Transport Edinburgh
Trams for Edinburgh
Lothian Buses

Paper to : TPB

Subject : tie's Design Assurance & Review process

Date : 14 March 2007

TPB is requested to approve a recommendation for a change in process for design assurance & review. It is proposed so as to add value and focus and to support the project programme better by promoting "right first time" design and only reviewing critical design packages which are accompanied by design assurance information from the designer.

1.0 Background

1.1 TSS has reviewed virtually all design output from SDS since project inception. Initially, this was seen as being necessary because of the lack of tie technical/engineering expertise. The process prescribed review and comment on the majority of designs within 20 working days of receipt by tie/TSS. This arrangement had applied throughout the Preliminary Design stage. A TSS report issued in December 2006 indicated no fundamental problems with the Preliminary Designs at that point.

1.2 The 1Q07 change in Tram Project organisation included the key strategy of design "right first time". This is because SDS is contracted to produce designs competently - and SDS holds Professional Indemnity insurance of a type and level which supports their ability to do this. Hence the need for tie/TSS to review all designs has been re-examined to assess the value that process can add, given that SDS have been shown independently to be operating competently. Now that the project has moved to the Detailed Design phase there will be much greater programme pressure generated by the large volume of designs and the additional focus on producing designs that feed into the InfraCo build contracts.

1.3 This paper proposes a process whereby tie/TSS reviews only a carefully chosen number of critical design packages.

2.0 Progress to date

2.1 The two key elements of the proposed process, Design Assurance and the methodology for selection of the design packages for review have been defined.

2.2 Design Assurance & review consists of an independent review of not only a complete design package, but also of the associated information which allows reviewers to understand why a particular course of action has been chosen over others, why a design is fit for purpose, how the design is compliant with its various requirements, and how the design has been integrated with other system elements – the Design Assurance pack, produced by SDS. The lack of this information leaves reviewers unguided by this essential knowledge and so renders the process inefficient. The provision of this information is the equivalent of having the answer to the question "what was in your mind" from the designer and, at a stroke, avoids the present time-consuming interchange of formal question and answer between designer and reviewer.

2.3 The categories of design package and associated Design Assurance information for review are: any engineering issue which has significant technical (including safety), programme or commercial impact, any issue of critical importance to Stakeholders, and all prime system interfaces. A separate proportional audit programme will be instituted to review design quality outside these categories. In addition, SDS's Quality Management System will be audited to ensure that the actions therein required by this process are being managed appropriately. The critical engineering issues are managed by the Tram Project Engineering Director, through the weekly Engineering Meeting, which is attended by key staff from SDS, TSS, tie and TransDev. Appropriate regular underpinning liaison will continue to be held with all key stakeholders to ensure that their requirements are clearly understood and are incorporated in the completed design. In some cases this will require their involvement as part of design package review.

3.0 Current position

3.1 SDS have agreed with the definition of Design Assurance detailed in 2.2 above, and have agreed to provide the associated information with each design package to be reviewed. In any case, the production of this information is already required to fulfil SDS' Quality Management System. SDS staff will be fully briefed to ensure that the principles of this improved process are fully understood - especially that the designer has full responsibility for "right first time" design and that there will no longer be extensive downstream "checking" by independent organisations to find errors.

3.2 Adoption of this process also will allow faster resolution of critical engineering issues as they emerge. This is because of the reduction in volume of formal reviews being undertaken and the consequent improvement in time available.

4.0 Recommendation

4.1 TPB is asked to approve this change in process as described above, whereby SDS design is not 100% reviewed, but instead a risk-based sample of design output and its associated design assurance pack is reviewed on a package basis.

4.2 Following approval by TPB consultation will be held with SDS to reach agreement on the detailed arrangements required.

Proposed	David Crawley Engineering, Assurance and Approvals Director	Date: 16/03/07
Recommended	Matthew Crosse Project Director	Date: 16/03/07
Approved	……. …… Chairman, TPB	Date: