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Edinburgh Tram Project
Abridged Report No. 29
8th December 2013 to 4th January 2014
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CONFIDENTIAL – LEGALLY PRIVILEGED AND FOI(S)A EXEMPT
January 2014



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1 Executive Summary

- There were 3 safety incidents recorded in the Period although none were serious or involved members of the public.
- Turner & Townsend continue to forecast Section D Completion on 6th June 2014.
- Sectional Completion to Edinburgh Park Station (Section B1) was successfully delivered on the 20th December 2014.
- Overall Forecast reduced by £553k this Period although there are a number of key issues which could affect the overall forecast, principally prolongation resulting from any delay to testing, commissioning and shadow running.
- In the period no Testing and Commissioning activities were completed following the successful Immunisation Test on the 10th December 2013. Infraco are now preparing for the traffic signal integration test which will commence on the 7th January 2014.
- On 12 December 2013 Turner & Townsend received a written instruction from CEC to formally stand down support to Edinburgh Tram effective from the close of business on 13 December 2013. A handover file is being prepared for Edinburgh Tram and no further work will be carried out in supporting this aspect of the project delivery. There remain a number of key critical Edinburgh Tram activities that CEC will need to manage to ensure the programme can be met. The readiness of Edinburgh Tram remains a key concern.
- Turner & Townsend, CEC and Infraco are continuing to record the closure of snagging works although snagging is now scheduled to be completed by the End March 2014.
- There remain a number of commercial and technical issues with CAF that are a cause for serious concern, little progress has been made in the Period resolving commercial matters and Turner & Townsend has raised concerns with CEC that this may impact on project delivery. Further instruction is awaited in relation to the commercial discussion ongoing between CAF and CEC.
- In the period CEC confirmed that Turner & Townsend support was no longer required with respect to the review and renegotiation of the maintenance agreements. Turner and Townsend will provide a file detailing the position at handover.
- On 6th January 2014 CEC instructed Turner and Townsend to further reduce their scope of service. Turner and Townsend and CEC will review the specific detail in the next period and to agree timescales for an effective handover of the key tasks.

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2 Health, Safety & Environment and Quality

2.1 Management of Health & Safety

The Project Safety Review Group has been discontinued. Alternative arrangements are being made through the ET Depot Safety Liaison Group to formally review CDM governance and H&S performance during the remainder of the CDM construction period.

The proposed project wide audit on arrangements for work close to the tramway as reported in Period 9 has not been carried out. A workshop was held on 19 December 2013 attended by CEC, T&T, B&S and ET. A number of issues were identified and actions agreed.

There continue to be street lighting issues at Princes St / South St Andrew Street. T&T are liaising with BS to seek an early resolution.

CoCP compliance was recorded at 92% during Period 10.

No joint Safety Inspections were scheduled to be undertaken in Period 10

No joint Safety Tours were scheduled to be undertaken in Period 10.

2.2 Incident Management

2.2.1 Incident Reporting

There were 3 reported incidents since the last report all of which were classed as a near miss/unsafe condition and service damage. Please refer to 2.2.2 for detail.

No MOP incidents occurred during Period 10.

2.2.2 Record of Incidents

Incidents reported within this Period comprise:

Serious / significant incident	0
Non Tram Related	0

Date	Location	Detail	Contractor	Classification
11/12/13	A8 Underpass	Tram test running outwith published timetable putting operatives at risk.	B&S	Near Miss/Unsafe Condition
31/12/13	Princes Street	Street lighting not working at West End.	B&S	Service Damage
03/01/14	Cathedral Lane	Site security issues where unauthorised persons were accessing site. Issues being addressed by contractor.	B&S	Near Miss/Unsafe Condition

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2.2.3 Incident Progress

Incident investigations through to the end of the end of the CDM construction project will be reviewed and closed as appropriate at Depot Safety Liaison Group.

2.3 CDM Regulations

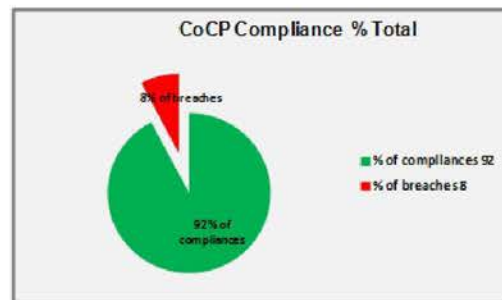
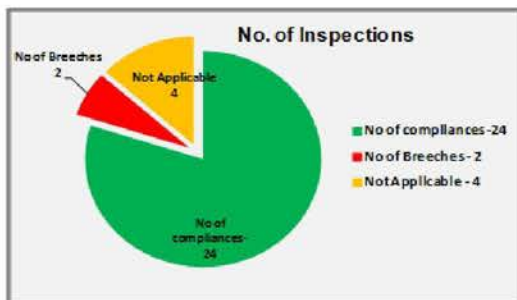
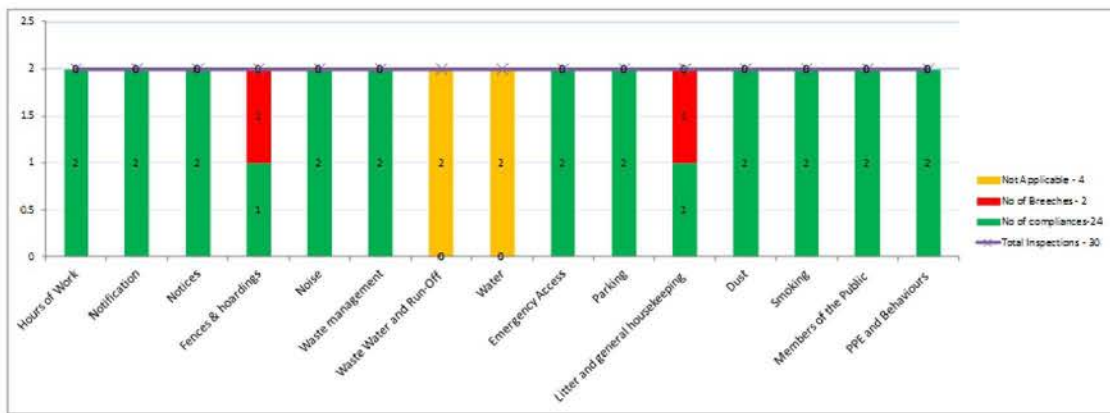
The CPHSP for minor civils works being undertaken by Land Engineering is being amended to reflect an extension of these works through to the end of March 2014. The F10 notification to the HSE has also been updated. The delivery of HSF information from LE is being progressed.

2.4 Environmental

There were no environmental issues during Period 10.

2.5 Code of Construction Practice (CoCP)

CoCP compliance was recorded at 92% during the Period.



2.6 Quality

2.6.1 Key Issues

No significant key issues to report.

2.6.2 Non-Conformance Reporting

Monitoring by Turner & Townsend of the NCRs raised on the project continues.

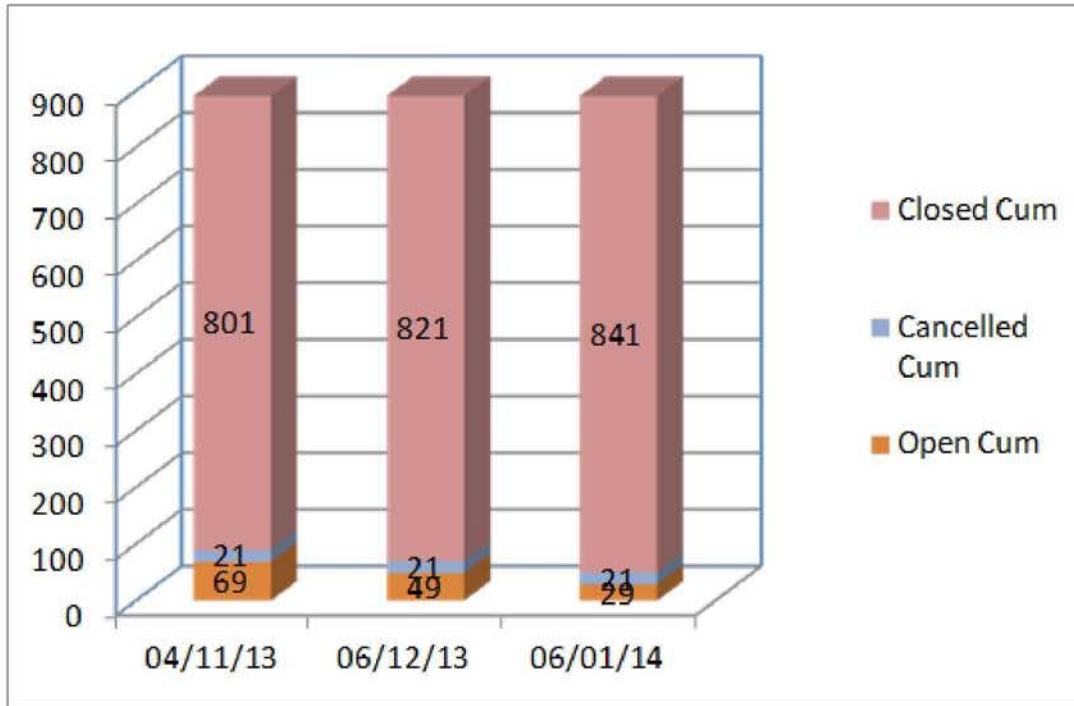
- The number of NCRs raised to date is 891.
- No NCR's were raised during the Period and 20 NCRs were closed out during the Period.

