Edinburgh Tram Inquiry
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Jim Harries – Areas for Discussion

This note identifies the broad subject areas which we would like you to address. The note refers to document numbers and will help guide you through the documents that the Inquiry has provided to you. In addition, we would be grateful if you could provide a full CV setting out your vocational qualifications and experience.

The following matters are covered in this Note:

- Introduction
- The Trams Project – Overview
- Events in 2006 – 2008/09
- Project Management, Governance and Contractors
- Final thoughts

INTRODUCTION

1. Prior to commencing work on the Edinburgh tram project, and by way of overview:

   a. What were your main qualifications and vocational experience?

   Chartered Engineer, MIET, MIMechE, MA
   I have worked in the light rail industry since 1990 on light rail and tram systems in Manchester, London and Nottingham. Please refer to my CV that has been submitted.

   b. What was your experience in major infrastructure projects, including tram and light rail systems?

   In Manchester, as part of the operating company, I accepted the assets provided by GEC, Mowlem and Amec to deliver phase 1 of the Metrolink system.

   In London, I was the commissioning manager for Mowlem in the construction and delivery of the DLR extension to Lewisham.

   In Nottingham, I worked for Bombardier in the system integrations and commissioning of phase 1 of the Nottingham Tram system.

   In Edinburgh, I worked for Transdev delivering technical and operational advice to TIE.

   In Manchester, I worked for Transport for Greater Manchester as the owner of the Metrolink tram system.

   For the last 3 years I have been working as a consultant on the Nottingham, Dublin, Birmingham, Manchester and Sheffield trams systems.

   Refer to my CV for further information.

2. On 20 April 2004 the TIE Board endorsed the recommendation to approve Transdev plc as the preferred bidder, and tram operator, under the Developing Partnering and Operating Franchising Agreement (DPOFA) (**USB00000023**). The role of Transdev is summarised in **CEC01827024**.

   a. What was the role of Transdev in the Edinburgh tram project?

   To provide TIE with operational and technical advice in the development of the system, and then to act as the operator of the system once built.

   b. Do you know why Transdev's contract was terminated in August 2009 (see **CEC00736909**)?

   Yes. I left Transdev and the Edinburgh tram project in February 2008, so I

have no direct knowledge on this matter. My understanding from discussing the matter with others is that TIE felt that they could operate the system at a lower price by using alternative arrangements with Lothian Bus.

3. **ADS00012** is a document that indicates that you had a number of roles in respect of the Edinburgh tram project. In respect of your employment with Transdev and your work with TIE:

   a. Between what dates did you work for Transdev on the Edinburgh Tram Project? What was your job title? What were your main duties and responsibilities? Did these change over time (and, if so, when, in what way and why)?

      My involvement was from November 2004 to February 2008.
      My job title was Project Engineer. My main role was to lead Transdev's technical and operational input to TIE primarily with Roger Jones' support.

   b. To whom did you report and who reported to you?

      I initially reported to Andy Wood, of Transdev, and later to Carl Williams and then to Neil Wood. Between the departure of Andy Wood and the arrival of Carl, I led the Transdev team, reporting upwards to David Humphrey and Kevin Belfield of Transdev who were not based in Edinburgh.

      Roger Jones of Transdev reported to me, as did a young graduate.

      Towards the end of my involvement, the Transdev team was expanding ready to take on the operation of the system. Michaela Keating, Elizabeth Parks and Sinead Scott were recruited.

   c. A paper to the DPD dated 6 February 2007 (**ADS00019**) mentions the establishment of the Core Engineering Group. It appears you were a member of the group. Can you explain the role of that group? What was your role in the group?

      The group was to act as a focal point for engineering and other decisions that impact the project. It contained people who had the relevant experience from other tram projects. I was one of the people on the project who had significant tram related experience across many technical and operational disciplines.

THE TRAM PROJECT – OVERVIEW

Procurement

4. In relation to the procurement strategy for the tram project:

   a. What was your understanding of the main elements and objectives of the procurement strategy for the tram project?

      The intention was to procure the trams and infrastructure works separately, and then novate the tram procurement contract to the infrastructure contractor.
      Utility diversions were to be procured by TIE through the MUDFA.
      The ongoing maintenance of the system would be included in the infrastructure and tram procurement contracts, and the operation of the system would be by Transdev.

   b. How important was it to obtain a fixed price for the Infraco contract?

      TIE sought a fixed price in order to reduce risk, but I do not know how important that was to TIE.

   c. Did the procurement strategy or objectives change in any way (and, if so, when and why)?

      Transdev and I had little or no influence on TIE's procurement strategy. It was understood to be a "given" for the project.

   d. In the event, do you consider that the aims of the procurement strategy were met (and, if not, why not)?

      In view of the outcome of the project in terms of cost and time, it is evident that the procurement strategy did not deliver as intended. It appears that the risks associated with the procurement strategy were inadequately managed.

Design

5. We understand that TIE entered into a Systems Design Services (SDS) contract with Parsons Brinckerhoff in September 2005 and that there were three main stages of design, namely, the Requirements Definition phase (provided by December 2005), Preliminary Design (provided by June 2006) and Detailed Design.

   It appears that you, and your Transdev colleagues, were involved in reviewing preliminary designs and detailed designs produced by SDS. We understand that there were difficulties and delays in progressing and completing the design for the tram project.

By way of overview:

a. Can you explain what your design review role involved and why you were doing it?

