



Trampower

Leading to better transit

The Edinburgh Tram Inquiry
1st Floor
Waverley Gate
2-4 Waterloo Place
Edinburgh EH1 3EG

22nd Sept. 2016

Dear Lord Hardie,

Getting to the bottom of the reasons for the Edinburgh Tram Project costing so much and delivering so little is a big challenge.

In 1998 a consortium led by PowerGen including Forth Ports offered to build, equip and run a tramway between Haymarket Station and Newhaven on a commercial basis, at no cost to the Council. The then Transport Convernor, Cllr David Begg, had aspirations to build a KGB busway (CERT) and rejected the offer. CERT was later reduced to WEBS and cost £27million. It ran for less two years, as it performed so badly. The track was subsequently demolished but the alignment incorporated in the new tramway to the Airport.

The biggest risk in a publicly procured project is the public sector; change of party/change of policies. So a private contractor taking the construction risks will front end load his bid to accommodate likely public sector risks. Edinburgh City Council also wanted to protect itself against risk, and created a Byzantine set of organisations to manage the project. Studies in the US show that every layer between the client and contractor adds 20% to costs.

Added to this the chosen contractor Bilfinger Berger had not previously built a street tramway, so sub contracted the street tracks to Siemens, which also had never built a tramway. In April 2009 an underground railway Bilfinger Berger was constructing in Cologne collapsed. A block of flats fell into the excavation, killing three residents. The City Archives also fell into the flooded excavation, losing medieval manuscripts. The official inquiry in Germany found that this collapse was due to contractor negligence and incompetence. Normally this would have invalidated the contractor's insurance. At about the same time Bilfinger Berger announced that it could no longer work with Transport Initiatives Edinburgh, and stopped work on the project.

Tram Power Ltd., Registered Office: 99 Stanley Road, Bootle, Merseyside L20 7DA UK

Preston Office: 1 Navigation Business Village, Preston PR2 2YP, UK

P: + [REDACTED]

E: lewis.lesley@trampower.co.uk W: www.trampower.co.uk

Registered in England No. 02800877 VAT No. 689 7353 65

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On 7th October 2011 with Scott Hellewell (who ran the first stage of the Manchester Metrolink) I visited the Principal Engineer of Siemens in Edinburgh, Klaus Dieker and discussed with him a low impact street track, which had then already completed 14 years without needing maintenance in Sheffield, as a way to reduce costs and speed installation, with less excavation for the tracks to be installed (attached letter refers). This was rejected as the tram rails had already been bought. It was pointed out that those rails could be used on the off street section of the tramway, and the plain rails would find a ready market on main line railways.

A tramway operated until 1956 along all the streets of the new tramway. The foundation track slab stayed in place after the rails were lifted. This has been serviceable (for more than 100 years) ever since, for the heaviest vehicles on Edinburgh's roads (44 tonne HGV's). The track design chosen for the new tramway was a standard railway system, laid on a new foundation slab, requiring the old to be demolished and revealing cellars etc.. Further this design had never been used for a street installation and was built straight off the drawing board, without any testing beforehand. A railway engineer colleague wryly observed that the Edinburgh street track was good for 2000 tonne mineral trains but not for 20 tonne buses. This proved to be the case as the street tracks failed before a tram ran, from the impact of buses, and had to be rebuilt.

The Audit Scotland Reports on the Edinburgh tramway echo many of the comments made in the earlier National Audit Office Report (2004) on English tramways: inter alia: unrealistic patronage forecasts, and local authorities lacking staff with the required professional skills or experience to supervise the construction of a tramway, and being too reliant on Consultants, who often were similarly lacking in the required skills and experience.

The half finished tramway is carrying a third of the forecast patronage and operates a loss of c£3 million ps. Presently this is lost in the profits of Lothian Buses but results in a reduced dividend being paid to Edinburgh City Council. The inflated capital cost of the tramway has drained the city's financial resources, made worse by the tramway operating at a loss. Finishing the tramway to Newhaven will increase patronage to about 15 million pa, and turn an operating loss into a surplus. That surplus could support a loan of up to £100 million to finish the tramway.

In April 2015 a team including Scott Hellewell and contractor Morgan Sindall met officials of Edinburgh City Council in the new tram depot at Gogar, and tabled a proposal to complete the tramway between York Place and Newhaven for £80 million. It was rejected partly because (different) rails were already in stock. Subsequently those officials prepared a report to the Council stating that the tramway would cost £160 million to complete. This will require further grant funding.

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Sadly with the history of new tramways in Britain since 1990, there are fewer contractors willing to bid for such publicly procured projects. This ranges from Laing bankrupted by Tramlink Croydon, to AMEC which got out of civil engineering after the cancellation of the Leeds Supertram and Merseytram projects, and their lost bid costs.

The underlying question is why the tramway cost nearly £120million per km to build, when the rate in other EU countries is between £12 and 15million per km. No doubt with hind sight better decisions could have been made but the commercial risks were exasperated by politics and policies that reflected less on reality and more on ideology ?

Yours sincerely,

Prof. Lewis Lesley
Technical Director

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Preston Office: 1 Navigation Business Village, Preston PR2 2YP, UK

P: [REDACTED]

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Dipl-Ing Klaus Dieker,
Trackwork Manager,
Siemens Turnkey Systems,
9 Lochside Aenue,
EDINBURGH EH12 9DJ

10th October 2011

Dear Klaus,

Many thanks for your time on Friday with your colleague [REDACTED] and I hope that you have enjoyed a pleasant weekend. We had a usefully wide ranging discussion on the application of LR55 tracks to reduce the cost of street track installation. I realise that with BAM as the actual track installer, you may not be in a position to make a decision on this, but will know who is ? A new initiative to reduce installation disruption in Edinburgh, would obviously be well received in the City ?

Briefly LR55 offers the following advantages:

- (a) **only 3% of the excavation compared to Ri60 tracks**
- (b) **one rail at a time can be laid, so keeping open streets, even as narrow as Shandwick Place**
- (c) **proven to withstand bus and other heavy road vehicles.**
- (d) **installation at better than 100m per week (2 tracks)**
- (e) **two steps to getting the right line and level (beams +/- 5mm, rails +/- 1mm)**
- (f) **15+ years in Sheffield without maintenance**
- (g) **transitions available to all existing girder rails**
- (h) **switches and crossings in LR55 profile**
- (i) **switches with either fixed flexible blade, or pivoting blade (see attachment)**

Whilst Ri60 rails have already been purchased, these represent about 5% of the cost of street track installation. The Ri60 rails could be used for the off street sections (where no track has yet been laid). The other (UI60 ?) rails will find a ready market with Network Rail (Border Railway re-opening) or other EU rail system.

From our calculations it would appear that LR55 could save enough cost in building from Haymarket to St. Andrews Square, to allow the track from St. Andrews Square to Leith/Newhaven to be laid within the £750m budget agreed by the City Council. This would mean that all 26 trams purchased would be needed.

We are available to provide further technical information. The Installation Method Statement can be downloaded from: www.LR55-rail-road-system.co.uk/method.htm

With best wishes,

Lewis Lesley
Technical Director
www.trampower.co.uk
Direct Line [REDACTED]

Tram Power Ltd., Registered Office: 99 Stanley Road, Bootle, Merseyside L20 7DA UK

Preston Office: 48 Watling Street, Road, PR2 8BP, UK

P: [REDACTED]

E: lewis.lesley@trampower.co.uk W: www.trampower.co.uk

Registered in England No. 02800877

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