



Forth Estuary Transport Authority

Feasibility Study for the Replacement or Augmentation of the Main Cables – Progress Report

27 April 2007

1 Purpose of Report

- 1.1 To update members on progress of the feasibility study to replace or augment the main suspension cables.

2 Background

- 2.1 On 26 August 2006, members approved the appointment of WA Fairhurst (Glasgow) to carry out the feasibility study. Fairhurst's team includes engineering consultants Cowie Consult (Denmark), Amman & Whitney (USA), traffic modelling consultant SIAS (Edinburgh) and economic consultant Roger Tym & Partners (Glasgow). The study includes an assessment of the cable anchorages. No allowance has been made in the Capital Plan for any works resulting from this study.
- 2.2 The feasibility study was deemed necessary as no absolute guarantee can be given that the approved scheme to dehumidify the main cables will halt, or reduce sufficiently, the progress of the corrosion found during the main cable investigation carried out in 2004/05.
- 2.3 It has been recognised that should it become necessary in the future for the Authority to give consideration to replacing or augmenting the main cables, several significant engineering difficulties require to be overcome. These include:
- The main towers and existing cable saddles have already been strengthened and new load paths require to be identified at the tower tops.
 - The existing cable anchorages may need to be replaced or augmented.
 - The stiffening truss is overstressed and will require to be strengthened.
- 2.4 The extent of the carriageway restrictions that will be required to carry out replacement or augmentation of the main cables and the effects of those restrictions on the adjacent road network requires to be determined by the study.

3 Main Report

3.1 Fairhurst's were awarded the contract in October 2006 and their tender indicated a thirteen month study period which would have resulted in a completion in November 2007. Fairhurst's latest programme now shows an April 2008 completion date. There are two main reasons for this delay to the completion date. These are:

- The need to carry out a ground investigation (GI) at both the north and south anchorages as available information was inadequate to be used in the selection of possible replacement anchorages. The GI is on the critical path of the latest programme and has the effect of delaying the completion of the structural optioneering work until the end of September 2007. This has a knock on effect into the evaluation and option selection process to be undertaken.
- Alterations required to Transport Scotland's Traffic Model for Scotland (TMfS) to suit the Main Cable Study are taking longer than originally anticipated. This work is being undertaken by others and is outwith the direct control of FETA.

However, it should be noted that the main body of the work is programmed to be completed in December 2007 with the Proof of Concept and Impact Analysis to be carried out between January and April 2008. These last two stages of work are the checking processes. Therefore, it should be possible to provide a fairly comprehensive report to members toward the end of this year.

3.2 As previously reported, the Transport Minister has requested an interim high level report by the end of May 2007 if possible. It will be possible to give a view on the likely replacement or augmentation scenario at that time, based on the engineering judgement of the internationally experienced team, with a subjective view on the likely traffic disruption. This early work would of course be subject to ratification in the final report.

3.3 Also, as previously reported, a peer review panel has been established to scrutinise each stage of the study development which includes Transport Scotland's Chief Bridge Engineer and their engineering consultant Flint & Neill.

3.4 An Objectives Workshop was held on 16 January 2007. Key stakeholders such as the adjacent local authorities, Sustran, Tactran, Transport Scotland, the Scottish Executive and Network Rail were invited to assist in setting the objectives of the study.

3.5 Following this, an Optioneering Workshop was held on 30 and 31 January 2007 which was attended by all the team involved in the study to determine those options that could be taken forward. Following the Optioneering Workshop the team is focusing on three Augmentation and three Replacement Options. These options then have to be tested for "buildability" before studying the traffic management options which lead in turn to user delay and

financial impact on the business community. Transport Scotland and Flint and Neill attended both days of the Optioneering Workshop.

- 3.6 A topographical survey has been carried out around both the north and south anchorage areas and the GI contract for £156,274 has been awarded to Raeburn Drilling and Geotechnical Ltd. This survey and the geotechnical investigation work are both required to establish the feasibility of constructing new anchorages.
- 3.7 Work is continuing on the development of the local traffic model and the interface with Transport Scotland's Traffic Model for Scotland (TMfS) is now progressing well. Additional trip information has been considered necessary and Road Side Interview questionnaires were handed out to drivers from the toll booths on 20 March 2007.
- 3.8 Establishing the condition of the existing anchorages is proving to be as difficult as envisaged and discussions are continuing with various specialist companies. Monitoring of possible water seepage into the anchorages is continuing.
- 3.9 Meetings have been held with Transport Scotland to discuss the application of the Scottish Transport Appraisal Guidelines (STAG) to the study.

4 Recommendations

- 4.1 It is recommended that members note the report on progress of the study; and the revised completion date of April 2008. Members are also recommended to note that a qualified high level report will be available for the Scottish Executive by the end of May 2007 and that a comprehensive report will be available to members at the end of 2007.

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Appendices

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Background Papers Tenders and evaluations held by General Manager