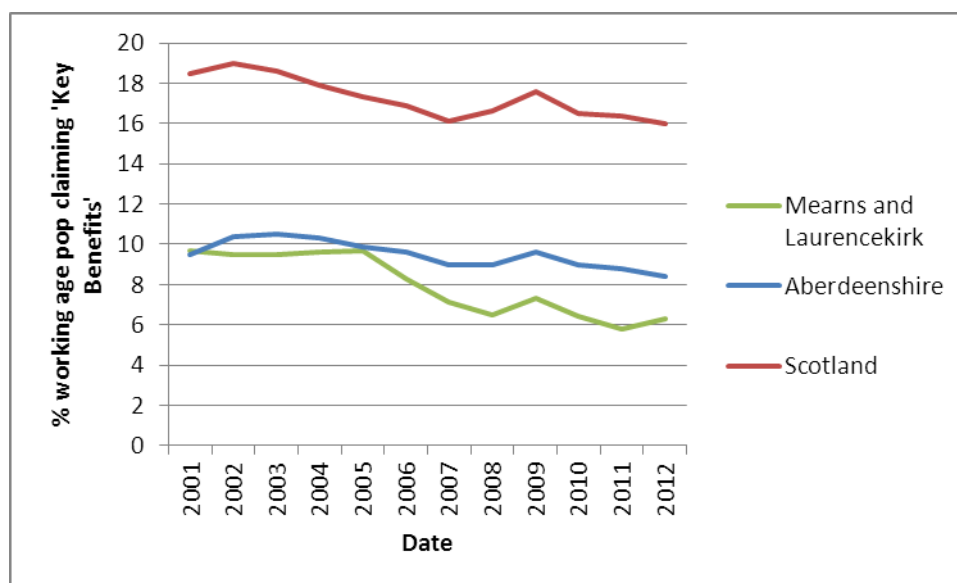
6.23 The figure shows that the number of completions in Laurencekirk has been much more volatile than the control areas. However, this is not surprising given the smaller size of the area meaning that a small change can result in fairly large swings and volatility in the totals. Perhaps more importantly is the noticeable sharp decline in completions in Laurencekirk post 2007 compared to the other areas. This extends into 2008, 2009, 2010 and 2011. While this is not surprising given the impact of the economic downturn on the housing industry, it does suggest that the station reopening has had limited impact on the number of completions in the local area.

Benefit Claimants

6.24 Figure 29 below shows the percentage of the working age population claiming 'Key Benefits'¹⁵ as defined in the Scottish Neighbourhood Statistics. A decline in the level of benefit claimants since the reopening of the station in 2009 could suggest that the improved accessibility to, for example, Aberdeen offered by the new station facility has increased opportunities for the workforce. In addition, the reopening of the station could also have helped to promote more activity locally and created job opportunities in Laurencekirk.

¹⁵ These are: Job Seekers Allowance; Employment Support Allowance or Incapacity Benefit or Severe Disablement Allowance; Lone Parents Income support claimants with a child under 16 and no partner; Carer's Allowance; Others on Income Related Benefit – Other income support (including IS Disability premium) or Pension Credit claimants under State Pension age; Disabled Disability Living Allowance (DLA); Bereaved Widows Benefit, Bereavement Benefit or Industrial Death Benefit.

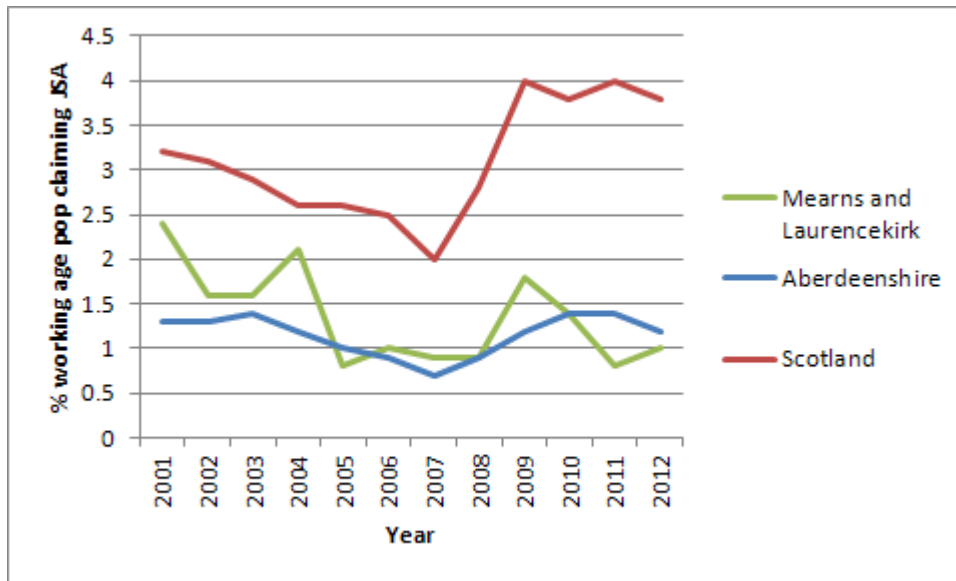
Figure 29. Percentage of working population claiming Key Benefits¹⁶



- 6.25 The proportion of the population claiming key benefits in Mearns and Laurencekirk has, in recent years, in the main been lower than that of Aberdeenshire and Scotland as a whole. In 2001 the figure for Mearns and Laurencekirk stood at 9.7%. This compared with figures of 9.5% for Aberdeenshire and 18.5% for Scotland as a whole. Between 2001 and 2012 the numbers claiming benefits declined by 35% in Mearns and Laurencekirk. This was significantly higher than that witnessed in Aberdeenshire and Scotland as a whole, where falls of 12% and 14% respectively occurred over the same period.
- 6.26 More specifically, between 2001 and 2008 the number of claimants in Mearns and Laurencekirk declined by 33%. Between 2008 and 2012 the reduction was just over 3%. While the reduction between 2001 and 2008 was lower in Aberdeenshire and Scotland (5% and 3% respectively), it was higher between 2008 and 2012, with figures of 7% in Aberdeenshire and 4% in Scotland as a whole. This tends to suggest that the station has had limited impact on the number of key benefit claimants in Mearns and Laurencekirk.
- 6.27 Figure 30 below illustrates the trend in the percentage of the working age population claiming Job Seeker's Allowance each year between 2001 and 2012.

¹⁶ From 2010 “% population aged 16-64 claiming ‘Key Benefits’” replaced “% working age population claiming ‘Key Benefits’” as a result of changes in the female state pension age.

Figure 30. % of Working Age Population claiming Job Seeker's Allowance



- 6.28 While there are clear annual fluctuations over the period, the three areas experienced a general decline between 2001 and 2007 during a period of strong economic growth. While the figure in Scotland fell from 3.2% to 2.0% and in Aberdeenshire from 1.3% to 0.7%, over the same period it declined by 2.4% to 0.9% in Mearns and Laurencekirk.
- 6.29 Post 2008 saw a significant initial increase across all areas, followed by a fall between 2009 and 2012. Figure 30 shows that there was a much larger fall between 2009 and 2011 in Laurencekirk than in Aberdeenshire or Scotland as a whole. However, between 2011 and 2012 the number increased in Mearns and Laurencekirk, while it declined in the other two areas.
- 6.30 Overall, there is no clear evidence to suggest that the reopening of the station has had an impact on the number of benefits claimants in Mearns and Laurencekirk, with greater reductions in Aberdeenshire and Scotland from the date when the impacts of the station are likely to have begun.

Conclusions

- 6.31 Overall there is no clear evidence from the data examined that the reopening of the station at Laurencekirk has had a significant and measurable wider economic and social impact. While there have been some positive impacts across a number of the metrics considered in, for example, the housing and labour markets, the impacts in Laurencekirk post station reopening do not appear to be significantly different from those witnessed in other areas considered. In addition, some of the positive trends, for example population, tend to be continuations of what was being experienced prior to the station reopening.
- 6.32 While there is little evidence to suggest that the reopening of the station has had wider positive social and economic impacts, it must be noted that the impacts of the station may not have firmly bedded in and it may take a longer period for these to materialise. In addition, some of the economic and social data is not yet readily available e.g. census data. It may require some time before the data becomes available for analysis and firm conclusions can be reached. Until then the findings of this section on wider impacts should be seen as preliminary.

