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Edinburgh Tram Project  
Full Progress Report No. 17  
6<sup>th</sup> January to 2<sup>nd</sup> February 2013  
**FINAL**

CONFIDENTIAL – LEGALLY PRIVILEGED AND FOI(S)A EXEMPT  
February 2013



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Rev	Originator	Approved	Date
1	Shirley-Anne Collin	Rob Leech	13 <sup>th</sup> February 2013
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DOCUMENTS			

## **1 Executive Summary**

This report covers progress made during the period from the 6<sup>th</sup> of January 2013 to the 2<sup>nd</sup> of February 2013.

Sixteen incidents occurred in the period. Of these two were classified as being serious / significant and comprised near misses – one related to an incident at the airport where there was a near miss between a tram and a car, and the second related to the use of a tower scaffold in Princes Street adjacent to a live bus lane which was reported to the Health and Safety Executive and has subsequently been addressed by Infraco. The report into the Road Rail Vehicle incident reported last month has been finalised although this has not yet been issued to Turner & Townsend.

A site investigation was held at the Ingliston Park and Ride tramstop to review the cracking to the off-street concrete track slab. It was identified by Parsons Brinckerhoff that the cracking was due to shrinkage of the concrete and was not structural. An investigation has also been undertaken by City of Edinburgh Council (CEC) regarding the on-street concrete track slab. Similar cracking has been identified. It has been agreed with CEC that a report will be developed in relation to cracking, the conclusions of which will be shared with Infraco allowing matters to be dealt with through the Quality Assurance non-conformance process (NCRs) where applicable. Furthermore a regime will be implemented post contractual completion to monitor the cracks.

In addition to the cracking a number of Scottish Water hydrant and valve chambers appear to be settling in Princes Street. Turner & Townsend, in conjunction with CEC, are investigating this matter and any conclusions will be included in the above report.

The Sectional completion date for Section B remains on target for the 8<sup>th</sup> of March 2013 (the contract programme date). The overall risk adjusted project completion date however is now projected to be the 19<sup>th</sup> of May 2014, this was previously forecast to be the 19<sup>th</sup> of April 2014. The latest QSRA predicts that there is an 18% probability of the revised Master Schedule completion date of the 29<sup>th</sup> of March 2014 being achieved. The critical path now runs through Section 5C (Edinburgh Gateway). The dates moving out have been driven in part by the late ordering of the off street tamper.

Erosion of the 22 week cost engineering programme saving remains unchanged at 14 weeks. It is the view of both Infraco and Turner & Townsend that the likelihood of any subsequent adverse delay events has reduced significantly.

Turner & Townsend are currently in discussion with CEC regarding a "client target programme" being developed by CEC in conjunction with Infraco, CAF and Edinburgh Trams. Given the October 2012 Memorandum of Understanding between CEC and Infraco Turner & Townsend have been informed that they cannot be party to the initial development of the client target programme. In response to this and in discussion with CEC a flowchart has been developed mapping out the process envisaged and how Turner & Townsend will contribute and participate in this process and in turn validate any proposals. The availability of detailed testing and commissioning information will be the key to achieving a properly coordinated revised Master Schedule.



Enabling and utility legacy works have progressed well during the period and works are being completed to meet dates agreed with Infraco. Similarly street service works (those outside the DKE+2m, road sign bases, traffic signal bases and associated ducting) are progressing well and work is being coordinated with Infraco to minimise any disruption to the main works.

All On Street areas are now in the possession of Infraco with some minor exceptions agreed where residual works and/or street services conflict works are being carried out by McNicholas and/or Crummock. Infraco has continued with track slab construction in all areas and is making good progress with carriageway reconstruction between Haymarket and Lothian Road and in St Andrews Square track laying continues to progress well.

The recent introduction of the weekly steering group meeting with senior SW management has created positive impact in progressing the Scottish Water issues critical to the progress of Infraco. As a result the majority of the remaining issues relate to legacy SW utility issues, Turner and Townsend are working with CEC to identify a suitable mechanism for close out that minimises capital exposure. It should be noted however that there remains a significant commercial gap between the parties.

CEC have endorsed the scope of works to be carried out by McNicholas in Leith Walk and Constitution Street and they are managing the acceptance of the scope with Scottish Water. Turner and Townsend are working with McNicholas to commence the revised workscope on the 18<sup>th</sup> of February 2013; with a completion date scheduled for the end of April 2013.

A snagging tracker has been created for Section B and has been agreed with Infraco. A consolidated Snagging list and Section B Exclusions list are also being finalised and agreed well in advance of the March handover.

Additional retaining measures at retaining wall W3 on the Network Rail Corridor are being progressed by Infraco although there is a commercial issue to be resolved. There is also a potential programme issue should Network Rail approvals for the outstanding retaining measures not be forthcoming.

Fencing earthing and bonding issues are being resolved in the Network Rail corridor although there are likely to be additional costs attributable to CEC and Infraco associated with the agreed solution.

There is an industrial property at Roseburn that requires an extension to be reinstated, this was demolished to allow for Infraco's piling methodology. The reinstatement however was not clearly defined within the original tie instruction and discussions are underway with the landowner and Infraco to find a suitable solution.

The problem identified and reported previously in relation to the overheating cable at the depot is being resolved. Infraco has agreed to install, at its own cost, additional cabling which the operator has confirmed meets its long term requirements;

Following the Section 7 testing Infraco informed Turner & Townsend and CEC that there are potential clashes between the tram and platform edges at Stops. Infraco is currently checking the network and remedying any issues at its own expense.



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The delivery of 27 trams to Gogar Depot and their testing on the Mini Test Track (MTT) has now been completed, ahead of Schedule 14 (Tram Manufacturing and Delivery Programme) requirements.

It was reported previously that CAF had issued a letter detailing potential additional project costs in excess of £2M, due to the difference in the project completion date between the Rev 2 and Rev 5 project programmes. Given the current progress on the project and in particular the fact that the Master Schedule testing and commissioning date is before the Rev2 programme dates, Turner & Townsend cannot find a justification for such costs and have queried this with CAF. At present Turner & Townsend has been asked to put any discussions with CAF on hold pending the outcome of CEC's wider discussions with CAF regarding the client target programme. Similarly Turner & Townsend has been asked to withhold including this risk in any risk modelling analysis until such time as CAF's position is made clear. Turner & Townsend understand however that CAF have confirmed to CEC that they will not be pursuing a claim in relation to this matter. Discussions are ongoing with CEC on how this issue can be formally closed.

CAF are looking to vest the five trams which have completed routine testing with CEC as soon as possible. Turner & Townsend have presented a briefing paper to CEC identifying the contractual requirements that must be met before trams are vested and some of the potential risks of vesting trams early. A proposal has been put to CAF and an update will be provided at the Tram Briefing Meeting.

The re-organisation of the Safety and Technical Assurance functions within the project has now been completed, with Turner & Townsend, Edinburgh Trams and CEC working closely to ensure a seamless transition into the new roles and responsibilities. Turner & Townsend will provide an Assurance Monitoring function through the reporting of any issues identified internally and any issues that Edinburgh Trams highlight as significant in their "Deliver a Safe Tram" report.

The overall forecast has reduced by £145k in the period as a result of risk values being mitigated as scope and costs are agreed or clarified.

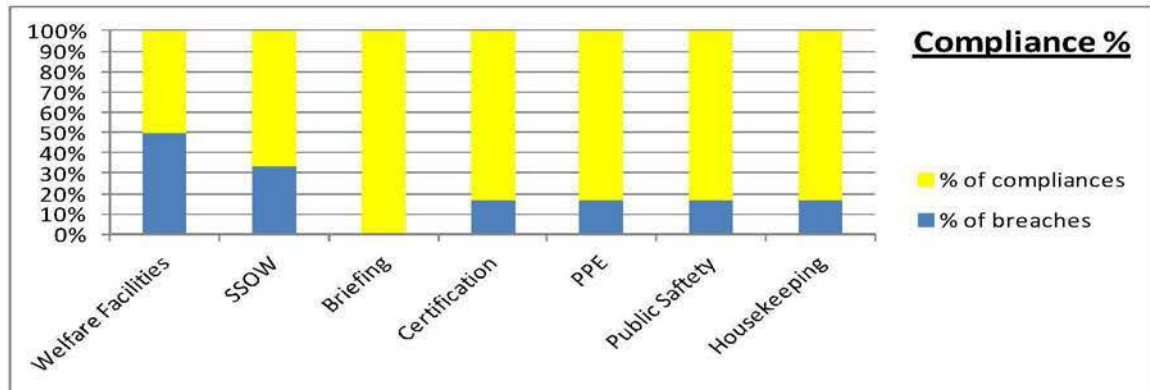
There remains to be a number of key risks to the overall forecast, notably associated with the valuation of on street change, potential claims submitted by Infraco and Tramco for programme change and closeout of cost reimbursable elements of the project, particularly McNicholas and Scottish Water. The forecast includes a provision for these elements of work and the risks are being monitored on a period basis to allow mitigation action to take place if necessary.

During the period, Infraco's valuation included sums associated with the Rev 3A to Rev4 programme delay. Previously the Independent Certifier had issued an opinion paper stating that costs should be incurred before such amounts are claimed. However, Infraco have not complied with this requirement. At present, CEC have instructed Turner & Townsend to certify these amounts. Although the forecast includes for this cost, it had been envisaged that there would be an opportunity to reduce the impact if the programme end dates were improved upon. However, based on the Infraco milestone schedule, this seems unlikely to happen.

## 2 Health, Safety & Environment and Quality

### 2.1 Management of Health & Safety

Joint monitoring of the leading indicators has continued to be undertaken between Turner & Townsend and the Principal Contractors, the results are included below. The leading indicators have identified that welfare provision is the area with the highest non-compliance followed by Safe Systems of Work. In response to this Turner & Townsend will be targeting these indicators in discussion with the Principal Contractors, with a view to improving compliance in the next period.



During the last period Turner & Townsend have carried out a review of the operations of the Mobile Elevated Work Platforms (MEWPS) being used for the erection of the OLE equipment. This review has been undertaken to assess the implementation of the learning points that have come from an internal investigation undertaken by Infraco regarding the Road Rail Vehicle (RRV) incident discussed below.

Infraco held their monthly Occupational Health & Safety Meeting on the 29<sup>th</sup> of January 2013 which was attended by Turner & Townsend. Agenda items for the meeting focused on occupational health issues and included:

- Review of lessons learned from two serious incidents – the damage to the 11kV cable at the Water of Leith Bridge, and the runaway of the RRVs;
- CoCP results – Turner & Townsend gave an update highlighting the work that had been carried out prior to the Christmas shut down which resulted in no call outs over the Christmas period, and the exercise to review fencing and safety to the public that is due to be undertaken in this period;
- Site issues:
  - Welfare requirements;
  - Edge protection for slabs;
  - Requirements for utility drawings to be at a minimum scale of 1:500; and
  - Use of stop / go boards for controlling traffic.
- Details of the new Considerate Constructors Scheme – an audit of on-street works to be undertaken on the 29<sup>th</sup> of January 2013.



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## 2.2 Incident Management

### 2.2.1 Incident Reporting

During the last period there were sixteen incidents on the Edinburgh Tram Project. There were two incidents that were identified as serious / significant and one incident which has been identified as being non tram related.

### 2.2.2 Record of Incidents

Incidents reported within this period comprise:

Serious / significant incident 

2
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 Non tram related 

1
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Date	Location	Detail	Contractor	Classification
09/01/13	St Andrew Sq	Small service cable struck by spade whilst moving paving slab at side of a traffic control cabinet.	McNicholas	Service damage
11/01/13	West Maitland Street/ Torphichen St Junction	Damage found to sheathing of low voltage cable. No injuries/other damage.	McNicholas	Service damage
11/01/13	Roseburn St	A site operative was removing loose material from the base of an excavation when he lost grip of the handle, the shovel swung round and hit an operative above the right eye.	Grahams	Injury
11/01/13	Section 21C Murrayfield	An operative was removing loose debris from back door of lorry when his hand slipped catching his middle finger above the knuckle	Grahams	Injury
15/01/13	West Maitland Street/Torphichen Street Junction	An unmarked, unused but still live electrical cable was uncovered in the roadway. No injuries or affect on houses or businesses. Scottish Power contacted to attend.	McNicholas	Service damage
16/01/13	North St Andrew St/St Andrew Square	Spillage of diesel from welfare unit.	Siemens	Environmental
21/01/13	Easter Dalry Wynd	Noise complaint – non tram related.	-	Environmental
21/01/13	Shandwick Place	Employee of Glen Logistics trapped his hand between cage and traffic light pole.	Glen Logistics	Injury
21/01/13	Murrayfield	Tent blew over whilst being moved by operative, operative tripped but did not require treatment and returned to work.	Grahams	Injury
24/01/13	Eastfield Avenue	During a tram test run being carried out by CAF, supported by Edinburgh Trams at an Infracore CDM site, an unexpected manoeuvre by a car driver almost led to a tram / car collision. The Police attended site and recorded details.	Edinburgh Trams	Near miss / unsafe condition
24/01/13	Princes Street	Health and Safety Executive received a complaint from bus driver regarding safety	Siemens	Near miss / unsafe



Date	Location	Detail	Contractor	Classification
		concern over the positioning of a tower scaffold beside a running carriageway and the associated narrowness of the road within the tram works traffic management.		condition
25/01/13	York Place	Call received from CEC stating that TM was blown over and the was blocking the bus lane at York Place	Class one	Near miss / unsafe condition
26/01/13	St Andrew Square	Call received from CEC stating that TM was blown over and the was blocking access road in St. Andrew Square	Class one	Near miss / unsafe condition
27/01/13	Elder Street	Call received from CEC stating that TM was blocking lane at Elder St	Class one	Near miss / unsafe condition
28/01/13	Edinburgh Airport Tram Stop	Construction site fencing blown down.	Siemens	Near miss / unsafe condition
28/01/13	York Place	Diesel spillage	Crummock	Environmental

### 2.2.3 Incident Progress

Turner & Townsend have reviewed the first draft of the incident report authored by Edinburgh Trams relating to the incidents involving two road rail Mobile Elevated Working Platforms (MEWPs) on the mini test track. The report has been redrafted although Turner & Townsend have not been issued with a copy of the final report and so are unaware of the revised findings and learning outcomes. In response to this it has been agreed that Turner & Townsend will meet with CEC to discuss the recommendations in the report, an update will be provided at the Project Delivery Group meeting on the 14<sup>th</sup> of February 2013.

An investigation is being led by Siemens into the incident that occurred at Eastfield Avenue regarding the near miss between the tram and the motor vehicle. The incident investigation will review the arrangements being implemented by the Principal Contractor regarding the management of organisations undertaking works within the construction work site.

### 2.3 CDM Regulations

A meeting was held between Turner & Townsend, CEC and Edinburgh Trams to review at what stage in the project the enforcement authority will change from the Health and Safety Executive to the Office of Rail Regulation. Following the meeting discussion took place at the Project Safety Certification Committee (PSCC) meeting with the Independent Competent Person (ICP) regarding this issue. A document is being prepared which will be reviewed internally within the project team and then discussed with the Health and Safety Executive to gain their agreement with the arrangements. At present the project safety working arrangements are managed under the CDM regulations, this matter however does need to be clarified prior to Section B handover on the 8<sup>th</sup> of March 2013.

## 2.4 Environmental

As part of the reorganisation of project assurance, Environmental Assurance is being managed directly by CEC. It has been agreed however that Turner & Townsend will continue to report key environmental issues in each period report.

A joint environmental inspection was carried out with Infraco on the 24<sup>th</sup> of January 2013 at the Edinburgh Gateway site. No major issues were recorded. The site is generally in good order especially given the difficult working conditions due to the very wet ground.

A meeting has been arranged with John Lawson, CEC Archaeological Services, for early February 2013 to discuss the on-going post excavation works and the potential works in the Leith Walk area. John Lawson is of the view that a number of the on-street areas still require an archaeologist to be called out should any archaeology be encountered. Turner & Townsend are currently investigating if the archaeological visits can be minimised to protect the project budget.

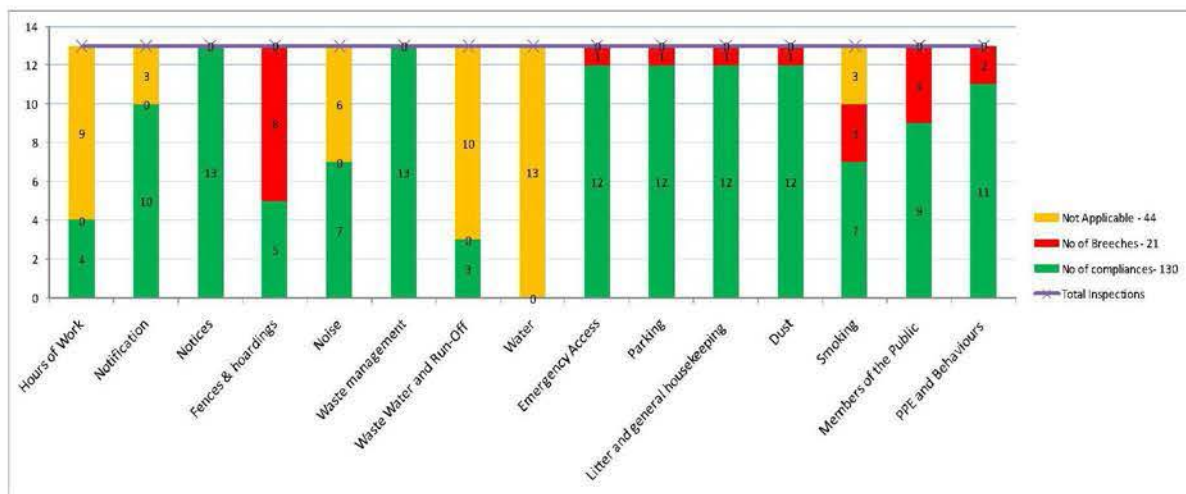
Three environmental incidents were reported during the period. These comprised two diesel spills from welfare units and a noise complaint which has been attributed to non tram related works at Haymarket Station.

Infraco received a letter from SEPA effectively closing the issue with regard to waste movement at Baird Drive. The letter reminded the contractor of their obligations with regard to the Duty of Care Regulations.

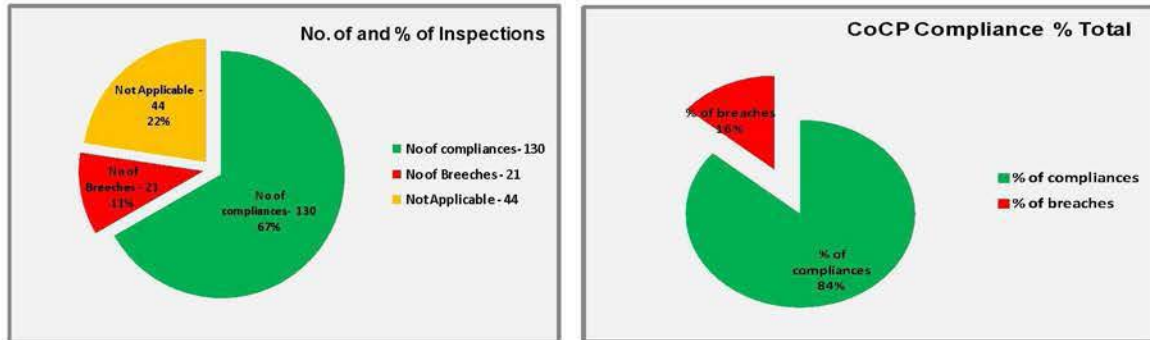
A joint environmental inspection is scheduled to take place with McNicholas in early February 2013.

## 2.5 Code of Construction Practice (CoCP)

CoCP compliance was recorded at 84% during the Period. The results of the CoCP monitoring have been passed to the CEC Communication Team to be uploaded to the project web site. Details of the breaches are included within the Deliver the Tram Safely report included within Appendix 2. The issues with fencing were, in part, due to the inclement weather during the period. Turner & Townsend however will be working closely with CEC, Infraco and McNicholas in an attempt improve compliance during the next period.







Breaches marked in red in table below.

○ Q1. Hours of Work	○ Q9. Emergency Access
○ Q2. Notification	○ Q10. Parking
○ Q3. Notices	○ Q11. Litter and general housekeeping
○ Q4. Fencing and Hoarding	○ Q12. Dust
○ Q5. Noise	○ Q13. Smoking
○ Q6. Waste Management	○ Q14. Members of the Public
○ Q7. Waste Water and Run-Off	○ Q15. PPE and Behaviours
○ Q8. Water	

## 2.6 Quality

### 2.6.1 Key Issues

A site investigation was held at the Ingliston Park and Ride tramstop to review the cracking to the off-street concrete track slab. It was identified by Parsons Brinckerhoff that the cracking was due to shrinkage of the concrete and was not structural. An investigation has also been undertaken by CEC regarding the on-street concrete track slab. Similar cracking has been identified.

It has been agreed with CEC that a report will be developed by Turner & Townsend in relation to cracking, the conclusions of which will be shared with Infraco. Furthermore a regime will be implemented post contractual completion to monitor the cracks.

In addition to the cracking a number of Scottish Water hydrant and valve chambers appear to be settling in Princes Street. Turner & Townsend, in conjunction with CEC, are investigating this matter and any conclusions will be included in the above report. At this time it is not clear who is responsible for the settling chambers although it would appear that some have been constructed by Infraco since September 2011.



