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transport initiatives edinburgh Limited
Tram Procurement Strategy
Progress Paper for Scottish Executive
June 2004

[redacted]

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transport initiatives edinburgh Limited
Tram Procurement Strategy

EXECUTIVE SUMMARY

Objectives

The procurement strategy is central to the success of the tram project. Considerable work has already been done and the purpose of this paper is to provide the Scottish Executive with an insight into the current thinking on some critical next steps.

The intention is to work with all relevant parties, especially City of Edinburgh Council ("CEC"), the Scottish Executive and Transdev, to develop the procurement strategy leading to an initial Outline ~~a robust b~~Business ~~C~~case as the basis for funding for the preparatory work to enable ~~from which~~ formal procurements to commence ~~can commence~~. It is anticipated that this position will be reached ~~by~~ in Summer~~Autumn~~ 2004 to stay in line with the programme and to provide a proper basis on which to explain the strategy in the context of parliamentary scrutiny.

The theme of the strategy is to ensure that risks are aggressively managed and in particular that ~~tie~~tie's stakeholders are not asked to commit to either contractual or financial obligations until each stage has been thoroughly analysed and approved. It is anticipated that this paper will be incorporated into the Outline Business Case ("OBC") to support the next stage of the procurement process in ~~autumn~~ Summer 2004. ~~important to note that, with one key exception, namely the early involvement of the operator,~~ nNo material commitment of new ~~funding is sought at this stage. As explained below, the commitment to the operator is for a very l~~[redacted]~~e to the scale of the project and the importance of the operat~~[redacted]

.

The stages in the procurement process are set out below.

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Early Operator Involvement

The Board of ~~tie~~tie, in consultation with CEC and the Scottish Executive, determined in Spring 2003 that the early involvement of the tram operator was an innovative and critical element of project risk management. ~~The principal reasons are:~~

~~Separation of the operator and system construction contracts achieves high quality risk disaggregation and consequent benefits to contract pricing~~

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~~Early involvement of the operator allows **tie** to use their knowledge in the design and construction periods and ensures two things: 1) the operator is fully bought-in to the design once operational and eliminates the risk of redefinition being introduced with attendant cost implications; and 2) The operator's knowledge will assist~~ in the detailed preparation of specifications for construction system~~keeping costs of construction down during the negotiation of the construction contracts.~~

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~~Early involvement also facilitates proper planning of~~ ~~service~~an integrated~~ion service network, especially with bus operations~~

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~~The operator contract allows for pain and gain sharing around target costs and revenues, providing further financial risk management~~

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The contract structure adopted by ~~tie~~tie is now under active assessment by a number of English authorities to resolve some of their execution problems. The recent NAO report pointed strongly to early operator involvement as a means of improving the execution of tram procurement and achieving a stable and affordable system.

~~The total costs of operator involvement will be c £2m in the current financial year, including cost invested to date, and will run at that level over the next 4 years until the system is mobilised. Development of the initial OBCproject business case will be met from funding already voted to the project. Although the desire is to have a long term successful relationship with Transdev, the contract agreed with Transdev is capable of being terminated by **tie** within short notice periods and without penalty. Hence underlying financial commitment is limited.~~

This is wholly separate from system construction commitments, which will be the subject of a separate set of contractual documents~~. to be negotiated over the coming months.~~ The costs [redacted] eaningfully evaluated at this stage but options relating to [redacted] ystem configurations willconfigurations will be presented with [redacted] ~~e summer 2004.~~

Infrastructure Procurement Options

~~**tie**~~**tie**'s Infrastructure Procurement Working Group ("IPWG") has now had a number of meetings. The initial aim of the Group has been to outline a structure(s) for the infrastructure procurement which could form the basis for market discussions, identifying specific areas where key choices will need to be made by ~~**tie**~~**tie** and on which market views will be of particular relevance.

Overall Aims

The ~~Working Group~~ IPWG discussions were conducted against the background of a group of~~the following~~ overriding aims ~~over~~for the project as whole relating to quality, integration with existing transport, control of risk and value for money. ~~ll aims of the preferred procurement strategy:~~

- ~~**Develop** a public transport tram system to complement the unique setting and character of the city;~~
- ~~**Establish** a high quality operating tram as an integrated part of the city's transport system;~~
- ~~**Develop** the tram service in a manner which contains the risks associated with the initial design and construction and the subsequent operation within limits that CEC and **tie** can manage;~~
- ~~**Structure** the development of the tram procurement to maximise the value of the funding committed by the Scottish Executive together with additional resources becoming available through the ITI;~~
- ~~**Deliver** overall project on time and in budget; and~~
- ~~**Maintain** competitive stress through the procurement by generating market interest.~~

The first stage was the formulation of a set of criteria, in the light of ~~the~~ scheme ~~above~~ objectives, which would be capable of setting the parameters for the choice of option(s). ~~The Group then sought to agree, in broad terms, on the relative importance of each of the criteria.~~

Criteria

The Group decided on eight key criteria and considered their relative importance in the consideration of the options:

1. **Risk** – in broad sense: the risk of the infrastructure failing to work, costing more to construct or taking longer to construct.
2. **Cost Certainty** – the relative importance of a degree of cost certainty on bulk of costs ahead of committing to main contract(s).
3. **Control** – are there areas of the infrastructure over which ~~**tie**~~**tie** or CEC need greater control – for commercial or other reasons (e.g. policy~~/~~ and planning).
- **Flexibility of contract** – the importance of being able to change scope – to add or subtract substantial elements.

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4.

5. **Flexibility of financing** – the importance of retaining all financing options e.g. 'conventional' (up front or milestone payment by ~~tie~~tie), private finance raised by InfraCo (PFI or PFI hybrid) or others (leasing).
6. **Demonstrable VFM** – any selected option must be capable of delivering clear value for money (VFM), but also should be able to *demonstrate* that the approach is likely to deliver.
7. **Market interest** – the likelihood that the option will prove attractive to the main private sector providers in the market.
8. **Deliverability** – the degree of confidence that chosen procurement route will be effective.

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Market Consultation

Both **market interest** and **deliverability** can only be properly assessed by discussion with potential bidders. For this reason, and given the scale and importance of the project, the ~~Procurement Working Group~~IPWG is strongly of the view that before committing to any procurement option, a structured discussion with key market players will be essential. The aim will be to hold such discussions in ~~the next month to inform the final version of the Procurement Strategy paper in June~~preparation of the OBC.