The design review process is to ensure that designs provided by SDS meet the requirements of the project and that an integrated design that delivers value for money within the project's constraints is developed. Design integration across all technical disciplines (including trams) is always a challenge, and the maintainability, reliability and safety of the designs must also be considered. Whilst I was working for Transdev, my approach was to consider all aspects of any designs that were offered.

b. What were your main concerns in relation to design and the design process? Were these concerns ever addressed to your satisfaction?

My recollection is that there were instances where the design process was frustrating and influencing the design at earlier stages could have improved the process. There were also issues with document control. However, looking back now at what has been built, the system from a technical perspective is sound and I am pleased with the physical results.

c. What was your understanding of the main difficulties in carrying out the design work and the main reasons for these difficulties?

It was challenging to meet the requirements/aspirations of all the parties involved. Edinburgh as a city is the most challenging environment that I have experienced. A core issue here was the lack of an integrated approach from both TIE and Edinburgh CEC / Lothian Bus. This was compounded by the difficulties presented by the multiple stakeholders who tended to be very demanding.

d. What steps were taken to address these difficulties?

Transdev attempted to escalate these concerns, but there were no easy answers and ownership of these issues within TIE was variable.

e. Were these steps successful (and, if not, why not)?

In my opinion, the end result was technically good, but the overall cost of rework and other delays make the use of "successful" difficult.

f. In producing the design, the wishes and requirements of a number of different stakeholders required to be addressed (e.g. TIE, CEC, the statutory utility companies (SUCs), Network Rail, Forth Ports and BAA etc). Which body or organisation do you consider was primarily responsible for managing and obtaining the views and agreement of the different stakeholders?

This was a key role for TIE and the body delivering the project. However,

TIE could not do this without active support from other bodies and from CEC in particular. CEC should have been in a better position than TIE to influence stakeholders.

g. What role (if any) did TIE have in relation to design and/or approval of design and/or provision of information for design? To what extent did actions on the part of TIE hold up design (see TPB papers for 3 June 2009 in which Steve Bell said that of the SDS design, some was delayed by TIE and some by redesign (**CEC01021587**, page 7).

I cannot recollect the contractual arrangements for design approval. From memory, TIE took time in making some key decisions, but such decisions were not easy. As previously stated, I left the project in February 2008 so I am unable to comment on the paper referenced above.

h. In 2007 a decision was made to continue with the procurement process notwithstanding the incomplete design. Were you involved in this? Can you comment on the reasons for the decision and whether, in your view (with or without hindsight), it was the correct decision?

I have no recollection of being involved in this. My recollection is that generally TIE made decisions relating to procurement with little or no involvement from Transdev.

Utilities

6. TIE entered into the MUDFA contract in October 2006. Utilities diversion works commenced in July 2007 and were due to be completed by the end of 2008, prior to the commencement of the main infrastructure works. There were difficulties and delays in progressing and completing the utilities diversion works. By way of overview:

a. What was your understanding of the main difficulties in carrying out the utilities works and the main reasons for these difficulties? What role if any was played by provision of designs for these works?

Transdev had little or no input into the MUDFA approach, MUDFA designs or management.

b. What steps were taken to address these difficulties?

I am unable to assist in this area.

c. Were these steps successful (and, if not, why not)?

I am unable to assist in this area.

d. Was any consideration given to the effect that the MUDFA slippages would have on the INFRACO contract works?

TIE managed this with, as far as I can recollect, no involvement from Transdev.

Risk

7. a. In general, what risks were identified as requiring management and how were they managed?

   I have no recollection in being involved in the risk management process.

   b. Who was responsible for managing and monitoring risk?

   This was led by TIE.

   c. Did the risk management approach differ from other contracts on which you have worked and, if so, in what ways?

   As I have no recollection of being involved in the risk management process, I am unable to comment on this question.

   d. Do you consider that risk management was effective and can you give the reasons for your view?

   The cost increases seem to indicate that the risk management process did not work effectively. TIE lacked the will to accept that the emerging costs and risks should be recognised.

   e. In this project, what was done when it became apparent that a risk will be realised and how does that compare with other projects?

   As I have no recollection of being involved in the risk management process, I am unable to comment on this question.

8. a. Did you have a role in relation to evaluation and management of risk during the project? If so, what was your role.

   I have no recollection of being involved.

   b. How was risk evaluated and managed? How were the risks to be evaluated and determined and who made the determination? What was your role in this?

   I have no recollection of being involved.

9. a. What is QRA? How was it produced and what was done with the output? Did it work well?

   QRA is Quantitative Risk Assessment, a standard technique on projects.
   I have no recollection of being involved so I am unable to comment on its effectiveness on the project.

EVENTS 2006 – 2008

2006

10. By email dated 10 July 2006 from Paul Alliot (TIE's design manager) to you, among others, Mr Alliot expressed concerns about the preliminary design (**CEC01779065**). He said *"I cannot help feeling it is yet another example of delivering quantity to meet a deadline rather than quality that achieves deadlines and the right outcome"*. He went on to say that *"we cannot wisely accept the preliminary design and therefore the phase gets protracted like the requirements definition stage"* and that he was concerned that *"we get played off by SDS as delaying acceptance"*.

    a. What were your views on the preliminary design submissions and whether they should be accepted?

    Projects are driven by milestone payments and the situation outlined above is not unusual. Refusing to accept designs in the short term, delays progress but may be best overall in the longer term. Such delays usually are reported upwards and that is seldom seen as good news. In the pure engineering world, I would have preferred to have had a more integrated approach from SDS.

    b. What was your understanding of what Mr Alliot meant by his reference to the preliminary design stage getting protracted like the requirements definition stage? What did you understand him to mean when he wrote "we get played off by SDS as delaying acceptance"?

