

Job Name: Review of Levenmouth Sustainable Transport Study STAG Report
Job No: 42753
Date: 26 February 2018
Subject: **Technical Review and Proposal**

Levenmouth STAG - Overall Approach to Demand Forecasting

This paper has been produced in response to a Services Brief issued by Transport Scotland (TS) under Latis Lot 4 (TS/MTRIPS/SER/2016/02). The Services Brief sets out that an initial task will be to *review the Levenmouth Sustainable Transport Study STAG Report and Appendices* to determine the scope of further transport appraisal work required to be undertaken to complete the Transport Appraisal in line with STAG. This note provides a summary of the findings of the initial review. In addition, TS provided its own comments on the Report, which have been considered in the Review and, where relevant, reflected in the findings below.

Following the findings, the final part of the note provides a proposed way forward to deliver the completion in line with STAG. The proposal is, for the moment, a draft and to be discussed with TS at an Inception Meeting to seek agreement and approval on a way forward.

Following the proposed way forward the note finishes with an anticipated programme, assuming modelling outputs can be provided on time from consultants on Latis Lot 1.

Background

In May 2015 Fife Council commissioned an appraisal to determine measures to improve sustainable transport options for the Levenmouth area of Fife, with 'a view to improving its economic viability'. The brief for the study explained it was to be undertaken in accordance with the Scottish Transport Appraisal Guidance (STAG).

This report identifies that, in terms of structure, the STAG Report, dated December 2016, largely follows the recommended process set out in the Guidance and summarised in Figure 1 below. Whilst, in the main, the process has been followed, there are limitations and weaknesses in parts of the appraisal that detract from the robustness of the analysis and conclusions.

Overview

The STAG Report dated December 2016, concluded with a preferred option to re-open the existing rail line at Levenmouth. The scheme generated an estimated benefit cost ratio (BCR) of 1.31.

The other option considered in detail during the Part 2 appraisal involved enhanced supported bus services to improve connectivity from the Buckhaven and Methil area to Markinch and Glenrothes. This option generated a BCR of 5.19 but was not the preferred long-term option.

The key issues which are worthy of further consideration in terms of delivering a more robust report are:

- There is disconnect between the evidence gathered to inform the problems, opportunities, issues and constraints and some of the Transport Planning Objectives (TPOs);

- This disconnect continues between the TPOs and option development, meaning that there is limited confidence that the options appraised fully capture all potential option scenarios;
- There is no convincing evidence presented that there is actually suppressed demand for the use of rail freight, which is an important component of the preferred option;
- There is minimal evidence that current transport is acting as an inhibitor of investment in the area, as claimed in the Report;
- The appraisal includes limited assessment of how the options developed perform against the TPOs and focuses much more on the STAG criteria;
- While a timing issue, the economic analysis is not consistent with the most up to date guidance and doesn't include analysis of the impacts of Wider Economic Benefits;
- The methodological approach used to inform the demand forecasting analysis has a number of limitations and consequently will have impacted on the robustness of the quantified/monetised impact of the transport economic benefits;
- Ongoing work considering options for a new ScotRail express timetable, which will impact on Fife, may affect the rail options covered in the appraisal and these need to be revisited to fully understand whether they are still viable;
- The costs used as part of the value for money assessment are very dated (2008) and need to be revisited to determine if they are still sensible; and
- Key risks that are identified have not been quantified to understand their impact on the relative performance and results of the appraised options.

There are other, relatively minor, shortcomings with the appraisal but these represent the key areas and are the focus of the review.

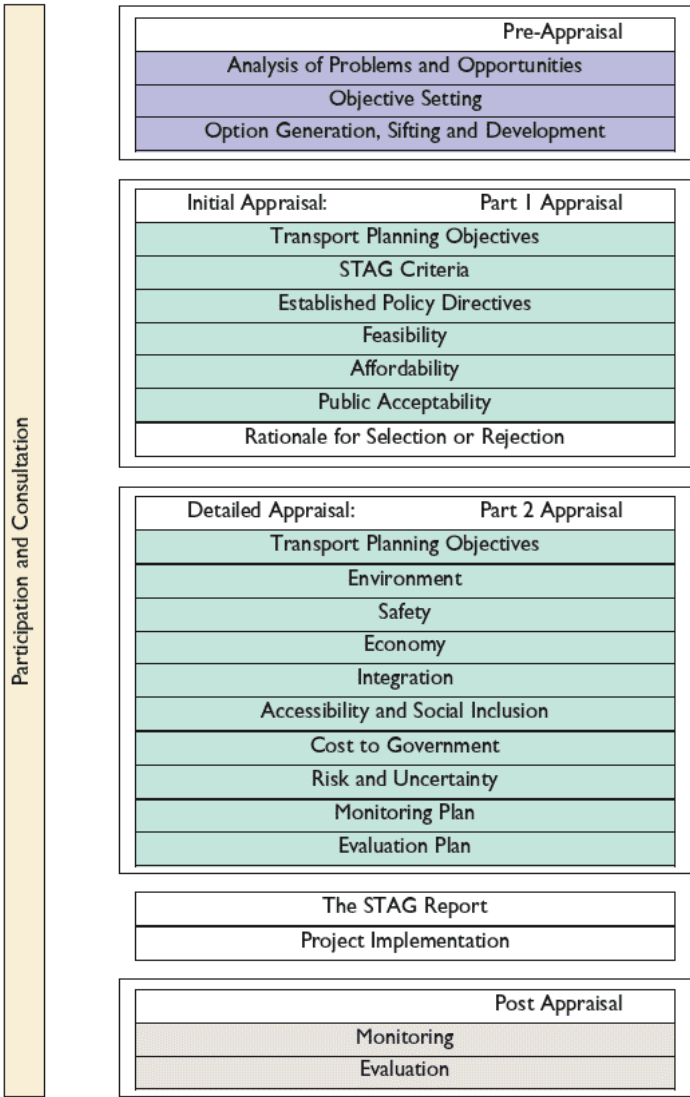


Figure 1: STAG Process

Deliverable

It is important at the outset to have an understanding of the format of the deliverable. For example, will it be an updated version of the current report or a new report using extracts from the current version? Initial discussions with TS have suggested that an addendum report is produced which refers back to appropriate chapters in the existing STAG Report. However, this should be kept under review as this will, to a large extent, depend upon the scope of the update required from the existing report. If the scale of departure from the existing report is too great, then an alternative form of deliverable may be required. It will be useful to discuss and agree the format of the deliverable at the Inception Meeting.

Review of STAG

Problems, Issues, Opportunities and Constraints and Transport Planning Objectives

As the Guidance explains, Transport Planning Objectives (TPOs) are integral to a successful and robust appraisal. They serve as a basis for directing and guiding the entire study process and provide clarity to stakeholders on what is to be achieved. They need to be based on clear evidence gathered on the problems, opportunities, issues and constraints. If the TPOs do not reflect these then the preferred options / solutions that fall out of the detailed appraisal will not



be reflective of the key issues to be resolved or opportunities not realised. The TPOs developed in the Levenmouth STAG are:

- TPO 1 – Improve access to employment, education, healthcare and leisure destinations, both within and outwith the area, for the population of the Levenmouth area;
- TPO 2 – Encourage increased sustainable travel mode share for the residents and workforce of the Levenmouth area;
- TPO 3 – Ensure that transport infrastructure and services encourage investment in, and attract jobs and people to, the Levenmouth area; and
- TPO 4 – Enhance the Levenmouth area's role as a tourist destination and a gateway to East Neuk.

The evidence gathered and presented in the Problems, Opportunities, Issues and Constraints chapter does not provide a clear logic trail to the TPOs generated. In particular, there is no strong evidence presented from stakeholders that the current transport situation / provision in the area is directly leading to the problems and issues or is constraining opportunities being realised.

For TPO1, analysis has been undertaken and some evidence presented to support the claims that the area has poor access to employment, education, healthcare etc but this could have been boosted by providing examples from other areas, with similar geography, to demonstrate relative accessibility rather than absolute numbers associated with Levenmouth. For example, the figures presented in Table 6 could have included equivalent metrics from other towns not in Levenmouth. While Table 7 does have comparisons, this focuses on frequency and journey times to Edinburgh as opposed to access to specific key services, eg further education establishments, hospitals/GPs etc, as these will not necessarily all be located in Edinburgh.

For TPO 2, there is little evidence presented to show that the current mode share by sustainable modes is poor or relatively poor compared to national, regional or local similar areas. Indeed, there are committed plans already in place to enhance the quality of bus and supporting infrastructure that will impact on demand and, possibly, mode share. At the moment, the narrative around this item seems to be deliberately aiming towards a public transport solution of a particular type rather than developing an evidence base to support a reason / rationale for it.

On TPO 3, there is limited supporting evidence to show that current transport infrastructure and services act to discourage investment in the Levenmouth area. There is some evidence from the business survey that businesses believe parts of the current transport network are poor and impact on performance. However, the survey sample size is small and there doesn't appear to be any evidence that the situation in Levenmouth is greater than other, similar areas and, perhaps more importantly, that the current provision is actually discouraging new businesses from locating in the area or discouraging investment by current businesses ie better transport infrastructure will lead to more investment and, consequently, attract and create more jobs. This is particularly true of the freight service which is a key component of one of the two options considered in the Part 2 appraisal. With regard to demand for use of a freight line in the future, there requires to be greater factual evidence to justify the assertion and need.

In terms of TPO 4, again, there is little to suggest that the current transport network is a problem or acting as a constraint for tourist visits to Levenmouth and East Neuk, or that investing in transport would create an opportunity. In particular, there is limited evidence from tourism organisations, such as Visit Scotland, to back up the claims made, especially around the opportunities that improving the transport network would generate.

Overall, there is not a strong logic trail between the evidence presented and the TPOs generated. This is not to say that the TPOs are wrong, it is simply that, as it stands, what is presented doesn't lead to the linkages and connection.

In terms of the TPOs generally, they do not appear to be SMART, which could, to some degree, be a reflection of the evidence presented not being as completely thorough and quantified, therefore making it difficult to then quantify what needs to be achieved to measure performance and success.