~~Importance of Key Criteria~~

~~The Procurement Working GroupIPWG views of the relative importance of the key criteria were as follows [shorten this – just summary only]:~~

9. ~~**Risk** – given **tie**'s own resources and experience (essentially a procuring body, rather than a major project management organisation) and the scale and complexity of the tram infrastructure scheme, the view was that **tie** should be seeking to transfer a significant majority of the major project risks to a private sector partner(s). In particular, keys risks to be transferred (at an appropriate price) should include majority of construction risks (cost/delays) and risk that system works (including integration). However, the Group also agreed that there was a willingness to retain elements of risk as an acceptable trade-off in order to:~~
   - ~~retain control over certain key elements (see below); and~~
   - ~~increase the likelihood of a deliverable, VFM contract for the bulk of the infrastructure.~~

10. ~~**Cost Certainty** – given the source of the majority of the funds for the project (Scottish Executive) and the potential difficulty in obtaining further funds once the project was approved and underway, the Group's view was that a degree of certainty of costs was important. Whilst this was not an immediate requirement, it would be a priority ahead of signing the largest contract (covering the bulk of construction).~~

11. ~~**Control** – the Group considered that there were four areas, over which the advantages of **tie** retaining a degree of control may outweigh the possible erosion of risk transfer. These areas are:~~

    - ~~**Choice of vehicles:** given the considerable consolidation within the tram supply market, allowing for a market response *inclusive* of tram supply will severely reduce the number of infrastructure tenderers and could compromise final selection, pricing and risk transfer. For this reason, the Group agreed that there was strong case for **tie** to separately develop a tram supply, commissioning, maintenance and spare parts supply contract. Key would be the timing of such a contract and arrangements to migrate into the main infrastructure contract.~~
    - ~~**Design:** given the particular sensitivity of sections of the line within the World Heritage centre and the known concerns of CEC's planning authority, the Group agreed that there was merit in considering a preliminary package of~~

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~~targeted design work ahead of the letting of any main infrastructure contract. The aim would be to assist with the development of designs that are likely to satisfy planning requirements, reducing risk and wasted design work and speeding up the overall timetable. Key would be determining an appropriate level of work that would prove most useful to potential bidders, without distorting overall costs, and without delaying the letting of a main infrastructure contract.~~

- ~~**Utility diversion:** time consuming and high risk element of the project. If **tie** were able to gain a greater level of certainty on requirements, this could assist both in accelerating the timetable (see below) and in reducing risk for main InfraCo contractor (with impact on deliverability and cost).~~
- ~~**System integration:** given the importance of systems integration, and similarly limited market, the Group considered that **tie** may wish to have greater control/visibility over this aspect of any consortium. Whether this required a separate initial contract (as with vehicles) is more open to question, given importance of transferring this risk to bidders.~~

~~12. **Flexibility of contract** – the Group recognised the trade-offs between cost certainty and risk transfer and flexibility. Nevertheless, it was agreed that the preferred procurement option, as a minimum should be capable of delivering the network~~system ~~through a series of stages, via a single initial procurement. Defining the first, and most certain initial tranche would be essential (and would need to fit the affordability constraints) but as the most effective means of handling future integration issues, **tie** should retain the *option* of incorporating for subsequent tranches, and network~~system ~~expansion, subject to VFM, with the selected private sector partner.~~

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~~13. **Flexibility of financing** – the view was that it was important to maintain all financing options at this stage, in particular the option of private finance at the InfraCo level, via PFI or a PFI hybrid, given the potential for greater risk transfer and VFM, and the potential issues in relation to the profile of funding available from the Scottish Executive.~~

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~~14. **Demonstrable VFM** – the Group agreed on the importance of demonstrable VFM, given the high profile and scale of project (in context both of Scottish Executive and CEC best value obligations). Ideally, this could be most clearly demonstrated via a transparent and strong competition for the main contract. This in turn would require the Group to be satisfied on the likely market interest and deliverability (see below).~~

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~~15. **Market interest** – the Group view endorsed the importance of market soundings to test option(s) with private sector.~~

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~~16. **Deliverability** – the Group agreed that the preferred option needed to build on best practice and lessons learned from other projects without introducing unnecessary novelty. The key would again be the views of potential bidders through market testing.~~

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Options Considered

~~[suggest use summary table]~~A total of six distinct options were identified by the Procurement Working Group, and each in turn was tested against the parameters established through the key criteria:

1. **FULL CONSORTIUM OPTION** - Under this option, **tie** would conduct one procurement exercise and the successful consortium would deliver all design, infrastructure works, and tram vehicles. The consortium would also be responsible for systems integration. The form of contract could be based on a PFI/PPP model.

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2. **INFRASTRUCTURE AND INTEGRATOR CONSORTIUM OPTION** - Under this

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option, **tie** would conduct two procurement exercises. The first would be for the procurement of design, infrastructure works and systems integration. The second would be for the procurement of tram vehicles. Ultimately, the contract for tram vehicles would be novated to the infrastructure provider as part of the design, infrastructure and systems integration package of works. The form of contract could be based on a PFI/PPP model.

3. **INFRASTRUCTURE CONSORTIUM OPTION** - Under this option, **tie** would conduct three procurement exercises. The first would be for the procurement of design and infrastructure works. The second would be for the procurement of tram vehicles. The third would be for the procurement of a systems integrator. Ultimately, the contract for tram vehicles and the contract for a systems integrator would be novated to the infrastructure provider as part of the design and infrastructure package of works. The form of contract could be based on a PFI/PPP model.

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4. **"ARRANGED" JOINT VENTURE OPTION** - Under this option, **tie** would conduct separate procurement exercises to appoint an infrastructure provider, a systems integrator and a tram vehicles supplier. These parties would then be required by **tie** to form a joint venture which would be responsible for the delivery of the project. These parties would each provide risk-bearing equity.

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5. **INFRASTRUCTURE DEVELOPMENT PARTNER OPTION** - Under this option, **tie** would conduct one procurement exercise to appoint a private sector partner who would, under **tie** instruction, either procure contracts or be instructed to enter into contracts in relation to any advance works, the infrastructure works, system integration, design and the procurement of tram vehicles. The proposed contract would be in the form of a partnering agreement such as PPC 2000 or the NEC form of contract.

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6. **TRADITIONAL PROCUREMENT OPTION** - Under this option, **tie** itself would conduct separate procurement exercises in relation to design, infrastructure works, system integration and tram vehicles. **tie** would remain in contract with each of these parties. Various types of contract could be used such as the ICE or JCT conditions of contract.

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A summary of the Group's view of their fit with the key criteria is shown below.

Key Criteria	**Options**					
	1	**2**	**3**	**4**	**5**	**6**
Risk	√	√√	?	X	X	X
Cost Certainty	√√	√√	√	X	X	X
Control	X	√√	√	√	√	√
Flexibility of Contract	√	√	√	√√	√√	√√
Flexibility of Financing	√	√	√	X	X	X
Demonstrable VfM	?	√	√	X	X	?

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Key Criteria	**Options**					
	1	**2**	**3**	**4**	**5**	**6**
Market Interest*	?	√	?	?	√	√
Deliverability*	?	√	?	?	√	√

* To be discussed with market

Key: √√ = **Very good fit**
√ = **Good fit**
X = **Poor fit**
? = **Uncertain – may need to be tested**

~~[Insert summary table from PUK and consider deletion of text – possibly insert below list]~~

1. ~~**Full Consortia Option** – comprising infrastructure, system integration and tram procurement (excluding operator) and including all design and advance works.~~

   ~~Assessment: Potentially provides for maximum risk transfer, cost certainty and flexibility of financing. However, **tie** would lose control of the key areas highlighted as important (vehicles, design, utility diversion and system integration). Also certain doubts about market appetite (even with separate operator contract) impacting on deliverability and VFM (especially given NAO observations on approach as used on previous schemes). FIT: ELEMENTS OF MATCH WITH PARAMETERS~~

2. ~~**Infrastructure and Integrator Consortium Option** – separate procurement of vehicles – ultimately leading to novation of the vehicle contract into a single consortium responsible for all elements of the infrastructure. Element of initial design and advance utility work possible, but with risks then transferred to consortium.~~

   ~~Assessment: Potentially provides for maximum risk transfer (assuming successful novation of vehicle contract and transfer of designs), cost certainty and flexibility of financing. Would allow **tie** to retain control of choice of vehicle (and to take advice of DPOF operator) and to advance design work for sensitive sections of the lines. However, **tie** would not control choice of system integrator. Opportunity for advance design and utility diversion work should increase market appeal and addresses certain NAO observations, but market consultations to confirm. FIT: POTENTIALLY VERY GOOD MATCH WITH PARAMETERS~~

3. ~~**Infrastructure Consortium Option** – separate procurement of vehicles and additional control over system integration function – ultimately leading to novation of contracts into a single consortium.~~

   ~~Assessment: As Option 2. However, given importance of system integration to delivery, **tie** choice of system integrator potentially erodes risk transfer possible in main contract. FIT: POTENTIALLY GOOD MATCH WITH PARAMETERS~~

4. ~~**'Arranged' Joint Venture Option** – seek procurement of a JV entity between vehicle supplier and infrastructure consortium – each providing risk-bearing equity.~~

   ~~Assessment: Would create flexibility on scope. But JV with equity puts a limit on possible risk transfer, increasing cost uncertainty. PFI financing not possible. Route also untested in light rail sector, raising doubts over market appetite, deliverability and VFM. FIT: POOR MATCH WITH PARAMETERS~~

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~~5. **Infrastructure Development Partner Option** – incremental approach, based on open book/target costs adopting partnering approach to procurement.~~

~~Assessment: Would provide a great deal of control and maximum flexibility. However, much reduced risk transfer, no certainty of costs up front. More difficult to demonstrate VFM (loss of competition) and PFI financing not possible. FIT: ELEMENTS OF GOOD FIT, BUT SIGNIFICANT ELEMENTS OF POOR FIT~~

~~6. **Traditional Procurement Option** – **tie** procures separate elements of system without single partner.~~

~~Assessment: Similar to Option 5 in terms of maximum control for **tie** and maximum flexibility (but implies significant project management capability requirement). Minimal risk transfer, minimal cost certainty, and not suitable for PFI. FIT: ELEMENTS OF GOOD FIT, BUT SIGNIFICANT ELEMENTS OF POOR FIT~~

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On the basis of a comparison with the Group's assessment of the relative importance of the key criteria, the emerging current preferred procurement strategy is **Option 2: Infrastructure and Integrator Consortia (InfraCo)**.

~~The emerging preferred procurement strategy will be discussed extensively by **tie** with CEC, the Scottish Executive and the DPOF operator partner, Transdev. In addition, targeted market testing will take place with a selection of constructors and funders during the next month, and their feedback will be factored in to the recommendation. Once the strategy is developed and approved, work will continue on the business case. When an outline business case is developed, the procurement process will commence formally.~~

Tram Project Funding Strategy

[Why is this in procurement paper? Isn't this more for Pat's OBC] The funding strategy is interlinked with the procurement strategy and the development of a robust business case.

Planned expenditure is presently disaggregated as follows:

1. Operator involvement and related consulting and management work;
2. System procurement execution;
3. Land acquisition;
4. Utility diversion; and
5. System construction (at this stage to include vehicle acquisition)

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Further disaggregation and possibly aggregation is under consideration.

Items 1-4 are described as Advance Costs, being costs which will require to be incurred prior to the commencement of the main tram construction period. This approach not only supports the programme timetable but also disaggregates the procurement process in an optimal manner. c90% of Advance Costs relate to utility diversion and land acquisition.

If it is necessary to minimise advance costs prior to Royal Assent this may cause a delay in commencement, depending on the Parliamentary timetable. This key issue is under active review.

For financial evaluation purposes, two cases are examined below:

~~1.~~ • Capital funding up-front to cover a) Advance Costs ; and b) System Construction (the "up-front" model)

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~~2.~~• Advance costs funded up-front, and system construction costs financed through a PFI (the "PFI" model)

~~The business case evaluation process is in the following stages:~~

~~1.Establish capital cost estimates and financial projections in 2003 prices – Bill Financial Statement – addressing the entirety of Lines One and Two;~~
~~2.Review the up-front model for affordability;~~
~~3.Address sources of funding;~~
~~4.Consider truncation and phased construction if necessary;~~
~~5.Prepare revised up-front model;~~
~~6.Address PFI option;~~
~~7.Compare PFI option to up-front model and assess VFM in context of risk;~~
~~8.Conclude on funding structure – up-front or PFI, or more likely a further variation; and~~
~~9.Deploy selected funding structure within procurement process.~~

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The modelling performed to date, has highlighted a substantial funding gap and this is being addressed. In order to fill the gap, a number of matters are under assessment – property development gains, land contributions, increased car parking revenues, advertising and commercial income. If these cannot square the circle, other sources will require to be found or system truncation executed.

The critical influencing factors include:

- Extent of grant award, assumed pegged at £375m with no indexation
- Availability of congestion charging (CC) funds and if so implications for preferred ~~network~~system
- Impact of EARL on Line Two economics

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The process of developing an affordable ~~network~~system within funding constraints is well-underway. It is important to note that two alternatives have already been fully assessed:

- Line One loop in its entirety with a capital cost of £243m at 2003 prices
- Line Two to Newbridge with a capital cost of £280m at 2003 prices

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Both of these solutions are therefore affordable within the £375m grant award. ~~**tie**~~tie has also started a preliminary view of an alternative ~~network~~system, which combines elements of Lines One ~~&~~and Two, but falls short of the full ~~network~~system. Next steps will include further truncation assessment and incorporation of Line Three into the assessment; and evolving a view on the effect of EARL. These are complex exercises ~~and~~ which ~~are unlikely to be fully formed for several months. The outcome will also require to be re~~will be reflected in the OBC and which may affect 1) ~~a decision on t~~the extent of powers sought within the Bills; and 2) communication ~~of changes~~ processes against a backdrop of the Public Inquiry and run-up to the Referendum. The newly-appointed ~~operator~~Operator will have a key role in supporting this process and they will inherit gain/pain sharing arrangements around the final agreed ~~network~~system.

It is clear that affordable system solutions are available. The work now is designed to ensure that the best value solution is defined and then executed.

~~**tie** and CEC have established an excellent working and contractual relationship with Transdev.~~

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transport initiatives edinburgh Limited
Tram Procurement Strategy

1. INTRODUCTION

transport initiatives **edinburgh** Limited (**~~tie~~tie**) have undertaken an assessment of the options available for the procurement of 'infrastructure', 'tram vehicle' and 'system integration' elements of t~~T~~ram ~~Network~~system.

The purpose of this paper is to identify the 'preferred' procurement strategy, having reviewed the relative strengths of all options that will allow us to meet the proposed delivery programme and achieve an operational system in 2009.

1.1. Objectives

The procurement strategy is central to the success of the tram project. Considerable work has already been done and the purpose of this paper is to provide the Scottish Executive with an insight into the current thinking on some critical next steps.

[The intention is to work with all relevant parties, especially City of Edinburgh Council ("CEC"), the Scottish Executive and Transdev, to develop the procurement strategy leading to an Outline Business Case as the basis for funding for the preparatory work to enable formal procurements to commence. It is anticipated that this position will be reached in Summer 2004 to stay in line with the programme and to provide a proper basis on which to explain the strategy in the context of parliamentary scrutiny.

*The theme of the strategy is to ensure that risks are aggressively managed and in particular that ~~tie~~**tie**'s stakeholders are not asked to commit to either contractual or financial obligations until each stage has been thoroughly analysed and approved. It is anticipated that this paper will be incorporated into the Outline Business Case ("OBC") to support the next stage of the procurement process in Summer 2004. ~~No material commitment of new funding is sought at this stage.~~*
~~See earlier comments]The intention is to work with all relevant parties, especially City of Edinburgh Council ("CEC"), the Scottish Executive and Transdev, to develop the procurement strategy leading to an Outline Business Case from which formal procurement can commence. It is anticipated that this position will be reached by Autumn 2004 to stay in line with the programme and to provide a proper basis on which to explain the strategy in the context of parliamentary scrutiny.~~
~~The intention is to work with all relevant parties, especially City of Edinburgh Council ("CEC"), the Scottish Executive and Transdev, to develop the procurement strategy leading to a robust business case from which formal procurement can commence. It is anticipated that this position will be reached by Autumn 2004 to stay in line with the programme and to provide a proper basis on which to explain the strategy in the context of parliamentary scrutiny.~~

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*~~The theme of the strategy is to ensure that risks are aggressively managed and in particular that **tie**'s stakeholders are not asked to commit to either contractual or financial obligations until each stage has been thoroughly analysed and approved. It is important to note that, with one key exception, namely the early involvement of the operator, no material commitment of new funding is sought at this stage. As explained below, the commitment to the operator is for a very limited sum of money, relative to the scale of the project and the importance of the operator relationship.~~*

1.2. Scope of Paper

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The paper comprises the following elements.

- Procurement Objectives;
- Lesson Learned;
- ~~Key Procurement Features~~
- Early Operator Procurement;
- Development Of Tram Procurement Strategy;
- Procurement Options Available;
- Preferred Procurement Solution;
- ~~Funding Strategy~~
- ~~Procurement Programme~~
- ~~Infrastructure Procurement~~
- ~~Public Utilities Diversion Procurement~~
- ~~Tram Vehicle Procurement~~
- ~~System Integration Procurement~~
- Market Interest;
- 3rd Party Agreements;
- Commissioning;
- Governance; and
- Funding Strategy.
- ~~Conclusions and Recommendations~~

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It is proposed that this paper will appraise the Scottish Executive regarding **~~tie~~tie**'s decision making regarding the identification of the preferred procurement route for the t~~T~~ram ~~Network~~system.

2. PROCUREMENT OBJECTIVES

CEC/~~**tie**~~**tie** have identified a number of 'overarching' ~~tram procurement~~ objectives for the tram project, as outlined below.

- **Develop** a public transport tram system to complement the unique setting and character of the city;
- **Establish** a high quality operating tram as an integrated part of the city's transport system;
- **Develop** the tram service in a manner which contains the risks associated with the initial design and construction and the subsequent operation within limits that CEC and ~~**tie**~~**tie** is best placed to manage;
- **Develop** the initial phases of the tram system in a manner that does not inhibit its further development;
- **Structure** the development of the tram procurement to maximise the value of the funding committed by the Scottish Executive together with additional resources becoming available through the ITI;
- **Minimise** the impact of the construction phase on the normal economic and cultural life of the city;
- **Deliver** overall project on time and in budget; and
- **Maintain** competitive stress through the procurement by generating market interest.

In the context of these objectives, **tietie** have also sought to draw on lessons learned from a number of previous projects. A number of these are clearly set out in the recent NAO report.

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3. LESSONS LEARNED

The National Audit Office (NAO) has recently published its report "***Improving public transport in England through light rail***". This report is a timely and comprehensive overview of the successes and failures experienced elsewhere in the UK in recent years. Although the report is mainly focussed on the role and responsibilities of the Department for Transport ("the Department"), it contains useful guidance for ~~**tie**~~tie and CEC. The principal lesson learned from previous projects is as follows.