    From recollection, there was slippage against the programme in completing the requirements definition stage, but that is best checked against the project programmes that I do not now have.
    If TIE does not accept designs, then SDS may be able to establish that they are delayed by TIE unless TIE have a contractual argument that demonstrates that SDS have not delivered to the contract. Such matters are seldom easy to establish.

11. On 28 July 2006 you sent an email to Gavin Murray, TIE, stating that you were very concerned about the adequacy of SDS's Quality Plan (**TIE00001738**). You recommended that Tie undertake an audit of SDS's Quality Processes but that there was a risks that *"some of our own inadequacies in this area would be exposed too"*.

    a. What was SDS's Quality Plan? What were your concerns about it? What was done about your concerns?

    I no longer have access to the plan. The plan sets out how SDS controls and issues documentation to ensure that the status of all relevant documentation is effectively managed. My concern was that SDS appeared not to be in compliance with their own plan, and that is why I suggested an

audit by TIE. The would establish if there were changes needed to SDS's arrangements.
I cannot recollect what was done as a result of this.

b. What did you mean when you wrote that an audit would expose "some of our own inadequacies"? What inadequacies were you referring to?

Some of TIE's internal key processes were not, as far as I can recollect, adequately documented, and consequently TIE would be at some risk in these circumstances.

12. **CEC01756906** is Transdev report to TIE dated 24 October 2006. On page 2 it is stated that TIE should involve Transdev in the closeout of Transdev comments made on the SDS Preliminary Design Phase submissions.

There is a report from October 2006 (**CEC01802605**) in which you said that the project was not using the knowledge and expertise that the DPOFA should provide it with.

In a Transdev report to TIE in December 2006 (**CEC01765721**) it is reported under 'Design Support' that that there was a lack of process to involve Transdev. A number of concerns are raised in this report.

a. In general, what was the relationship like between TIE and Transdev. Did the relationship between TIE and Transdev change over time and, if so, in what way?

Transdev's contract was managed by TIE's Operations Director. This relationship was set out by Transdev to be a partnership, with the parties working together to achieve the best results for the project as a whole. However, my perception was that TIE saw the relationship as one that is more towards one of client and supplier, with Transdev in a significantly subservient role. There was a perception that TIE did not want Transdev's perspective or advice on some matters, and the closeout of Transdev comments made on the SDS Preliminary Design Phase submissions is such an example.

b. In general, did TIE act on the advice and use the expertise of Transdev?

TIE was variable in this respect. Transdev was excluded from almost all of TIE's commercial and procurement matters.

c. Are there specific, important examples of TIE not using Transdev's advice or expertise?

A good example of Transdev's advice not being taken is the project's selection of service frequency and tram size. From recollection, the original concept was to have "normal" sized trams of about 30m length operating at 8 trams per hour on the route to the airport, a service interval of one tram every 7.5 minutes. Lothian bus argued that a service interval of 10 mins was

needed in Edinburgh but their rationale was never made clear to me. Transdev argued against this from their experience elsewhere and from established tram business case principles. I recollect that the decision was made at board level with no representation present from Transdev. Lothian Bus were present. Lothian Bus had their way, and this led to a significant change in operation and to longer trams to deliver the required capacity. Transdev's view was not accepted. In my view this led to:

- Reduced revenue. Demand elasticity is about 40% with service interval, so the increase in headways reduced the tram system's revenue by about 25%.
- Significantly more intrusive and costly infrastructure, with tramstops needing to be 10 m longer and having a greater impact on the city. This also constrained the available locations for tramstops, probably leading to a further revenue impact particularly in the city centre.
- Additional infrastructure design constraints on the highway where longer trams cannot be permitted to obstruct junctions and the like.
- Trams that are less likely to be able to be used on other systems, where about 30m is the norm.
- Some tram suppliers may have been unwilling to bid for the Tramco contract, leading to potential cost increases.
- Increased demand on the power supply system, leading to increased infrastructure costs and energy costs.

Transdev was excluded from almost all of TIE's commercial matters.

13. In an email dated 27 November 2006, in response to a report submitted by SDS entitled Detailed Design Plan Assumptions and Constraints (**CEC01760252**), Roger Jones set out the Transdev response that the report was fundamentally flawed and that it was not useful.

    a. Can you explain the purpose of this SDS report?

    Can you please supply a copy of the report to I can consider the matter further?

    b. Why was it fatally flawed and not useful? What, if anything, was done about Transdev's concerns?

    See my response to question a. above.

14. A report to Council on 21 December 2006 (**CEC02083466**) recommended approval of the Draft Final Business Case (**CEC01821403**).

    The report explained that the estimated capital cost of phase 1a was £500 million (and the estimated cost of phase 1b was £92 million).

    The draft FBC noted that the procurement strategy was intended to *"Transfer design, construction and maintenance performance risks to the private sector ..."* (p16), that *"Following novation of SDS, the design risks pass to Infraco"* (p86), that *"Full design risk passed to Infraco post contract award"* (p95) and

that *"The creation of the Infraco contract as a lump sum contract transfers the pricing risk to the private sector"* (p97).

It was noted that *"It is expected that the overall design work to Detailed Design will be 100% complete when the Infraco contract is signed"* (p84) and that risks associated with novation would be mitigated by ... *"Detailed design being largely completed prior to award of the Infraco contract"* (p86).