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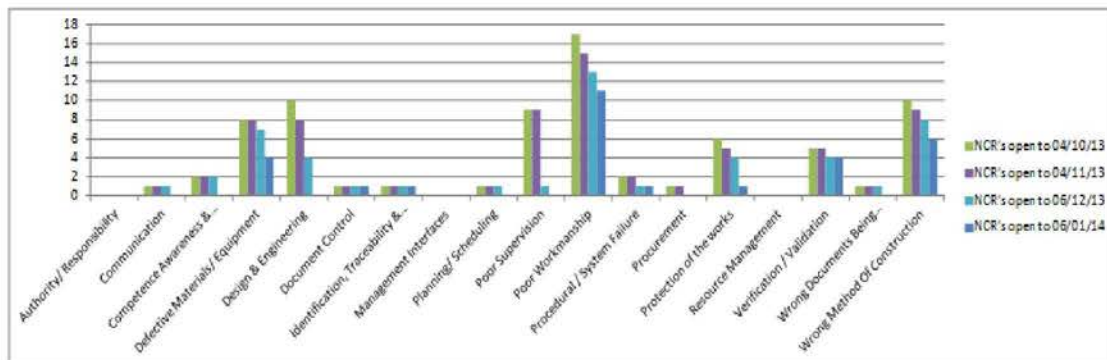
- 24 open NCRs are greater than 6 months old and 29 remain open.

Summary of non conformances



Breakdown of non conformances

Classification of open non conformances



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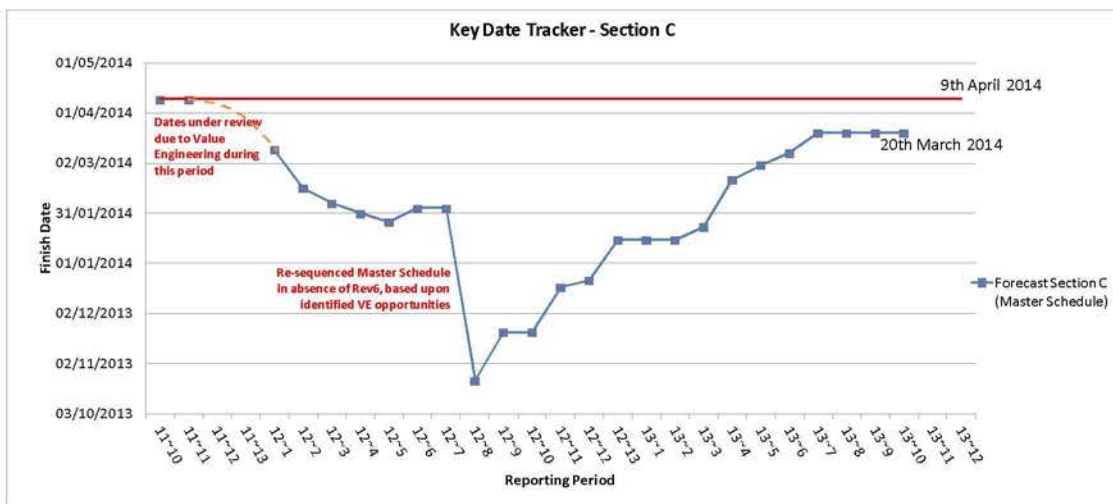
3 Programme