Options Tested

Given the limited evidence presented of the problems, issues, constraints and opportunities, there is not an obvious strong link between these and the TPOs. Because the options are designed to achieve the TPOs there is a disconnect between the options developed and the problems, opportunities etc and it is not clear that suitable and the most effective options have been identified to be taken forward to the appraisal.

However, if we take the problems identified as given, and the TPOs as sensible reflections of the problems etc, there still seems to be a disconnect between the TPOs and the options selected. For example, given the nature of some of the problems identified and the industrial nature of economic activity at Levenmouth, the absence of **road-based** options is notable. Access to the area from the west is via single carriageway routes, the A915 via the congested north eastern corner of Kirkcaldy, and the longer A911 via Glenrothes, also congested around Glenrothes. Arguably options providing improved road connectivity should have been included – or at least the rationale for not including road options needs to be more clearly set out.

Appraisal Against Transport Planning Objectives

While there is an apparent disconnect between the evidence gathered around the problems, opportunities etc and the links to the TPOs, the existing STAG Report has a very limited appraisal of the options against the TPOs, instead focussing on the STAG criteria. The appraisal will therefore benefit from additional analysis of the options and their contribution (quantified where possible) to meeting the objectives set.

Economy Appraisal

The appraisal undertaken to assess the economic impacts was undertaken to previous STAG guidance and hence requires to be updated to the current Guidance.

To comply with the current guidance, analysis of Wider Economic Benefits will need to be undertaken. If the analysis is not to be updated to account for the revised guidance, then the current section on Economic Activity and Location Impacts (EALI) should be looked at again. Given that TPO 3 focuses on investment (economic activity) and jobs, this section should be used to provide an indication of the extent of the impact of the options in these areas. In addition, the analysis undertaken to date doesn't consider how much of the benefits claimed to be generated by the two options are simply displaced from other parts of Fife, Central Belt or wider across Scotland. At the moment the results suggest that the impacts will be 100% additional at the Scotland level and do not take account of any consequential downside activity elsewhere in response to an increase in the Levenmouth area. While this may be possible, it is unlikely and at the very least needs to be supported by an evidence base.

The BCR generated for the rail option (Option B) is 1.31, while the BCR generated for the bus option (Option B) equates to 5.19. This suggests that, in terms of monetised costs and benefits, the bus option offers significantly greater value for money. Yet the Report identifies the rail option as the preferred option. There is no convincing reasoning detailed to support this decision.

Demand Forecasting

In terms of the current STAG Report dated 2016, PBA undertook a review of the demand forecasting methodology applied to inform the TEE (as part of a previous Lot 4 Task Order). The review concluded with two areas of risk associated with the work undertaken: overall approach taken; and technical points with the patronage forecasts. The conclusions of the previous work are summarised below.

The overall approach taken has been to develop a spreadsheet-based model to generate a forecast of AM peak hour rail commuting demand to and from the new stations at Leven and Cameron Bridge, based on a combination of (i) Census travel to work data from 2011 and (ii) a mode-choice model populated with local generalised time data. This figure has then been factored up to an annual all-travel purpose patronage figure using factors derived from TMfS12 station demand data and ORR Station Entry and Exit Data. (It should be noted that the Sustran Regional Model which currently exists was not available at the time the original STAG Report was undertaken in December 2016.)

Whilst this type of approach is suitable for a well-developed Part 1 Appraisal (for example to provide a broad order of magnitude indication of benefits), it cannot be considered appropriate for a Part 2 Appraisal. For a Part 2 Appraisal of a scheme of this scale (both in terms of capital cost and the scope of impacts (across modes and geographies)), it would be expected to see the proposal tested in an area-wide, fit-for-purpose, calibrated and validated multi-model transport model. Such a model would be based on recognised data and behavioural response parameters which would have been independently audited, providing a degree of confidence in the results which cannot be drawn from an un-audited spreadsheet model.

In addition, there is very little commentary in the report regarding the nature of the forecast users of Levenmouth and Cameron Bridge stations. Confidence in the forecasts would increase if the reader was able to understand:

- the **nature of the journeys forecast to be undertaken through the new stations** in terms of (a) origins of 'inbound to Levenmouth' and destinations of 'outbound from Levenmouth' trips, (b) peak and off peak demand, (c) journey purpose, and (d) how these may change over time; and
- the **counterfactual** – ie what would the forecast users of the new stations have done in the event of the new service not being introduced – this helps to understand the derivation of the economic benefits.

Overall the approach employed in the STAG Report (December 2016) to demand forecasting is **highly sensitive to a range of assumptions** made in the spreadsheet model, and this impacts on the degree of confidence with which the results can be treated. Further analysis would be required to reduce this level of uncertainty and increase confidence in the forecast.