- **Actively manage risk out**

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NAO identified a number of barriers to the successful future development of light rail systems in the UK and highlighted the issues which need to be addressed to overcome the barriers, which included the poor financial performance of existing schemes leading to higher risk-driven cost of new schemes, and recommended the following.

~~1.~~• **Better 'risk-sharing' and 'new' procurement contract structures that enhance private sector involvement**

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As a consequence, the NAO made a number of specific recommendations to the Department, which included the following procurement related issues.

~~2.~~• **Seek better standardisation** in design of systems, vehicles and methods of construction using experience from existing systems and partnering with promoters of other new schemes;

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~~3.~~• **Seek ways of managing risk** and reducing the costs of utility diversion including questioning the need for specific diversion; and

~~4.~~• **Identify the most cost-effective procurement methods** and contract structures as a means of controlling cost.

~~**[These 'recommendation' boxes look slightly odd throughout – suggest take out, and merely refer to fact that procurement strategy is designed to reflect NAO conclusions]**~~

~~**tie** recommends that the NAO report conclusions be adopted in full and that the proposed tram procurement strategy addresses the reported 'barriers to success' at an early stage.~~

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~~**tie**~~**tie** recommends that the NAO report conclusions be adopted in full and that the proposed tram procurement strategy addresses the reported 'barriers to success' at an early stage. ~~**tie**~~**tie**'s procurement strategy reflects NAO conclusions and recommendations.

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~~4. KEY PROCUREMENT FEATURES~~

~~**[This is an old list which is doing a similar job to the key 'criteria' in section 6. Suggest this list is better used later on as a generic description of the advantages of the preferred option e.g. around p23 etc.]tie** have reviewed and defined the key procurement features that are desired for the procurement of 'infrastructure', 'tram vehicle' and 'system integration' elements of tTram Network~~system, ~~as follows.~~

- ~~Certainty with regard to the delivery of a **quality** scheme;~~
- ~~Design continuity and planning approval process **control**;~~
- Flexibility for **expansion** of the networksystem;
- **Flexibility** of funding;
- ~~Maximisation of **risk transfer;**~~
- ~~Maximisation **economies of scale** in procurement;~~
- ~~Minimisation of **cost** volatility;~~
- Maximising **value for money;**
- Minimisation of **integration** risk;
- ~~Minimisation of **interfaces** through **tie**;~~
- ~~Selection of the **best supplier** for trams;~~
- ~~Structure procurement contracts with **in-built flexibility** consistent with **tie** options; and~~
- Transfer of **design and supply risk** of critical parties from **tie** to infrastructure ~~contractor (and Operator) – particularly tram supplier and the designer.~~

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~~5.~~4. EARLY OPERATOR PROCUREMENT

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~~[May be worth inserting a bit more general background on some of the problems with existing schemes – picking up on what NAO has subsequently said. DLA should have plenty of material on the stocks from papers when the DPOF route was being advocated. This material can also add to this section (making it longer than the bit in the Exec Summary]~~The Board of ~~**tie**~~**tie**, in consultation with CEC and the Scottish Executive, determined in Spring 2003 that the early involvement of the tram operator was an innovative and critical element of project risk management. The principal reasons are:

- ~~1.~~ Separation of the operator and system construction contracts achieves **high quality risk disaggregation** and consequent benefits to contract pricing
- ~~2.~~ Early involvement of the operator allows ~~**tie**~~**tie** to use their knowledge in the design and construction periods and ensures two things:
    - ~~a.~~1). The operator is **fully bought-in** to the design once operational and **eliminates the risk** of redefinition being introduced with attendant cost implications; and
    - ~~b.~~2). The operator's **knowledge** will assist in the detailed preparation of specifications for construction system~~assist keeping costs of construction down during the **negotiation** of the construction contracts~~.
- ~~3.~~ Early involvement also facilitates **proper planning** of ~~an integrated~~ service ~~network,~~integration especially with bus operations
- ~~4.~~ The operator contract allows for **'pain and gain' sharing** around target costs and revenues, providing further financial risk management

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The contract structure adopted by ~~**tie**~~**tie** is now under active assessment by a number of English authorities to resolve some of their procurement problems. The recent NAO report pointed strongly to early operator involvement as a means of improving the procurement of tram procurement and achieving a stable and affordable system.

The total costs of the professional advisory services by Transdev, the newly appointed operator, will be c £2m in the current financial year, including cost invested to date, and will run at that level over the next 4 years until the system is mobilised. Development of the project business case will be met from funding already voted to the project. Although the desire is to have a long term successful relationship with Transdev, the contract agreed with Transdev is capable of being terminated by ~~**tie**~~**tie** within short notice periods and without penalty. Hence underlying financial commitment is limited.

This is wholly separate from system construction commitments, which will be the subject of a separate set of contractual documents to be **negotiated** over the coming months. The costs of this process cannot be meaningfully evaluated at this stage but will be presented with a full rationale in the OBC.~~by late summer 2004 and submitted within an Outline Business Case for the Network.~~

~~6.~~5. DEVELOPMENT OF TRAM PROCUREMENT STRATEGY

The following is a summary of the results of the Infrastructure Procurement Working Group as reported in the Companion Paper – Preferred Procurement Strategy, dated April 2004.

~~6.1.~~5.1. Infrastructure Procurement Working Group

~~tie~~tie initiated the formation of an Infrastructure Procurement Working Group and orchestrated assessments of alternative structures for the procurement of 'infrastructure', 'tram vehicle' and 'system integration' elements of t~~T~~ram ~~Network~~system.

The membership of the Working Group comprises the following.

- **~~tie~~tie**;
- Partnerships UK – PPP Developer;
- DLA – Legal Advisors;
- Grant Thornton – Financial Advisors; and
- Mott MacDonald and Faber Maunsell – Technical Advisors.

The Working Group's collective experience of procurement was used to assess options over a number of detailed working meetings. This experience was additionally supplemented by Transdev, recently appointed for the Operator Contract.

The aims of the Group are to assess the alternatives and identify the preferred route for procurement which could form the basis for market discussions. It is intended these conclusions will be tested with the market through ~~an ongoing~~ a PIN process as the next stage.

