

Scope Options

In the face of the commercial and therefore programme and cost uncertainties we face while in dispute with Infraco, it is appropriate to examine the options we might have to reduce the scope of the project to mitigate the impact of any potential cost overrun in the context of limited funding currently available. To recap – the current Grant Offer dictates that that CEC and TS will bear the costs of the project in the proportion 8.3% and 91.7% up until the point where TS have reached a cap of £500m and all marginal costs thereafter – ie above £545m – will be 100% for CEC's account.

A justifiable reduction in scope, implemented now or at some point during the progression of the project, would provide a safety valve in the event we foresee costs going above £545m and there is no more funding available from whatever source. The objective would be to create a 'safety value' or 'headroom' now or to be exercised in the future if and when it became evident that costs would exceed funding available. The validity and value for money of any such option would obviously be the subject of close examination and scrutiny by the stakeholders ie CEC and the Scottish Government.

Options to reduce scope are considered under:

- **Value Engineering** – delivering the same functionality or outputs for less money in a way that does not degrade the asset by increasing lifecycle costs
- **Infrastructure or Service curtailment** – delivering less physical tramway and/or running a reduced service

Value Engineering

The design of the project, including the consents and approvals process, is now nearing completion and it is now unlikely that there are a significant number of new value engineering opportunities which have not previously been explored, which would not be very disruptive and time consuming in any case to progress including any necessary re-design and the attendant risk of failing to achieve timely approval or consent by the City planners and others.

There is no evidence that the design of the tram has in any way been gold plated as part of the design and consents/approvals process. There are several instances where the design has changed but for reasons other than gold plating eg to a slightly different alignment to accommodate road traffic arrangements or evolution of design of the structures on the railway corridor in response to ground conditions.

The overall conclusion is that any marginal cost savings as a result of further large value engineering opportunities are very likely to be offset by the additional design and time related costs associated with their implementation and will increase the risk profile of the project. We are of course actively seeking new value engineering opportunities throughout the construction period but these are unlikely to deliver significant savings relative to the overall cost of the project.

Infrastructure or Service curtailment

The viability of Phase 1a was examined in the Final Business Case (FBC) which included both an assessment of economic cost and benefits under STAG guidance and an assessment of

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operational viability as part of the TEL Strategic Business Plan for the integrated tram and bus business beyond 2011.

The FBC assessed the Benefit Cost Ratio of the Ph1a scheme under STAG to be £592m/£335m (PV in 2002 prices) ie 1.77. This means that in a world of unconstrained supply of capital the minimum test of viability by this measure – a BCR of greater than 1.0 – would not be threatened even with significant additional costs. The Borders Railway has proceeded with a BCR of just above 1.0. There is a broad range of BCRs which might be expected eg nature of road schemes is that the ratio of monetised travel time benefits relative to costs is usually pretty high and they deliver relatively high BCRs.

STAG guidance and investment decision making practice would dictate that each phase of the ETN built should be assessed as adding to the economic and operational financial viability of the public transport network in its own right ie assuming there are no further phases constructed. It follows that if we were to build a curtailed Ph1a as the first phase of tramway it would similarly need to pass these viability tests on its own.

The maxim above may be open to debate when the investment under consideration is a large network of infrastructure which could never be affordable in one phase and where the value of the end result or vision is the focus rather than the constituent parts. In any case, the consideration of possible infrastructure curtailments below would only be considered as further phasing of the ETN and that the totality of Phase 1 together with any future network extensions will be constructed as and when funds are available and/or demand dictates.

The choice of Phase 1a and the development of the Business Case for it was the result of two years plus work and this current review of options cannot begin to replicate the extent and detail of that work to demonstrate the viability of curtailed scope options. However it is possible to make some broad statements of principle the stakeholders would focus on.

We must assume that we can only consider curtailment from either end we consider two separate lengths of tramway to be very inefficient and expensive to operate, would involve an unacceptable additional interchange and significant additional capital costs (eg an extra depot)

Curtailed from Edinburgh Airport

The tramway going west must at least reach the depot at Gogar as it's reasonable to conclude that moving the depot to a different location is not possible without the time and cost consequences rendering the entire project unviable even if a suitable location existed. (We do have the Parliamentary powers to build a depot at Leith docks but that location for a single depot was discounted as being too small).

Extending the Tramway to Edinburgh Airport was an integral part of the Scottish Government's and Scottish Parliament's deliberations in 2007 which culminated in the cancellation of the EARL project and continued but capped Grant support for tram and with the construction of a heavy rail/tram interchange at Gogar as the rail based connection to Edinburgh Airport. For this reason it seems reasonable to assume that there would be significant resistance from the Government/Transport Scotland to the first phase of tram not going to the airport.

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For the reasons above alone it is considered that curtailment from Edinburgh Airport is highly unlikely to be an acceptable proposition to stakeholders and it is in any case practicable to terminate before depot at Gogar. A consideration here may be the view taken by BAA if there is no tram to the airport.