The main areas of specific risk with respect to the patronage forecasts about which more clarity could be sought are:

- The **derivation of AM peak hour commute figures** from total 2011 Census figures. There is a risk that the forecast has been derived from a base daily commuting figure which is too high, having not fully accounted for the range of factors which determine what percentage of the workforce actually travel to work on any given day – this would have the effect of inflating the forecasts. This becomes an issue when one of the key drivers of demand travelling to Levenmouth will be the Diageo factory where many employees work shifts ie they will be travelling to and from work at times when services are perhaps more limited.
- The treatment of P & R choice in the mode choice model, in particular **P & R at Kirkcaldy versus the new stations** and the representation of higher frequency services there. This would be a key choice facing Levenmouth residents in the event of a new service to Leven and the issues around this are not explored in the report. If this choice is not accounted for there is a risk that the forecast patronage is overestimated as Levenmouth residents may continue to drive to Kirkcaldy.
- The within-mode behavioural responses appear to include a large **switch from bus to bus-rail** - previous station access survey data suggests that bus-rail commuting is not common. The geographical distribution of the new rail trips and the apparent **reliance on intra-Fife rail-based commuting** which is not a major market at present. These points relate to the nature of the forecast users of the new service. If the forecasts are



reliant on travel behaviours which are not commonly found, there is a risk that patronage is over-estimated.

- The potential sensitivity to **future development aspirations in Levenmouth**. If the quantum of development in the Levenmouth area is not reached, this would have a material impact on the 2032 patronage figures and hence the economic benefits and the BCR.
- The **annualisation factors** used to gross up AM peak hour commuting to annual station entries & exits. The annual patronage figures and hence economic benefits derived in the report are highly sensitive to these assumptions regarding annualisation and this is a significant risk.
- There is little clarity on the **potential negative impacts** at other Fife stations with the recasting of services to serve Levenmouth, particularly at Glenrothes with Thornton. It is also not clear if these impacts have been quantified in the analysis.

Given the potential risks and uncertainties associated with this approach, it was recommended that the Levenmouth scheme be tested in an appropriate multi-modal transport model to provide a consistent and comprehensive area-wide demand forecast and economic appraisal, before being progressed further.

A transport model will also be a useful tool in measuring the impact/performance of the scheme against any revised SMARTer TPOs and presenting the counterfactual.

Timetabling and Operational Feasibility

The STAG Report (11.7.7, page 180) explains that, to reach a firm conclusion on an optimal service pattern for rail, would require additional detailed rail timetabling. It considers that this analysis is disproportionate for the STAG appraisal and would more likely be required as part of the GRIP design and implementation process. While this may be correct, we understand there is timetable development work ongoing towards the new ScotRail express timetable (which will impact on Fife) due for introduction in December 2018. Consequently, it will be important to revisit and update the Levenmouth timetable options as part of the STAG completion. This will need to be done in advance of, and feed into, the transport modelling exercise to inform the economic appraisal.

The opportunity for a Fife-based rail depot appears to be based on anecdotal information and greater supporting evidence is required. It was looked at before by ScotRail and deemed not to be economically viable and there is nothing presented in the document to suggest the reasons for arriving at that conclusion have changed.

Cost Assumptions

These are dated (derived in 2008) and need a thorough revisiting in consultation with Network Rail. While the 2008 figure has been updated to account for cost inflation, a more detailed review of each cost element is required to understand how realistic the figures are.

Risk Analysis

Given the considerable list of risks identified and the potential impact of these (together with a number of uncertainties and assumptions therefore made), it would be prudent to ensure there is greater monetised quantification of amending some of the important assumptions and how these impact on the results.

STAG Report Summary and Conclusions

Due to the limited evidence supporting the Problems, Issues, Opportunities and Constraints chapter, leading to questionable TPOs and options developed, together with the weaknesses in the approach to the demand forecasting, and therefore the transport economics analysis and results, a number of the conclusions need to be questioned. For example, the claim that 'a rail freight link for the area may open up the type and scale of industry that can operate in

the Levenmouth area potentially impacting on inward investment levels, is hard to support based on the evidence and analysis.

The opportunity for a Fife-based rail depot requires more clear evidence. Previous work by ScotRail deemed it not to be economically viable and there is nothing presented in the document to suggest the reasons for arriving at that conclusion have changed.

In addition to supporting inward investment, it is claimed that the transport options will help attract tourists to the area. There is no estimate of the likely impacts generated by the options (or evidence that transport is a constraint in attracting tourists or inward investment) or indeed if the tourism marketing initiatives referred to alone would have a sufficient positive impact on attracting tourists.

Recommendations for Completing STAG

The aim of the Services Brief issued by Transport Scotland was to *progress the transport appraisal work undertaken to date for the Levenmouth Sustainable Transport Study to completion in line with STAG*. PBA submitted a proposal outlining an approach to deliver that aim. Following discussions with Transport Scotland and Fife Council, and outcomes from the Inception and first Progress meetings, the initial proposal was amended and a revised approach is set out in the remainder of this note.

Approach 1: The first approach would be to take the existing TPOs as given and develop the evidence around the problems, issues, constraints and opportunities to arrive at the TPOs. However, this would not be a robust approach or be in accordance with STAG.

Approach 2: The second approach would be to take the evidence that has already been gathered and build on this to develop a stronger evidence base of the existing problems, issues, constraints and opportunities and ensure more robust linkages and trail of logic between the problems etc and TPOs. The evidence would then be analysed to develop a new set of TPOs that may or may not be the same as the existing ones. This is a more proportionate approach, building on the current information, and is the proposed way forward. Under this approach we propose the following tasks:

Task 1: Develop the evidence base and strengthen the links with the TPOs and therefore the Case for Change

This task will involve gathering additional information, on top of what was previously collected and analysed, to develop a more robust evidence base of the problems, issues, constraints and opportunities. An early part of the information gathering task will involve stakeholder engagement and our approach to this is discussed below.

Approach to Engagement

Consultation and engagement are essential elements in the development of any transport strategy, appraisal or future design. They ensure the knowledge, ideas and experiences of people who live and work in a town, city or region are the basis for the development policy that will meet future needs. In addition, engagement needs to be inclusive and assist in the resolution of tensions between different interest groups by including all views at an early stage.

Engagement in particular is a key requirement of the STAG process and a properly designed plan should be one which runs concurrently through the project, allowing the two-way flow of information between client/authors and stakeholders at key stages of the project. Such an approach provides a greater understanding of issues, promotes cross party 'joined up' working and importantly allows transparency throughout the project.

We recognise that a number of stakeholders were consulted over the course of the previous appraisal and some evidence has already been gathered to inform the development of the objectives, options and other elements of the appraisal. Where relevant, we will re-use the

information gathered and analysis undertaken. However, the list of stakeholders previously engaged with is not extensive and there are gaps in the evidence that need to be filled to provide confidence that the objectives, and subsequently the options developed, are evidence-based.

Our proposed Plan for engagement is summarised diagrammatically in Appendix 1. The diagram sets the departments, businesses, groups, and individuals who we believe should be engaged. The Plan is presented in more detail in the following sections.

Key Stakeholders

We believe it prudent to re-engage with key stakeholders ensuring all information gathered is both appropriate and, importantly, current. We recognise, however, that key stakeholders will be aware that they have previously provided information to facilitate this study, and as such there is a danger of consultation fatigue. To guard against this, we propose that key stakeholders will be interviewed on a one-to-one basis, allowing relationships and confidence to be built with regards the study. This includes individual departments within Fife Council, the transport industry and business representative groups being afforded individual meetings rather than one overarching workshop.

In terms of other stakeholders, we propose to follow a similar format but undertake each discussion over the phone. This approach will allow us to gather significant volumes of in-depth information. In order to facilitate the discussions, we will follow a semi structured interview format whereby all topics/questions are sent to stakeholders in advance. This will afford each stakeholder the opportunity to consider their views and responses ahead of the interview/discussion.

The semi-structured interview format will be developed, and approved by the Working Group, to ensure exploration of key themes. This will include:

- Current problems and issues related to the transport network – multi modal question including road, bus travel, rail and active modes;
- Develop an understanding of which groups are affected by transport problems and issues and how does it impact upon each;
- How any issues raised support or impact upon local, regional and national connectivity;
- How any problems and issues raised, support or impact on economy, society and environment; and
- Understanding of opportunities not being realised due to current transport provision.

Whilst individual interviews will be tailored to the respondent, interviews will follow a similar structure, ensuring consistency of approach.

Engagement with Business Community

The previous appraisal included a business survey. However only 22 businesses provided a response. Business surveys can be difficult to gather appropriate levels of responses due to their very nature: often small businesses will fail to see the relevance, and appropriate people will not be asked to complete the survey on behalf of larger businesses. Whilst PBA is happy to undertake an additional business survey, we recommend a different approach, combining the business community with the approach to key stakeholders and undertaking appropriate depth interviews.

Our approach assumes individual meetings with groups who speak on behalf of the business community such as the local Chamber of Commerce and the Federation of Small Businesses. We will not limit this engagement to these groups but look to include any relevant organisations

in the area which represent local businesses. We will work with Fife Council to identify each relevant organisation. Consistent with the key stakeholders, we propose to engage with each on a face-to-face basis.

We will again follow a similar semi structured approach to each meeting. However, we will ask each to consider the needs of relevant sizes of businesses they represent.

Additionally, we will work with the Working Group members to identify large businesses which play a key role within the area. We will then invite representatives from each of these businesses to an individual or telephone meeting to go through the key themes and how they affect both their business and/or the business community in general in the area. We feel this approach will be more beneficial than running another business survey which may be similarly affected by low response rates. We will, however, compare findings from our business engagement with those from the previous business survey.

Public Survey

We recognise that the previous study included a public survey in the area. This exercise attracted only 76 responses. In order to gather further information from the public, we propose to carry out a short online survey. For this, we suggest a questionnaire which includes the following points:

- Place of residence (town/area);
- Main mode of travel on day to day basis;
- Locations travelled to regularly and journey purpose;
- Locations (and journey purpose) which the respondent would like to travel to but transport options are not currently available;
- Reasons for not currently using specific transport modes;
- Whether the respondent uses specific modes (car, bus, rail, walking/cycling);
- Key problems and issues when travelling in the area, and how each impact on the respondent; and
- Suggested transport options/opportunities which could positively impact on the respondent.

PBA will work with Fife Council and Transport Scotland to design the survey using SurveyMonkey software. We will provide design, management and analysis services.

There will be a requirement to raise awareness of the survey. We will design posters, flyers and electronic documents to be displayed by Fife Council in key locations. We will also advertise the survey in both local newspapers and Fife Council's social media accounts as well as the Council's website.