~~6.2.~~5.2. Assessment Process

The Working Group undertook the assessment of options through ranking against eight key criteria, as detailed within the Procurement Strategy: InfraCo Contract Alternatives Paper, dated April 2004. The criteria selected by the Working Group comprised the following.~~[This can be expanded if you use the longer version in the paper I sent yesterday]~~

1. **Risk** – in broad sense: who takes the risk of infrastructure failing to work/ and costing more to construct/ and taking longer to construct? This type of risk can be transferred to an InfraCo partner under certain procurement options, but always at a price. As a general rule, the aim is therefore to transfer risk to those best placed to manage. Considerations in deciding upon the Group's view of risk included:
   - **tietie**'s own resources and expertise;
   - Timetable implications; and
   - Areas where **tie** may wish to maintain control for other reasons.

2. **Cost Certainty** – how important is it to have a degree of cost certainty on bulk of costs ahead of committing to main contract(/s)? Considerations in deciding Group view included:
   - Source of funding: how much certainty is required in advance on amounts required?
   - Defining scope: degree of certainty important in planning scope of different phases of infrastructure.

3. **Control** – are there areas of the infrastructure over which **tie** or CEC need greater control – for commercial or other reasons (e.g. policy/ and planning)? Considerations in deciding Group view included:
   - Fact that greater control will generally reduce the opportunity for risk transfer.

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4. **Flexibility of contract** – how important is it to be able to change scope – add or subtract substantial elements? Considerations included:
   - Generally, greater flexibility will reduce cost certainty;
   - Flexibility may also reduce the scope for risk transfer; and
   - Degree of flexibility may be constrained by procurement rules.

5. **Flexibility of financing** – how important is it to keep all financing options open e.g. 'conventional' (up front or milestone payment by **tietie**), private finance raised by InfraCo (PFI or PFI hybrid) or others (leasing)? Considerations included:
   - VFM – does opportunity for private finance allow for greater risk transfer and potentially better VFM; and
   - Profile of funding availability.

6. **Demonstrable VFM** – any selected option clearly must be capable of delivering VFM, but also necessary to be able to *demonstrate* that approach likely to deliver. Considerations included:
   - Value of competition for largest cost elements of infrastructure; and
   - Possible requirement for benchmarking/ and competitive sub-contract tendering.

7. **Market interest** – is a procurement option likely to prove attractive to the main private sector providers in the market? (This is linked to VFM, since determines likely strength of any competition.) Considerations included:
   - Familiarity of procurement route;
   - Balance of risks that private sector asked to take on;
   - Clarity on project and funding/ and political support; and
   - Market view of **tietie**'s own competence/ and expertise as procuring authority.

8. **Deliverability** – what is the degree of confidence that chosen procurement route will be effective? Consideration included:
   - Novelty of chosen option; and
   - Potential bidders' levels of comfort with selected option.

- ~~**Risk** – in broad sense: the risk of the infrastructure failing to work, costing more to construct or taking longer to construct.~~
- ~~**Cost Certainty** – the relative importance of a degree of cost certainty on bulk of costs ahead of committing to main contract(s).~~
- ~~**Control** – are there areas of the infrastructure over which **tie** or CEC need greater control – for commercial or other reasons (e.g. policy/planning).~~
- ~~**Flexibility of contract** – the importance of being able to change scope – to add or subtract substantial elements.~~
- ~~**Flexibility of financing** – the importance of retaining all financing options e.g. 'conventional' (up-front or milestone payment by **tie**), private finance raised by InfraCo (PFI or PFI hybrid) or others (leasing).~~
- ~~**Demonstrable VFM** – any selected option must be capable of delivering clear value for money (VFM), but also should be able to *demonstrate* that the approach is likely to deliver.~~
- ~~**Market interest** – the likelihood that the option will prove attractive to the main private sector providers in the market.~~
- ~~**Deliverability** – the degree of confidence that chosen procurement route will be effective.~~

Following discussion by the Working Group a broad assessment of the relative importance and influence of the key criteria was agreed.

~~Each option was scored against the criteria which the Working Group considered important in terms of project constraints and deliverables during the 'development phase' up to the letting of the major infrastructure delivery and equipment supply contracts.~~

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~~[Suggest remove reference to scoring – didn't really happen in a coherent way]~~

~~6.3.~~5.3. Importance of Criteria

The Working Group views of the relative importance of the key criteria were as follows.~~[again, thi scan be expanded slightly if you use the version in the paper I sent yesterday]~~

1. **Risk** – The general view, given **~~tie~~tie**'s own resources and experience (essentially a procuring body, rather than a major project management organisation) and the scale and complexity of the tram infrastructure scheme, was that we should be seeking to transfer a significant majority of the major project risks to a private sector partner(/s). In particular, keys risks to be transferred (at an appropriate price) should include majority of construction risks (cost~~/~~ and delays) and risk that system works (including integration). However, the Group also agreed that there was a willingness to retain elements of risk as an acceptable trade-off in order to:
   a. Retain **control** over certain key elements (see below); and
   b. Keep broadly within the overall timetable.

2. **Cost Certainty** – Given that the source of the majority of the funds for the project (Scottish Executive) and the potential difficulty in obtaining further funds once the project approved and underway, the Group's view was that a degree of certainty of costs was important. Whilst this was not an immediate requirement, it would be a priority ahead of signing the largest contract (covering the bulk of construction).

3. **Control** – The Group considered that there are at least three, and possibly four areas, over which the advantages of **~~tie~~tie** retaining a degree of control outweighed the possible erosion of risk transfer. These areas are:
   a). **Choice of vehicles:** Given the considerable consolidation within the tram supply market, allowing for a market response *inclusive* of tram supply will severely reduce the number of infrastructure tenderers and could compromise final selection, pricing and risk transfer. For this reason, the Group agreed that there was strong case for **~~tie~~tie** to separately develop a tram supply, commissioning, maintenance and spare parts supply contract. Key would be the timing of such a contract and arrangements to migrate into the main infrastructure contract.
   b). **Design:** Given the particular sensitivity of sections of the line within the World Heritage centre and the known concerns of the Council's planning authority, the Group agreed that there was merit in considering a preliminary package of targeted design work ahead of the letting of any main infrastructure contract. The aim would be to assist with the development of designs that are likely to satisfy planning requirements, reducing risk and wasted design work and speeding up the overall timetable. Key would be determining an appropriate level of work that would prove most useful to potential bidders, without distorting overall costs, and without delaying the letting of a main infrastructure contract.
   c). **Utility diversion:** Time consuming and high risk element of the project. If **~~tie~~tie** were able to gain a greater level of certainty on requirements, this could assist both in achieving the timetable and in reducing risk for main InfraCo contractor (with impact on deliverability and cost).
   d). **System integration:** Given the importance of systems integration, and similarly limited market, Group considered that **~~tie~~tie** may wish to have greater control~~/~~ and visibility over this aspect of any consortium. Whether this required a separate initial contract (as with vehicles) is more open to question, given importance of transferring this risk to bidders.