It was noted that a rigorous Quantitative Risk Allowance had been applied and there was considered to be a 90% chance that costs would come in below the risk-adjusted level and that *"The level of risk allowance so calculated and included in the updated estimate represents 12% of the underlying base cost estimates. This is considered to be a prudent allowance to allow for cost uncertainty at this stage of the project and reflects the evolution of design and the increasing level of certainty and confidence in the costs of Phase 1 as procurement has progressed through 2006"* (paragraph 9.11).

It was further noted that *"TIE has continued to comply with the HM Treasury recommendations for the estimation of potential Optimism Bias and has determined, in consultation with Transport Scotland, that no allowances for Optimism Bias are required in addition to the 12% risk allowance"* (paragraph 9.12); and that *"Optimism Bias has been shown in Mott MacDonald's Review of Large Public Procurement in the UK, to be eradicated by the current stage of FBC production, in view of greater scheme certainty and mitigation of contributing procurement, project specific, client specific, environmental and external influence areas"* (paragraph 10.44).

a. Did you have any input into the Draft FBC? What did you think of the quality of the DFBC?

   No, Transdev was generally excluded from commercial matters.

b. What was your understanding at that time as to the steps that would be taken to achieve the procurement objectives in the draft FBC noted above?

   Transdev was generally excluded from commercial matters.

c. What was your understanding of the extent to which detailed design would be complete (i) when bids were received for the Infraco contract and (ii) when the Infraco contract was signed?

   I cannot recollect what my understanding on this was.

2007

15. Emails sent in January 2007 (**CEC01767006**) between TIE, TSS and Transdev staff, including you, discuss communication problems between TIE, TSS and Transdev in relation to SDS design work. It states that dialogue should take place so *"that issues can be resolved more quickly and everybody understands the position rather than matters being shrouded in mystery leading to*

confusion".

a. Can you explain what that statement was referring to?

This was to fast track communication so TIE and its partners all have the same information.

b. In general, at this stage in the project, what were the issues regarding the way TIE, TSS and Transdev dealt with SDS design work?

Design reviews needed to be co-ordinated such that those working for TIE in the process could all work together effectively.

16. **CEC01811222** is a slide show put together by David Crawley, TIE, in January 2007. Slide 11 contains comments attributed to you. You said that SDS are not performing well and that the programme will not be met.

a. What was the problem with SDS?

Inadequately managed by TIE and TIE is not seen by SDS as an informed client. See the other comments in **CEC01811222.**

b. Why would the programme not be met?

This comment was my perception, based on the delivery of the programme up to the time of the statement.

c. What was done about your concerns? Were your concerns addressed to your satisfaction? Did there come a time when you considered SDS were performing well and the programme would be met?

Revised design review arrangements did improve the process, but key leadership decisions and direction were hard to obtain from TIE. I am struggling to provide specific examples.
Whilst I was there, I never felt that the programme could be met.

17. **CEC01781472** (attached to **CEC01781471**) is a report from the meeting of the Core Engineering Group on 1 February 2007. It listed a number of issues with the project such as design review process, interface between tie and SDS and risk ownership.

a. What was done in response to concerns raised by the Core Engineering Group?

Changes were made that improved the process and a better partnership working was achieved.

18. According to item 2.1 of the minutes of a Design, Procurement and Delivery Sub-Committee meeting on 13 February 2007 (**TRS00004079**) (page 14)

Mathew Crosse, TIE, and Steve Reynolds, PB, presented plans for improving design matters and a changed approach to engineering. In item 2.3 it is noted that you stated that the process would be self-assuring and margin of error would be used to revise the process where required.

a. It would be helpful if you could explain, by way of overview, the plans for improving design matters and the changed approach to engineering? Why was there a need for change? Were these changes introduced? Did they work?

I believe that these changes are those set out in question 17 above. I have no access to the presentation referenced in **TRS00004079** and I cannot recollect it.

b. In what way would the new process be self-assuring? Again, did that work? What did you mean by margin of error would be used to revise the process where required?

I think that the new processes did improve overall performance. I cannot recollect what the "margin of error" relates to.

19. On 14 February 2007 David Powell, TIE, sent you an email outlining actions from the Core Engineering Group meeting (**CEC01784677**). Mr Powell wrote that the problem was that it was difficult to see *"how the ERs, the PB design and Infraco bidders' proposals relate to each other".*

a. What was the problem? How had it arisen?

This was due to TIE adopting an approach that was not fully integrated across the ERs, PB's design and the bidders' proposals. If I recollect correctly, the Engineering team had little input into the ERs, and the Infraco procurement exercise was also done somewhat remotely from the engineering team.

b. What effect would this have on the project?

Cost and delay would be incurred in order to align the three strands.

c. Was the issue resolved? If so, when and how?

I do not believe that this issue was resolved prior to me leaving the project in February 2008.

d. What effect did this have on the project?

I do not have any relevant knowledge on this.

20. **TIE00205633** is an email you sent to David Crawley on 21 February 2007 regarding the SDS IDR. You mentioned that TIE were not represented at that meeting despite being invited to do so. The common theme at the meeting was

that SDS believed that TIE was holding up the process in certain areas, or TIE/CEC had intimated scope changes that generated uncertainty and unnecessary work.

a. What was the SDS IDR meeting? What does IDR stand for?

From recollection, IDR is "Integrated Design Review" Meeting.

b. What was your view of TIE's relationship with SDS at this stage? To what extent were SDS, TIE or CEC delaying the delivery of design or intimating scope changes?

The introduction of David Crawley to the project brought a significant improvement to TIE's approach to SDS, but key decisions were still hard for TIE to take due to the conflicting aspirations of the multiple stakeholders.

21. **CEC01826895** is a chain of emails from February 2007 which contains three top twenty lists of engineering issues.

a. Can you explain what the main engineering issues facing the project were at this stage? What risks did they pose to the project?

I set these out in **CEC01826895.** All of these imported cost and time risks to the project.

b. Were these issues addressed (and, if so, how and when)?

I cannot recollect how or if these were resolved. In my view, the key message is a lack of overall project management by TIE.

22. In March 2007, a clearing house was to be set up to deal with design issues (**CEC01628233**). You were to be part of the clearing house.

a. Can you explain the purpose of the clearing house and the issues it was meant to resolve? Did it do its job?

I was involved in the meeting on 29 March 2007 but I cannot recollect the overall effectiveness of the process.

b. To what extent, if at all, were matters resolved on assumptions that were later found to be incorrect and/or required to be changed i.e. to what extent were issues truly resolved at that stage and to what extent were they put off until later?

I cannot recollect the overall effectiveness of the process.

23. On 3 April 2007 you sent an email to Alastair Richards (**CEC01644493**) in which you expressed concerns about the Employer's Requirements.

a. Were you involved in drafting and reviewing the Employer's Requirements?

The ERs were a document that should reflect the overall project requirements, but as stated in **CEC01644493**, it was not adequately controlled and managed. Ownership of the document was with TIE. Transdev were asked to review it at various times, but due to the structure of the document, reviews were only partially effective.

b. Can you explain what your concerns about the Employer's Requirements were at the time? What was done about your concerns? Were your concerns resolved to your satisfaction?

My main concern was that the ERs did not fully integrate with the emerging design. From recollection, the ER's were the basis of the infracos' bids. Cost and time would be required to converge the two. I think I left the project prior to this being resolved.

c. Did you have concerns about the ERs generally? If so, what were those concerns and what was done about them?

Please refer to my response to a. and b. above.

24. The Transdev Edinburgh Tram report for June 2007 to July 2007 (**CEC01676159**) lists concerns at section 6. It is stated that Tie's management of the technical interface with the Infraco bidders could be significantly improved. Transdev were concerned that the bidders may not view Tie as a particularly well informed client. It was also the view of Transdev that there was a significant amount of work needed to align Infraco and SDS contracts.

In the July to September 2007 report (**CEC01634433**) concerns were expressed about interface, design and programme.

a. Can you explain these concerns more fully?

The issues around the ERs are addressed in question 23 above.
TIE's intention is to novate the SDS designer to Infraco, but this will incur cost and time because the Infraco bids do not fully align with the SDS designs.

b. What were the risks?

Cost and time associated with change.

c. Did the risks materialise?

I believe that TIE had challenges in resolving these matters, but I cannot recollect any relevant details.

25. An email from Andy Steel, TSS, on 2 August 2007 discusses the detailed design review process. The rate of detailed design delivery from SDS was a concern (**CEC01551796**).

a. Can you explain what the concern was? Was this issue resolved? What impact did it have on the project?

SDS were to submit designs in potentially small and non-integrated packages. This make reviewing the overall design very hard. Tram system design is all about the interfaces between elements of designs.

I cannot recollect what the impact of this was: I think it was a net improvement and that some of Andy's concerns did not materialise in full.

26. In an email from Steve Reynolds, PB, to Matthew Crosse on 11 September 2007 (**TIE00035961**) Mr Reynolds expressed concerns about DPD minutes noting that TIE needed to stay on top of SDS and give SDS no excuse not to deliver.

a. Can you explain what the issue was with SDS performance at this stage? Can you explain the context of these comments?

Issues with the design review process during August and September 2017 have been addressed repeatedly above.

Matthew Crosse responded to that chain of emails on 13 September 2007 in which he states he still has concerns about MUDFA design performance (**CEC01630996**).

a. Can you explain what his concerns about MUDFA design performance were? What was done about his concerns?

Transdev had no significant involvement in the MUDFA design or management.

27. In the Transdev report to TIE for September to October 2007 the main concerns were *"the finalisation of the technical aspects of the Infraco offers and their integration with the Employer's Requirements prior to the planned contract close in January sets a major resource challenge for the project. There is a risk that is this task is not undertaken with sufficient rigour, a number of risks will be transferred, either to Transdev… or to TIE"* (**CEC01469111**)

a. What were Transdev's concerns? What risks would be transferred if these concerns were not addressed?

Any conflicts between the ERs and the developed design may result in lack of system reliability, availability, performance or safety. In the extreme, Infraco could provide a system that could not be brought into operation. TIE, as client, is faced with resolving these issues as both the ERs and the developing design are theirs. There is a risk that Transdev, as the Operator, ends up having to make the best of these risks with poor system performance as the likely result. This would be likely to impact both on Transdev's reputation and financial performance.

b. In the event, were Transdev's concerns addressed to your satisfaction?

TIE terminated Transdev's contract and these risks ended up elsewhere. I do not have sufficient knowledge to comment on the outcome.

28. On 25 October 2007 the Council's approval was sought for the Final Business Case, version 1, in respect of phase 1a (Airport to Leith Waterfront). A joint report was provided by Andrew Holmes and Donald McGougan (**CEC02083538**).

The report to Council noted that:

- The SDS had prepared preliminary designs and were currently finalising the detailed designs. (para 3.22)
- *"It is anticipated that the SDS and Tramco contracts will be novated to the provider of the infrastructure works. This means that significant elements of the responsibility for the design and vehicle provision and the risks associated are transferred to the private sector" (para 3.27);*
- The estimated capital cost of phase 1a was £498m; *"There is detailed information behind [the] estimates, which take due allowance for risk contingency and further scope for savings, but a fuller breakdown cannot be provided at this stage for reasons of commercial confidentiality"* (para 4.2).
- *"The infrastructure costs are also based on the fixed prices and rates received from the recommended infrastructure bidder. However, there is scope for this cost to move slightly, prior to contract close as further design work is required to define more fully the scope of the works to allow a firm price to be negotiated. There is a risk allowance to take account of these variations. The price also assumes that savings can be made on the proposals through certain Value Engineering innovations proposed by ... TIE and the infrastructure bidder"* (para 4.3).
- The estimates included a risk allowance of £49m, which had been calculated based on the perceived cost and likelihood of over 400 risks in the project risk register. A statistical analysis known as Quantified Risk Assessment was carried out at a 90% probability level and had concluded that there was a 90% chance that final costs would be within that risk allowance, which *"demonstrates a higher than normal confidence factor for a project of this scale and complexity"* (para 4.10).
- It was noted that *"The risk contingency is designed to cover additional unforeseen costs, but it is recognised that there is an element of residual risk of costs exceeding current estimates. It should also be notified that the risk contingency does not cover major changes to scope. The scope of such changes will be reviewed after completion of the Tram works and commencement of Tram operations"* (para 4.32).
- "Fixed price" and contract details would be reported to the Council in December 2007 before contract close in January 2008. (para 5.3).

The Final Business Case, version 1 (**CEC01649235**) noted:

- *"The level of risk allowance so calculated and included in the updated estimate represents 12% of the underlying base cost estimates. This was*

considered to be a prudent allowance to allow for cost uncertainty at that stage of the project. It reflected the evolution of design and the increasing level of certainty and confidence in the costs of Phase 1 as procurement had progressed through 2006. TIE continued to comply with the HM Treasury recommendations for the estimation of potential OB and had determined, in consultation with TS, that no allowances for OB were required in addition to the 12% risk allowance above" (paragraphs 10.13 and 10.14) (these provisions were essentially the same as the provisions on risk and optimism bias included in the draft FBC dated November 2006, **CEC01821403**, paras 9.11 and 9.12).

- *"By the time of the DFBC, OB was effectively eradicated, as per the findings explained in the Mott MacDonald Review of Large Public Procurement in the UK. This was in view of greater scheme certainty and the mitigation of factors built into the procurement process, as well as project specific risks and environmental and external risks. Instead of using OB, TS and CEC adopted a very high confidence figure of 90% (P90) in the estimate of risk allowances to cover for specified risk, unspecified risk and OB"* (para 11.43).

a. Did you have any input into drafting the FBC, v1? Do you have any comments on the report to Council or the FBC?

TIE involved Transdev in neither the preparation of the business cases, nor the QRA process, so I am unable to comment.

b. Do you consider that the report to Council fully and accurately reported on the delays in relation to design, approvals and consents and utility works and the risks arising from these delays?

TIE involved Transdev in neither the preparation of the business cases, nor the QRA process, so I am unable to comment.

c. What was your understanding of how the Infraco contractor could provide a fixed price, and how design risk could be transferred to the private sector, given the delay in design, approvals and consents (and given the design and TRO milestones noted at page 191 of the FBC whereby, for example, detailed design for phase 1a was not expected to be completed until September 2008)?

Infraco would be likely to either add a generous risk premium to their offer, or rely on TIE issuing changes to address any changes that develop after the contract is put into place. The former approach would make their offer less attractive to TIE, so I would have expected Infraco to adopt the latter approach.

29. a. Were you involved with the value engineering process on the Edinburgh tram project?

Sadly, yes.

b. What is value engineering? Can you explain what your role was in relation to value engineering?

The concept of value engineering (VE) is to challenge the established approach to a project and take actions that increase the value of the project. This usually involves descoping items or designs that have been included but may not be required. The process is best undertaken in the early stages of the development of a project, and needs acceptance across the project.

I recollect being involved in some of the VE meetings. I also recollect trying to avoid the process because it was not delivered with appropriate engineering governance or understanding. I recollect that the financial values claimed by the VE process did not generally seem to reflect the full financial impact on the project.

c. What was the purpose of value engineering in this project? What were your views on whether the value engineering proposals were realistic? In the event, did they result in cost savings?

The purpose is explained in the answer to a. above. VE seems to be introduced very late in the project, it was done in a silo, and the consequences of the decisions made were not properly considered in their overall impact on the integrated project. Transdev was brought into the process but is was undertaken in a silo and was not embraced by the engineering team as a whole.

The VE process appeared to have a life of its own and it was understood to be inappropriately incentivised.

I am unable to comment on the consequential savings (or on the consequential costs) because I left the project in February 2008 and the consequences can only be properly established after the system has been in operation for a period.

30. On 20 December a report was provided to Council (**CEC02083448**) along with version 2 of the Final Business Case (**CEC01395434**).

The report to Council noted:

- *"The cost estimates for the project reflect provision for evolution as the detailed design will be completed in the coming months. The design is completed under the Infraco contract from the point of award of that contract through novation of the System Design Services contract with Parsons Brinkerhoff to Infraco"* (para 3.2).
- *" ... Some cost allowance has been made for the risk associated with the detailed design work not being completed, at the time of financial close ..."* (para 8.1).
- The estimate of £498m for phase 1a inclusive of a risk allowance as reported in October 2007 remained valid. The current price estimate was

based on a compressed construction programme (para 8.2).

- *"The fundamental approach to the Tram contracts has been to transfer risk to the private sector. This has largely been achieved"* (para 8.10).
- *"Risks retained by the public sector and which therefore bear upon the Council are explained in the Final Business Case section 11. These risks include:*
    - *Agreements with third parties including delays to utility diversions.*
    - *Finalisation of technical and prior approvals.*
    - *The market cannot provide Professional Indemnity Insurance to TIE vis-à-vis a claim by the Council against TIE, because TIE is wholly owned by the Council"* (para 8.13).
- *"There are additional risks such as third party agreements and consents where discussions and negotiations are continuing to reach an acceptable position in respect of allocation of risks"* (para 8.15).
- *"The risk contingency does not cover major changes to scope. It should be noted that the current construction programme is compressed to reduce the length of disruption and provide best value. Changes to the programme could involve significant costs, not currently allowed for in the risk contingency"* (para 8.16).
- It was anticipated that the Notification of Infraco award would be issued on 11 January 2008, the Tramco and Infraco contracts would be awarded on 28 January 2008 and that construction on phase 1a would commence in February 2008 (para 8.19).
- The Conclusions included that, *"The preferred bidder negotiations, in terms of price, scope, design and risk apportionment, give further reassurance that Phase 1a can be completed within the available funding and are consistent with the Final Business Case"* (para 9.2) and that *"The total forecast project cost is consistent with the final business case. TIE is confident that risk contingencies and the final approved design can be accommodated within the funding available"* (para 9.3).
- Authority was sought from members for the award of the Tramco and Infraco contracts by TIE subject to price and terms being consistent with the FBC and subject to the Chief Executive being satisfied that all remaining due diligence was resolved to his satisfaction (paras 1.2 and 10.2).

a. Did you have any input into drafting the FBC? Do you have any comments on the report to Council or the FBC?

TIE did not involve Transdev in the preparation of the business cases, so I am unable to comment.

b. What was your understanding of, and views on, the provisions of the report to Council noted above?

TIE did not involve Transdev in the preparation of the business cases, so I am unable to comment.

c. It was noted that the risk contingency did not cover "major changes to scope". What was your understanding of "major changes to scope"? Can you give examples?

TIE did not involve Transdev in the preparation of the business cases, so I am unable to comment.

d. Do you consider that the report to Council on 20 December 2007 adequately set out the delays in relation to design, approvals and consents and utility works?

TIE did not involve Transdev in the preparation of the business cases, so I am unable to comment.

e. Do you consider that the report adequately set out the risks arising from these delays, including the risks arising from these works overlapping with the infrastructure works?

TIE did not involve Transdev in the preparation of the business cases, so I am unable to comment.

31. In an email from you to Tony Glazebrook and Damian Sharp on 24 December 2007 you had concerns about BBS' offer compared to SDS design, the differences between the ER's and BBS' design and the difference between ER's and SDS' design (**TIE00039586**).

a. Can you explain what the issues were?

I cannot recollect the details associated with the concerns, but **TIE00039586** clearly sets out the need for strategic guidance from TIE.

b. Can you explain what the risks were?

These are as set out in **TIE00039586:** Time, money, future changes and system performance.

c. What was done about your concerns? Were your concerns addressed to your satisfaction?

I cannot recollect. I left the project in February 2008.

d. In the event, did the risks materialise? If so, what problems did that cause?

I left the project in February 2008, so I am unable to comment.

2008/2009

32. We understand that you stopped working on the Edinburgh tram project in 2008.

a) For completeness, when and why did you stop working on the tram project?

I left in February 2008. This was for the following reasons:

- to work close to my home in Manchester and cease spending so much time away from home. The Metrolink system in Manchester was about to triple in size and it was a great opportunity.
- There were signs that TIE intended to terminate Transdev's contract which would have left me with no role.
- See response to question b. below.

b) What were your views on the tram project when you left?

The project would not be delivered to the intended programme.

Costs would escalate and be out of control.

There would be retribution and that the victims would include the innocent.

33. By letter dated 21 August 2009 TIE gave Transdev plc notice of their intention to terminate the DPOFA (**CEC00736909**).
    a) Are you aware why TIE terminated the DPOFA contract? Did TIE require to make any payment to Transdev when terminating the contract?

    See my response to question 2b.

    From recollection, there was little or no associated termination payment.

PROJECT MANAGEMENT, GOVERNANCE AND MAIN CONTRACTORS

34. In relation to project management:

a. Which body or organisation do you consider was ultimately responsible for ensuring that the contracts and works were properly managed, including managing the interface between the different contracts and works?

TIE

b. What were your views on TIE as project managers?

Mixed. There were some very good people, but the organisation was too big, poorly regulated and unwieldy. Integration across the organisation was poor, silos existed, and some members of TIE appeared to be there solely for their own ends.

c. Did you have any concerns at any stage in relation to TIE's management of the tram project or the performance of any of TIE's senior personnel or Board members?

Yes. These concerns are documented in the emails that are referenced above.

d. How did TIE's project management of the tram project compare with the project management of other projects you have worked on?

TIE had a very challenging task in a challenging city. Lack of alignment with CEC created difficulties. CEC appeared not to want the tram system. TIE was a huge organisation when compared with other tram promoters in the UK. TIE was immature in its systems and in its approach.

35. We understand that you attended meetings of the Tram Project Board (TPB).

    a. How were important matters relating to the tram project reported by TIE to the TPB (including by whom and to whom)?

       I have insufficient recollection to enable me to provide details on this.

    b. How were the views and requirements of the TPB fed back to TIE?

       I have insufficient recollection to enable me to provide details on this.

    c. Did you have any concerns at any stage in relation to the performance of the TPB or any members of the TPB?