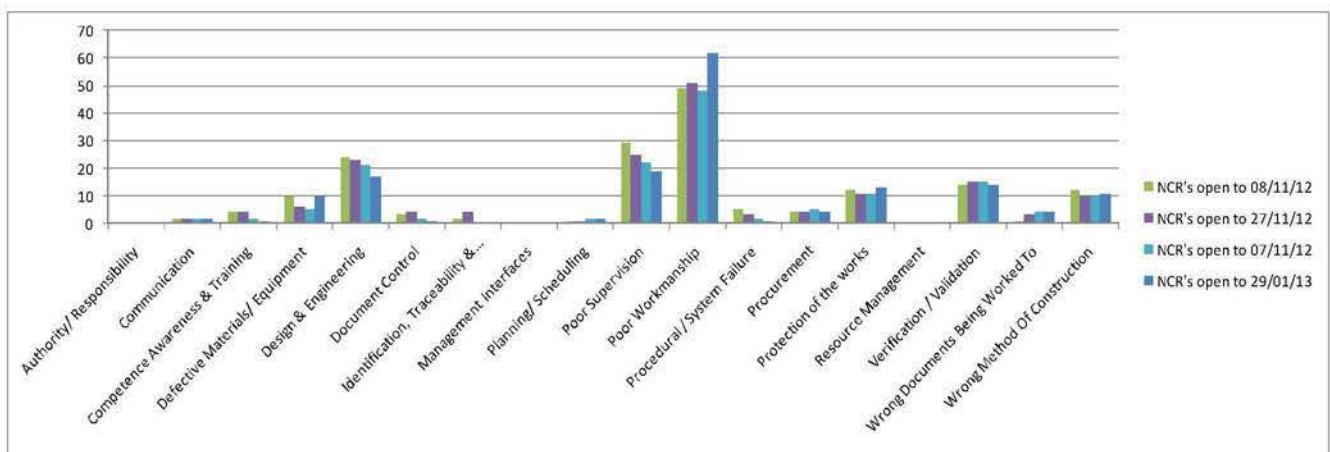
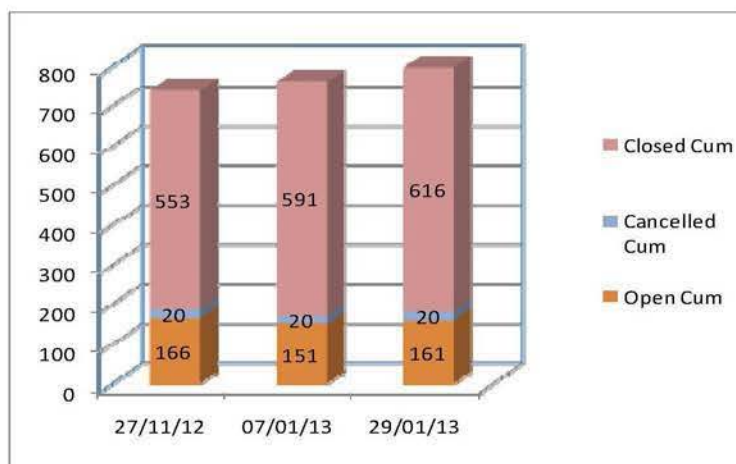
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### 2.6.2 Non-Conformance Reporting

Monitoring by Turner & Townsend of the NCRs raised on the project continues. Details of the NCRs are included below:

- The number of NCRs raised to date is 797. 35 NCRs were raised during the period and 25 NCRs were closed out during the period.
- 36 open NCRs are greater than 6 months old. Further details can be found within Section 6 of Deliver a Safe Tram Report which is now produced and distributed by Edinburgh Trams.
- 161 remain open.

#### Summary of non conformances



#### Classification of open non conformances

The rise in the number of non conformances that were identified as poor workmanship were due to items being included as non conformances rather than on the snagging list.

## **3 Programme**

All progress figures shown in the Master Schedule this period are based on a 2 month construction period (including the period of Christmas leave) from 10<sup>th</sup> of November 2012 to the 5<sup>th</sup> of January 2013. This reporting period anomaly is a result of the agreement (between CEC, Infracore, Turner & Townsend) that no progress update or report would be provided from Infracore in respect of the 8<sup>th</sup> of December 2012 progress update.

### **3.1 Programme Overview**

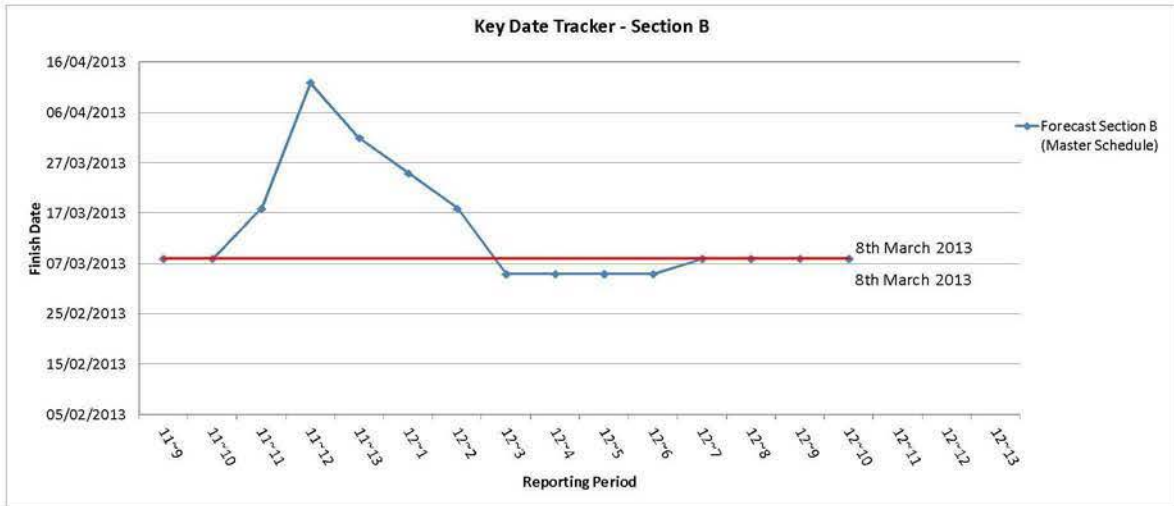
All contract milestones are forecast earlier than the contractual dates, based upon progress up to the 5<sup>th</sup> of January 2013. The Section B, C, D Completion dates are forecast as at 8<sup>th</sup> of March 2013, 18<sup>th</sup> of December 2013 and the 29<sup>th</sup> of March 2014 respectively.

As anticipated in the previous progress report (Report No 16.), Section C and D dates have slipped a further month as a result of the long lead requirement for the single visit of the Off-Street tamper. Infracore have now confirmed the long lead period as of the 10<sup>th</sup> December 2012 which sets the tamper commencement date as the 27<sup>th</sup> June 2013. This date has created a buffer of float between when the sections of track requiring tamping are laid and when tamping commences. Further clarification continues to be sought from Siemens in relation to the works for installation of OHLE/traction power and E&M fit-outs that will run concurrently with and subsequent to the tamper activity.

The charts below track the forecast dates (from the Master Schedule) for the Sectional Completion milestones against the contractual dates and their movement throughout the project lifecycle to date. All information and analysis contained in this Programme Section of the report is based upon the Master Schedule, unless otherwise stated.

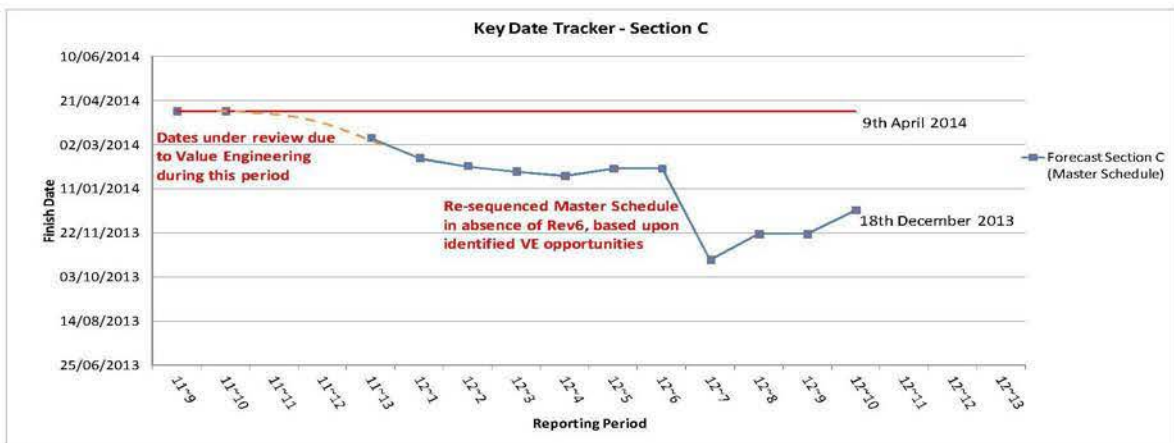
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Section B; Test Track Complete

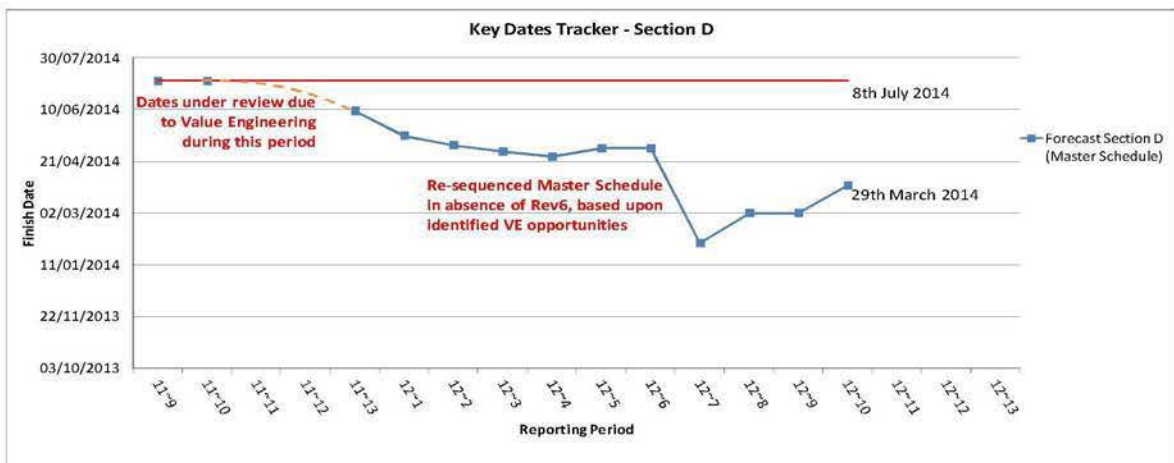


Note: All charts exclude the impact of risk & opportunity

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



Section D; Open for Revenue





### 3.2 Progress this Period

There has been no change to the number of sections where Infraco works are progressing. E&M is still to commence along Murrayfield Corridor through to York Place (Sections 5A, 2A, 1D and 1C). At both the Depot and along Princes Street overall progress remains at 99% with some final non critical items of works yet to be completed.

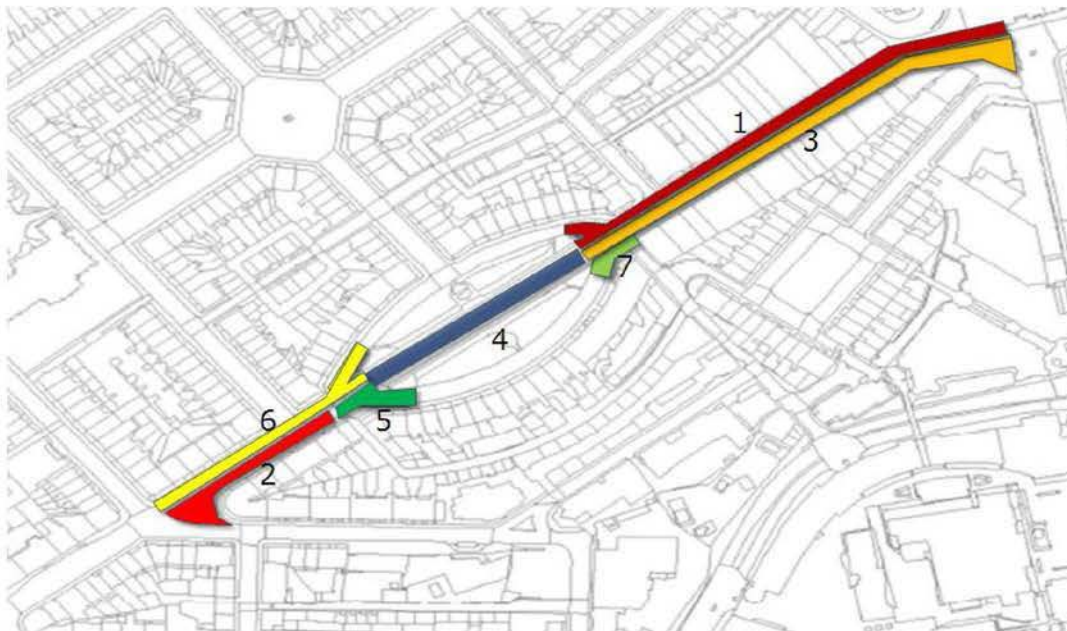
Murrayfield corridor works continue to slip (-7 days over the last two periods), with the retaining wall (S21B) now the structure driving the trackworks completion date, this however is now not critical given the confirmed dates for the tamper.

At Edinburgh Gateway progress has slipped in relation to the retaining structure and embankment drainage works over the last two periods. While this has had a direct impact on the forecast commencement date for track laying, it remains non-critical as the preparation works for the tamper are anticipated to be complete by the 3<sup>rd</sup> of June.

The final areas in York Place were handed back to Infraco on the 10<sup>th</sup> of December 2012. The condition of each of the areas handed over has enabled Infraco to make good progress with track civils and commencement of the track slab. Works at the Cathedral Lane sub-station remain critical to the completion of York Place although Infraco continues to report that the sub-station will be wind and weather tight for handover to Siemens on the 2<sup>nd</sup> of April 2013

At Shandwick Place outstanding street service works continue to be steadily progressed by McNicholas, with minimal impact to Infraco works. Shandwick Place works is configured into seven sub-sections, as shown in the diagram below. The final main focus for the street service works has been at the western end of SP2 & SP6. This has allowed Infraco to progress works concurrently in multiple sub-sections SP3, SP4, SP5 and SP6. This concurrent Infraco working has had a compounding effect on bringing in the section's completion date.

#### Shandwick Place Sub-sections (SP1-7)



### 3.3 22 Week "Time Bank"

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For the first time since this exercise started (in June 2012) there has been a 37 day improvement to the Rev5C Section D completion date. In addition to this the critical path in the Rev5C has switched from Shandwick Place to York Place, which shifts the impact of any subsequent delay events in the same manner.

Despite this 37 day improvement the 22 week drawdown remains at 14 weeks. Turner & Townsend have discussed this matter with Infraco at the monthly planning meeting and Infraco's stated position is that the drawdown should reflect the total impact of departures to the pricing assumptions on programme Rev5C. The consequence of this is that the final drawdown will never be less than the maximum figure recorded. It should be noted however that it is the view of both Infraco and Turner & Townsend that the likelihood of any subsequent adverse delay events has reduced significantly.

As with the Rev5 contract programme, this amended programme is not reflective of how Infraco intend to construct the remaining On-Street areas of the project. Therefore the critical paths that are used to show the impacts of delay events for the Sections are not necessarily the true critical path through the project.

### **3.4 Critical Path and Key Float Paths (Master Schedule)**

The Critical Path referred to below, relates to the 'Longest Path' through the programme which would adversely affect the currently forecast end date if delayed. The Key Float Paths are the next longest paths through the programme.

The current Critical Path is:

**Off Street:** Section 5C (Edinburgh Gateway) / Tamping & Full Line Track Finishes

The Key Float Paths are:

1. **Off Street:** Section 5A (Roseburn Junction to Balgreen Road) / Section 5A E&M
2. **On Street:** Section 1C (York Place) / Section 1 E&M
3. **On Street:** Section 1D (Shandwick Place)

These float paths are continuously updated and reassessed.

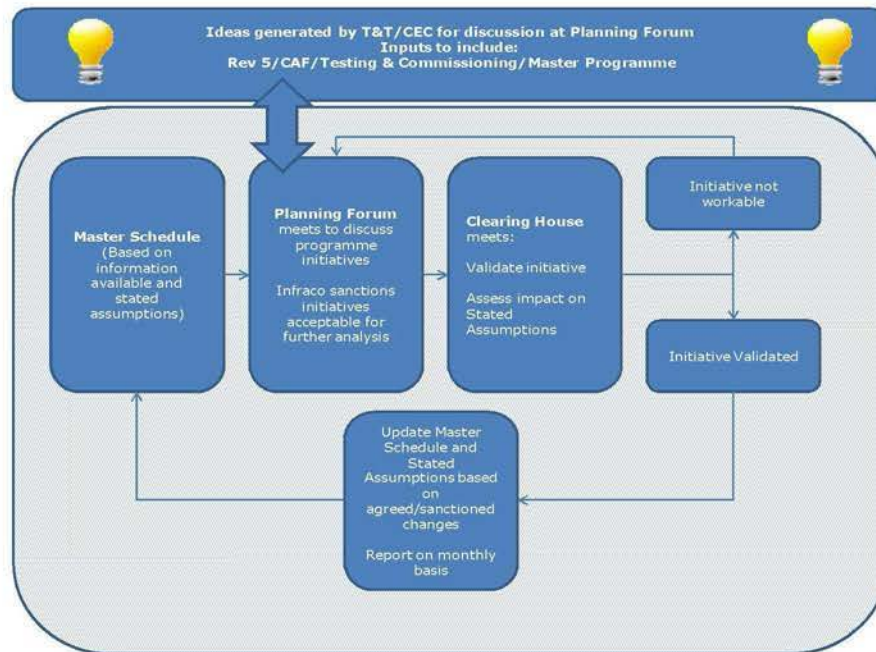
### **3.5 Client Target Programme**

Turner & Townsend are currently in discussion with CEC regarding a "client target programme" being developed by CEC in conjunction with Infraco, CAF and Edinburgh Trams. Given the October 2012 Memorandum of Understanding between CEC and Infraco Turner & Townsend have been informed that they cannot be party to the initial development of the client target programme.

It is acknowledged by Turner & Townsend and CEC that alignment of working programmes, client target programme and the Master Schedule is achieved to complete the project in a timely and efficient manner.



In response to this and in discussion with CEC the following flow chart has been developed mapping out the process envisaged.



The Master Schedule is based on the best information available from Infraco and a number of additional assumptions which Turner & Townsend continually review and update. The input data for the Master Schedule is derived from the contractual Rev 5 programme.

The intention is that the Planning Forum will meet to discuss programme initiatives and agree which can be taken forward to what is termed the Clearing House for validation. Turner & Townsend will not be party to any discussions that take place at the Planning Forum.

Once issues have been approved by the Forum for further analysis these will be brought to the Clearing House (Turner & Townsend and CEC) and will be assessed for:

1. Deliverability;
2. Impact on programme sequence/logic and stated assumptions underpinning the Master Schedule; and
3. Risks associated with proceeding

If the idea is validated the Master Schedule will be updated and any revisions to the stated assumptions will be made. This updated Master Schedule will then be used as a management tool and for reporting purposes.

The inaugural Planning Forum meeting is scheduled to take place on the 12<sup>th</sup> of February 2012. Following that meeting Turner & Townsend and CEC will be in a position to assess the outputs and the next period report will provide an update on how matters have progressed.



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To achieve a properly coordinated Master Schedule to complete the project, Turner & Townsend will require input from others in relation to the testing and commissioning and operational readiness programme.

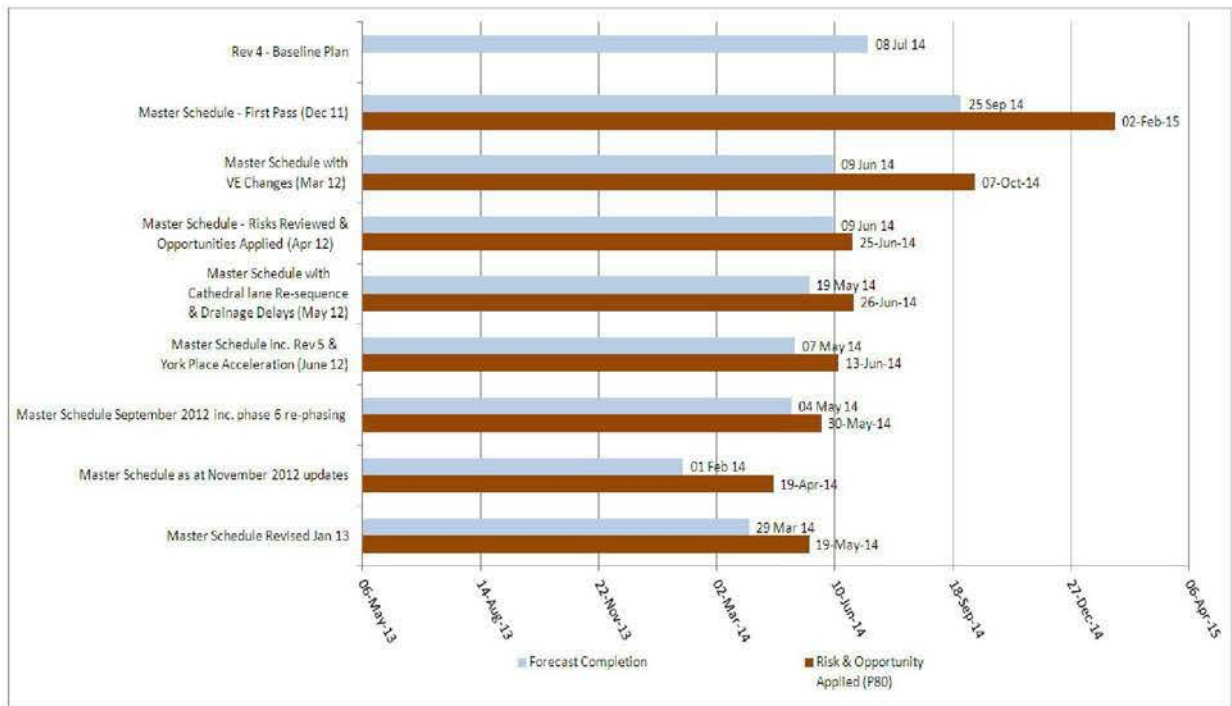
## 4 Risk

### 4.1 QSRA Tracker

The QSRA is run every quarter or when there are any new significant changes to programme or delivery strategy occurs. The risk profile used in the QSRA is made up of schedule related risks which forms part of the attached Master risk register.