4. **Flexibility of contract** – The Group recognised the trade-offs between cost certainty and risk transfer and flexibility. Nevertheless, it was agreed that the preferred procurement option, as a minimum should be potentially capable of delivering the system through a series of stages, via a single initial procurement. Defining the first, and most certain initial tranche would be essential (and would need to fit the

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affordability constraints) but as the most effective means of handling future integration issues, **tietie** should attempt to retain the *option* of retaining the same private sector partner for subsequent tranches, and system expansion, subject to VFM.

5. **Flexibility of financing** – The view was that it was important to maintain all financing options at this stage, in particular the option of private finance at the InfraCo level, via PFI or a PFI hybrid, given the potential for greater risk transfer and VFM, and the potential issues in relation to the profile of funding available from the Scottish Executive.

6. **Demonstrable VFM** – The Group agreed on importance, given high profile and scale of project, in context both of Scottish Executive VFM and local authority best value obligations. Ideally, this could most clearly be demonstrated via a transparent and strong competition for the main contract. This in turn would require the Group to be satisfied on likely market interest and deliverability (see below).

7. **Market interest** – The Group view endorsed importance of market soundings to test option/(s) with private sector.

8. **Deliverability** – The Group agreed that **tietie** option needed to build on best practice and lessons learned from other projects without introducing unnecessary novelty. The key would again be the views of potential bidders through market testing.

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   - ~~Retain control over certain key elements (see below); and~~
   - ~~Increase the likelihood of a deliverable, VFM contract for the bulk of the infrastructure.~~

~~2. **Cost Certainty** – given the source of the majority of the funds for the project (Scottish Executive) and the potential difficulty in obtaining further funds once the project was approved and underway, the Group's view was that a degree of certainty of costs was important. Whilst this was not an immediate requirement, it would be a priority ahead of signing the largest contract (covering the bulk of construction).~~

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~~distorting overall costs, and without delaying the letting of a main infrastructure contract.~~

- ~~**Utility diversion:** time consuming and high risk element of the project. If **tie** were able to gain a greater level of certainty on requirements, this could assist both in accelerating the timetable (see below) and in reducing risk for main InfraCo contractor (with impact on deliverability and cost).~~
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6. ~~**Demonstrable VFM** – the Group agreed on the importance of demonstrable VFM, given the high profile and scale of project (in context both of Scottish Executive and CEC best value obligations). Ideally, this could be most clearly demonstrated via a transparent and strong competition for the main contract. This in turn would require the Group to be satisfied on the likely market interest and deliverability (see below).~~

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~~7.~~6. PROCUREMENT OPTIONS AVAILABLE

Having agreed on the relative importance of the key criteria, the ~~A total of six options have been identified by the~~ Infrastructure Procurement Working Group identified a group of potential procurement options for further analysis. ~~(Companion Paper – Preferred Procurement Strategy, dated 30 April 2004) that will allow construction and operation of a tTram networksystem in 2009 assuming that work can be undertaken in advance of Royal Assent, as follows.~~

1. **FULL CONSORTIUM OPTION** - Under this option, **tie** would conduct one procurement exercise and the successful consortium would deliver all design, infrastructure works, and tram vehicles. The consortium would also be responsible for systems integration. The form of contract could be based on a PFI/PPP model.

2. **INFRASTRUCTURE AND INTEGRATOR CONSORTIUM OPTION** - Under this option, **tie** would conduct two procurement exercises. The first would be for the procurement of design, infrastructure works and systems integration. The second would be for the procurement of tram vehicles. Ultimately, the contract for tram vehicles would be novated to the infrastructure provider as part of the design, infrastructure and systems integration package of works. The form of contract could be based on a PFI/PPP model.

3. **INFRASTRUCTURE CONSORTIUM OPTION** - Under this option, **tie** would conduct three procurement exercises. The first would be for the procurement of design and infrastructure works. The second would be for the procurement of tram vehicles. The third would be for the procurement of a systems integrator. Ultimately, the contract for tram vehicles and the contract for a systems integrator would be novated to the infrastructure provider as part of the design and infrastructure package of works. The form of contract could be based on a PFI/PPP model.

4. **"ARRANGED" JOINT VENTURE OPTION** - Under this option, **tie** would conduct separate procurement exercises to appoint an infrastructure provider, a systems integrator and a tram vehicles supplier. These parties would then be required by **tie** to form a joint venture which would be responsible for the delivery of the project. These parties could each provide risk-bearing equity.

5. **INFRASTRUCTURE DEVELOPMENT PARTNER OPTION** - Under this option, **tie** would conduct one procurement exercise to appoint a private sector partner who would, under **tie** instruction, either procure contracts or be instructed to enter into contracts in relation to any advance works, the infrastructure works, system integration, design and the procurement of tram vehicles. The proposed contract would be in the form of a partnering agreement such as PPC 2000 or the NEC form of contract.

6. **TRADITIONAL PROCUREMENT OPTION** - Under this option, **tie** itself would conduct separate procurement exercises in relation to design, infrastructure works, system integration and tram vehicles. **tie** would remain in contract with each of these parties. Various types of contract could be used such as the ICE or JCT conditions of contract.

~~[Could do with a slightly more detailed description of each of the options – this was just a summary. DLA should be able to help]~~Replace with DLA titles]

~~1.**Full Consortia Option** – comprising infrastructure, system integration and tram procurement (excluding operator);~~

~~2.**Infrastructure and Integrator Consortia Option** – separate procurement of vehicles – ultimately leading to novation of the vehicle contract into a single~~

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~~consortium responsible for all elements of infrastructure;~~

3. **~~Infrastructure Consortium Option~~** ~~– separate procurement of vehicles and additional control over system integration function – ultimately leading to novation of Contracts into a single consortium;~~

4. **~~'Arranged' Joint Venture Option~~** ~~– seek procurement of a JV entity between vehicle supplier and infrastructure consortium – each providing risk-bearing equity;~~

5. **~~Infrastructure Development Partner Option~~** ~~– incremental approach, based on open book/target costs adopting a partnering approach to procurement; and~~

6. **~~Traditional Procurement Option~~** ~~– **tie** procures separate elements of system without single partner.~~

~~A detailed assessment of the relative risk allocation has not been undertaken at this stage[Don't think we can get away with this in the full paper: Do need to show at least in summary, the different risk profiles of the 6 options in terms of risks transferred to Infraco partner/retained by tie/shared]. Although, i~~It is generally highlighted that the options range from one end of the spectrum with option 1 (Full Consortia) maximising risk transfer to a minimum risk transfer at option 6 (Traditional Procurement). ~~**tie**~~tie will review the details of risk allocation within the business case for the preferred procurement option and demonstrate Value for Money against a public sector comparator (PSC) as envisaged by option 6.