Notwithstanding the foregoing the FBC predicts significantly lower demand in absolute terms for tram travelling east at all stops towards the City Centre than it does travelling south-west from Leith towards the City Centre. As described in the FBC, there are fewer opportunities to integrate bus and tram services from the West of the City.

However the tram from the Airport to the City Centre is still a significant part of the predicted mode shift from cars to public transport achieved and connects to the existing Park & Ride sites at Ingliston and prospective new site Hermiston Gait. There is a symbiotic relationship between the demand for tram travelling east and the forecast growth in passengers at the airport and the development at Edinburgh Park and the Gyle Shopping Centre and high quality public transport will be an integral part of future plans to develop the Sighthill area and its Universities. The accessibility and social inclusion objectives achieved by tram serving the high density, low car ownership areas from Edinburgh Park to Haymarket remain valid.

Curtailment from Newhaven

For this analysis we might look at different termination options:

- **Ocean Terminal** – The section from Ocean Terminal to Newhaven was an “add-on” when the scope of Phase 1a was being finalised. The FBC patronage forecasts are for less than 1,000 passengers per hour to board the tram at Newhaven at the AM peak even in 2031 and a principal source of patronage is the new residential development in Western Harbour.

Not extending to Newhaven may be a matter of concern to Forth Ports plc on whom CEC are relying for a substantial portion of the future developer contribution receipts they will ultimately rely upon to underpin their £45m contribution to the project. However it is rational to assume that further development at Western Harbour is now going to be significantly delayed – possibly by several years. Delaying tram construction to Newhaven until the pace of development is clearer and demand builds up is common sense without materially impacting in the broader economic benefits or regeneration encouraged by extending the tram onto Leith Docks.

CEC could also better match the timing of developer contribution receipts with payments for tram construction in this area. It’s also likely that demand could be mopped up by bus services until such time as building the tram was sensible. It is also true that doubt in the minds of Forth Ports plc that the tram construction is certain may be no bad thing.

The capital cost deferred by this truncation to the first phase of the infrastructure could be in the region of £15m gross. However there would be a cost and potential delay associated with the design and approval of required amendments to the turn-back facilities already included at Ocean Terminal to allow trams to terminate and turn round there.

- **Foot of the Walk (or Bernard St)** – This truncation would involve stopping short of actually extending the tram onto the Leith Docks area and becomes far less justifiable as a logical phasing to match demand as the tram is seen as a key stimulant of the future development

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which will give rise to that increased demand. It may even be asserted that increased public transport capacity, journey times and quality is a necessary condition of the new development being permitted. Adapted from the FBC:

In the parts of Edinburgh served by tram such as Leith Docks regeneration is a key priority. The tram will connect core development areas across the city and minimise the need for dependence on private car to access employment, residential and retail areas. Equivalent to a new town in scale, Edinburgh Waterfront is the largest brownfield development in Scotland. Phase 1 of the tram will support and catalyse this development by providing sustainable transport connections to areas where public transport service could be improved or which are or will experience congestion, particularly at peak times. This can significantly contribute to city regeneration. The major developments at Leith Docks will be more likely to succeed, and do so in a shorter timescale, with Phase 1a of the tram. These developments will bring high quality living, leisure and employment opportunities to the area.

Without Phase 1a of the tram it is unlikely the large scale redevelopment of Leith Docks could go ahead in the same timescales or to the same extent. The new developments will bring high quality living, leisure and employment opportunities. In addition to opening up brownfield land for redevelopment, it is highly probable that the tram will have a positive impact on the image of the area and hence help to stimulate further inward investment. For certain employers whose workforces may be more than usually reliant on public transport access, the tram should act as a catalyst to encourage them to locate in areas that they would have previously discounted. In addition, by contributing to reducing growth in congestion, the tram will be assisting with maintaining the economic viability of North and West Edinburgh.

A significant proportion of the monetised economic benefits from Phase 1a originate in the Leith Docks area. Further the modelling to support the FBC predicts that the introduction of Tram in the Leith Docks area would result in up to a 10% change in mode share from cars to public transport.

The FBC forecasts of loadings at Foot of the Walk travelling towards the city centre to be in excess of 2000 pax per hour in the AM peak in 2011 increasing to around 6,000 pax per hour in 2031. There is a very detailed modelling exercise which could be carried out to examine the ways in which high quality feeder bus services from around the Leith Docks development area to a tram terminus at Foot of the Walk could mitigate any loss of economic benefits or public transport patronage and mode share arising in the short term from the delayed construction of tram on Leith Docks to a later date. However serving full demand and delivering the long term benefits described in the FBC would require Phase 1a to be completed in full in due course.