7. RECOMMENDATIONS FOR RAIL EVALUATION GUIDANCE

Overview

- 7.1 This chapter sets out the recommendations to be considered for inclusion in the development of Transport Scotland's Rail Evaluation Guidance. It is split into two sections. The first section lists a number of recommendations, many of which are already highlighted in the Draft Guidance. The purpose is to re-emphasise these points and the importance of these factors.
- 7.2 The second section presents potential new recommendations which are not, as yet, covered in the Draft Guidance.

Recommendations Part 1 – factors already covered in Draft Rail Evaluation Guidance

- *To carry out an effective outcome evaluation it is crucial that relevant data is available relating to the period pre and post project opening. While, in some cases it may be appropriate to use officially published socio-economic time series data, in the case of evaluating the impacts of relatively small and / or rural rail projects these types of data are not necessarily available at that appropriate spatial level, and therefore a bespoke data collection exercise may be required.*
- *At the outset, or as part of the STAG appraisal process, consideration therefore needs to be given to the information that will be required to effectively measure the performance of a project against its objectives. If the information is not readily available, then measures should be put in place, following the decision to proceed with the project, to ensure it is gathered. This should include details of the method and frequency of the data collection exercise.*
- *An outcome evaluation may not be able to rely on official published sources to inform pre and post project impacts. This is particularly so for projects that are small / or in relatively rural areas as the socio-economic data may not be available at the required spatial level. Careful consideration of data requirements therefore needs to take place early so that if the information is not available then measures can be put in place to gather it.*
- *The data required to undertake the evaluation should be detailed in the Monitoring Plan and these aspects should run right through the logic of the STAG process from the identification of problems to the setting of SMART objectives onwards, i.e. the SMART objectives should be defined together with a specification of how they will be measured right at the outset.*
- *Fully understanding the behaviour of users before the intervention and the counterfactual are crucial to effective evaluations. The Laurencekirk outcome evaluation largely depended on the memories of users and their answers to the online survey to establish their travel behaviour before the station was reopened, and what they would have done had the station not reopened. Whilst this worked well, there are inherent risks with the accuracy and reliability of the responses. It is important that this baseline information is collected ahead of project implementation, or at the very*

least as quickly as possible after project opening i.e. data should ideally be collected in advance of the outcome evaluation and not as part of it.

- *The **process evaluation** should be undertaken during the implementation and delivery i.e. at the early stage of a project. This will ensure that issues are fresh in the minds of those involved so that lessons can be learned. It will also allow opportunities to improve processes that are not going well during delivery stage. Importantly, if carried out early it also means that the key individuals involved in delivering the project are still accessible to provide inputs to the evaluation.*
- *For the **outcome evaluation**, there needs to be a ‘bedding in’ period to ensure the impacts expected to be generated by the project have sufficient time to materialise.*
- *To allow a meaningful assessment of the performance of a project against the Transport Planning Objectives, the objectives should be SMART or supported by a number of specific targets or indicators – Transport Scotland should consider if further guidance should be provided to practitioners in the setting of meaningful and consistent SMART objectives which will ultimately feed the evaluation process.*
- *Control groups should be considered and agreed as part of the appraisal stage, i.e. when the monitoring and evaluation framework is being determined, and measures put in place to ensure the relevant data is gathered to allow a comparison with the area directly affected by the project.*

Recommendations Part 2 – factors not covered in Draft Rail Evaluation Guidance

- *Details of the option appraisal should be recorded clearly, particularly the methodology and key forecasting assumptions made, so that the outcomes of the scheme can be evaluated against what was anticipated, and the forecasting process can be more readily revisited when outturn data becomes available.*
- *If the outcome evaluation is considering the impacts on local business performance, e.g. wider impacts analysis or WEBs, then baseline information should be gathered from local companies in advance of the project opening. Similarly to the user survey, this eliminates the risk of relying on the memories of people at a much later stage.*
- *STAG sets out a requirement for a Monitoring Plan and an Evaluation Plan. In practice, these aspects of the process perhaps receive less resource and attention than the main appraisal. These two linked processes should be given a greater prominence as they are key to ensuring lessons are learned and therefore more effective projects in the future.*
- *There were no Monitoring & Evaluation plans detailed in the Laurencekirk STAG but this STAG appraisal may have preceded this requirement. As such this is not a good example in terms of following a Monitoring & Evaluation Plan through from STAG appraisal to implementation to evaluation.*