We recognise that community councils and council elected members can be useful in raising public awareness as they often maintain large email mailing lists and/or have social media followings which can be used to further disseminate information. PBA will work with Fife Council to provide all materials which will be required to raise awareness including press releases, posters and images. We will not however take responsibility for raising awareness through these channels.

Please note that whilst our proposed approach and resource includes analysis of electronic submissions, it does not include any requirements to provide paper-based versions of the survey or any data entry which would be necessary for paper-based surveys which are returned. Should the client team wish the survey to be made available in paper based formats, this would be subject to additional fees.

Elected Officials and Local Community Groups

To gather views from elected members (both Council and MP/MSPs) we propose to run a workshop which PBA will facilitate. We will run a further workshop where local groups will be invited. This will include community councils, the Levenmouth Rail Campaign Group and any local environmental groups. The aim will be to present the information gathered via engagement with businesses and the public and build on this with their own evidence of problems, issues, constraints and opportunities.

Further Analysis to inform Evidence Base and Transport Planning Objectives

In addition to gathering views from stakeholders, the public, elected officials and local community groups on the problems, issues, constraints and opportunities, we will also gather and analyse data to develop an evidence base to both determine and support the robustness of the views expressed.

The type of analysis and the areas looked at will depend on the information gathered and views presented, but for now possible examples are set out below. For the purpose of presenting the type of supporting analysis that could be undertaken, the issues raised that informed the development of the previous Transport Planning Objectives are used for illustration.

For problems or issues with regard to access to employment, education, healthcare and leisure destinations, both within and outwith the area, we would use TRACC accessibility analysis software to explore whether residents of the Levenmouth area have relatively poor access (measured by public transport journey times and walking connections) to a range of services compared to other similar areas. The services will include health, education, key employment locations and shopping centres.

The following analysis will be undertaken:

- Map public transport travel times to Edinburgh city centre (ie proxy for better paid jobs) for Levenmouth and other, similar, areas
 - Map best car / train times too?
 - Shows how well or otherwise the area is connected
- Map AM peak and inter-peak PT travel times from Leven bus station:
 - On map, highlight key locations for education, healthcare, leisure eg
 - Health: Victoria Hospital / Queen Margaret Hospital
 - Education: Fife College Campus locations¹
 - Leisure: Cinemas / Sports
 - Add options and note the difference.
 - *[The STAG report includes a table of travel times by public transport to some towns etc in the base but these are not revisited in the Do Somethings.]*
- SEStran settlements - % working in Edinburgh versus travel time by public transport
- Analysis of ASHE (Annual Survey of Hours and Earnings) data – analysis of access to better paying jobs (could use as a weighting), get analysis of Levenmouth vis a vis rest of Fife & Edinburgh

For problems presented with sustainable travel mode share for the residents and workforce of the Levenmouth area we would gather evidence to show the current mode share of residents and the workforce in the Levenmouth area compared to other, similar, areas in Fife and beyond. The basis of this analysis will be Census Travel to Work data and modelled data from

¹ <http://www.fife.ac.uk/collegeinfo/location/Pages/default.aspx>



the SEStran Regional Model (SRM). We will consider how the options can be appraised against this type of TPO.

Combining all of the information and analysis discussed above will enable a firmer evidence base to be developed and therefore make the case for change ahead of undertaking the appraisals.

Task 2: Develop Transport Planning Objectives and Develop Options that could achieve these

Following the gathering and analysis of the information and evidence, we will develop a set of Transport Planning Objectives that, if met, will address the problems, issues etc. A draft set of TPOs will be presented to Transport Scotland and Fife Council for discussion and agreement. The TPOs will be made as SMART as possible with the intention of making them SMARTer as the appraisal develops and more quantitative evidence emerges.

We propose a half-day workshop where PBA will present the evidence gathered and show how this has informed the development of the objectives.

We will also show how a set of options has been developed in response to the objectives. Again, the options will be informed by the evidence gathered through the stakeholder engagement, the analysis undertaken, previous studies and in response to the TPOs.

Task 3: Initial Appraisal

A long list of options will be created and appraised in line with STAG ie assessed against the TPOs and STAG criteria. This will result in a short list of options to be taken forward to the detailed appraisal stage. We anticipate that the long list will be fairly similar to that in the previous study in terms of number and type of options (albeit the appraisal did not include a road option), and that the Initial Appraisal will simply build on that information.

At this point we cannot be sure of the number and type of options that will be progressed to detailed appraisal but anticipate it will be a manageable number of between four and six (including the do-minimum) and will include a rail option, a road option and a bus option.

Task 4: Revise Timetable Analysis to feed into modelling and transport economic appraisal

It is important that a good understanding is set out as to how Levenmouth trains would fit in the context of existing Fife services' timetables. Although timetables are always a moving target, (and will therefore be subject to change before any new services are actually implemented) it is important to show '*proof of concept*' based on present day services (ie the timetable commencing December 2017). This should include impacts on existing services so that this aspect is fully accounted for in the appraisal.

The rail timetable analysis undertaken in the previous STAG is now perhaps two years old and will have to be revisited in the light of changes since then (eg Edinburgh Gateway station has opened)². The previous STAG Report notes a range of other issues which could potentially impact on the operational implementability of the service and these would have to be reviewed as part of this process.