3.1 Programme Overview

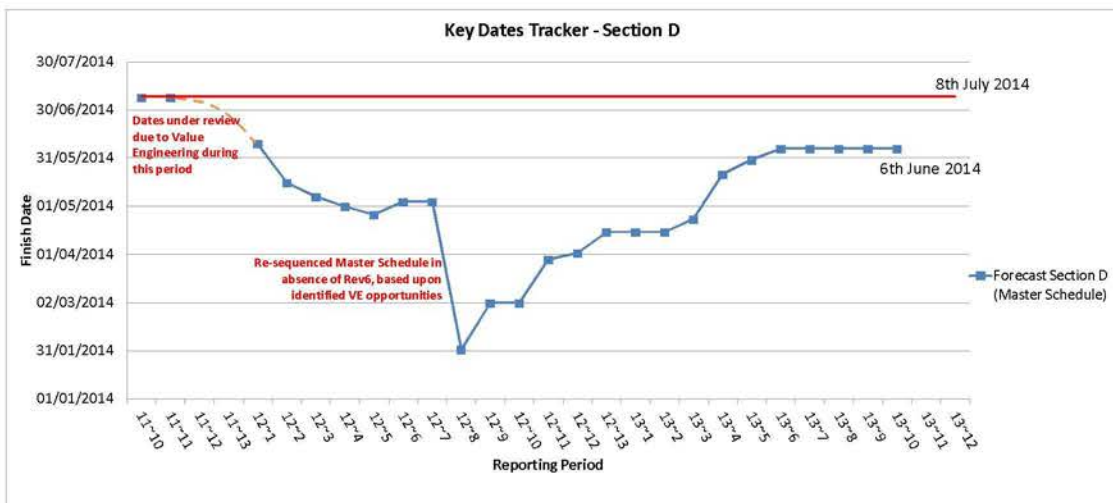
Based upon progress up to the 7th of December 2013 the Contract milestones for Sections C and D have been held to the forecast dates reported last period. The forecast dates remain earlier than the contractual dates.

The charts below track the forecast Section Completion dates; (based upon the Master Schedule) against the set contractual dates. All information and analysis contained in this Programme Section of the report is based upon the Master Schedule, unless otherwise stated.

Section C; All Construction Complete (including T1 & T2 testing)



Section D; Open for Revenue



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3.2 Client Target Programme

CEC is continuing to discuss possible early completion with Infracore and in the period Infracore completed a section of the line from the Depot to the Edinburgh Park Station on 20th of December 2013 (Section B1). Furthermore, CEC has confirmed to elected members that the target open for revenue service date is May 2014, subject to weather and the ICP sign off.

As previously discussed the wider discussions on the client target programme are not reflected in this report although Turner & Townsend fully supports the stated CEC objectives and is working closely with all parties to meet a revised improved opening date.

3.3 Critical Path and Key Float Paths (Master Schedule)

The Critical Path relates to the 'Longest Path' through the schedule, which would adversely affect the currently forecast end date if delayed. For the purposes of this project Turner and Townsend monitor the critical path and the next three longest paths, referred to as "Key Float Paths" through the schedule.

In the period under review the key critical activities were the Immunisation Test which was completed on the 10th of December 2013 and the Cathedral Lane substation works which were completed by the year end.

The key critical path then runs through tram testing (TLC integration, Noise Monitoring) prior to the commencement of T1 testing activities in mid February 2014. The completions of these activities then enable the commencement of the T2 and T3 Testing & Commissioning System Acceptance activities prior to the commencement of passenger services.

The next 3 sub critical paths are concerned with the completion of the Off street works primarily E&M and telecom equipment; On street completions of E&M and telecoms equipment; the completion of the TVM (ticket vending machine) Factory Acceptance Test which enables their installation & commissioning once all the Tramstop E&M works have been completed.

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4 Commercial & Risk

4.1 Commercial Summary

The overall forecast has **reduced** by £553k in the period. This includes an increase in the base costs resulting from closeout of claim items on the on street subcontracts. These amounts have been drawn from the risk allowances and along with further adjustments to the risk allowances the overall forecast has been reduced.