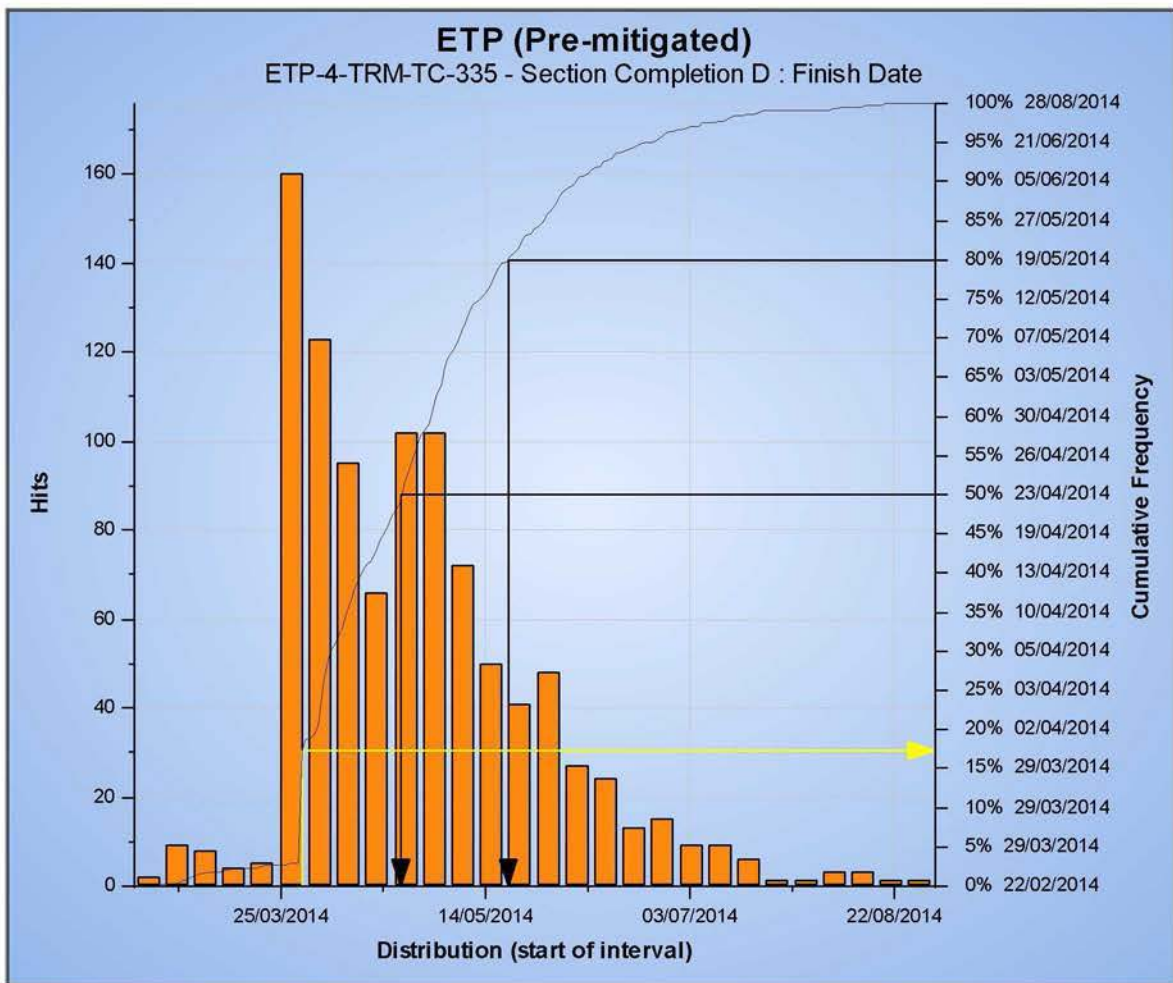
The chart below shows the forecast dates (before risks and opportunities are included) and the 'impacted' dates for all QSRA's:

QSRA Trend Analysis



#### 4.1.1 Risk Likelihood (P80)

The latest QSRA was carried out on the most up to date schedule as at the 21<sup>st</sup> of January 2013. This was analysed with the current Risk and Opportunity profile to calculate the milestone date as shown below. Based on the results of the QSRA carried out on the Master Schedule, the analysis predicts a **P80 Section D completion date of the 19<sup>th</sup> of May 2014** against the current risk and opportunity profile and there is approximately a 18% probability that the current schedule completion date of the 29<sup>th</sup> of March 2014 will be achieved as shown in the distribution graph below. As discussed in Section 3 above Turner & Townsend will be working with CEC to update the Master Schedule, as this update emerges further risk work will be required to calculate the likely P80 Section D completion date as some risks will fall away while others may be imported given the revised project timescales.



P80 represents an 80% likelihood of completing the milestone on that date, based on the current schedule and risk profile. It is usual practice to utilise the P80 date as a standard on a project of this size, nature and public profile.

#### 4.1.2 Result Commentary

The 'QSRA Trend Analysis Graph' above illustrates that the recent QRSA has resulted in an increase of a month on the predicted P80 date. This was mainly influenced by the delayed Tamper booking which had a significant impact to the Master Schedule, as discussed in Section 3 (Programme). There was no risk previously identified within the risk register which would have simulated this delay in previous analyses.

In addition, three of the five newly created risks (discussed in 4.2.3 below) were introduced to the analysis for the first time which also contributed to the increase.

However the overall impact of the schedule and risk changes described above would have had a greater consequence if they were not partly absorbed by the reduction and closure of existing risks detailed in sections 4.2.1 and 4.2.3 below.



#### 4.1.3 QSRA Iterations

These iterations of the Quantitative Schedule Risk Analysis have been carried out since September 2011, details and progress made are summarised below:

QRA Iteration	What is included
Master Schedule – First Pass	High Level schedule produced for QSRA analysis. Including utilities diversions.
Master Schedule with VE Changes	Post VE exercise Revised On-Street phasing Removal of summer embargoes More mature Risk Register
Master Schedule – Risks Reviewed & Opportunities Applied	Updated programme Detailed Risk review Identification of opportunities and application to the QSRA
Master Schedule with Cathedral Lane Re-Sequence	Further updated programme Early start of Cathedral Lane Sub-Station works Impacted Scottish Water risks Risk Review
Master Schedule – including Rev5 and York Place 'Radical Programme' changes	Further updated programme Rev 5 changes to Off-Street section Early start of utility diversion works at York Place Risk Review
Master Schedule as at September 2012 including phase 6 re-phasing	As above plus progress to date and the re-phasing of section 6 to follow phase 2 instead of 5. This is assumed to be achievable
Master Schedule as at November 2012 updates	As above plus: Works at York Place; Shandwick Place; Murrayfield Corridor; Gateway; as well as for the Depot to Haymarket track finishes, pre-stressing and grinding updated in line with Turner & Townsend's estimate of the as-planned works. Risk & opportunity review in conjunction with the above changes.
Master Schedule as at January 2013	Updated programme incorporating progress up to the 5 <sup>th</sup> January

## 4.2 Project Risk update

This section discusses the changes to the Master Risk Register (MRR) which contains risks against the Master Schedule. It does not discuss changes to the Collaborative Risk Register (CRR), which is maintained by Turner and Townsend in collaboration with Infracore, detailing risks against the contract programme. Changes to the CRR are reported as part of the Programme & Risk meetings which are held every 4 weeks.

Each period the MRR is reviewed and risks are assessed on an ongoing basis, with a general trend of reduction of risks as the team continues to mitigate against the potential impact.

Following this period's review, there are eight risk movements, three risk closures and five new risks to be reported.

### 4.2.1 Risk Movements

Risk	Change
Disputed interpretation of contract and valuation of estimates submitted for potential changes	Probability & schedule impact reduced and cost impact increased based on experience throughout the previous 12 months
Utilities encountered during BBS Construction Works	Probability & time impact reduced due to the progression of works and reduction in areas where this risk could occur as well as time required to remedy
Failure to recover costs for utilities off street from BBS paid by CEC	Probability reduced as we are now out of the ground now reducing the likelihood of risk occurring
Risk that additional scope/work is required that is not currently scheduled or costed	Probability reduced as there is little design left which can be changed
Risk that the project relationship with Scottish Water deteriorates and access to utilities and resolving of delay issues becomes prolonged	Schedule impact reduced based on recent dealings
OLE bases conflict with existing unknown and known utilities	Probability reduced as all on-street OLE foundations complete
Unforeseen ground conditions require additional works, excavations, fill etc	Probability decreased as now out the ground in majority of working areas, therefore there is little area where this risk remains
Track Laying along Murrayfield Corridor delayed	19 days of risk has been realised to date (November 2012 and January 2013 progress reports shown 11d and 7d slippage respectively). Schedule impact reduced in QSRA to reflect this



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**4.2.2 Risk Closures**

Risk	Reason for Closure
Risk of claims for loss of productivity due to delayed access to site	It was agreed that the remaining elements of this risk were covered by R032 (Utilities encountered during BBS Construction Works)
Risk that the scope and extent of the Leith Walk utility works will increase	Leith Walk does not form part of this project therefore risk now removed
Additional Utility works encountered across Palmerston St	Remaining elements of this risk are covered within R032 (Utilities encountered during BBS Construction Works) & ED071 (Discovery of additional Track construction conflicts (Live))

**4.2.3 New Risks**

Risk	Cause
Phased handover/ lack of integrated programmes results in disruption	A cost neutral programme change is being sought. Whilst the principle may be agreed at the outset, there is a risk that all cost impacts may not be identified and additional costs may be claimed later to re-sequence activities, undertake shift working etc. The costs do not account for ex contract claims or financial settlement as agreed previously with CEC. Mitigation measures include securing management buy-in to a cost neutral approach and confirmation at control meetings that there will be no adverse implications.
Despite all testing being carried out there remains a risk that defects may be identified requiring rework	Siemens have not formally signed off ITPs.
SPN requirement for additional cabling & insurance ducts to mitigate foamed concrete & set construction	SPN requirements not detailed in MUDFA IFC drawings
Delay of handover to Siemens at Cathedral Lane	Redesign of substation led to late start
Delay in final sign off of utilities (potential rework)	Rework Damage to final test



**Note on additional risks:** CAF have issued a letter detailing potential additional project costs in excess of £2M, due to the difference in the project completion date between the Rev 2 and Rev 5 project programmes. Turner & Townsend have discussed this issue directly with CEC, to agree the most effective method of managing this risk. At present Turner & Townsend has been asked to put any discussions with CAF on hold pending the outcome of CECs wider discussions with CAF regarding the client target programme. Similarly Turner & Townsend has been asked to withhold including this risk in any risk modelling analysis until such time as CAFs position is made clear.

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## 5 Commercial

### 5.1 Commercial Summary

#### 5.1.1 Cost summary

	£M	Comment
Contract Sum	479.66	
<b>Committed Costs</b>		
approved change	24.79	Includes £4.04m from £6.45m 22 week cost engineering change and £1.6m from £4.5m for Rev 3A to Rev 4 programme change (these figures relate to amounts claimed by B&S through the application process and instructed by CEC)
changes in progress	4.67	Includes balances of £2.4m for 22 week cost engineering change and £2.9m for Rev 3A to Rev 4 programme change (these figures are the outstanding agreed amounts included in the change issued)
anticipated changes	4.01	Changes required to complete, subject to approval
contributions	-7.93	Third party contributions received and anticipated
<b>Total Committed</b>	<b>505.20</b>	Budget £500.15m
<b>Risk</b>		
risk estimate	3.55	QCRA: CEC/T&T risk meeting 4 February 2013. Note: payment of ex contract claims to Infracore is excluded as confirmed by CEC.
<b>Risk adjusted forecast</b>	<b>508.75</b>	Budget £500.15m
<b>Opportunities</b>		
utilities diversions	0.00	Ongoing monitoring of utility expenditure but no further opportunity identified at present.
rev 3A to rev4	0.00	Infracore have submitted a milestone schedule for full value of this change and are currently being paid against this schedule in accordance with instructions from CEC.
early programme completion	0.00	No agreement in place with Infracore to realise saving. This work covered by MoU (CEC/Infracore).
<b>Total Opportunities</b>	<b>0.00</b>	
<b>Total Forecast</b>	<b>508.75</b>	Budget £500.15m
<b>Excluded risks</b>		
Opportunities, rev 3A to Rev4	0.00	Refer comments in Opportunities section above
disruption	Excl	Ex contract disruption claims for On-Street Sub-Contractors and CAF programme changes have been excluded as we believe there is no clear basis for entitlement
<b>Total</b>	<b>0.00</b>	
<b>Forecast +Exclusions</b>	<b>508.89</b>	
	505.99	Adjustment if remaining milestones associated with Rev3A to Rev 4 programme change are not paid. CEC to confirm further instruction regarding certification.

The forecast committed costs exceed the budget by £5,050k, principally as a result of the Rev3a to Rev 4 delay in commencement, instructions regarding the 22 week time buffer and the scope of utilities diversions increasing.

Opportunities are being sought to realise savings through de-scoping work, value engineering and changes to the execution of the work. A cost engineering workshop was held on 30 January 2013.

### **5.1.2 Movement from previous period**

The overall forecast has **decreased** by £145k in the period. The principal movements are identified below.

The Infraco contract forecast has **decreased** by £339k from the previous forecast. Significant changes include:

- The inclusion of additional contributions from CEC public realm budget to cover funding of Scoutmoor Paving Slabs in St Andrew Square **reduces** the forecast by £237k
- The removal of BT diversions at South Gyle, for works to be carried out by McNicholas, **reduces** the Infraco forecast by £37k
- The allowance for design, spread over a number of different tNCs, has been lowered, **reducing** the forecast by £43k

The forecast for utilities has **increased** by £220k from the previous forecast. Significant movements are described below:

- The realignment of Murrayfield sewer, transferred from the risk section of the cost report, **added** £170k to the forecast
- The addition of BT ducts, previously included in the Infraco works, **added** £40k to the forecast.

The risk allowance has **decreased** by £26k. This is the result of the latest QCRA which models all cost and schedule risks to project completion. There have been some additional risks added during the period which have been largely offset by risks which have now been mitigated or transferred into the cost report. Additions include the risk of additional costs for retaining wall W3a and the requirement for Scoutmoor in St Andrew Square, both of which we consider to be included within the contract sum but Bilfinger consider to be additions.

The allowance for utilities remedial work in Leith Walk is £900k and is subject to scoping / works agreed with Scottish Water.

### **5.1.3 Commercial issues**

#### **Rev 3A to Rev 4**

A detailed description of the background to the cost impacts of the Rev3A to Rev 4 programme change was included in Progress Report 12. CEC confirmed the requirement to issue a change order for £4,541k and reference is made to the Certifier's opinion which requires that only costs incurred will be payable. £1,639k has been certified to date, as instructed by CEC, although



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Turner & Townsend have advised that Infraco have not provided sufficient information to demonstrate costs were incurred. Infraco have advised that they will not provide any further information to support this amount.

During the period, Infraco's valuation included sums associated with the Rev 3A to Rev4 programme delay. Previously the Independent Certifier had issued an opinion paper stating that costs should be incurred before such amounts are claimed. However, Infraco have not complied with this requirement. At present, CEC have instructed Turner & Townsend to certify these amounts. Although the forecast includes for this cost, it had been envisaged that there would be an opportunity to reduce the impact if the programme end dates were improved upon. However, based on the Infraco milestone schedule, this seems unlikely to happen.

#### **Prelims / Overhead Mark ups on change**

Infraco have applied prelims and overhead and profit to OLE bases, section 1D drainage and Shandwick Place road reconstruction. This overlaps with the indirect costs/prelims included in the contract price. As the matter could not be resolved it was submitted to the escalation process and in this instance, CEC have confirmed that payment should be made. This was agreed *without prejudice* to future changes related to this issue, Turner & Townsend will seek to agree matters with Infraco and advise CEC accordingly.

Turner & Townsend have requested guidance from CEC on the same issue for Cathedral Lane substation. The estimate submitted by Infraco follows the same principles for calculating mark-up (i.e. prelim recovery is claimed on the full value of the work despite the contract already making some allowance for this scope). We have met Infraco to discuss this item and they have confirmed that they will not change their position. The Independent Certifier has confirmed that he will issue guidance in relation to this item.

#### **On Street Works Estimates**

The cost report includes provisions for a total of £2m additions to the contract sum submitted through the On Street Works Estimates in accordance with Schedule Part 45 of the contract. This captures all changes, delays and disruptions associated with On- Street work. As Infraco do not provide any up front estimates for changes covered by this contract clause, there remains a significant level of uncertainty with the remaining provisions included in this section of the cost report due to the level of change encountered or instructed in the on street section. With the exception of the track alignment and tram stops, all other elements of the On-Street civils works have changed from the base design information.

#### **Claims**

Schedule 45 governs changes to the On-Street Works and no costs have been submitted for disruption associated with the execution of the On Street Works. The intent of the contract is for any legitimate costs to be submitted within the period applications rather than a retrospective claim for additional costs.

#### **Off Street Utilities**

Infraco have stated that their contract price does not contain any risk allowance for Off-Street Utilities. Turner & Townsend have advised that there is a lack of visibility regarding risk pricing by Infraco and therefore a negotiated settlement could be sought on items (specifically the SGN diversion at Ingliston) where liability is contested. The Independent Certifier has issued notes of the meeting and re-issued the Opinion paper. It is understood that Infraco do not agree with this paper. This matter requires clarification and resolution.

### **Immunisation**

The Infraco contract includes an allowance of £3m for carrying out immunisation studies and associated work with a pain gain mechanism for costs above or below the target. £450k has been drawn down through milestones to date and we have been advised that a further £850k may be required to complete. However, there remains a risk that final testing will necessitate further works which would reduce or eliminate this saving. Consequently we have made no provision for any saving associated with this item at the current time. Meetings are ongoing with Network Rail to confirm approvals, mitigations and testing arrangements. The cost to complete will be updated to reflect the final scope.

### **Scottish Water**

Scottish Water have recently issued a forecast for their resources which is significantly higher than the reported forecast, both in cost of work done and final forecast. This is in part a result of Scottish Water maintaining their full team throughout the project. Our forecast is based on the following assumptions:

- A reduced resource profile from that proposed by Scottish Water with no resource requirement beyond June 2013 as discussed CEC/SW 30 January 2013.
- A Statutory Utility Company contribution, in accordance with the provisions of the New Roads and Street Works Act, will be payable by Scottish Water on costs incurred modifying its asset during the project. Scottish Water has been asked to confirm this is applicable.
- A contribution will be payable for requested works by Scottish Water.

### **Tramco**

The periods involved and costs are significant however there is not a significant gap between the contract programme and the forecast dates in the Master Schedule. There is an anomaly in the contract which identifies a qualifying compensation event resulting from failure to meet and end September 2013 passenger service date. This contradicts the contract programme which shows final activities in December 2013. At present, we consider that the dates in the contract programme can still be achieved and as a consequence have made no provision for costs associated with this claim in the forecast. Tramco have intimated that there will be no claim if testing is completed by December 2013. They have been asked to confirm this in writing.

CEC have instructed Turner & Townsend to put this matter on hold, this is discussed in more detail in Section 9 of this report.

### **Contributions**

The forecast includes allowances for a number of contributions from Third Parties. Some of these contributions are not yet secured and are being negotiated by CEC. Specific items which fall into this category are:

- Transport Scotland for Edinburgh Gateway (£4,356k) (£944k paid to date);
- Henderson Global for the Cathedral Lane substation (£470k in current forecast although additional recovery to be sought for the revised scope of work);
- CEC for public realm costs in St Andrew Square (£1158k including Scoutmoor paving);



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- Insurance for the Grosvenor Street Sewer Collapse (£188k);
- Network Rail for Scottish Power cable diversion (£22k);
- Transport Scotland for the Tram Integration Manager (£300k).

## 5.2 Committed Costs

### 5.2.1 Approved Change

Approved change is items that have been instructed and a commitment value agreed. The total value of approved change to date is £24,785k. This is an increase from the previous period of £1,085k.

#### Infraco

The total value of approved changes in the Infraco contract is £9,789k. This is an increase of £1,085k from the previous period. Significant changes are as follows:

Description	Change Amount (£k)	
Rev3a to Rev 4 Programme Change	£242	*
22 week cost engineering change (previously partly reported in change in progress)	£269	*
Increased drawdown for design costs resulting from changes to various elements of the on street works	£122	*
Increased number of drainage boxes	£21	
Depot sub station switching	£81	
Revision of forecast for Murrayfield Tram stop CCTV	-£18	*
Reinstatement works at Airport	£23	
Eastfield Avenue Pedestrian Crossing	£25	*
Redesign of St Andrew Square – East	£15	
New fence and ramp at Murrayfield Wanderers	£35	
Amendments resulting from fare collection equipment design	£14	
Installation of isolators on MTT	£23	
Lowering of BT Chambers at Gyle (removed from scope)	-£38	
Independent Certifiers Schedule Part 45 Period End Change Order to 8/12/2012	£270	

\* Increases from previously approved value



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### **Utilities**

The total value of approved changes in the Utilities budget section is £13,976k. This is unchanged from the previous period. A further drawdown paper is being developed for the coming quarter.

### **Tramco**

The total value of approved changes in the Tramco budget section is £5k. This is unchanged from the previous period.

### **5.2.2 Changes in Progress**

Changes in progress are known changes that have not yet been incorporated into the contract sum, either because we are awaiting a price from Infraco or the value has not yet been agreed. The total value of change in progress is £4,665, a decrease of £914k from last period.