       I recollect that there was an absolute requirement in TIE that information provided to the TPB had to support the ongoing project. Consequently matters such as programme slippage and risk may have been reported in such a way that did not give the fullest picture to the TBP.

    d. Did you have any concerns, at any stage, in relation to the reporting of information to the TPB?

       I have no recollection of providing information to the TPB. See my response to question c. above.

36. In relation to TEL:

    a. What was your understanding of the role of TEL?

       It was formed to operate both Lothian Bus and the tram system, thus being able to provide integrated transport on both system. Consequently Transdev, as the operator in waiting for the tram system, would report to TEL when the system was open.

    b. Did you have any concerns at any stage in relation to the performance of TEL or any members of TEL?

       Some members of Lothian Bus saw benefit from the tram system from neither a passenger nor from a commercial perspective. However, generally the senior management team did as they were requested by TEL.

37. In relation to the Scottish Government (SG) and Transport Scotland (TS):

    a. What are your views on the decision taken around July 2007 that TS should play a lesser role in the governance of the project, including not being

members of the TPB?

At the time I was surprised. I felt that TS were distancing themselves from a project that was not going well. In my view, their experience in governance of major transport projects would have helped in forcing key issues to be addressed.

38. In relation to the interaction between the different bodies and organisations involved in the project management and governance of the tram project:

    a. What were your views in relation to the governance arrangements for the tram project including, in particular, the effectiveness of the governance arrangements?

    I had limited view of the governance, and Transdev had very limited exposure to the commercial aspects of the project. The governance process did not, in my opinion, take appropriate control of TIE's ever expanding organisation and enforce appropriate rigorous processes within TIE to deliver basic project management tasks such as the management of change and have an integrated approach across the project.

    b. Do you consider that the duties, responsibilities and reporting requirements of the different bodies were sufficiently clear?

    With hindsight, if CEC as the most significant client, did not provide clear leadership and had not consistently shown that CEC wanted the tram system. CEC appeared to have an arms' length relationship with the project.

    TIE had a most challenging role with multiple diverse stakeholders that were not under their direct control.

    The roles of Transdev, SDS and TSS were generally understood, but as always on such projects, the ownership of interfaces could have been clearer. Much of this relates to having a lack of experienced people in senior positions who understand the complex nature of interfaces on a tram project.

    c. Did you have any concerns at any stage in relation to the governance arrangements?

    Several of the communications that I had with TIE that are in the documentation provided to me by the inquiry contain concerns about wasting money, project delivery and timescales. I had expected these to have been addressed.

    I did not feel part of the governance arrangements and I have limited experience working at this very senior level.

d. Which body or organisation do you consider was ultimately responsible for ensuring that the tram project was delivered on time and within budget?

TEL, in my view.

39. In relation to the main contractors involved in the tram project:

a. What were your views on the performance of each of the main contractors?

SDS performed well in a difficult environment of a fluid project with multiple difficult stakeholders. There were issues with programme delivery, process and quality, but these were addressed and have been addressed in the above questions.

TSS provided significant tram experience to the project, and I expect that they are called as a witness. I suspect that their experience and advice, like Transdev's, could have been better used.

Transdev, in my view, is similar to TSS.

I am unable to comment on other suppliers to TIE because I had little direct involvement with them.

b. To the extent you had concerns in relation to any of the main contractors, what did TIE do to try and address these concerns? Were these steps successful (and, if not, why not)?

As stated in the above responses the extent to which my concerns were addressed was variable.

FINAL THOUGHTS

40. By way of final thoughts:

a. How did your experience of the Edinburgh Trams Project compare with other projects you have worked on (both previously and subsequently)?

I have been involved in Manchester Metrolink Phase 1, Docklands Light Railway extension to Lewisham, Nottingham phase1, Edinburgh, Manchester Metrolink Phase 1, Midland Metro extension and the Sheffield Tram-train project. Looking back, Edinburgh Trams is generally different in the following ways:

- Working with a huge team where it is not clear who is doing what.
- Working in a lovely building rather than tatty accommodation or in a portacabin village.
- Working in a lovely historic city.
- Lack of feeling been effectively led and driven to deliver against a challenging but achievable programme.
- Lack of understand tram projects at a senior level within the client body,

TIE.

b. Do you have any views on what were the main reasons for the failure to deliver the project in the time, within the budget and to the extent projected?

As stated previously, these are, in my opinion:

- Lack of project ownership by CEC (and Lothian Bus, owned by CEC)
- Multiple stakeholders in a historic city who did not accept the benefits of the tram system.
- TIE was far too big an organisation
- Lack of integrated programme management by TIE

c. Do you have any comments, with the benefit of hindsight, on how these failures might have been avoided?

I have nothing to add to my responses above.

d. Are there any final comments you would like to make that fall within the Inquiry's Terms of Reference and which have not already been covered in your answers to the above questions?

From a technical and operational perspective, the end product is good. I take some satisfaction from contributing to development of the design whilst I was involved in the project.

I did not enjoy seeing so much money going on so many people in TIE and TEL.

When I left Transdev, the documentation and electronic records that were associated with the project were passed to Transdev, leaving me with very limited records. My memory is not particularly good, so I have limited recall of the events during my time in Edinburgh. Consequently my contribution to the inquiry as a witness may not meet all expectations.

I confirm that the facts to which I attest in the answers contained within this document, consisting of this and the preceding 25 pages are within my direct knowledge and are true. Where they are based on information provided to me by others, I confirm that they are true to the best of my knowledge, information and belief.

Witness signature....[redacted]

Date of signing.....25 July 2017