Cost Heading	£M	Comment
Base cost forecast	506.73	Total forecast of approved change, change in progress and anticipated change, offset by forecast contributions. CEC has confirmed instructions that the following amounts should be paid in full Rev3A/Rev 4 programme change: £4.5M 22 weeks cost engineering: £6.45M
Risk Forecast	0.96	Risk allowance based on assessment of outstanding risks. (Note: the forecast is not based upon a Quantified Cost Risk Analysis and Schedule Risk Analysis as confirmed by CEC).
Total Forecast	507.72	Total forecast for Infraco, Tramco and Post Mediation Utility costs. Refer to narrative for confirmed exclusions to this forecast.
CEC target saving	3.14	CEC anticipate limiting payment of programme extension costs associated with the Rev 3a to 4 and 22 week changes to £7.857M, a saving of £3.14M from agreed change value of £11.001m. Payments to date amount to £11.001M. There is no formal contractual agreement with Infraco that they accept this approach. CEC are having confidential discussions with Infraco on this matter.
Adjusted total forecast	504.58	

4.2 Key issues

Infraco Final Account Negotiations : The status of final account items within the Infraco contract is as follows:

- Clause 80 change (generally Off-Street) – there are approximately 20Nr Clause 80 change items that remain to be fully agreed. The forecast contains an allowance for all of these changes although the final amount will be subject to agreement with Infraco.
- Schedule 45 change – All on street work items to 7 December 2013 have been fully agreed between the Infraco and the Certifier and incorporated into the cost report. This settlement closes out the major on street subcontracts. It is anticipated that

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there will be some minor items included beyond this period and estimates for these items are provided in the cost report.

- **Immunisation:** Final costs for immunisation work are still to be provided by Siemens. This will allow the provisional allowance for immunisation to be closed out and a change raised for any savings to be returned to the Client. The cost report assumes a final cost of £750k resulting in a shared saving of £2,250k (£1,500k to CEC). There is a risk to the forecast if this cost is exceeded. Siemens have committed to providing details of expenditure by 31 January 2014.

Independent Certifier Decisions: The agreed values for the On Street Estimate include a number of items which were subject to an Independent Certifier opinion in the last period. Although the agreed values have been incorporated into the forecast and payments, we await a final opinion paper from the Independent Certifier to support these additional amounts and payments. Items which fall into this category are:

- PMC294 - Surfacing Indices (difference £67,959.00)
- PMC88e - Carriageway Value Engineering Add Payment (difference £110,000.00)
- PMC321 - Loss of Profit & Overheads (difference £110,000.00)
- PMC331 - Surfacing Disruption (difference £20,235.00)
- PMC332 – Scoutmoor (difference £201,068.45)
- PMC333 - Lining / HF Disruption (difference £8,903.40)
- PMC334 - Surfacing Disruption & Late Costs (difference £148,390.00)
- Various PMC's – mark ups on change items (difference £51,126.81)

Programme: Although there have been some variances to the completion dates for some of Bilfinger's off-street subcontractors, potentially resulting in extension of time claims, CEC have confirmed that Infracore have stated at the Joint Project Forum that there are no other subcontractor claims outstanding. On this basis, we have made no allowance in either the forecast or risk for any future claims associated with programme delays.

Scottish Water: We have provided CEC advice to support their meetings with Scottish Water to close out the commercial issues associated with the pre September 2011 costs. Although Scottish Water has previously advised that they are looking for additional costs of between £3 and £6 million, CEC have advised them that there is a maximum of £700k to conclude matters. We were advised by CEC at the commercial review meeting of 29/10/13 that their expectation is that Scottish Water will settle at this amount and to remove the risk allowance associated with this item.

Other Utilities: We have been awaiting final updates of costs from both BT and Virgin for some time now. It is anticipated that these utilities will be closed out within the current contract allowance. However, there remains a risk that the final forecast will change as a result of utilities final submissions.

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Tramco: CAF have notified CEC of the "Occurrence of a Compensation Event" which, in accordance with the contract triggers delay payments of €259,340 per month. However, there is some ambiguity in the validity and application of this amount and as a result, CEC have requested that we do not take part in the meetings that CEC have held with CAF regarding resolution. We have been advised by CEC that the outcome of these discussions is that additional payments will be on a "demonstrable cost" basis. To date we have received nothing further from CAF to support such costs and the resolution of this item remains a significant risk to the forecast. We are awaiting further instructions from CEC on this matter.

4.3 Risk and Contingency

Following the most recent risk register review, the risk allowance included in the forecast amounts to £910k. This is based on the outputs of the Turner & Townsend / CEC risk review of 8 January 2014. While the risk provision is reducing in line with project completion, it should be noted that a number of the remaining risk items have a potential high impact if they occur and as such need careful monitoring. In particular, any risks to programme have potentially significant commercial implications due to the level of delay damages in the Infraco and Tramco contracts which could be in excess of £0.25m per week if triggered. A number of these risks, such as operator performance are out with our control and as such, excluded from our reporting.