### **Infraco**

Change in progress associated with the Infraco contract is £4,630k. This is a decrease of £914k from last period. Significant changes include:

- Miscellaneous Clause 80 tNCs transferred to approved section: -£194k
- Reduction in OSW Estimate in progress: £-272k (transfer of costs to approved section and miscellaneous changes)
- tNC539.1 - System Wide - Delay in signing - impact on commencement and completion - prolongation costs at end of programme: £-242k
- tNC628 - Prepare MUDFA As Built drawings: £ 25k
- tNC717.1 - Cost Engineering in respect of the Programme (22 week saving): £ -269k
- tNC723 - Princes Street road safety audit for release of full Princes St plug: £ -4k
- tNC727 - Remove maintenance staircase to Roseburn Viaduct: £6k
- tNC742 - South Gyle junction site survey: £10k
- tNC743 - Gogar Depot construction: -£5k
- tNC744 – Carrick Knowe golf course - flooding: £10k
- tNC745 - Remove buff coloured HFS from Carrick Knowe Bridge and Edinburgh Park Viaduct: -£2k

Refer to the cost report for a complete list of change in progress.

### 5.2.3 Anticipated Change

Anticipated change are variations to the contract that are known about but no change has been raised at this time, either because the scope has not yet properly been defined or the change has not taken place yet. Anticipated change during the period has decreased by £55k. The following describes the main items of change during the period.

#### Infraco

Anticipated change has decreased by £275k which includes:

- Transfer of costs associated with utility issues into respective tNCs: -£75k
- Transfer of costs associated with design issues into respective tNCs: -£200k

#### Utility Works – York Place to Haymarket

Anticipated change has increased by £220k which includes:

- Additional provision in utility forecast for Murrayfield sewer works: £170k
- Provision for BT ducts in Utilities forecast £40k

#### Tramco

Anticipated changes are unchanged during the period.

### 5.2.4 Contributions

The forecast amount of contributions has increased by £235k in the period. as described below:

- Inclusion of contribution from CEC for providing Scoutmoor in St Andrew Square in lieu of reusing existing as included in the Infraco contract: £237k. Note that the cost benefit associated with this has been offset by the risk of Infraco claiming additional costs for this item, as described in the risk section of this report.
- Reduction of assumed contribution from Network Rail for Scottish Power diversions at Haymarket Station: £-2k

## 5.3 Risk and Contingency

### Quantified Cost Risk Analysis (QCRA)

Following the most recent risk review, the risk allowance included in the forecast amounts to £3,545, a decrease of 26k from the previous period. This is based on the outputs of the QRA which follows a review of all project risks.

The main inclusion to note this period was the ED008 risk (*Disputed interpretation of contract and valuation of estimates submitted for potential changes*) value being updated to include the additional retaining measures at ScotRail's depot (W3A retaining wall) and Scoutmoor potential claims. The potential claim value has been included for both of these items and a probability applied to arrive at a risk value.

It should be noted that the risk allowance does not make provision for any ex-contract claims which may be issued and or accepted by CEC such as loss of productivity.

We have included an allowance of £400k within the uncertainty section for costs associated with Scottish Water resources. This relates to the difference between our cost report, which includes our forecast of out turn costs and Scottish Water's forecast. The differences are number of resources, overhead costs and level of contributions. In both cases, resources costs are assumed to complete in June 2013 as agreed between Scottish Water and CEC.

The risk includes £213k associated with Legacy Scottish Water settlement in addition to the budget of £750k. This is as agreed with CEC.

#### **5.4 Opportunities**

The total value of opportunities in the current forecast is £14,202k. Most of these opportunities are secured. However, there remains a risk to certain items included within this total, identified below:

- Item 03 – St Andrew Square Public Realm: This opportunity is for a non tram budget in CEC to contribute towards the cost of setts and Scoutmoor paving in St Andrew Square. We are still in negotiation with Bilfinger Berger over the rate for the revised specification of setts which may affect the total value for this item although it is assumed that any additional / reduced cost will be part of the contribution and therefore have no overall effect on the tram forecast
- Item 14 – Road Reconstruction depth: The impact of utilities diversions have reduced the area of road which can be preserved however this is compensated by savings in pavements and footways. During the period we have reconciled savings associated with this item, St Andrew Square descope and Track box excavation resulting in a net increase in the overall saving although a reduction associated with this item.

A meeting was held on 30 January 2013 to consider further opportunities for savings. These opportunities are currently being investigated and any additional savings will be incorporated into later reports.

#### **Programme Opportunities**

Progress report Nr 13 provided details on relationship between the Rev 3A Rev 4 cost movements (also refer above) and prelims costs associated with the difference between an estimated completion dates (based upon relaxation of resource constraints and extrapolation of current progress) with the Rev 4 completion date.

Infraco's position is that they are entitled to contract prelims, plus the £4.5m to Rev3A to Rev 4 movement. Subject to performance and actual completion in advance of Rev 4 dates there may be an opportunity to save part of the £2.5m for the programme movement at the end of the project. This is also depending upon Infraco changing their commercial position. It should be noted that Infraco have submitted a milestone schedule for these amounts which indicate that the full amount should be paid by December 2013. This issue is not resolved at this time.



## 5.5 Exclusions

The following items are excluded from the Cost Report

- Repairs to pavements and footways
- Further design changes beyond those included in the cost report (note: production of as built drawings from the MUDFA contract and collation of as built information from current utilities diversions is a significant exercise. Also design costs are beyond the norm since SDS Management Fee at 25.65% and Infraco mark up at 34.9% is applied).
- Claims for disruption from the sub-contractors on the On-Street section as entitlement exists for PAVs.
- Scottish Water manholes at Princes Street Gardens and Jenners.
- Leith Walk Utilities Diversion – CEC has confirmed that the budget for defined scope should be £0.9m (based upon the tender and a general contingency allowance). The intention is to value engineer out the undefined scope e.g. gas water pipe separation and to restrict the work done. Should, for technical reasons this approach not be feasible then additional funding would be required.
- Any provisions for carrying out manual switching at the depot substation beyond April 2013.
- Scottish Water supervision costs beyond June 2013. Further supervision will be dependent on agreement with CEC and on the source of funding.

## 5.6 Payments and Cashflow

A summary of the certified amounts are provided below.

	<b>Certified £k</b>	<b>Planned £k</b>	<b>Comment</b>
Infraco	363,201	364,751	Planned – based upon current forecast
Utilities	15,265	15,116	McNicholas plus SUC costs
Trams	61,793	61,793	Payments generally in accordance with milestone schedule. Incomplete milestones are not included in certified amounts.

## **6 On Street - Enabling Works & Utility Legacy Works**

### **6.1 General**

Enabling and utility legacy works have progressed well during the period and works are being completed to meet dates agreed with Infraco. Similarly street service works (those outside the DKE+2m, road sign bases, traffic signal bases and associated ducting) are progressing well and work is being coordinated with Infraco to minimise any disruption to the main works.

### **6.2 York Place**

With all critical York Place enabling works completed and the main site handed over to Infraco, Turner & Townsend retains an island site at Broughton Street to construct a SW drainage manhole and a site at Dublin Street to complete final utility and street service works. These works commenced in the period, are currently non critical to the Infraco programme and are scheduled to be completed by the 11<sup>th</sup> of February 2013.

### **6.3 Scottish Water**

The recent introduction of the weekly steering group meeting with senior SW management has created positive impact in progressing the SW issues critical to the progress of Infraco. As a result the majority of the remaining issues relate to legacy SW utility issues, Turner and Townsend are working with CEC to identify a suitable mechanism for close out that minimises capital exposure. It should be noted however that there remains a significant commercial gap between the parties.

CEC have endorsed the scope of works to be carried out by McNicholas in Leith Walk and Constitution Street and they are managing the acceptance of the scope with SW. Turner and Townsend are working with McNicholas to commence the revised workscope on the 18<sup>th</sup> of February 2013; with a completion date scheduled for the end of April 2013.

### **6.4 Look Ahead**

Turner & Townsend will remain reactive to utility discoveries by Infraco; although this watching brief work is beginning to ramp down considerably as ground works are completed. Work will continue with CEC in seeking to limit the scope of Scottish Water legacy works. Street services works will also be ongoing in the period.



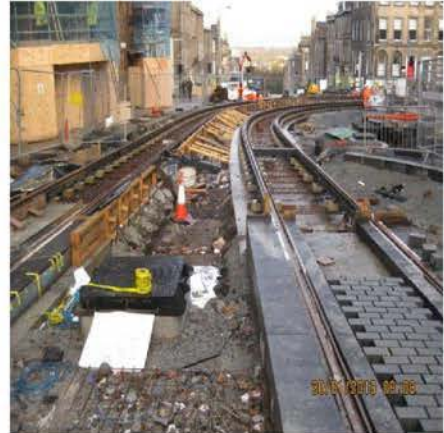
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## 7 On Street - Main Works

### 7.1 Progress in Period

All On Street areas are now in the possession of Infracore with some minor exceptions agreed where residual works and/or street services conflict works are being carried out by McNicholas and/or Crummock. Infracore has continued with track slab construction in all areas and is making good progress with carriageway reconstruction between Haymarket and Lothian Road and in St Andrews Square track laying continues to progress well.

Of particular note is the progress Infracore has made in York Place where track laying commenced in the period and is currently 80% track improvement slab complete, 40% rail installed, 25% track fully installed including 2nd stage concrete



*Turn into York Place From St Andrew Street North*

The delays to the commencement of construction of the Cathedral Lane substation due to a redesign of the retaining wall at the perimeter of the site are being mitigated. Currently Infracore are completing the substructure works and are on programme to ensure that the building will be weather tight for handover to Siemens at the beginning of April 2013 in line with the Rev 5 Programme. The programme however makes no allowance for risk and is being monitored on a weekly basis in conjunction with Infracore.



*Cathedral Lane*

The completion date for St Andrew Street is now likely to be March 2013. This has slipped in the period due to the re-distribution of labour into the more critical York Place section. The carriageway reinstatement works on the old RBS vehicular access to the south side of the square commenced in the period. The critical path on the On Street section no longer runs through St Andrew Square and the works continuing on into early 2013 will not have an impact on the overall delivery date. Owner consents to attach OLE fixings in St Andrews Square were resolved in the period with the assistance of CEC and Infracore.



*St Andrews St*



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Infraco Princes Street snagging was substantially completed in the period subject to a final review and walkover. Some Scottish Water legacy snags remain to be completed in Princes Street although these will now be carried out in early 2013. Defect inspections were completed in the period and details of the defects issued to Infraco for rectification. Turner and Townsend and CEC are currently working with Infraco to finalise contractual responsibility.

Shandwick Place, progress remains significantly ahead of the Rev5 programme, in most locations. Interfaces between contractors continue to be coordinated to minimise disruption. Track and Civils works in Shandwick Place south are now underway and the target date for completion is April 2013.



*Shandwick Place*

Between the Crescents Infraco is completing track laying and progress on the Tramstop has also continued during the period. In the same geographic location Turner and Townsend are finalising CEC's request to complete the Shandwick Place walls together with construction of a footpath in time for road opening in this area.

Works between Haymarket and the Crescents have progressed well in the period and the final section of track slab will be handed back to Infraco on the 4<sup>th</sup> of February 2013 in the area of Palmerston junction. Infraco have substantially completed trackwork out-with this area and road carriageway construction is currently 66% complete



*Haymarket*

## 8 Off Street Works

### 8.1 Progress in Period

#### 8.1.1 Section B Completion

A snagging tracker has been created for Section B; this has been agreed with Infraco however Siemens have stated that they want to provide an exclusions list to be incorporated within this tracker. To date any exclusions over and above those agreed prior to Christmas have not been provided.

Items that have already been captured on the snagging lists are being closed out steadily and are progressing well. The Final Consolidated Snag list will be compiled by the 8<sup>th</sup> of February 2013 after a series of multi discipline walkovers during week commencing on the 4<sup>th</sup> of February 2013.

#### 8.1.2 Network Rail Interface

Infraco have produced a paper on their reasoning's behind their claim for additional retaining measures at structure W3, adjacent to the ScotRail depot. Works were undertaken by Network Rail in the vicinity of the ScotRail depot prior to the finalisation of the tram infrastructure design, this brought Network Rail infrastructure closer to the tram infrastructure. However the survey information that Infraco's design is based on is that prior to the Network Rail works being carried out. This has led to changes being required within the tram design and subsequently further retention measures necessary to accommodate the tram infrastructure. It has been agreed with Infraco however that works in this area will continue and the commercial claim will be assessed in parallel by Turner & Townsend. An update will be provided at the Project Delivery Group meeting on the 14<sup>th</sup> of February 2013.

Network Rail's electrification works were installed prior to the tram infrastructure commencing along the Murrayfield corridor. This has an AC/DC electrification interface issue. The fence that was originally designed is not suitable for this interface due to earthing and bonding issues. The easiest and most effective solution is to install a fence that has wooden fence posts acting as an insulation gap between welded mesh metal panels. This requires Network Rail's approval and requires further commercial discussions with Infraco. Turner & Townsend are working through this issue with both parties and are seeking to resolve the issue by mid February.

In response to the above and other outstanding Network Rail issues Turner & Townsend has agreed to develop a paper setting out how technical and commercial issues can be closed out with Network Rail in the short to medium term. The paper will be presented to the client meeting on the 25<sup>th</sup> of February 2013 and will be summarised in the next period report.



**8.1.3 Other Items of progress in this period;**

- Overhead line mast piling works at Edinburgh Gateway commenced with the majority complete;
- Ongoing works at Gateway include construction of kingpost wall with the completion of the anchors;
- Edinburgh Gateway drainage, blinding to underpass and excavation of slopes continuing;



*Edinburgh Gateway*

- Overhead line works through Edinburgh Park;



*Edinburgh Park*

- Edinburgh Park Station bridge (S27) plinths to be recast commenced;
- Installation of drainage at Carricknowe golf course;
- Installation of trackform concrete at Carricknowe;
- Installation of blinding at Bankhead tramstop complete for handover to Siemens and track installation commenced;
- McNicholas commenced sewer relocation at Murrayfield;
- Electrical works at Murrayfield tramstop underway including those for the platform and lift;
- South Gyle access bridge handed over to Siemens for track installation;
- Roseburn structures waterproofing and transition slab works continuing;
- ScotRail manhole relocation works ongoing;
- Trackform concrete on W4 commenced; and
- Tracklaying continuing on Section 2a.



## **8.2 Key Issues**

The following issues are currently affecting the off street section;

- Completion of Eastfield Avenue in time for Section B completion, Edinburgh Airport is yet to grant the required approvals for the works to commence;
- The additional retaining measures at retaining wall W3 are being progressed by Infraco although there is a commercial issue to be resolved. There is also a potential programme issue should Network Rail approvals for the outstanding retaining measures not be forthcoming;
- Siemens have yet to present their final exclusions for Section B, these are being reviewed against progress although it is not anticipated these will change significantly from those agreed at the end of 2012;
- Fencing earthing and bonding issues are being resolved although there are likely to be additional costs attributable to CEC and Infraco associated with the agreed solution;
- The industrial property at Roseburn requires an extension to be reinstated, this was demolished to allow for Infraco's piling methodology. The reinstatement however was not clearly defined within the original tie instruction and discussions are underway with the landowner and Infraco to find a suitable solution.
- The problem identified and reported previously in relation to the overheating cable at the depot is being resolved. Infraco has agreed to install, at its own cost, additional cabling which the operator has confirmed meets its long term requirements;
- Following the Section 7 testing Infraco informed Turner & Townsend and CEC that there are potential clashes between the tram and platform edges at Stops. Infraco is currently checking the network and remedying any issues at its own expense; and
- As previously reported cracking has been found on Section 7 track slabs, this is currently being investigated and is discussed in more detail in the quality section of this report.

## **8.3 Look Ahead**

The following works will be progressed during the coming period;

- Completion of the Final Consolidated Snagging list for Section B;
- Wall construction completion at the Edinburgh Gateway site;
- Track form shall commence at Edinburgh Gateway;
- Edinburgh Park bridge works continuing;
- OHLE mast installation along the railway corridor;

**FINAL**

- Completion of civil works at Murrayfield and Roseburn in preparation for Siemens taking possession; and
- Murrayfield sewer relocation works shall complete to allow access to be given to Siemens for track laying.



## 9 Trams

### 9.1 Trams Progress in Period

The delivery of 27 trams to Gogar Depot and their testing on the Mini Test Track (MTT) has now been completed, ahead of Schedule 14 (Tram Manufacturing and Delivery Programme) requirements.

All 27 trams have now been issued with Certificates of Tram Delivery and Interim Tram Site Commissioning Routine Test Certificates, in line with Schedule 5 (Milestone Payment Schedule) requirements.



Five trams have now successfully completed all Routine Test requirements, with the fifth tram (#251) having already been awarded an Interim Tram Type Test Certificate, both pre-requisites to Section B Completion.

CAF and Infracore have now completed all site commissioning and integration tests related to trams, with the final System Acceptance Test (T1 – Post Commissioning Test) scheduled to commence on the 6<sup>th</sup> of February 2013.

It is CAF's intention to complete the Routine Testing on the remaining 22 trams as soon as Section B has been handed over and is available for their use.

Edinburgh Trams intend using the five trams (above) as often as the track becomes available, to increase driver awareness of Section B and to increase public awareness that trams are now operating to the airport.

### 9.2 Vesting of Trams with CEC

CAF are looking to vest the five trams which have completed routine testing (above) with CEC as soon as possible.

Turner & Townsend have presented a briefing paper to CEC identifying the contractual requirements that must be met before trams are vested and some of the potential risks of vesting trams early. Turner & Townsend held a meeting with CEC on the 1<sup>st</sup> of February 2013, to discuss this paper and to determine the best way forward. The outcome of this meeting is being discussed with CAF, to ensure an acceptable way forward can be agreed by all.

### 9.3 Fare Collection System

The first monthly Fare Collection System Project Meeting was held in Edinburgh on the 15<sup>th</sup> of January 2013; with CEC, Parkeon, Lothian Buses (LB) and Turner & Townsend in attendance.

Parkeon reported that the manufacturing of tramstop equipment had started on schedule, following an agreement between all stakeholders on the equipment specification and customisation requirements. All other design documents and specifications are being progressed to completion, in line with the contractual programme.



Turner & Townsend facilitated a discussion between Parkeon, Lothian Buses and Siemens, to define how the SCADA interface between the Ticket Vending Machines (TVM) and the Siemens RailCom Manager would be managed. Parkeon will provide a technical specification defining this interface during the next period, based on final discussions with Siemens and Lothian Buses.

Parkeon are currently producing design drawings, showing the arrangement of the brackets to be used to locate Platform Validators onto the CCTV poles on city centre tramstops. This information will be provided to Infracore as soon as it becomes available.

Turner & Townsend have written to Parkeon, following CEC's requested that additional fare collection equipment be ordered for the Edinburgh Gateway tramstop. Additional equipment is to be ordered in line with the requirements detailed in the latest agreed design drawings.

#### **9.4 Key Issues**

It was reported previously that CAF had issued a letter detailing potential additional project costs in excess of £2M, due to the difference in the project completion date between the Rev 2 and Rev 5 project programmes. Given the current progress on the project and in particular the fact that the Master Schedule testing and commissioning date is before the Rev2 programme dates, Turner & Townsend cannot find a justification for such costs and have queried this with CAF. At present Turner & Townsend has been asked to put any discussions with CAF on hold pending the outcome of CEC's wider discussions with CAF regarding the client target programme. Similarly Turner & Townsend has been asked to withhold including this risk in any risk modelling analysis until such time as CAF's position is made clear. Turner & Townsend understand however that CAF have confirmed to CEC that they will not be pursuing a claim in relation to this matter. Discussions are ongoing with CEC on how this issue can be formally closed.

Parkeon are awaiting confirmation that Transport Scotland will accept the use of concession cards on trams, in the same way they are accepted on Lothian Buses. The functionality of the system has been developed to allow acceptance, should this be agreed.

The water ingress into the depot building maintenance pits and Wheel Lathe remains to be resolved by Infracore. Immediate rectification action is now required as CAF have raised this as a safety concern and confirmed that it is affecting the efficiency of their operation. This action lies with CEC.

#### **9.5 Look Ahead**

The following items will be progressed during the coming period(s):

- 1 Test and Commissioning (end February 2013):
  - All Tram commissioning tests required for Section B will have been completed
- 2 System Acceptance and Integration:
  - Dynamic EMC Measurement tests completed
  - Tram Borne dynamic tests completed
  - T1 Post Commissioning Test completed
- 3 Vesting of Trams with CEC:
  - Agreement on how and when additional Trams can be vested with CEC to be reached with the Tram Inspector, CAF and CEC.

- 4 Fare Collection:
- Monthly project report updated
  - Design specifications complete (milestone payment)
  - Manufacturing of equipment ongoing
  - Edinburgh Gateway equipment order placed

## 10 Assurance Monitoring

### 10.1 Resources

The re-organisation of the Safety and Technical Assurance functions within the project has now been completed, with Turner & Townsend, Edinburgh Trams and CEC working closely to ensure a seamless transition into the new roles and responsibilities, as follows:

Edinburgh Trams now responsible for:

- Safety Verification (including ICP issues & Body of Evidence)
- Technical Assurance (including T&C of Infrastructure & System Acceptance (T1-T5))
- Requirements Management including (managing the Technical Library)
- Maintenance pre-operation (both Infrastructure and Tram)

CEC now responsible for:

- Environmental Assurance

Turner & Townsend remain responsible for:

- Quality Assurance (including auditing; NCRs & Metrics in process)
- H&S Assurance (including Incident Reporting, monitoring, targeted initiatives, Leading Indicators and key activities)
- CDM Coordinator (including Health & Safety File and CDM arrangements)
- Project Insurance Coordination (OCIP) – Period Reviews
- Tram Technical Assurance (including T&C and Tram Inspector activities)
- Fare Collection System project management

Fortnightly Project Assurance meetings are being attended by the above parties to ensure that project assurance continues to be managed as effectively and efficiently as possible.

This is the first Turner & Townsend Progress Report to be issued since the new changes came into effect. It is intended that Edinburgh Trams will now report on Safety Assurance through the inclusion of the 'Deliver a Safe Tram' (DaST) section in their progress report, a copy of which has been attached as to this report.