The linkages provided to Dunfermline and Kirkcaldy would depend on which trains were routed into Levenmouth (ie Fife Circle South via Kirkcaldy, Burntisland etc or Fife Circle North via Glenrothes with Thornton, Cowdenbeath etc). Connectivity to Dundee and Perth would need a link to Kirkcaldy, or a double change would be required. This would be expected to have a material impact on demand forecasts and therefore a clear proposition for which trains would

² The STAG notes that: '*If a rail option were progressed, detailed timetabling would be required in consultation with Abellio and Network Rail in order to understand the resilience within the network to accommodate a rail operation to Leven and potential impact on existing services and related passenger journey times resulting from a change in service pattern to provide a rail service to Levenmouth*'.

serve Levenmouth would be required for a robust appraisal. In addition, knock-on impacts on other services will need to be identified – eg fewer station stops, longer journey times. Finally, any requirement for additional rolling stock would have to be identified and subsequently costed.

For the rail option, the modelling and appraisal work would usually require a weekday AM, inter-peak and PM peak Fife Circle timetable to be coded into the model for two purposes:

- to provide a forecast of users of the new stations at Leven and Cameron Bridge, and the benefits associated with this – importantly including all possible destinations, Kirkcaldy / Dunfermline / Edinburgh / Dundee / Perth etc; and
- to provide an estimate of the impacts on users of existing train services of any knock on impacts on the timetable.

However, the SRM (assuming this is the model used, see below) has a base year of 2012 and the ScotRail timetables coded into the model will reflect this and these timetables will have been carried over into the forecast years. As the 'proof of concept' work will be based on 2017 timetables this will lead to some consistency issues with coding the new services.

The new Levenmouth services should be coded into a forecast year SRM network as accurately as possible covering frequency, connections and journey times for AM, inter peak and PM peak periods. This coding should reflect the relative attractiveness of the different rail-based options from Levenmouth ie from Leven, Kirkcaldy and Markinch in terms of connections, fares, station parking and service frequency. This will provide the best supply side representation for the new stations.

Whilst the SRM will provide an estimate of the impact of timetable changes to passengers on existing services, a more accurate assessment could be made using MOIRA. MOIRA uses the present day services and demand from which the Levenmouth timetable will have been derived. It will therefore be straightforward to recode any Fife Circle trains affected by running to Levenmouth and identify travel time, patronage and revenue impacts of these changes (both positive and negative) and hence the benefits / disbenefits.

The coding of competing public transport services (eg Stagecoach Express City Connect) in the SRM will also have to be reviewed. For example, new high quality services have been introduced from Fife. In addition, any benefits associated with the switch of bus services to the now uncongested Forth Road Bridge (FRB) should be reflected in bus based peak period journey times.

In summary:

- Impacts on users of the new Levenmouth stations – assume use of SRM to estimate: patronage, mode shift, revenue, and benefits; and
- Impacts on users of existing services – assume use of MOIRA estimate Patronage, Revenue and Travel time impacts (which can be turned into benefits / disbenefits).

Task 5: Undertake Transport Modelling Specification

As part of the detailed appraisal, the options will have to be modelled to determine their impacts on the transport network and users/non-users. TS explained that the modelling task will be undertaken by consultants on LATIS Lot 1. We will therefore work closely with the appointed consultants to agree the modelling requirements for a robust appraisal.

Our assumption at this stage is to make use of the currently available SRM12 model (as used in the recent SESplan study). We understand that a new set of SRM forecasts has been commissioned by TS recently and that these will be available by 30 April 2018. The new forecasts will include model runs of 2014 (an initial forecast to be compatible with the National Modelling base year (TMfS and TELMoS)), 2022, 2027, 2032 and 2037. As an initial task, the suitability of SRM should be reviewed in its current form.

It should be noted that SRM will be unlikely to be suitable for use straight 'off the shelf' and it can be expected that some honing of the model will be required to ensure it robustly represents the possible options of road, bus and rail. We will provide the Lot1 Consultants with an indication of the scale and nature of the likely options that may require testing using SRM. We would then anticipate that they will review SRM for suitability,

We anticipate the Lot 1 review would include consideration of the following:

- Model zoning and zone connectors covering the Levenmouth area;
- Base year demand matrices by time period, mode and purpose and base year planning data (population and employment) – therefore base year implied trip rates;
- Quality of calibration and validation in the area of interest;
- Base and forecast year public transport service coding (bus and rail, see discussion above);
- Forecast year planning data (population and employment) with underlying development assumptions for say two forecast years (eg 2021, 2031); and
- Forecast year demand matrices by time period, mode and purpose – therefore forecast year implied trip rates.

The result of the Lot 1 review may result in the specification of relevant and proportionate model enhancements necessary to model the proposed options in as robust a way as possible. We will discuss any proposed enhancements with TS and the Lot 1 consultants to agree the appropriate way forward considering quality, budget and timescale implications. We anticipate that the Lot 1 consultants will undertake the key role in identifying and implementing necessary model enhancements to ensure it is suitable for assessing the short-listed options.