- *In the case of Laurencekirk there did not appear to be any firm commitment from organisations involved (funders or stakeholders) post STAG appraisal to undertake the necessary data collection outlined in Transport Scotland's guidance to ensure effective evaluation. If evaluation, as required, is to become an integral part of the ROAMEF cycle, it needs to be seen as important, rather than an 'add on' and of secondary importance to the role of project delivery.*
- *There appears to be an increasing public acceptance of Web-based surveys. In some circumstances, particularly rural and / or small projects, if correctly thought through and designed, these surveys can provide a cost effective way of collecting a lot of detailed data as demonstrated with the Laurencekirk survey. This can particularly be the case when there is strong local feeling towards a project.*
- *In the case of small stations, the evidence from the Laurencekirk survey suggests that the Wider Economic Benefits (WEBs) impacts are likely to be minimal. While there was some evidence of the station influencing people's decision to enter the workforce, the numbers were small. It is possible that larger stations may have greater impact. However, in the spirit of the proportionate approach to appraisal highlighted in STAG, it is recommended that WEBs impacts are not required to be captured as part of future appraisals of small station re-openings similar to Laurencekirk.*
- *The approach to, and information required for, evaluating rail projects will differ depending on the nature and size of the project. For example, an evaluation of a small rural station such as Laurencekirk will obviously differ from a new rail service such as the forthcoming re-introduction of Scottish Borders. Important consideration needs to be given to the transport planning objectives when designing the approach to the evaluation.*
- *Evaluations can require a significant resource and need to be considered within the principle of proportionality as highlighted in STAG.*

8. CONCLUSIONS

Overview

8.1 This chapter summarises the main findings and conclusions from each of the chapters in turn.

Process Evaluation

8.2 Overall the findings from the process evaluation suggest that the delivery and implementation of the Laurencekirk station reopening was a success. The project was delivered on time and on budget. A number of factors contributed to this success. In particular:

- *consideration was given to the organisation best placed to deliver the project and effectively manage the risks*
- *there was a clear scope that was fully understood by all delivery partners*
- *elements of the procurement process were specifically tailored to deliver value for money*
- *there was a carefully thought out consultation process designed to allow continued engagement with stakeholders and the local community that helped to generate buy in and avoid delays to implementation*

8.3 The latter may have been aided by strong local support for the project.

8.4 Another important conclusion from the process evaluation is that it should be carried out much earlier and preferably during the delivery stage itself. The main reasons include being able to learn early lessons that can be implemented to improve the ongoing delivery and ensure that those best placed to provide input are in post at the time.

Outcome Evaluation

8.5 The aim of the outcome evaluation was to measure the performance of the project against the four transport planning objectives of:

- *Link rural commuters to centres of employment, educational establishments and other facilities;*
- *Encourage greater use of public transport by connecting the township of Laurencekirk and its surrounding area to the rail network;*
- *Encourage modal shift from private car to public transport by constructing a Park and Ride facility serving the new station; and*
- *Improve road safety by encouraging a reduction in trips made by road and through reduced road traffic.*

8.6 Overall the reopening of Laurencekirk railway station has performed well against the objectives.

8.7 On the first, it is clear that the project is helping to link rural communities to the various services and facilities. The journey times by public transport have been reduced, in places significantly, and many more journeys are being made by public transport than before the station was reopened.

- 8.8 On the second objective, this has also been met, with the evidence showing that over half of journeys being undertaken via the station were previously being made by car.
- 8.9 Similarly, on the third objective, many of the users of the station Park and Ride facility would previously have undertaken their journey by car and currently live too far from the station to access it by foot. This suggests that without the Park and Ride they would continue to use the car to travel to their destination.
- 8.10 The evidence supporting the final objective is less conclusive. While the survey results point to a reduction in car kilometres it is difficult to demonstrate that this has led directly to an improvement in road safety.
- 8.11 While the evidence suggests that the transport planning objectives are being met, it is difficult to measure the extent of the success due to the objectives not being SMART. Future appraisals of rail projects should design SMART objectives, or at least indicators or targets, which reflect the extent of the identified transport problems so that the evaluation can quantify the success of a project.
- 8.12 At the outset, consideration needs to be given to the evaluation so that plans can be put in place to gather data that may be required but is not necessarily readily available. Without this information, particularly on the counterfactual, it is difficult to carry out an effective evaluation.