Turner & Townsend's will provide an Assurance Monitoring function through the reporting of any issues identified internally and any issues that Edinburgh Trams highlight as significant in the DaST.

### 10.2 Safety Verification

Edinburgh Trams have reported no significant issues within the Safety Verification function this period, however attention is drawn to a site inspection carried out at Princes Street on 13<sup>th</sup> December 2012, to address outstanding queries from Safety Verification Audit (SV) Audit TSA/12/03 ( Section 1C - Slips, Trips, Falls (2 Wheel Vehicles)).

A formal report is to be compiled; with a demonstration of the Drainage Box cleaning arranged for the 21<sup>st</sup> of February 2013.



**FINAL**

**10.3 Independent Competent Person (ICP) issues**

Edinburgh Trams are currently amending the Safety Verification System and Safety Assurance Plan documentation, with advice being sought from the ICP as required. Both documents will be made available to Turner & Townsend when complete, for review.

Edinburgh Trams are proposing that the monthly Project Safety and Certification Committee (PSCC) meetings be replaced with more structured and effective ICP Liaison Meetings. The terms of reference for these meetings will be set out in the revised Safety Verification System document.

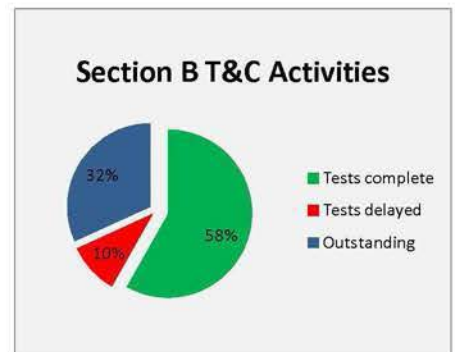
The ICP has requested that any replacement for the PSCC meeting should be discussed and agreed at a final PSCC meeting, before being implemented.

**10.4 Body of Evidence File**

IT are currently migrating the information from the old Sharepoint system into the new site. This is expected to be complete by the end of February 2013.

**10.5 Technical Assurance**

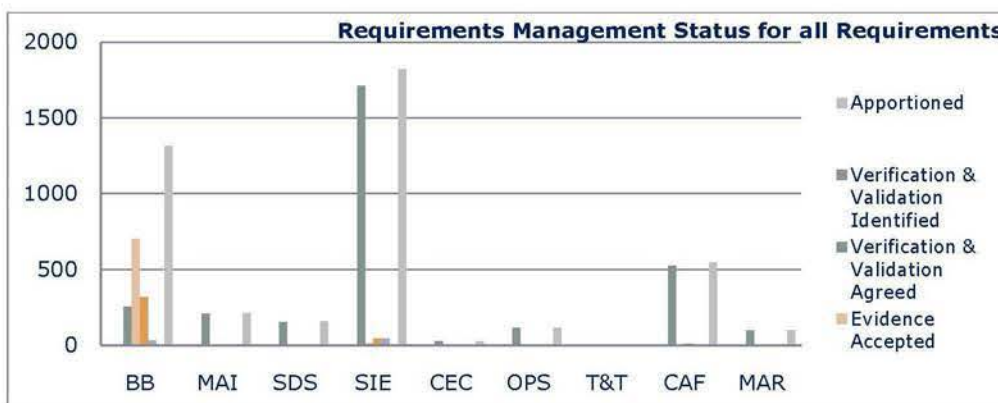
Section B Testing and Commissioning continues to progress toward the scheduled Section B Completion date of the 8<sup>th</sup> of March 2013, with 53 out of 91 proposed tests now completed. There were 9 tests delayed during the period, however none of these tests are seen as a significant risk to the completion date, as the majority relate to tramstop equipment.



There is a concern however that if the number of delayed tests increases, there will be insufficient time to complete testing and any incomplete tests may be added to the list of exclusion for Section B. This concern will be raised and managed through the fortnightly testing and commissioning meetings.

A meeting has been arranged with Technical Support Services (TSS) on the 5<sup>th</sup> of February 2013, to resolve any outstanding track form issues and to identify any issues which may be safety critical. The outcome of this meeting will be documented in the next report.

**10.6 Requirements Management**



**FINAL**

Edinburgh Trams are currently focusing on the requirements associated with Section A completion.

Approximately 43% (186 out of 435) of requirements relating to Section A handover are now deemed 'Compliance Confirmed'. The rise in the period is 4%; with 9% (390 out of 4321) of the total number of requirements now deemed 'compliance confirmed'. This is an increase of 2% since the last reporting period.



Edinburgh Trams have reported that the delay in confirmation of Section A requirements is partly due to the additional effort being made to ensure that an effective process is developed, this is to ensure a more efficient process in the future.

### **10.7 Project Insurance**

The next Owner Controlled Insurance Programme (OCIP) project survey has been scheduled for the 7<sup>th</sup> of February 2013. The intention of this review is to allow the insurer to gain an update on the works that have been completed since the last review (March 2012) and an understanding of the remaining works to be completed.

## Appendix 1 – Dashboard



Produced by	Rob Leech & Shirley-Anne Collin	SECTION	SUMMARY DASHBOARD REPORT CONFIDENTIAL – LEGALLY PRIVILEGED AND FOI(S)A EXEMPT		Employer	City of Edinburgh Council Waverley Court, Edinburgh, EH8 8BG	
Approved by	Rob Leech	Issue By:	Turner & Townsend Project Management Limited, 9 Lochside Avenue, Edinburgh Park		Address		
Status	FINAL	Issue Date	13 <sup>th</sup> February 2013	REPORTING PERIOD	6 <sup>th</sup> January – 2 <sup>nd</sup> February 2013	Project:	Edinburgh Tram Network

Executive Summary	Executive Summary cont'd
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Sixteen incidents occurred in the period. Of these two were classified as being serious / significant and comprised near misses – one related to an incident at the airport where there was a near miss between a tram and a car, and the second related to the use of a tower scaffold in Princes Street adjacent to a live bus lane which was reported to the Health and Safety Executive and has subsequently been addressed by Infracore. The report into the Road Rail Vehicle incident reported last month has been finalised although this has not yet been issued to Turner & Townsend.

A site investigation was held at the Ingliston Park and Ride tramstop to review the cracking to the off-street concrete track slab. It was identified by Parsons Brinckerhoff that the cracking was due to shrinkage of the concrete and was not structural. An investigation has also been undertaken by City of Edinburgh Council (CEC) regarding the on-street concrete track slab. Similar cracking has been identified. It has been agreed with CEC that a report will be developed in relation to cracking, the conclusions of which will be shared with Infracore. Furthermore a regime will be implemented post contractual completion to monitor the cracks.

In addition to the cracking a number of Scottish Water hydrant and valve chambers appear to be settling in Princes Street. Turner & Townsend, in conjunction with CEC, are investigating this matter and any conclusions will be included in the above report.

The Sectional completion date for Section B remains on target for the 8<sup>th</sup> of March 2013 (the contract programme date). The overall risk adjusted project completion date however is now projected to be the 19<sup>th</sup> of May 2014, this was previously forecast to be the 19<sup>th</sup> of April 2014. The latest Q5RA predicts that there is an 18% probability of the revised Master Schedule completion date of the 29<sup>th</sup> of March 2014 being achieved. The critical path now runs through Section 5C (Edinburgh Gateway). The dates moving out have been driven predominantly by the late ordering of the off street tamper.

Erosion of the 22 week cost engineering programme saving remains unchanged at 14 weeks. It is the view of both Infracore and Turner & Townsend that the likelihood of any subsequent adverse delay events has reduced.

Turner & Townsend are currently in discussion with CEC regarding a "client target programme" being developed by CEC in conjunction with Infracore, CAF and Edinburgh Trams. Given the new contractual constraints Turner & Townsend have been informed that they cannot be party to the initial development of the client target programme. In response to this and in discussion with CEC a flowchart has been developed mapping out the process envisaged and how Turner & Townsend will validate any proposals. The availability of detailed testing and commissioning information will be the key to achieving a properly coordinated revised Master Schedule.

Enabling and utility legacy works have progressed well during the period and works are being completed to meet dates agreed with Infracore. Similarly street service works (those outside the DKE+2m, road sign bases, traffic signal bases and associated ducting) are progressing well and work is being coordinated with Infracore to minimise any disruption to the main works.

All On Street areas are now in the possession of Infracore with some minor exceptions agreed where residual works and/or street services conflict works are being carried out by McNicholas and/or Crummock. Infracore has continued with track slab construction in all areas and is making good progress with carriageway reconstruction between Haymarket and Lothian Road and in St Andrews Square track laying continues to progress well.

The recent introduction of the weekly steering group meeting with senior SW management has created positive impact in progressing the Scottish Water issues critical to the progress of Infracore. As a result the majority of the remaining issues relate to legacy SW utility issues, Turner and Townsend are working with CEC to identify a suitable mechanism for close out that minimises capital exposure. It should be noted however that there remains a significant commercial gap between the parties.

CEC have endorsed the scope of works to be carried out by McNicholas in Leith Walk and Constitution Street and they are managing the acceptance of the scope with Scottish Water. Turner and Townsend are working with McNicholas to commence the revised workscope on the 18<sup>th</sup> of February 2013; with a completion date scheduled for the end of April 2013.

A snagging tracker has been created for Section B; this has been agreed with Infracore however Siemens have stated that they want to provide an exclusions list to be incorporated within this tracker. To date any exclusions over and above those agreed prior to Christmas have not been provided.

Additional retaining measures at retaining wall W3 on the Network Rail Corridor are being progressed by Infracore although there is a commercial issue to be resolved. There is also a potential programme issue should Network Rail approvals for the outstanding retaining measures not be forthcoming.

Fencing earthing and bonding issues are being resolved in the Network Rail corridor although there are likely to be additional costs attributable to CEC and Infracore associated with the agreed solution.

There is an industrial property at Roseburn that requires an extension to be reinstated, this was demolished to allow for Infracore's piling methodology. The reinstatement however was not clearly defined within the original tie instruction and discussions are underway with the landowner and Infracore to find a suitable solution.

The problem identified and reported previously in relation to the overheating cable at the depot is being resolved. Infracore has agreed to install additional cabling which the operator has confirmed meets its long term requirements; CAF are looking to vest the five trams which have completed routine testing with CEC as soon as possible. Turner & Townsend have presented a briefing paper to CEC identifying the contractual requirements that must be met before trams are vested and some of the potential risks of vesting trams early. A proposal has been put to CAF and an update will be provided at the Project Delivery Group Meeting.

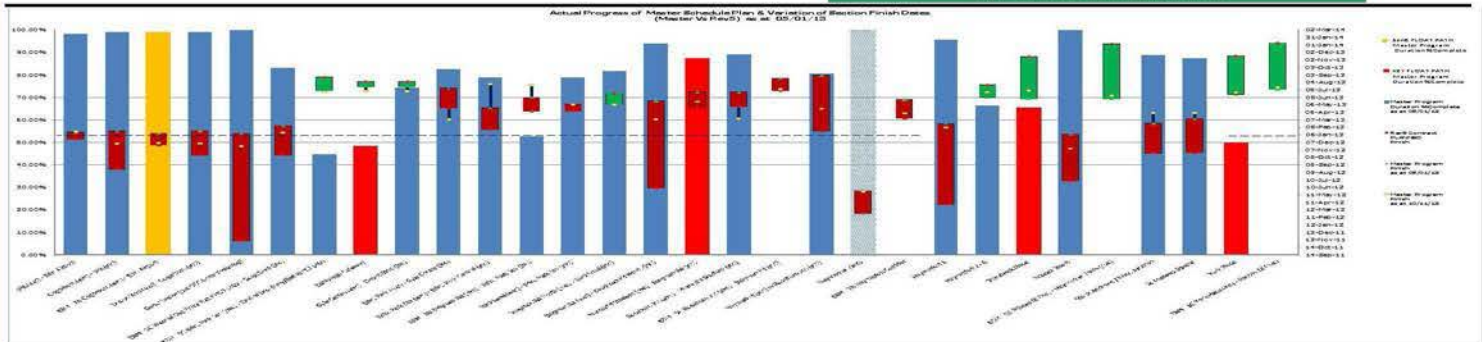
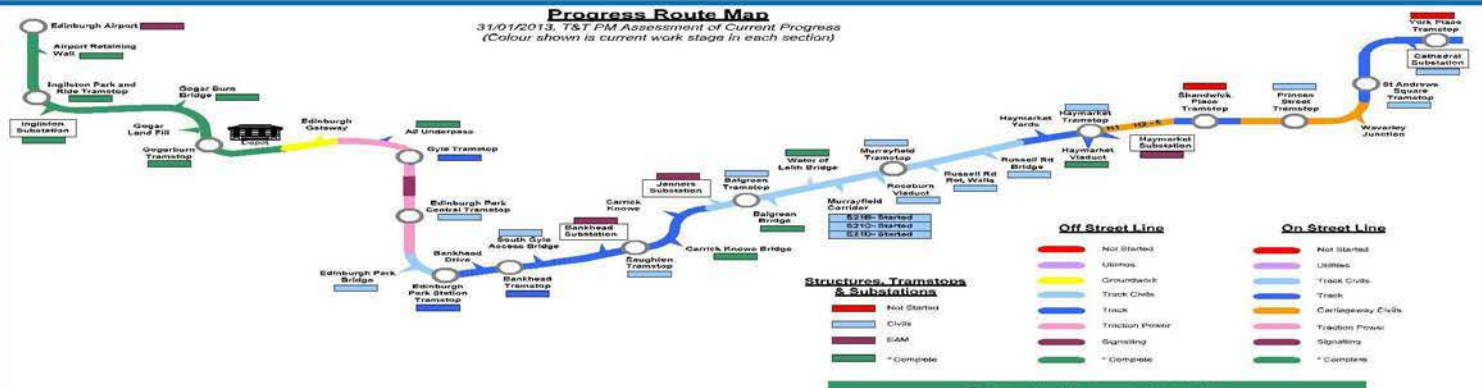
The re-organisation of the Safety and Technical Assurance functions within the project has now been completed, with Turner & Townsend, Edinburgh Trams and CEC working closely to ensure a seamless transition into the new roles and responsibilities. Turner & Townsend will provide an Assurance Monitoring function through the reporting of any issues identified internally and any issues that Edinburgh Trams highlight as significant in their "Deliver a Safe Tram" report. (filed in Appendix 2)

The overall forecast has reduced by £145k in the period as a result of risk values being mitigated as scope and costs are agreed or clarified.

There remains to be a number of key risks to the overall forecast, notably associated with the valuation of on street change, potential claims submitted by Infracore and Tramco for programme change and closeout of cost reimbursable elements of the project, particularly McNicholas and Scottish Water. The forecast includes a provision for these elements of work and the risks are being monitored on a period basis to allow mitigation action to take place if necessary.

During the period, Infracore's valuation included sums associated with the Rev 3A to Rev4 programme delay. Previously the Independent Certifier had issued an opinion paper stating that costs should be incurred before such amounts are claimed. However, Infracore have not complied with this requirement. At present, we have been instructed to certify these amounts. Although the forecast includes for this cost, it had been hoped that there would be an opportunity to reduce the impact if the programme end dates were improved upon. However, based on the Infracore milestone schedule, this seems unlikely to happen.

- | CEC ACTIONS / DECISIONS |   |
|-------------------------|---|
| 1.                      | Scottish Water - Bulldozer agreements require to be progressed.                                   |
| 2.                      | Scottish Water - Scottish Water legacy commercial and legal close down.                           |
| 3.                      | Network Rail – Operational and Bridge agreements require to be progressed.                        |
| 4.                      | Network Rail - Verity House - Commercial position to be decided and agreed with Network Rail.     |
| 5.                      | Haymarket Wayleave – Close out of the wayleave with Scottish Power and Network Rail at Haymarket. |
| 6.                      | Souter's – Pursue Souter's for recovery costs at Murrayfield.                                     |
| 7.                      | OLE Building Fixings – Legal Agreement with landowners (some progress made during the period)     |
| 8.                      | Concession Cards - Acceptance of Transport Scotland concession cards on trams (CEC Action)        |
| 9.                      | Requirements - Information on any requirements for approval by user bodies (CEC Action)           |





Produced by	Rob Leech & Shirley-Anne Collin	SECTION	SUMMARY DASHBOARD REPORT CONFIDENTIAL – LEGALLY PRIVILEGED AND FOI(S)A EXEMPT			Employer	City of Edinburgh Council Waverley Court, Edinburgh, EH8 8BG
Approved by	Rob Leech	Issue By:	Turner & Townsend Project Management Limited, 9 Lochside Avenue, Edinburgh Park			Address	
Status	FINAL	Issue Date	13 <sup>th</sup> February 2013	REPORTING PERIOD	6 <sup>th</sup> January – 2 <sup>nd</sup> February 2013	Project:	Edinburgh Tram Network

KEY MILESTONES

Section	Description	Rev 5 Schedule Date	Forecast/Actual Date	Var. (d's)	Complete	Crit. Path	Comments
<b>Section Completions</b>							
ALL	Section B; Test Track complete	08-Mar-13	08-Mar-13	0		Y	
ALL	Section C; All construction complete	09-Apr-14	18-Dec-13	112		Y	Further 1mth mvmt to Section C date as a result of delay in ordering tamper
ALL	Section D; open for revenue	08-Jul-14	29-Mar-14	101		Y	Further 1mth mvmt to Section D date as a result of delay in ordering tamper
<b>On Street</b>							
<b>Haymarket</b>							
On-Street	Civil Works complete (H1 to H3B)	17-May-13	22-Apr-13	25		N	Good progress with pavement construction over track. Remains non critical.
On-Street	All Remaining Works Complete (H4 to H6)	25-Jul-13	05-Jun-13	50		N	
<b>Shandwick Place</b>							
On-Street	Civil Works Complete Palmerston Place to Crescents (SP2 & SP6)	18-Oct-13	19-Apr-13	182		N	
On-Street	Civil Works Complete Crescents including Atholl West Tie-in (SP4 & SP5)	05-Jun-13	24-Apr-13	42		N	Steady progress across all sub-sections as Type 2 utility works approaches completion. Positive movement in completion dates is a result of planned sequential working in sub-sections actually being done concurrently.
On-Street	Civil Works Complete Crescents to Lothian Road (SP1 & SP3)	25-Mar-13	24-Apr-13	-30		N	Is no longer on critical path.
On-Street	All Remaining Works in Shandwick Place Complete (SP1 to SP7)	04-Dec-13	19-Jun-13	168		N	
<b>Princes Street</b>							
On-Street	Commence M&E Works	07-Oct-13	12-Mar-13	209		N	M&E works definition re-assessed. M&E commencement date is earliest expected date when Infracore will claim for progress against OHLE 10
On-Street	All Works complete (exc. PST Tramstop)	22-Nov-13	31-May-13	175		N	
<b>South St Andrews St / Waverley Junction</b>							
On-Street	All Works Complete	25-Oct-12	05-Apr-13	-162		N	
<b>St Andrews Square &amp; St Andrews St North</b>							
On-Street	All Works Complete	26-Oct-12	05-Apr-13	-161		N	
<b>York Place</b>							
On-Street	All Works Complete	18-Nov-13	25-Jun-13	146		Y	
<b>Off Street</b>							
Off-Street	Track civils - between MUS and Rosburn Junction Complete	06-Dec-12	15-Mar-13	-99		N	Completion is dependent on NR acceptance of OHLE station retaining measures
Off-Street	Track civils - (Formation and Ballast) between MUS and BAL Complete	06-Feb-13	15-Mar-13	-37		Y	slipped by 7d, S21B continues to drive this phase of works
Off-Street	5A Track Ready for Tamping	25-Mar-13	21-May-13	-57		N	Further slip is as a result of poor progress at S21B
Off-Street	5B Track Ready for Tamping	31-Oct-12	22-Mar-13	-142		N	Track Laying resources diverted from 2A
Off-Street	5C Track Ready for Tamping	19-Jun-13	03-Jun-13	16		N	Further slippage of 1mth, due to poor progress against Expanded programme for the Embankment works at Gateway
Off-Street	Tamping Commenced (5A,5B,5C)	31-Oct-12	27-Jun-13	-239		Y	1mth mvmt as a result of delay in ordering tamper
Off-Street	Tamping Ballast Section 5B Completed	21-Nov-12	17-Jul-13	-238		Y	1mth mvmt as a result of delay in ordering tamper
Off-Street	Tamping Ballast Section 5A (&5C) Completed	16-Apr-13	24-Jul-13	-99		Y	1mth mvmt as a result of delay in ordering tamper
Off-Street	Full Line Pre-Stressing and Grinding	16-Sep-13	19-Sep-13	-3		Y	Critical Path remains with final rail track works for full length of route
Off-Street	5A Testing & Commissioning (5C-2A T&C)	23-Sep-13	16-Sep-13	7		N	Not the Crit Path, but due to resources is key focus for achieving construction completion date. Due to finish only 3d earlier than Full line Pre-stressing and Grinding
Off-Street	Gateway King Post Retaining Structure complete	03-Oct-12	12-Mar-13	-160		N	BBS Rev5 logic relationships does not have this linked to track civils so forecast date does not drive key works in Rev5
Off-Street	Gateway Post Embankment Drainage Complete	08-Jan-13	12-Mar-13	-63		N	Expanded works shows further 21d slip against their schedule (including actual Kingpost Works that drive track civils)
Off-Street	Gateway Track laying commenced	22-Feb-13	28-Mar-13	-34		N	21d slip due to progress of heavy civils
Off-Street	Gateway Track laying completed	16-May-13	13-May-13	3		N	21d slip due to progress of heavy civils
<b>Tram Test &amp; Commission</b>							
Section B	Tram Bourne Dynamic Tests Completed	04-Feb-13	04-Feb-13	0		Y	Driven by commissioning plan
Section B	All Secn B SAT/SITs complete. Ready to commence Test1	08-Feb-13	08-Feb-13	0		Y	Driven by commissioning plan
Section C	All Secn C SAT/SITs complete. Ready to commence T1	08-Feb-14	19-Oct-13	112		Y	Driven by commissioning plan
Section C	Secn T1 Completed	10-Mar-14	18-Nov-13	112		Y	Driven by commissioning plan



Produced by	Graeme Walker, Hazel Kennedy & Shirley-Anne Collin	SECTION	HEALTH & SAFETY, QUALITY AND ENVIRONMENTAL CONFIDENTIAL – LEGALLY PRIVILEGED AND FOI(S)JA EXEMPT	Employer	City of Edinburgh Council
Approved by	Julian Weatherley	Issue By:	Turner & Townsend Project Management Limited, 9 Lochside Avenue, Edinburgh Park	Address	Waverley Court, Edinburgh, EH8 8BG
Status	<b>FINAL</b>	Issue Date	13 <sup>th</sup> February 2013 REPORTING PERIOD: 6 January – 2 February 2013	Project:	Edinburgh Tram Network

**PROGRESS**

**Summary**

During the period there was an emphasis on reviewing the incident report regarding the Road Rail Vehicle incident and the implementation of the lessons learned.