The success of the interchange between tram and bus at the foot of Leith walk is already a vitally important part of the integrated service plans and has been designed into a very restricted space. In the event of truncation at or near the foot of the walk there would be a significant engineering challenge to enhance the turn-back facilities in this space and to be able to conduct turn-back operations whilst accommodating other road traffic.

Termination before Leith Docks would certainly get the attention of Forth Ports plc but as above that may be considered as no bad thing. This truncation would also mean no direct

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tram service to the Scottish Executive building, which may be a sticking point for the Government, or to the destination of Ocean Terminal and its shopping and leisure attractions.

The capital cost deferred by this truncation to the first phase of infrastructure could be in the region of £30m gross. However there would be additional costs and potential delay associated with the design and approval of necessary enhancement to the turn-back facilities already included.

If the enhancement of turn-back facilities at Foot of the Walk to a terminus was to prove an impracticable option then termination at Bernard St would still be an option but with higher capital costs for the first phase.

• **York Place / Picardy Place** – In addition to the drawbacks from not extending into Leith Docks as described above, truncation at York Place / Picardy Place (ie the trams would not extend down Leith Walk in the first phase) would have one very significant drawback that being that Leith Walk offers the greatest opportunity to remove substantial numbers of buses and replace them with trams in an effective manner which improves journey times and cuts congestion.

As noted above, the FBC forecasts of loadings at Foot of the Walk travelling towards the city centre to be in excess of 2000 pax per hour in the AM peak in 2011 increasing to around 6,000 pax per hour in 2031. On Leith walk itself such loadings were forecast to increase to nearly 8,000 pax per hour in McDonald Road exceeding the capacity of the initial 12 trams per hour service on Leith Walk and requiring an increase to 16 trams per hour by 2016. There is a very convincing need for tram on Leith Walk by virtue of the sheer volume of forecast demand alone and truncation at York Place / Picardy Place is sub-optimal for this reason.

There are currently turn-back facilities included in the design at York Place. However the very strong preference may be to move the terminus to Picardy Place to better interface with the existing and proposed leisure, hotel and shopping developments in the area and to create effective interchange with bus services running on the Bridges to Leith Walk/London Road corridors. It would be important to retain the desired relationship between the proposed Henderson Global's developments at St James Square.

The capital cost saving from this truncation to the first phase of infrastructure could be in the region of £50m gross.

This option would very closely resemble the Line 2 proposals as approved by parliament and for which a STAG appraisal was prepared which concluded Line 2 was viable. However it must be noted that the bus/tram service integration proposals included in the Line 2 STAG supporting the parliamentary proposals were fundamentally reviewed during the preparation of the FBC which reflects far fewer opportunities to reduce bus services from the West of the City on introduction of tram and forced interchange onto trams from buses at the West End / Haymarket (thereby substantially reducing buses on Princes St) is not considered to be a viable proposition.

Service curtailments

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An initial review of the tram services required to operate the above curtailed infrastructure options indicated that less tram vehicles (at an approximate cost of £2m per vehicle) would be required as compared to the 27 vehicles (including spares) included in our contract with CAF. Terminating at:

- **Ocean Terminal** - No change
- Foot of the Walk – 4 less vehicles reducing first phase capex by a theoretical £8m
- York Place / Picardy Place – 10 less vehicles reducing first phase capex by a theoretical £20m – based upon a service of 8 trams per hour in each direction from the airport to Ocean Terminal (compared to the full planned Phase 1a service from 2015 of 8 tph from the airport to Ocean Terminal plus an additional 8 tph from Haymarket to Newhaven)

The capital cost reductions are described as theoretical as there would be a significant commercial discussion to be had with the tram supplier CAF since the price for tram reflects an allocation of significant fixed costs and their profits over a larger order and they would wish to recover these.

Additional bus service costs associated with curtailment

It's very important never to lose sight of the full financial impact of curtailment on the lifecycle costs and revenues to the Council of providing public transport in the city. To the extent public transport demand is not met by trams and buses together it would have to be met by buses alone. As well as the attendant costs of buying and servicing more bus vehicles, there is a trade off point where operating costs per passenger become lower on trams when they reach a critical mass of usage – such as we expect to achieve on the lothian road corridor (this ignores depreciation). There is also a theoretical loss of gross revenue as the incremental patronage and revenue to TEL with the trams compared to demand for buses only without trams is lost.

Commercial impact of curtailments on Infraco and MUDFA

All other things being equal, any significant curtailment in the extent of the tram infrastructure as above would give rise to claims for loss of profits from the Infraco consortium. It is worth mentioning that the construction on Leith Walk will possibly be the riskiest and most disruption prone section of Phase 1a construction.

Decisions would also be required as to what utility diversions to complete. A simple view would be to complete all diversions underway including Leith Walk and the separately procured diversions at the airport, but in the event of curtailment on Leith Docks and the extension to Newhaven we would not divert the utilities in these areas in the first phase.