Review of Laurencekirk STAG Appraisal

- 8.13 Other important elements of the study were to review the economic elements of the original 2004 STAG appraisal of the project, with a view to understanding:
- *why the passenger and revenue figures for Laurencekirk station exceeded those forecast in the STAG appraisal;*
 - *Revised STAG, including Transport Economic Efficiency / Benefit Cost Ratio (BCR) for the scheme; and*
 - *the 'Wider Economic Benefits' (WEBs) of the project.*
- 8.14 On the first bullet, there was a lack of clarity within the STAG report on how the revenue forecasts were calculated. On the information that was available there were a number of questions around the methodology, such as:
- *are all new rail trips assumed to have transferred from car?;*
 - *are all new rail trips from Laurencekirk new to rail, i.e. no transfer (via Park and Ride) from existing stations?;*
 - *are any entirely new trips generated?;*
 - *has any change in destination choice occurred?; and*
 - *is there an assumed loss of revenue to other modes (e.g. bus)?*
- 8.15 All of these questions are important in understanding how the forecasts were derived and why the forecasts underestimated the outturn passenger numbers.
- 8.16 An important conclusion of this task is therefore that the key underlying cause and effect assumptions and analysis must be recorded and laid out in the

STAG report if a latter evaluation process is to understand why outcomes may have diverged from forecast.

- 8.17 On the second element of this task, using the outturn data to recalculate the BCR shows that the Benefit Cost Ratio increases significantly due to the higher than forecast benefits generated by the scheme. It rises from the original estimate of 1.5, to between 2.5 and 4.4 depending on the scenario considered. For example, the 4.4 BCR figure covers the currently used 60-year appraisal period, no timetable disbenefit to those using services which travelled through Laurencekirk station and revised population growth projections.
- 8.18 On the WEBs analysis, there was no evidence to suggest that there were agglomeration benefits from the station reopening. In addition, while some respondents to the survey suggested that the reopening of the station had encouraged them to enter the workforce, due to a better commute, or move job, the impacts are likely to be minimal given the number of people providing a positive response. Nevertheless, there were positive responses to the labour supply questions which could mean greater impacts for larger schemes which may not be being captured in conventional transport appraisal methodologies.

Wider Impacts Analysis

- 8.19 Overall there is no clear evidence from the data examined that the reopening of the station at Laurencekirk has had a significant and measurable wider economic and social impact. While there have been some positive impacts across a number of the metrics considered, for example the housing and labour markets, the impacts in Laurencekirk post station reopening do not appear to be significantly different from those witnessed in other areas considered, e.g. Aberdeenshire and Scotland as a whole.
- 8.20 It must be noted however that the impacts of the station may not have firmly bedded in and it may take a longer period for these to materialise. In addition, some of the economic and social data is not yet readily available, e.g. census data. It may require some time before the data becomes available for analysis and firm conclusions can be reached. Until then the findings of this section on wider impacts should be seen as preliminary.

Recommendations for Rail Evaluation Guidance

- 8.21 Chapter 7 set out a number of recommendations to be considered for the ongoing development of Transport Scotland's Rail Evaluation Guidance. These covered many of the issues raised as part of this study, including developing SMART objectives during the appraisal process to aid evaluation and not evaluating WEBs impacts of small station re-openings.
- 8.22 However, the main focus of the comments centred around the importance of data collection, and in particular the need to gather information and data in advance of the outcome evaluation, rather than as part of it. This includes information that will not be readily available from official published sources (this particularly applies to local impacts of small station re-openings) and also information to fully understand the counterfactual that does not rely on reliable and accurate memories of survey respondents. Overall, the identification and planning of data collection needs to become an integral of the overall appraisal process if outcome evaluations of rail projects are to become

valuable and lessons learned are to become reliable and improve future investment.

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