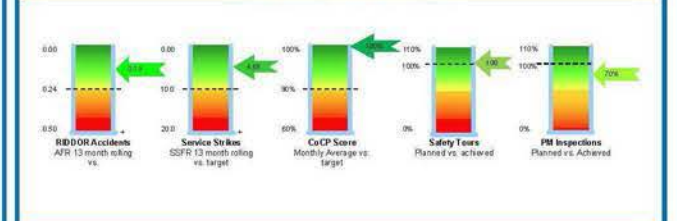
There were 16 incidents reported during the period, 2 no were classified as serious / significant.

A review is ongoing regarding who will be the enforcement authority at the various stages of the Tram project i.e. the Health and Safety Executive or the Office of Rail Regulation.

**Initiatives**

During the last period Turner & Townsend have carried out a review of the operations of the Mobile Elevated Work Platforms (MEWPS) being used for the erection of the OLE equipment. This review has been undertaken to assess the implementation of the learning points that have come from an internal investigation undertaken by Bilfinger & Siemens regarding the Road Rail Vehicle (RRV) incident. The formal investigation was carried out by Edinburgh Trams, Turner & Townsend provided comments on the first draft of the report, the final report however has not yet been issued to Turner & Townsend

**Key Performance Indicators**



**CDM Regulations**

A meeting was held between Turner & Townsend, City of Edinburgh Council and Edinburgh Trams to review at what stage in the project the enforcement authority would change from the Health and Safety Executive and the Office of Rail Regulation. Following the meeting discussion took place at the Project Safety Certification Committee (PSCC) meeting with the Independent Competent Person (ICP) regarding this issue. A document is being prepared which will be reviewed internally within the project team and then discussed with the Health and Safety Executive to gain their agreement with the arrangements. The review of the revised Construction Phase Plan from Bilfinger & Siemens for the project is being held pending the results of the investigation regarding the arrangements being implemented by the principal contractor regarding the management of organisations undertaking works within the construction work site.

**Site Investigations**

A site investigation was held at the Ingliston Park and Ride tramstop to review the cracking to the off-street concrete track slab. It was identified by Parsons Brinckerhoff that the cracking was due to shrinkage of the concrete and was not structural. An investigation has also been undertaken by City of Edinburgh Council regarding the on-street concrete track slab. Similar cracking has been identified.

It has been agreed with City of Edinburgh Council that a report will be developed in relation to cracking, the conclusions of which will be shared with Infraco. Furthermore a regime will be

**HEALTH & SAFETY**

**Incidents**

There were 16 incidents reported during the period.

2 no incidents were classified as serious / significant. 1 no environmental incident was classified as non-tram.

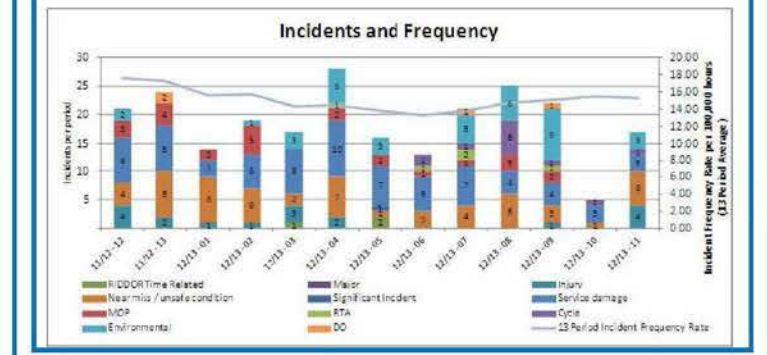
The rolling 13 Period AFR is 0.19

A summary is provided below.

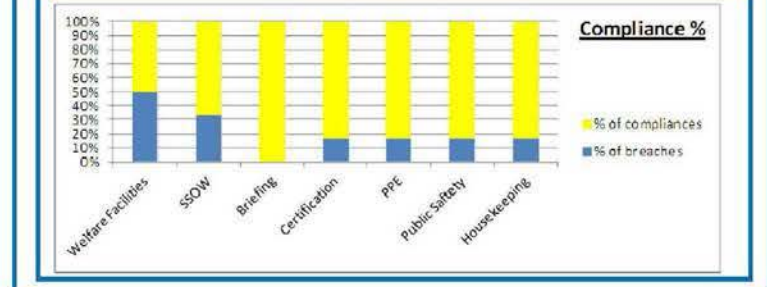
**Record of Incidents**

Classification	Number	Major incident	Serious / significant incident	Incident	RIDDOR Reportable
Member of public					
Service damage	3				3
Environmental	3				3
Major					
Injury > 7day					
Injury < 7 day	4				4
Dangerous occurrence					
Road traffic accident					
Near miss / unsafe condition	6		2		4
Other					
<b>TOTAL</b>	<b>16</b>		<b>2</b>	<b>14</b>	

**Incident Trends**



**Monitoring of Leading Indicators**



**ENVIRONMENTAL AND QUALITY**

**Environmental**

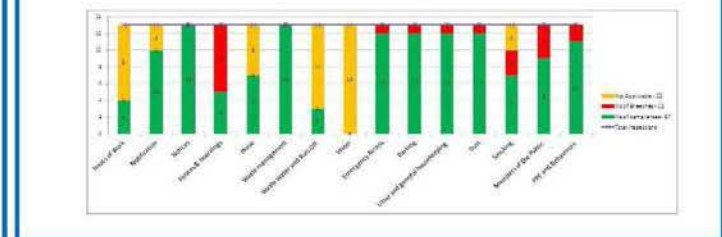
A joint environmental inspection was carried out with Infraco on the 24<sup>th</sup> of January 2013 at the Edinburgh Gateway site. No major issues were recorded. The site is generally in good order especially given the difficult working conditions due to the very wet ground.

A meeting has been arranged with John Lawson CEC Archaeological Services for the 1<sup>st</sup> of February 2013 to discuss the on-going post excavation works and the potential works in the Leith Walk area. John is of the view that a number of the on-street areas still require an archaeologist to be called out should any archaeology be encountered. Turner & Townsend are currently investigating if the archaeological visits can be minimised to protect the project budget.

Three environmental incidents were reported during the period. These comprised two diesel spills from welfare units and a noise complaint which has been attributed to non tram related works at Haymarket Station.

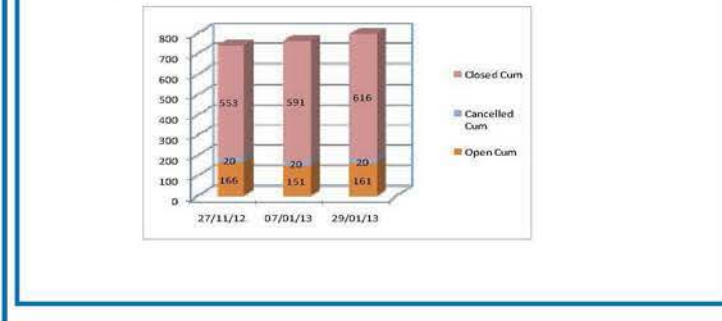
**CoCP**

- CoCP & Key**
- CoCP compliance for Period 11 was recorded at 84%
  - 21 issues required action. These comprised:  
Q4 Fencing & hoarding – 8 no; Q9 Emergency Access – 1 no; Q10 Parking – 1 no; Q11 Litter and general housekeeping – 1 no; Q12 Dust – 1 no; Q13 Smoking – 3 no; Q14 Members of the public – 4 no.; Q15 PPE & Behaviours – 2 no



**Quality**

- Non-conformances**
- Monitoring by Turner & Townsend of the NCRs raised on the project continues. Details of the NCRs are included below:
- The number of NCRs raised to date is 797. 35 NCRs were raised during the period and 25 NCRs were closed out during the period.
  - 36 open NCRs are greater than 6 months old. Further details may be found within Section 6 of Deliver a Safe Tram Report.
  - 161 remain open.

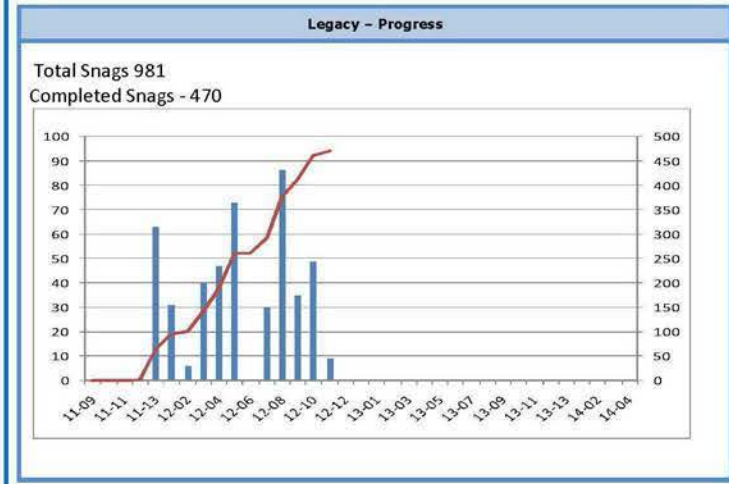










Produced by	Andy Scott & Shirley-Anne Collin	SECTION	ON STREET DASHBOARD REPORT CONFIDENTIAL – LEGALLY PRIVILEGED AND FOI(S)A EXEMPT		Employer	City of Edinburgh Council	
Approved by	Julian Weatherley	Issue By:	Turner & Townsend Project Management Limited, 9 Lochside Avenue, Edinburgh Park		Address	Waverley Court, Edinburgh, EH8 8BG	
Status	FINAL	Issue Date	13-02-2013	REPORTING PERIOD	6 <sup>th</sup> January to 2 <sup>nd</sup> February 2013	Project:	Edinburgh Tram Network

PERIOD
<b>PROGRESS</b>
<ol style="list-style-type: none"> <li>York Place – Good progress being made with track laying 80% complete.</li> <li>Final section of trackslab at Palmerston junction to be handed back to Infracore 4<sup>th</sup> February 2013.</li> <li>Infracore progressing well with trackslab, track installation, and carriageway reconstruction in all areas from Haymarket to York Place</li> <li>Cathedral Lane sub-station – On target for handover to Siemens for transformer installation.</li> <li>St Andrew Square: Completion due March 2013.</li> <li>Type 2 utility conflicts progressing well with T&amp;T McNicholas works XX% complete</li> <li>Scottish Water relationship remains fragile but steering group makes positive progress on critical Infracore related issues</li> <li>Leith Walk – Turner &amp; Townsend re-engaged to deliver reduced scope by end April 2013.</li> <li>Turner and Townsend progressing delivery of CEC instruction for minimum Shandwick crescents option in time for Infracore road opening.</li> </ol>

LOOK AHEAD
<ol style="list-style-type: none"> <li>Track slab, track laying and carriageway reconstruction will continue in all On Street areas</li> <li>Continue with Type 2 conflicts</li> <li>Complete Broughton Street manhole</li> <li>Turner &amp; Townsend will continue to react to utility discoveries by Infracore.</li> <li>Continue to work with Infracore to recover time lost due to utility conflicts – replenish the time bank.</li> <li>Work with CEC in seeking to limit the scope of Scottish Water legacy works</li> <li>Monitor Cathedral Lane sub-station works on a weekly basis</li> </ol>



PHOTOGRAPHS	
	
Cathedral Lane	St Andrews Street
	
Haymarket	Shandwick Place
	
York Place	Haymarket

KEY ISSUES
<ol style="list-style-type: none"> <li>Scottish Water relationship and extent of legacy issues being finalised</li> <li>Type 2 conflicts and SW Legacy issues – Possible delays.</li> <li>Legacy works North of York Place – Final scope agreement with SW.</li> <li>Cathedral Lane - Monitor Works programme.</li> <li>Time Bank Recovery.</li> </ol>

CEC ACTIONS / DECISIONS
<ol style="list-style-type: none"> <li>Scottish Water legacy commercial and legal close down</li> <li>OLE Building Fixings – Legal Agreements with landowners (Progress made in SAS during the period)</li> </ol>

SOFT ANALYSIS	
<p><b>SUCCESSSES</b></p> <ol style="list-style-type: none"> <li>Working relationships with BBS remains good, particularly on site</li> <li>Speedy reaction to conflict issues</li> <li>Final trackslab area handed over to Infracore in the period.</li> </ol>	<p><b>OPPORTUNITIES</b></p> <ol style="list-style-type: none"> <li>Optimize revised traffic phasing and work with Infracore to replenish time bank</li> <li>Return buses to Shandwick Place before 31<sup>st</sup> March 2013</li> </ol>
<p><b>FAILURES</b></p> <ol style="list-style-type: none"> <li>Carriageway vertical alignment in south St Andrew St</li> <li>SDS OLE Design and Type 2 design.</li> <li>MUDFA design, as built, contract administration &amp; supervision</li> </ol>	<p><b>THREATS</b></p> <ol style="list-style-type: none"> <li>Type 2 Conflicts</li> <li>Legacy works at Leith Walk</li> <li>Legacy works within tram worksites</li> <li>Scottish Water relationship and legacy commercial and legal agreements required to close down.</li> <li>Infracore delay to Rev 5 due to utilities</li> </ol>

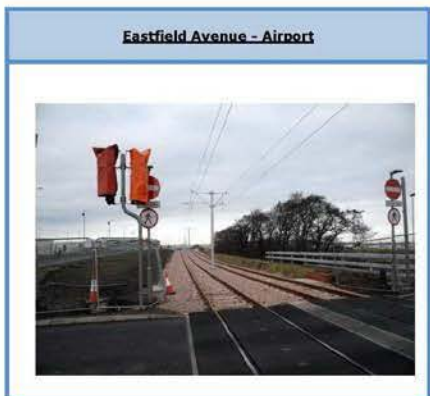


Produced by	Shirley Mushet & Shirley-Anne Collin	SECTION	OFF STREET DASHBOARD REPORT <b>CONFIDENTIAL – LEGALLY PRIVILEGED AND FOI(S)A EXEMPT</b>		Employer	City of Edinburgh Council
Approved by	Julian Weatherley	Issue By:	Turner & Townsend Project Management Limited, 9 Lochside Avenue, Edinburgh Park		Address	Waverley Court, Edinburgh, EH8 8BG
Status	<b>FINAL</b>	Issue Date	13 <sup>th</sup> February 2013	REPORTING PERIOD	6 <sup>th</sup> January – 2 <sup>nd</sup> February 2013	Project:
						Edinburgh Tram Network

<b>PROGRESS IN PERIOD</b>	<b>PHOTOS</b>	<b>KEY ISSUES</b>
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PROGRESS IN PERIOD	
<ol style="list-style-type: none"> <li>1. Section B snagging works progressing;</li> <li>2. Final snagging walkover to commence 5<sup>th</sup> February 2013;</li> <li>3. Overhead line mast piling works at Edinburgh Gateway commenced;</li> <li>4. Ongoing works at gateway include construction of kingpost wall with the completion of the anchors;</li> <li>5. Edinburgh Gateway drainage, blinding to underpass and excavation of slopes continuing;</li> <li>1. Overhead line works through Edinburgh Park;</li> <li>6. Edinburgh Park Station bridge (S27) plinths to be recast commenced;</li> <li>7. Installation of drainage at Carricknowe golf course</li> <li>8. Installation of trackform concrete at Carricknowe</li> <li>9. Installation of blinding at Bankhead tramstop complete for handover to Siemens and track installation commenced;</li> <li>10. McNicholas commenced sewer relocation at Murrayfield;</li> <li>11. Electrical works at Murrayfield tramstop underway including those for the platform and lift;</li> <li>12. South Gyle access bridge handed over to Siemens for track installation</li> <li>13. Roseburn structures waterproofing and transition slab works continuing;</li> <li>14. ScotRail manhole relocation works ongoing;</li> <li>15. Trackform concrete on W4 commenced; and</li> <li>16. Tracklaying continuing on section 2a.</li> </ol>	

LOOK AHEAD
<p>The following items will be progressing during the coming period:</p> <ol style="list-style-type: none"> <li>1. Completion of final snagging list for Section B;</li> <li>2. Wall construction completion at the Edinburgh Gateway site;</li> <li>3. Track form shall commence;</li> <li>4. Edinburgh Park bridge works continuing;</li> <li>5. Edinburgh Park backstay location in close proximity to the pedestrian walkway;</li> <li>6. OHLE mast installation along the railway corridor;</li> <li>7. Completion of civil works at Murrayfield and Roseburn in preparation for Siemens taking possession; and</li> <li>8. Murrayfield sewer relocation works shall complete to allow access to be given to Siemens for track laying.</li> </ol>



KEY ISSUES
<ol style="list-style-type: none"> <li>1. Completion of Eastfield Avenue in time for Section B completion, Edinburgh Airport is yet to grant the required approvals for the works to commence;</li> <li>2. The additional retaining measures at retaining wall W3 are being progressed by Infracore although there is a commercial issue to be resolved;</li> <li>3. Siemens have yet to present their exclusions for Section B;</li> <li>4. Fencing earthing and bonding issues are being resolved although there are likely to be additional costs attributable to CEC and Infracore associated with the agreed solution;</li> <li>5. The industrial property at Roseburn requires an extension to be reinstated, this was demolished to allow for Infracore's piling methodology. The reinstatement however was not clearly defined within the original tie instruction and discussions are underway with the landowner and Infracore to find a suitable solution.</li> <li>6. The problem identified and reported previously in relation to the overheating cable at the depot is being resolved. Infracore has agreed to install additional cabling which the operator has confirmed meets its long term requirements;</li> <li>7. Following the Section 7 testing Infracore informed Turner &amp; Townsend and CEC that there are potential clashes between the tram and platform edges at Stops. Infracore is currently checking the network and remedying any issues at its own expense; and</li> <li>8. As previously reported cracking has been found on Section 7 track slabs, this is currently being investigated and is discussed in more detail in the quality section of this report.</li> </ol>

CEC ACTIONS / DECISIONS
<ol style="list-style-type: none"> <li>1. Close out of the wayleave with Scottish Power and Network Rail at Haymarket.</li> <li>2. Scottish Water buildover agreements require to be progressed.</li> <li>3. Verity House commercial position to be decided and agreed with Network Rail.</li> <li>4. Network Rail operational and bridge agreements require to be progressed.</li> <li>5. Pursue Souter's for recovery of costs at Murrayfield.</li> </ol>

SOFT ANALYSIS	
<p><b>SUCCESSSES</b></p> <ol style="list-style-type: none"> <li>1. All tram infrastructure out of the ground.</li> <li>2. Snagging resolution works progressing well on Section B.</li> </ol>	<p><b>OPPORTUNITIES</b></p> <ol style="list-style-type: none"> <li>1. Two work fronts on track installation at Murrayfield would improve the programme.</li> <li>2. Cost saving on tamper's one visit rather than two.</li> </ol>
<p><b>FAILURES</b></p>	<p><b>THREATS</b></p> <ol style="list-style-type: none"> <li>1. Stakeholder wish-lists as the final infrastructure is now becoming visible.</li> <li>2. Completion of Eastfield Avenue in time for Section B handover.</li> </ol>



Produced by	Willie Delaney & Shirley Anne Collin	SECTION	<b>TRAMS</b> <b>CONFIDENTIAL – LEGALLY PRIVILEGED AND FOI(S)A EXEMPT</b>		Employer	City of Edinburgh Council	
Approved by	Rob Leech	Issue By:	Turner & Townsend Project Management Limited, 9 Lochside Avenue, Edinburgh Park		Address	Waverley Court, Edinburgh, EH8 8BG	
Status	<b>FINAL</b>	Issue Date	13 <sup>th</sup> February 2013	REPORTING PERIOD	6 <sup>th</sup> January 2013 to 2 <sup>nd</sup> February 2013	Project:	Edinburgh Tram Network

**PROGRESS IN PERIOD**

**PROGRESS IN PERIOD**

- Test and Commissioning – Delivery of Trams and testing on the Mini Test Track (MTT) has now been completed for all 27 Trams, ahead of the contractual schedule.
- Tram Test & Commissioning (Section B) – The following requirements for Section B Completion have been met:
  - 1 Tram (#251) has been awarded an Interim Type Test Certificate
  - 4 Trams have completed Routine Testing on Section B (to 70 kph)
  - Ride Quality Tests have been completed (awaiting test report)
- System Acceptance and Integration – Turner & Townsend continue to attend Section B Test & Commissioning Control and Governance meetings (chaired by B&S and CEC respectively).
- Vesting of Trams with CEC – CAF are looking to vest the five Trams (above) which have completed Routine Testing with CEC. Turner & Townsend have submitted a briefing paper to CEC, defining CEC's contractual obligations with respect to Tram vesting and some of the potential risks of vesting Trams early.
 

Turner & Townsend are currently discussing contractual requirements for the award of Certificates of Tram Commissioning with the Tram Inspector, as these are a pre-requisite to vesting Trams.
- Fare Collection – The first monthly project meeting was held in Edinburgh, with CEC, Parkeon, Lothian Buses (LB) and Turner & Townsend in attendance.
 

Manufacturing of tramstop equipment started this period, following an agreement between Parkeon and LB on the equipment specification. Additional equipment has been ordered for the Edinburgh Gateway tramstop; to be delivered in line with the current contract.