Task 6: Detailed Appraisal

The Detailed Appraisal will be carried out in line with STAG, with options appraised against the five criteria of: economy, environment, safety, integration and accessibility and social inclusion. Where possible, we will use and build on any relevant available analysis undertaken in the previous STAG. However, where the emerging options differ (eg the previous STAG did not look at a road option) new analysis will need to be undertaken.

In particular, modelling to inform the economy impacts was not carried out in the previous STAG and a new full analysis will need to be undertaken to inform this. For example, road, bus and rail options will be coded and tested in the model. Their impacts across a range of model outputs will be analysed and reported. Standard model outputs will be used as inputs to TUBA to determine the benefits/impacts of the options. For transparency and to build confidence, the impacts (both positive and negative) will be disaggregated spatially and by sector / user type. The option testing and appraisal will also be an iterative process between PBA and the Lot 1 consultants.

The outputs of this process will be a full TEE analysis together with the impacts of each option on the operation of the transport networks.

To comply with the current guidance, analysis of Wider Economic Benefits will also be undertaken.

The outputs from the appraisal will be presented in line with STAG and, ultimately, show the impacts (qualitative, quantitative and monetised) and, ultimately, the relative value for money of the options considered.

Task 7: Review and, if necessary, amend the cost estimates for both options but in particular the rail option.

We will employ our bus, rail and road specialists to develop revised cost estimates for the options taken forward for detailed appraisal.

The current STAG Report has taken the rail cost estimates prepared in 2008 and applied cost inflation adjustments to these to convert them to 2016 prices. We recommend that to arrive at more accurate cost figures that these are built again from scratch as they will be crucial in determining the relative value for money offered by the rail option. Our starting point will be to revisit the original STAG study of 2008 to understand what rail investment requirements were assumed to deliver the rail option. We will then discuss with Network Rail these investment assumptions to determine whether they are still accurate / relevant. If necessary, we will make any adjustments. We will then apply costs to the revised investment, liaising closely with Network Rail to ensure buy-in.

We will undertake a similar exercise for the bus option(s). In particular, we will revisit the assumptions made in the appraisal (particularly those that assume the public sector will cover the costs) to arrive at an up-to-date estimate. This will be undertaken by our specialist bus team in Reading. The same approach will be taken towards any road option(s).

The previous STAG did not include a road option and, given the nature of some of the problems identified and the industrial nature of economic activity at Levenmouth, it is likely that one will need to be included and likely taken forward to the detailed appraisal stage. Costs of such an option will be key and we will use PBA engineers to estimate the associated life-cycle costs of the modelled option to feed into the vfm assessment.

Task 8: Develop the risk analysis to understand and quantify the impacts of key risks materialising

There are a number of risks identified in the Report which, if they materialise, could have significant impacts on the results. There are also a number of assumptions made, such as level of demand for passenger and freight rail use. We will undertake sensitivity tests that will capture the impacts of the risks materialising or the impacts of the outcomes differing from the assumptions made.

We will, for example, amend the assumptions to understand how these would impact on the findings eg TEE results through revised BCRs. Indeed, through an iterative approach, it could be possible to determine how much the actual metric (eg rail demand) would have to reduce for the BCR to equal 1.0 ie benefits are no more than costs. A judgement could then be made about whether that level of metric is likely to materialise or whether it is likely to be higher, using an evidence base to support this.

Task 9: Reporting

In line with the new STAG appraisal process we will prepare a Report at the end of each appraisal stage. The Reports will set out the work that has been undertaken under each stage and the findings. Where relevant, it will also include the recommendations for the next stage of the work.

Task 10: Project Management and Progress Meetings

A programme is set out at the end of this note. It reveals that the study will run for a period of almost 11 months, with the Final Report due to be submitted in the middle of November 2018. The ongoing project management will involve considerable input to ensure the successful delivery of a number of tasks is achieved in time to meet the end deliverable.

The programme also includes monthly progress meeting which will involve a mix of the Project Director/Project Manager and Technical Leads depending on the subject matter(s) to be discussed during each of the meetings.

Programme

The anticipated programme is set out in the table below. The initial tasks of stakeholder engagement and evidence gathering/data analysis are programmed to begin in February. This

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will then inform the initial and preliminary appraisals, with the Final Report to be submitted by the middle of November. The programme assumes that the modelling tasks can begin early May and finish by mid-September so that the outputs can feed into the ongoing appraisal and completed by mid-October. The modelling is obviously dependent on the outputs being delivered by consultants on Latis Lot 1.



TECHNICAL NOTE



LEVENMOUTH STAG APPRAISAL DRAFT PROGRAMME											
Task	January	February	March	April	May	June	July	August	September	October	Nov
Inception Meeting	11 January										
Initial Appraisal: Case for Change											
Task 1: Engagement											
Task 2: Evidence Gathering and Analysis											
Task 3: Objective Setting											
Task 4: Option Development and Sifting											
Preliminary Appraisal											
Task 5: TPOs											
Task 6: STAG Criteria etc											
Detailed Appraisal											
Task 7: Revised Timetable Analysis											
Task 8: Pre Modelling Arrangements											
Task 9: Modelling Tasks*											
Task 10: Appraisal											
Task 11: Cost Estimates											
Task 12: Risk Analysis											
Reporting											
• Initial Appraisal Report											



Appendix A: Engagement Plan