QSRA/QCRA: As the project has moved into the testing and commissioning phase, the Operator is now the major interface with Infraco. CEC instructed us to stand down from support that we were providing the Operator therefore; we are no longer in a position to prepare a full QCRA / QSRA on the remaining project risks. We have provided information on shadow running periods from other projects and CEC have confirmed that they do not require a QCRA / QSRA. In the absence of this exercise we have included a list of costed risks in our forecast which has been discussed with CEC.

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5 Tram Infrastructure Works, Testing and Commissioning

5.1 Works in Progress

Section B1 between the Depot and Edinburgh Park was successfully handed over to CEC on the 20th December 2013. Edinburgh Trams will commence driver familiarisation testing on the 6th January 2014 in section B1.

Outstanding Infraco snagging in all areas is ongoing with a target completion date of the end of March 2014. All On Street areas have now been handed over on an interim basis to CEC following the completion of Shandwick Place Tramstop.

Parkeon Contract works, in conjunction with Infraco, commenced on 6th January 2014 (See also section 6.6) and are due to be complete by the End February 2014.

Remaining Infraco civil works include, final landscaping works along with the close out of outstanding snagging items.

The final works resulting from third party agreements and the outputs of the RSA, ICP walk round and escalated snagging reviews are being completed by Land Engineering. These works include ScotRail junction speed bumps and signage, NR fencing at Murrayfield Tramstop, handrail to Lord Bodo, York Place Buffer Protection, Depot Doors Water Ingress, Shandwick Place VMS along with various minor civils items such as fencing, gates and road works. Works are expected to be completed by end March 2014.

Siemens are progressing with the final fit out works at the tram stops, final traffic signal installation works and the installation and commissioning of the modifications at the ScotRail access road, which are due to be commissioned and switched on by 31st January 2014.

In the period no testing and commissioning activities took place between the completion of the successful Immunisation Test on the 10th December 2013 and the traffic signal integration test which will commence on the 7th January 2014. This progress is consistent with the Infraco contract programme. Infraco are working with the project partners to progress the key issues found through the testing and commissioning to date and these are covered separately through the Assurance process. Turner and Townsend are reviewing progress of the Infraco Testing and Commissioning programme, in the Testing and Commissioning Control and Governance meetings. Turner and Townsend are no longer updating the open for revenue service tracker following instruction from CEC on the 13th December 2013 to terminate project management of Edinburgh Trams.

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6 Trams, Fare Collection & Assurance

6.1 Trams Operation and Test

Edinburgh Trams continues to operate a six tram timetable between Gogar Depot and the Airport, with a seventh tram being introduced on line of sight when the availability of trams and staff allows.

Inclement weather in the early part of the period caused some issues with tram operation, with icy conditions and high winds affecting the ability of Edinburgh Trams to run trams on the network. Edinburgh Trams have developed an Operational Adverse Weather procedure to define how the operation should be managed in such difficult conditions.

Edinburgh Trams continue to report good tram availability and reliability, however there are a number of technical issues currently being managed by Edinburgh Trams through the monthly Tram Liaison Meeting:

- **CCTV image quality issues**
In November 2013, Turner & Townsend arranged an assessment of the CCTV issues raised by the Operator and the ICP; with the ICP, the Tram Inspector, CAF, Edinburgh Trams and CEC in attendance. Following this a 'Preliminary Assessment' report was produced which documented the issues and their potential risk to the safe and reliable operation of the tram fleet.

CAF have prepared a technical response to this report, which details proposed solutions for each of the issues identified. Turner & Townsend have requested that CAF prepare a single tram with all proposals implemented, following which a review of the initial issues will be carried out by the same participants.

Turner & Townsend have made it clear to CAF that this is the biggest single technical risk to the project and that the rectification of the issues identified must be afforded the utmost priority.
- **Tram Control & Management System (TCMS) screens freezing**
CAF are currently discussing this issue with their supplier.
- **Traction Control Unit (TCU) isolations**
CAF are awaiting approval of a modification proposed by their supplier which CAF believe should address this issue.
- **Wheel flats (reported on the trailer car of several trams)**
CAF are currently investigating this issue. Turner & Townsend have requested that external support be made available to investigate and identify the root cause of the issue.
- **Battery Charger failures (reported on all operational trams)**
CAF's supplier has implemented a modification on all trams, which CAF believe should address the issue. This will be monitored over the coming months.
- **Glare from side windows causing visibility issues**
This issue was raised during the above demonstrations and its investigation has been raised as an action against CAF.

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6.2 Tram Maintenance

CAF are continuing to progress with the completion of the Pre-Service Inspections, in line with an amended schedule which was provided to Turner & Townsend through the Tram Liaison Meeting.

Turner & Townsend have repeatedly asked CAF to provide an update to the Conservation Maintenance Plan showing how the tasks removed from the Pre-Service Inspection to speed up the process are being managed elsewhere. To date the update has not been received.

6.3 Tram Related Incidents

There was one report of an unrequested brake application during the period; the cause of which was traced to a defective traction component which was replaced.

6.4 Operational Incidents

There was one operational incident reported during the period, a Signal Passed At Stop (SPAS), however there were no technical issues contributing to the cause of this incident.

6.5 Tram Maintainer Services

Turner & Townsend auditors have completed a review of non-conformances found during the 'readiness for service' audit undertaken on CAF in May 2013, with the results and the completed audit report due to be published during the coming period.

Turner & Townsend continue to support CEC and Edinburgh Trams in a review of the infrastructure and tram maintenance contracts; to identify changes to the scope of services required as a result of the reduced scope of the network and any potential savings in the ongoing maintenance costs associated with this reduced scope.

6.6 Fare Collection System

The Factory Acceptance Test (FAT) Report for the Platform Validators has now been signed off and the Site Acceptance Tests (SAT) successfully completed.

Despite assurances from Parkeon that major issues identified during previous tests would be addressed during December, the factory and site acceptance tests for Ticket Vending Machines (TVM) and Hand Held Devices (HHD) were unable to be progressed as planned. Due to this, the project team made the decision to stop the installation of the TVMs until the Site Acceptance Tests have been successfully completed. The installation of the PVs commenced as planned, on the 6th January 2014.

Parkeon have committed to addressing the issues identified and to complete FAT and SAT tests for TVMs and HHDs during the coming period, allowing installation of TVMs to commence towards the end of January. Turner & Townsend are discussing this updated plan with Siemens, to ensure they are available to support it.

Following a request from Edinburgh Trams that training on specific equipment should be delivered by Parkeon, despite the fact that testing is as yet incomplete, 'Train the Trainer' courses were delivered on the TVMs, PVs and HHDs during the period. Parkeon have agreed

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to review and update the training documentation should significant change be required as a result of any rework, however the requirement is considered to be highly unlikely.

Turner & Townsend have arranged a meeting with CEC and Parkeon to discuss the scheduled completion date for the project, which it is suggested should be postponed from January 2014 to April 2014 to match the Client Target Programme dates for Passenger Service.

6.7 Assurance Monitoring

Turner & Townsend continue to provide an Assurance Monitoring role on the project and the Safety Verification and Assurance functions continue to report through the 'Deliver a Safe Tram' (DaST) report. Previously Turner & Townsend provided an update on any issues that Edinburgh Trams highlight as significant in the DaST. Based on the request from CEC however to reduce the volume of the Turner & Townsend report the DaST report will not now be commented upon but will rather be attached for CEC information.

6.8 Key Issues

Turner & Townsend have continued to raise concerns with the capability and capacity of CAF's maintenance staff to support the testing and commissioning process and the operational requirements of Edinburgh Trams, while preparing themselves and the trams for operational service. This is highlighted by CAF's difficulty in meeting specific requests for support (eg the fitment of cameras for flange lubrication tests, or the installation of CCTV solutions) and in the time it is taking CAF to investigate and address some of the technical issues being raised.

Turner & Townsend have asked CAF to confirm whether the excessive duration CAF are taking to rectify specific issues is down to a lack of capacity or capability among their local workforce, or a lack of support from their technical team in Spain.

CAF have stated at several meetings attended by the Client and the Operator that they have no issues with manpower availability, or the support they receive externally. Turner & Townsend will continue to monitor the technical performance of CAF over the coming period, before deciding on whether to raise this issue further.

Following discussions between CEC and CAF on CAF's initial claim for recover of 'additional costs' in relation to the Tram Supply Agreement, Turner & Townsend received an application during the period which included costs for the completion of 'Conservation Activities' from April 2013 and 'Schedule 24 Part B' costs from 22nd September; however there was no cost breakdown attached to either of these high level costs as had been expected.

Turner & Townsend is still awaiting instruction from the Client on how this matter should be managed.