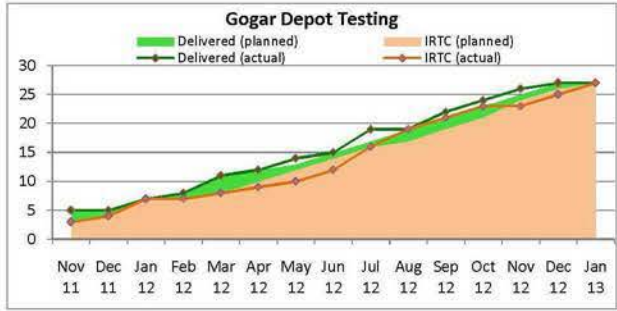
Turner & Townsend is awaiting design drawings for the Platform Validator mounting brackets for city centre tramstops from Parkeon. This information will be provided to BSC immediately upon receipt.
- Sub-Contractor Direct Agreements – CAF have submitted a number of agreements with their suppliers, as required by the Tram Supply Agreement, however some of the wording has deviated from that in the relevant Contract Schedule. These amendments are currently being reviewed by CAF.
- Tram Supply Agreement Performance Bond – CAF have written to Turner & Townsend stating that the date of expiry of the Performance Bond has been extended to 15th May 2013, in line with "agreements reached with CAF at Marhall".
 

Turner & Townsend are currently discussing why the Performance Bond has not been extended until the final Certificate of Tram Commissioning is issued, in line with contractual requirements.

**LOOK AHEAD**

- The following items will be progressed during the coming period:
- Test and Commissioning:
    - All Tram commissioning tests required for Section B will have been completed
  - System Acceptance and Integration:
    - Dynamic EMC Measurement tests completed
    - Tram Borne dynamic tests completed
    - T1 Post Commissioning Test completed
  - Vesting of Trams with CEC:
    - Agreement on how and when additional Trams can be vested with CEC to be reached with the Tram Inspector, CAF and CEC.
  - Fare Collection:
    - Monthly project report updated
    - Design specifications complete (milestone payment)
    - Manufacturing of equipment ongoing
    - Edinburgh Gateway equipment order placed

**PHOTOGRAPHS / KPIs**



All 27 trams have now been delivered and tested on the Mini Test Track (IRTC issued), ahead of the contractual schedule



**KEY ISSUES**

**KEY ISSUES**

- CAF have issued a letter detailing potential additional project costs in excess of £2M, due to the delay to the completion date between Rev 2 and Rev 5 of the project programme. Turner & Townsend have responded to this letter requesting a meeting with CAF, to better understand the potential costs involved and their justification.
 

Turner & Townsend have discussed this issue directly with CEC, to agree the most effective method of managing this risk. At present Turner & Townsend has been asked to put any discussions with CAF on hold pending the outcome of CEC's wider discussions with CAF regarding the client target programme. Similarly Turner & Townsend has been asked to withhold including this risk in any risk modelling analysis until such time as CAF's position is made clear.
- Parkeon are awaiting some outstanding decisions on equipment and functionality:
  - Acceptance of Transport Scotland concession cards on trams (CEC Action)
  - Information on any requirements for approval by user bodies (CEC Action)
  - Additional equipment requirement for Edinburgh Gateway (Turner & Townsend)

Turner & Townsend will continue to follow up on the above actions, as they may impact the installation of the system.
- Turner & Townsend will use the tracker which is being managed by Edinburgh Trams to monitor key test, commissioning and integration activities, and raise issues identified during fortnightly control meetings chaired by B&S.

**OPERATIONAL ISSUES**

- The water ingress into the depot building maintenance pits remains to be resolved by B&S. Further action is now required as CAF have confirmed that this issue is affecting their operation.
- The restriction on the number of pantographs that can be raised at any one time in the Depot is affecting CAF's ability to complete conservation maintenance.
 

Turner & Townsend have asked CAF to quantify the delay, to better understand the issue.

**CEC ACTIONS / DECISIONS**

- Acceptance of Transport Scotland concession cards on trams (CEC Action)
- Information on any requirements for approval by user bodies (CEC Action)

**SOFT ANALYSIS**

- | SUCCESSES  | OPPORTUNITIES  |
|--|--|
| <ol style="list-style-type: none"> <li>Tram delivery and testing continues ahead of schedule. CAF have completed testing ahead of the scheduled end of January date.</li> <li>Manufacturing of fare collection equipment has started, following agreement on design specifications required</li> </ol> | <ol style="list-style-type: none"> <li>Start system testing and commissioning on completion of Off Street Section (Airport to Shandwick Place crossover) leading to earlier commencement of Revenue Service date (early partial service on Off Street Section and early service on full route).</li> <li>Running trams in a 'pseudo service' following Section B completion provides an opportunity to perform additional reliability running on trams, while at the same time developing Operator procedures and staff competence.</li> </ol> |

- | FAILURES         | THREATS   |
|------------------|---|
| None identified. | <ol style="list-style-type: none"> <li>There have been a number of significant tram failures identified, during Section B test &amp; commissioning.               <p>Turner &amp; Townsend are currently working with Edinburgh Trams and CAF to develop a more effective and efficient way to monitor and manage significant tram failures</p> </li> </ol> |



<b>Produced by</b>	Shirley Collin, Mike Mackenzie & Craig Forson	<b>Function</b>	<b>COMMERCIAL</b> CONFIDENTIAL – LEGALLY PRIVILEGED AND FOI(S)A EXEMPT			<b>Employer</b>	City of Edinburgh Council
<b>Approved by</b>	Gary Easton	<b>Issued By:</b>	Turner & Townsend Project Management Limited 9 Lochside Avenue, Edinburgh Park			<b>Address</b>	Waverley Court, Edinburgh, EH8 8BG
<b>Status</b>	FINAL	<b>Issue date</b>	13 <sup>th</sup> February 2013	<b>Reporting Period</b>	6 <sup>th</sup> Jan to 2 <sup>nd</sup> Feb 2013	<b>Project</b>	Edinburgh Tram Network

SUMMARY				VALUE ENGINEERING			CHANGE																																																																																																																																																				
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<p>1. Embargoes and TM – total value initial based on 22 week saving. This is no longer recognised as an opportunity by the project team.</p> <p>2. York Place Tramstop – amended design complete; agreement on revised price to be established between BBS and Turner &amp; Townsend.</p> <p>3. Road reconstruction depth – Opportunity to reduce road reconstruction offset by foam concrete and extent of dig required to resolve utilities..</p>																																																																																																																																																											

RISK - Significant Movement in Period (Dec 12/Jan 13):					
Risk ID	Risk Description	Old Level	Movement	New Level	Comments
R032	Utilities encountered during BBS Construction Works	RED	↓	AMBER	Probability & reduced due to the progression of works have reduced the areas where this risk could occur
ED132	Phased handover/ lack of integrated programmes results in disruption	NEW		RED	A cost neutral programme change is being sought. Whilst the principle may be agreed at the outset, there is a risk that all cost impacts may not be identified and additional costs may be claimed later to re-sequence activities, undertake shift working etc.
ED130	Despite all testing being carried out there remains a risk that defects may be identified requiring rework	NEW		AMBER	Siemens have not formally signed off ITPs.
ED129	Delay of handover to Siemens at Cathedral Lane	NEW		AMBER	Redesign of substation lead to late start
ED131	SPN requirement for additional cabling & insurance ducts to mitigate foamed concrete & set construction	NEW		AMBER	SPN requirements not detailed in MUDFA IFC drawings
Additional Comments:					
Risks reviewed, actions updated and added and amendments to probabilities and impacts made. Above is the only significant change in the period.					

Commercial Issue		
Issue	Status	Action
Mark-ups on change: BBS are proposing a mark-up which results in double recovery of prelims and is contrary to the principles of the contract.	RED	CEC have instructed Turner & Townsend to certify the additional markup for work carried out to date. Future issues over markups to be agreed on a case by case basis.
Off Street Utilities; BBS claim certain utilities (principally SGN diversion in NIL land) are excluded from their price.	RED	Turner & Townsend require instruction from the independent certifier as acceptance would be a departure from the settlement agreement
Rev 3a to 4 Prolongation costs; BBS have not justified the costs incurred to T&T's satisfaction.	RED	BBS have refused to provide any further information to demonstrate incurred costs. IC to provide further guidance.
Claims for disruption; BBS have stated that there is a cost for disruption in section 1C	RED	Schedule part 45 makes no provision for claims for delay and disruption beyond what is included in the period end estimate (i.e. any claim should form part of period end estimate)
CAF have submitted a cost for delay versus the Rev 2 programme.	RED	The contract programme does not appear to support the claim although contract amendments conflict with this.
Scottish Water resource forecast	RED	Forecast is higher than currently allowed. Resource review to be undertaken with a view to reduce headcount.

## Appendix 2 – Health, Safety Environment and Consents Tracker



## Project Report – Period 11

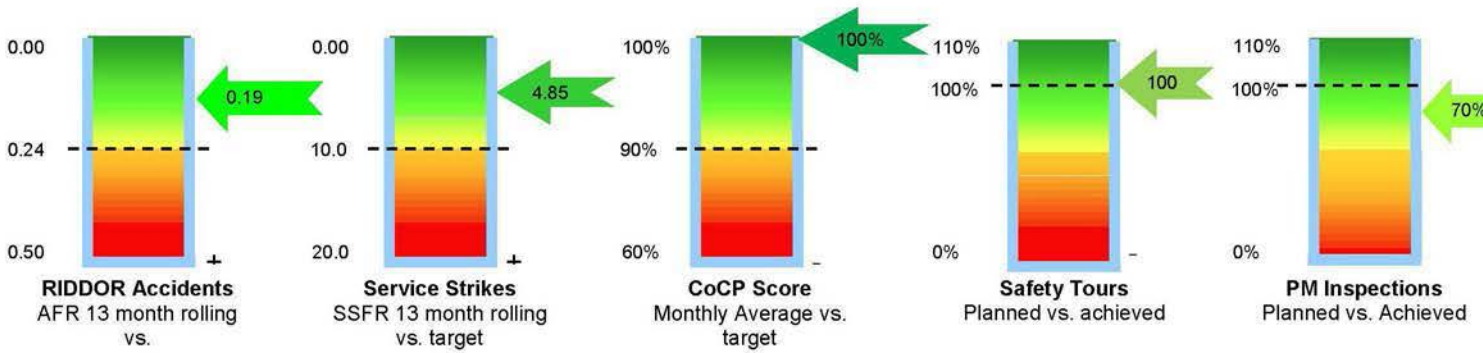
Project	12/13 - 11	Period	Hours	Time Related RIDDOR	Major RIDDOR	Other injuries	Near miss / unsafe condition	Service damage	Significant Incident	Environmental	RTA	MOP	AFR	SFR	EFR
		Period	106,661	0	0	4	6	3	0	3	0	0	0	0	0.00
YTD	1,358,451	3	0	12	47	61	1	36	5	18	0.22	4.49	2.65		
13 period rolling	1,586,565	3	0	18	59	77	1	38	5	25	0.19	4.85	2.40		

Infra	12/13 - 11	Period	Hours	>3 day RIDDOR	Major RIDDOR	Other injuries	Near miss / unsafe condition	Service damage	Significant Incident	Environmental	RTA	MOP	AFR	SFR	EFR
		Period	84,579	0	0	4	5	0	0	1	0	0	0	0.00	0.00
YTD	1,018,616	2	0	12	35	36	0	19	5	11	0.20	3.53	1.87		
13 period rolling	1,181,730	2	0	18	45	42	0	21	5	17	0.17	3.55	1.78		

Other (Tram)	12/13 - 11	Period	Hours	>3 day RIDDOR	Major RIDDOR	Other injuries	Near miss / unsafe condition	Service damage	Significant Incident	Environmental	RTA	MOP	AFR	SFR	EFR
		Period	10,082	0	0	0	1	3	0	1	0	0	0.00	29.76	9.92
YTD	219,835	1	0	0	12	24	1	16	0	7	0.45	10.92	7.28		
13 period rolling	260,835	1	0	0	14	34	1	16	0	8	0.38	13.04	6.13		



### EXECUTIVE SUMMARY

There were 16 incidents since the last report (3 Environmental, 4 Injury, 6 Near Miss/Unsafe Conditions and 3 Service Damage). See Appendix A for details.

The rolling 13 Period AFR is at 0.19, better than the benchmark KPI of 0.24 for the project.

CoCP compliance was recorded at 100% during Period 11. See Appendix B for details.

70% of planned PM joint inspections have been carried out during Period 11.

100% of planned Safety tours were carried out during Period 11

**HS&E INSPECTIONS SUMMARY** (a summary of significant inspection findings can be found in appendix B)

Project Running Totals	HS&E Tours (Directors)	HS&E PM Inspection
Number planned	1	10
Number achieved	1	7

### HSQ&E KEY ACHIEVEMENTS

The rolling 13 Period AFR is at 0.19, better than the benchmark KPI of 0.24 for the project.

### Key Issues – Points to Note

Joint monitoring of the leading indicators has continued to be undertaken between Turner & Townsend and the Principal Contractors. The results are included below, and have identified that welfare provision is the area where the highest non-compliance has been identified. This has been subject to review at the site visits that have been undertaken to drive improvements.

During the last period Turner & Townsend have been working to implement a number of initiatives regarding Health and Safety on the project. This monitoring focused on a review of the operations of the MEWPS being used for the erection of the OLE equipment. This review has been undertaken to assess the implementation of the learning points that have come from the investigation undertaken by Bilfinger & Siemens regarding the RRV incident.

### ENVIRONMENTAL SUMMARY

List any significant environmental events, initiatives, breaches etc

Joint environmental inspection carried out with B&S on 24<sup>th</sup> January 2013 at the Edinburgh Gateway site. No major issues were recorded. The site is generally in good order especially given the difficult working conditions due to the very wet ground.

A meeting has been arranged with John Lawson CEC Archaeological Services for 1<sup>st</sup> February 2013 to discuss the on-going post excavation works and the potential works in the Leith Walk area. It should be noted that a number of the on street areas still require an archaeologist to be called out should any archaeology be encountered, even in areas where work has previously been carried out, and archaeologists have previously attended site.

Three environmental incidents were reported during the period. These comprised two diesel spills from welfare units and a noise complaint which has been attributed to non tram related works at Haymarket Station.

B&S received a letter from SEPA effectively closing the issue with regard to waste movement at Baird Drive. The letter reminded the contractor of their obligations with regard to the Duty of Care Regulations.

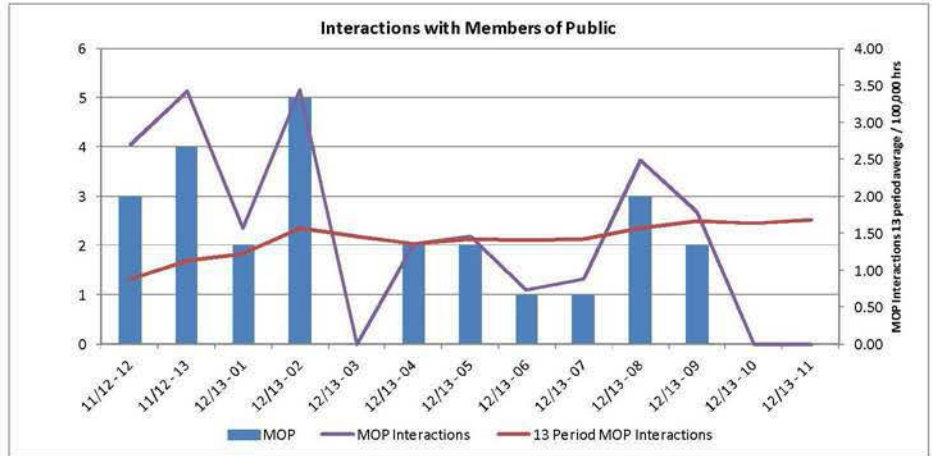
A joint environmental inspection is scheduled to take place with McNicholas 31<sup>st</sup> January 2013.



### Member of Public Interaction Summary

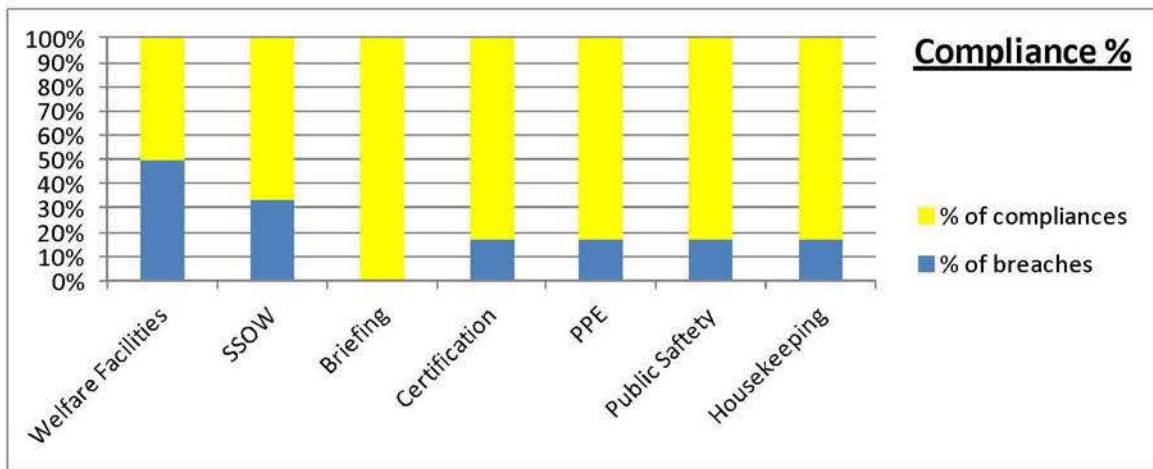
List any significant interactions with members of the public, including RTA's, alleged incidents

There were no incidents which involved members of the public during Period 11.



### Leading Indicators

Include details of compliance against leading indicators



### CDM Compliance

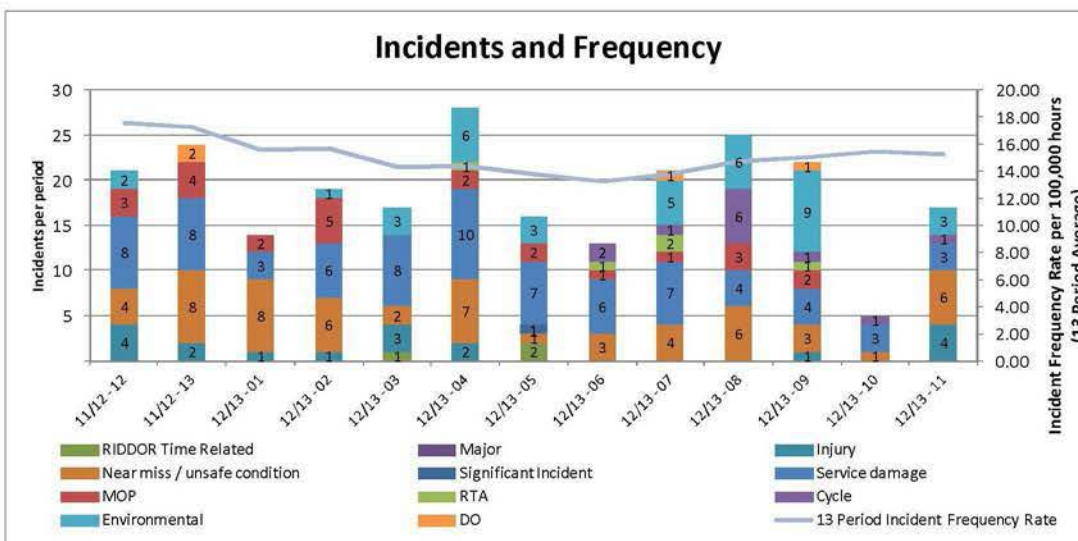
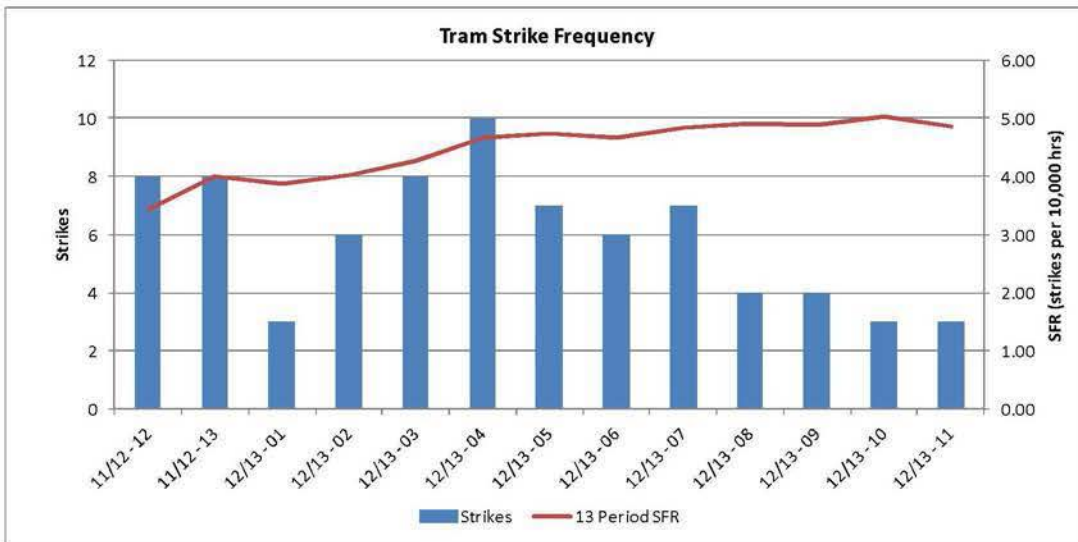
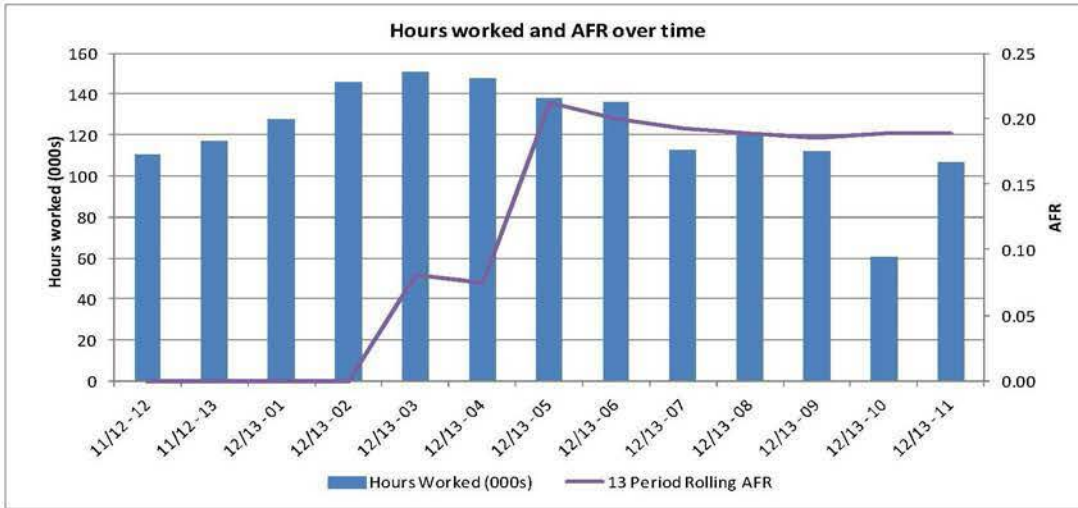
List any significant quality events, initiatives, breaches etc

A meeting was held between Turner & Townsend, City of Edinburgh Council and Edinburgh Trams to review at what stage in the project the enforcement authority would change from the Health and Safety Executive and the Office of Rail Regulation. Following the meeting discussion took place at the PSCC meeting with the Independent Competent Person regarding this issue.

A document is being prepared which will be reviewed internally within the project team and then discussed with the Health and Safety Executive to gain their agreement with the arrangements. The review of the revised Construction Phase Plan from Bilfinger & Siemens for the project is being held pending the results of the investigation regarding the arrangements being implemented by the principal contractor regarding the management of organisations undertaking works within the construction work site.

**Project Report – Period 11**

**GRAPHS**





### APPENDIX A

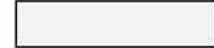
There have been 16 incidents in total since the issue of the last DtTS.

2 of which have been identified as serious / significant incidents. 1 of which is non tram related

Serious / significant incident



Non tram related

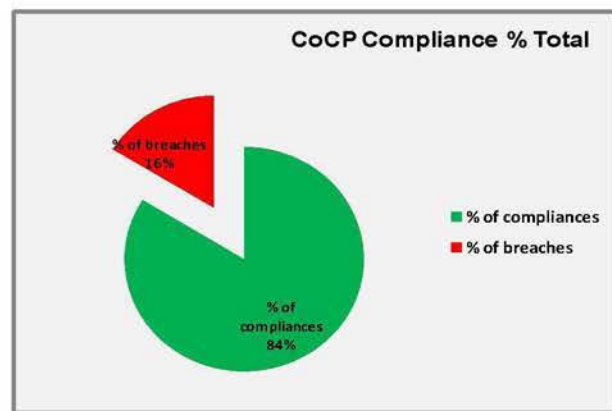
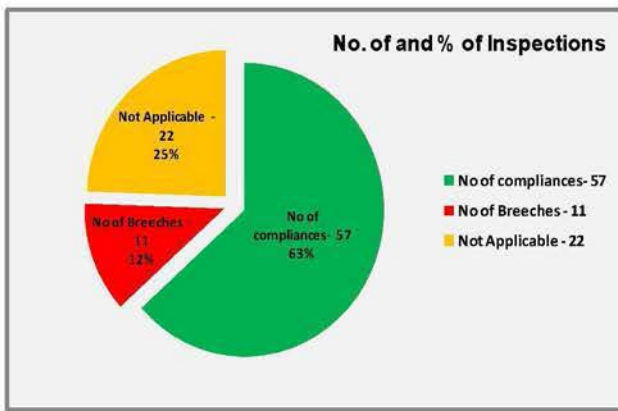
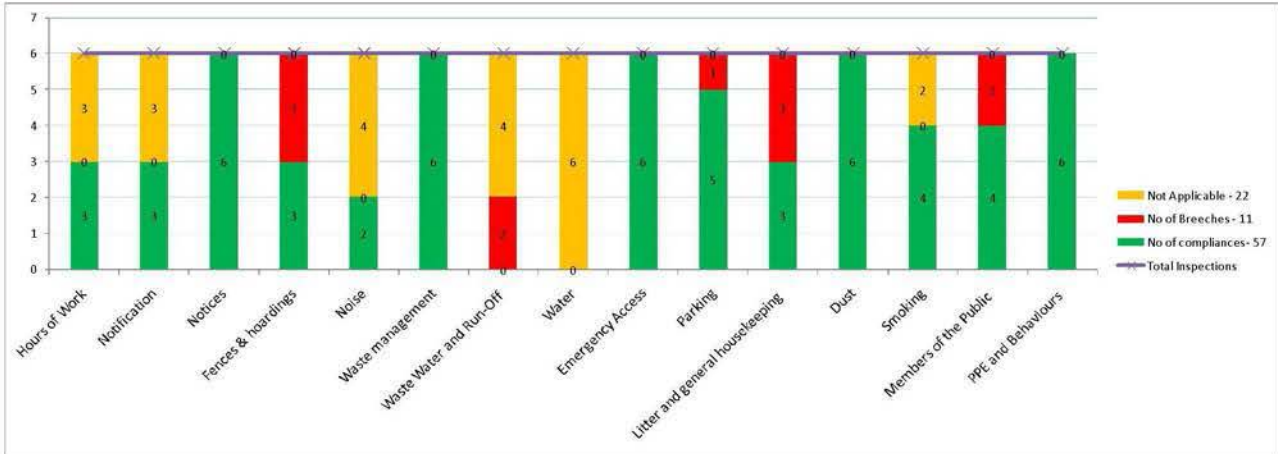


Date	Location	Detail	Contractor	Classification
09/01/13	St Andrew Sq	Small service cable struck by spade whilst moving paving slab at side of a traffic control cabinet.	McNicholas	Service damage
11/01/13	West Maitland Street/ Torphichen St Junction	Damage found to sheathing of low voltage cable. No injuries/other damage.	McNicholas	Service damage
11/01/13	Roseburn St	A site operative was removing loose material from the base of an excavation when he lost grip of the handle, the shovel swung round and hit an operative above the right eye.	Grahams	Injury
11/01/13	Section 21C Murrayfield	An operative was removing loose debris from back door of lorry when his hand slipped catching his middle finger above the knuckle	Grahams	Injury
15/01/13	West Maitland Street/Torphichen Street Junction	An old electrical cable was uncovered in the roadway. No injuries or affect on houses or businesses. Scottish Power contacted to attend.	McNicholas	Service damage
16/01/13	North St Andrew St/St Andrew Square	Spillage of diesel from welfare unit.	Siemens	Environmental
21/01/13	Easter Dalry Wynd	Noise complaint – non tram related.	-	Environmental
21/01/13	Shandwick Place	Employee of Glen Logistics trapped his hand between cage and traffic light pole.	Glen Logistics	Injury
21/01/13	Murrayfield	Tent blew over whilst being moved by operative, operative tripped but did not require treatment and returned to work.	Grahams	Injury
24/01/13	Eastfield Avenue	During a tram test run being carried out by CAF, supported by Edinburgh Trams at an Infracore CDM site, an unexpected manoeuvre by a car driver almost led to a tram / car collision. The Police attended site and recorded details.	Edinburgh Trams	Near miss / unsafe condition
24/01/13	Princes Street	Health and Safety Executive received a complaint from bus driver regarding safety concern over the positioning of a tower scaffold beside a running carriageway and the associated narrowness of the road within the tram works traffic management.	Siemens	Near miss / unsafe condition
25/01/13	York Place	Call received from CEC stating that TM was blown over and the was blocking the bus lane at York Place	Class one	Near miss / unsafe condition
26/01/13	St Andrew Square	Call received from CEC stating that TM was blown over and the was blocking access road in St. Andrew Square	Class one	Near miss / unsafe condition
27/01/13	Elder Street	Call received from CEC stating that TM was blocking lane at Elder St	Class one	Near miss / unsafe condition
28/01/13	Edinburgh Airport Tram Stop	Construction site fencing blown down.	Siemens	Near miss / unsafe condition
28/01/13	York Place	Diesel spillage	Crummock	Environmental

### APPENDIX B – COCP INSPECTIONS

#### COCP Inspections / Issues Period 10 (previous period)

CoCP compliance was recorded at 84% During Period 10



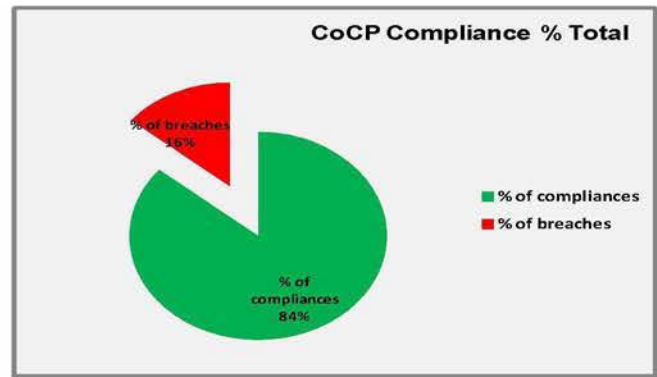
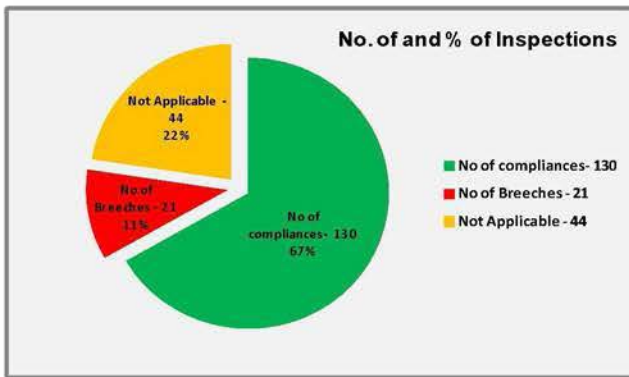
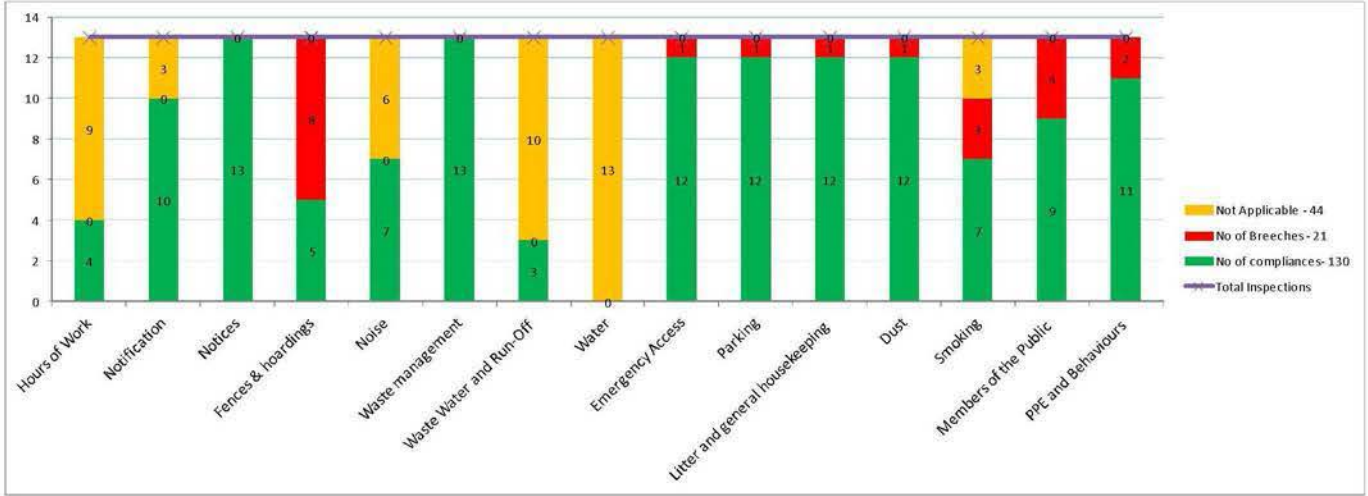
<input type="radio"/> Q1. Hours of Work	<input type="radio"/> Q9. Emergency Access
<input type="radio"/> Q2. Notification	<input type="radio"/> Q10. Parking
<input type="radio"/> Q3. Notices	<input type="radio"/> Q11. Litter and general housekeeping
<input type="radio"/> Q4. Fencing and Hoarding	<input type="radio"/> Q12. Dust
<input type="radio"/> Q5. Noise	<input type="radio"/> Q13. Smoking
<input type="radio"/> Q6. Waste Management	<input type="radio"/> Q14. Members of the Public
<input type="radio"/> Q7. Waste Water and Run-Off	<input type="radio"/> Q15. PPE and Behaviours
<input type="radio"/> Q8. Water	



## Project Report – Period 11

### COCP Inspections / Issues Period 11

CoCP compliance was recorded at 84% During Period 11



<input type="radio"/> Q1. Hours of Work	<input type="radio"/> Q9. Emergency Access
<input type="radio"/> Q2. Notification	<input type="radio"/> Q10. Parking
<input type="radio"/> Q3. Notices	<input type="radio"/> Q11. Litter and general housekeeping
<input type="radio"/> Q4. Fencing and Hoarding	<input type="radio"/> Q12. Dust
<input type="radio"/> Q5. Noise	<input type="radio"/> Q13. Smoking
<input type="radio"/> Q6. Waste Management	<input type="radio"/> Q14. Members of the Public
<input type="radio"/> Q7. Waste Water and Run-Off	<input type="radio"/> Q15. PPE and Behaviours
<input type="radio"/> Q8. Water	

### Summary of issues identified during Turner & Townsend CoCP inspections and action taken

Question No	Subject	Location	Contractor	Action taken or required to be taken by contractor	Date to rectify or rectified
4	Fencing & Hoarding	St Andrew St	Crummock	Limited access points remain in place, however these access points have one again become unsecured during working hours	Urgent  Inspected 03/01/13, 18/01/13, 24/01/13, 30/01/13
4	Fencing & Hoarding	Balgreen	Expanded	Expanded to arrange for a COSS and excavator with slew restrictor to remove water barriers and level ground area. Expanded to replace barriers on level ground and fill same with water to make more robust.	11/01/2013
4	Fencing & Hoarding	Balgreen Tram Stop	Land & Building Serv	Contractor to anchor fencing with sandbags or similar	31/01/2013
4	Fencing & Hoarding	Gyle	Coffey	Fencing in process of being removed on basis of risk assessment	31/01/2013
4	Fencing & Hoarding	Edinburgh Park Bridge	Coffey	Fencing to be re-erected and anchored.	30/01/2013
9	Emergency Access	St Andrew St	Crummock	While being maintained, tradesman on nearby projects and delivery vans have started to use as a parking area.	Currently being reviewed for enforcement
10	Parking	St Andrew St	Crummock	While being maintained, tradesman on nearby projects and delivery vans have started to use as a parking area.	Currently being reviewed for enforcement
11	Litter & General Housekeep	Edinburgh Park Bridge	Coffey	Coffey undertaking site clean up on completion of works.	01/02/2013
12	Dust	Cathedral Lane Substati	Crummock	Drilling operations for required piles has left a residue on parked cars. Fine green netting has not been trapping the dust. Works due to be completed 19/20 January 2013	20/01/2013
13	Smoking	St Andrew St	Crummock	Operatives from various sub contractors have been observed smoking on site other than in designated areas. Contractor required to address this situation rigorously.	Urgent  Inspected 18/1/13, 24/01/13 30/01/13
14	MOP	ScotRail Access Ramp	Graham	Contractor to arrange road sweeper to clean pedestrian walkway	25/01/2013
14	MOP	Various onsite locations	Crummock	A review of directional signage has shown lack of updating and incorrect information which the contractor has been advised to correct in conjunction with CEC	Currently being addressed  Inspected 24/01/13, 30/01/13
14	MOP	Gyle	Coffee	Cover left of chamber presented a tripping hazard on pavement. Cover temporarily protected with cone pending permanent repair	30/01/2013
15	PPE & Behaviours	Edinburgh Park Bridge	BAM	Unsafe practice working at height - activity temporarily stopped until safe methodology adopted.	30/01/2013
15	PPE & Behaviours	South Gyle Access	McNicholas (Diona)	2 operatives working beneath overhead works without a hat - hats obtained and used.	30/01/2013



# Deliver a Safe Tram



## Project Report – Period 11

### 1.0 Executive Summary

#### Executive Summary

- **Independent Competent Person** – Advice of Possible Non Compliance (ANC) 002 - Confirmation of ‘Duty Holder’ process to deliver Safety Verification remains open, Currently remains open pending resolution of TSA/12/03 – Section 1C Slips, Trips, Falls (Two wheel vehicles); this audit is currently being progressed to closure.
- **Requirements Management** –43% of requirements relating to Section A handover are now deemed ‘Compliance Confirmed’. The rise in the period is 4%. 9% of the total number of requirements are now deemed ‘compliance confirmed’ this is an increase of 2% since the last reporting period.
- **Evidence File** - IT are currently migrating the information from the old sharepoint system, this is expected to be complete by the End of February 2013.
- **Safety Verification Scheme Audits** –Safety Verification audit TSA/12/03 – Section 1C Slips, Trips, Falls (Two Wheel Vehicles) demonstration of drainage box cleaning arranged for the 21<sup>st</sup> February 2013.
- **Tram** - No Tram issues with respect to Safety Verification
- **Infrastructure** – Testing and Commissioning of Section B continued with no issues with respect to Safety Verification or technical assurance.

### 2.0 Safety Verification Scheme (SVS)

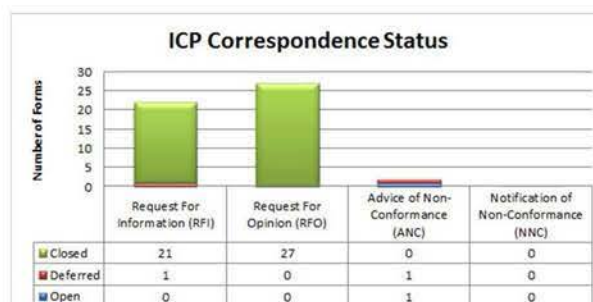
- Evidence File – IT are currently migrating the information from the old sharepoint system, this is expected to be complete by the End of February 2013.
- Safety Verification Audit (SV) Audit TSA/12/03 – Section 1C - Slips, Trips, Falls (2 Wheel Vehicles); a site inspection was carried out at Princes Street 13/12/12 in order to address outstanding queries. A formal report is to be compiled. A demonstration of the Drainage Box cleaning has been arranged for the 21<sup>st</sup> February 2013.
- SVS Audit TSA/12/01 – Audit progressing to closure.
- Review of SVS Audits, including development of new schedule to take place during period 12.
- The SV function is now being managed by Edinburgh Trams.

### 3.0 Independent Competent Person

#### ICP Issues

- A PSCC meeting took place on the 24<sup>th</sup> January, the meeting was chaired by Turner & Townsend, the next PSCC meeting is scheduled for the 20<sup>th</sup> February 2013.
- It was gared with the ICP that the PSCC meeting will be discontinued and be replaced with the ICP liaison meeting. The terms of reference for this meeting will be set out in the revised Safety Verification Scheme document.
- Advice of Possible Non Compliance (ANC) 002 – (Due to cancellation of Safety Verification (SV) audits SVS Audit TSA/12/03 and Infraco to support the current format) – remains open.
- No new ICP correspondance were raised during the reporting period.

ICP Correspondence	Open	Deferred	Closed	Total
Request For Information (RFI)	0	1	21	22
Request For Opinion (RFO)	0	0	27	27
Advice of Non-Conformance (ANC)	1	1	0	2
Notification of Non-Conformance (NNC)	0	0	0	0



### 4.0 BBS Design Construction and Testing & Commissioning Safety Verification

#### Design

##### Electromagnetic Compatibility (EMC)

- B&S System Integration Test (SIT) Procedure - Overall Magnetic and Radiated Emissions (IO 1.0) has been reviewed and returned with review level A: No objection.
- B&S stated that results for Rail Conductance for Princes St do not meet the contract criteria of being five times better than standard. B&S will produce a rationale in support of a concession to this requirement. A follow up meeting was held week commencing 22<sup>nd</sup> October 2012. It is expected that the results for Princes Street will not reach the contract levels and so B&S are likely to seek a concession. It is not expected that the measured values will pose a significant risk for accelerated corrosion to buried metallic infrastructure; however the independent stray current expert will have to accept B&S argument. This is still ongoing, submission awaited from B&S. B&S have been asked for and update on this.
- B&S Correspondence ETN(BBS)CEC&TEE&ABC#060100 SIT Procedure - Immunisation Measurements (10 2.0) - A meeting was held with NWR to discuss the above submission. Key actions arising were:
  - NWR to familiarise themselves with the documents due to the significant time lapse since the matter was last discussed with them.
  - B&S are to provide a schedule including dates when the tests are required.

##### Trackform

- A meeting is arranged with TSS on the 4<sup>th</sup> February to resolve the outstanding track issues and to determine any safety critical items. .

#### Testing & Commissioning

- ET are now coordinating the Testing and Commissioning, excluding trams
- There are no safety verification matters with respect to the trams.
- The Tram Inspector is currently reviewing the Requirements Management matrix and will revert with comments.

##### Infrastructure

- A status of the proposed tests is shown below:

No. TESTS TO COMPLETE	91
No. TESTS COMPLETE	53
No. TESTS OUTSTANDING THIS PERIOD	9