It is recognised that the options directed at commencement of operations in 2009 are likely to require substantial expenditure prior to the provision of Royal Assent, which is anticipated in December 2005. ~~**tie**~~tie recognises that this is a key issue on which no decision has yet been taken. If necessary, ~~**tie**~~tie will recalibrate the timetable to minimise expenditure prior to Royal A~~a~~ssent.

~~7.1.~~6.1. Appraisal of Options

The six options identified by the Working Group, have been tested against the parameters established through the key criteria:

1. **Full Consortia Option** – comprising infrastructure, system integration and tram procurement (excluding operator) and including all design and advance works.

   Assessment: Potentially provides for maximum risk transfer, cost certainty and flexibility of financing. However, ~~**tie**~~tie would lose control of the key areas highlighted as important (vehicles, design, utility diversion and system integration). Also certain doubts about market appetite (even with separate operator contract) impacting on deliverability and VFM (especially given NAO observations on approach as used on previous schemes). FIT: ELEMENTS OF MATCH WITH PARAMETERS

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2. **Infrastructure and Integrator Consortium Option** – separate procurement of vehicles – ultimately leading to novation of the vehicle contract into a single consortium responsible for all elements of the infrastructure. Element of initial design and advance utility work possible, but with risks then transferred to consortium.

   Assessment: Potentially provides for maximum risk transfer (assuming successful novation of vehicle contract and transfer of designs), cost certainty and flexibility of financing. Would allow ~~tie~~tie to retain control of choice of vehicle (and to take advice of DPOF operator) and to advance design work for sensitive sections of the lines. However, tietie would not control choice of system integrator. Opportunity for advance design and utility diversion work should increase market appeal and addresses certain NAO observations, but market consultations to confirm. FIT: POTENTIALLY VERY GOOD MATCH WITH PARAMETERS

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3. **Infrastructure Consortium Option** – separate procurement of vehicles and additional control over system integration function – ultimately leading to novation of contracts into a single consortium.

   Assessment: As Option 2. However, given importance of system integration to delivery, tietie choice of system integrator potentially erodes risk transfer possible in main contract. FIT: POTENTIALLY GOOD MATCH WITH PARAMETERS

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4. **'Arranged' Joint Venture Option** – seek procurement of a JV entity between vehicle supplier and infrastructure consortium – each providing risk-bearing equity.

   Assessment: Would create flexibility on scope. But JV with equity puts a limit on possible risk transfer, increasing cost uncertainty. PFI financing not possible. Route also untested in light rail sector, raising doubts over market appetite, deliverability and VFM. FIT: POOR MATCH WITH PARAMETERS

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5. **Infrastructure Development Partner Option** – incremental approach, based on open book/ and target costs adopting partnering approach to procurement.

   Assessment: Would provide a great deal of control and maximum flexibility. However, much reduced risk transfer, no certainty of costs up front. More difficult to demonstrate VFM (loss of competition) and PFI financing not possible. FIT: ELEMENTS OF GOOD FIT, BUT SIGNIFICANT ELEMENTS OF POOR FIT

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6. **Traditional Procurement Option** – ~~tie~~tie procures separate elements of system without single partner.

   Assessment: Similar to Option 5 in terms of maximum control for ~~tie~~tie and maximum flexibility (but implies significant project management capability requirement). Minimal risk transfer, minimal cost certainty, and not suitable for PFI. FIT: ELEMENTS OF GOOD FIT, BUT SIGNIFICANT ELEMENTS OF POOR FIT

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A summary of the Group's view of their fit with the key criteria is shown below.

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Key Criteria	Options					
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Key Criteria	Options					
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Risk	√	√√	?	X	X	X
Cost Certainty	√√	√√	√	X	X	X
Control	X	√√	√	√	√	√
Flexibility of Contract	√	√	√	√√	√√	√√
Flexibility of Financing	√	√	√	X	X	X
Demonstrable VfM	?	√	√	X	X	?
Market Interest*	?	√	?	?	√	√
Deliverability*	?	√	?	?	√	√

* To be discussed with market

Key: √√ = **Very good fit**
√ = **Good fit**
X = **Poor fit**
? = **Uncertain – may need to be tested**

~~[Insert summary table as used for Exec Summary]~~

On the basis of a comparison with the Group's assessment of the relative importance of the key criteria, the emerging current preferred procurement strategy is **Option 2: Infrastructure and Integrator Consortia (InfraCo)**.

The emerging preferred procurement strategy will be discussed extensively by ~~tie~~tie with CEC, the Executive and the DPOF operator partner, Transdev. In addition, targeted market testing will take place with a selection of constructors and funders in due course.~~during the next month, and their feedback will be factored in to the recommendation. Once the strategy is developed and approved, work will continue on the business case. When an outline business case is developed, the procurement process will commence formally.~~ ~~[see earlier comments re: possible confusion on 'OBC']~~

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~~8.~~7. PREFERRED PROCUREMENT SOLUTION

The following Section outlines the basis of the selection of the preferred procurement route, observed benefits in terms of risk transfer and identifies the key workstreams generated as a consequence that need to be managed by ~~tie~~**tie**.

~~8.1.~~7.1. Basis of Selection

The following option has been identified as the preferred procurement option for the ~~T~~tram ~~Network~~system, by the Infrastructure Procurement Working Group. ~~[check description]~~

2. **INFRASTRUCTURE AND INTEGRATOR CONSORTIUM OPTION** - Under this option, **tie** would conduct two procurement exercises. The first would be for the procurement of design, infrastructure works and systems integration. The second would be for the procurement of tram vehicles. Ultimately, the contract for tram vehicles would be novated to the infrastructure provider as part of the design, infrastructure and systems integration package of works. The form of contract could be based on a PFI/PPP model.

2. ~~**Infrastructure and Integrator Consortia Option** – separate procurement of vehicles – ultimately leading to novation of the vehicle contract into a single consortium responsible for all elements of infrastructure;~~

The Working Group recommended the adoption of the above route on the basis of an assessment against constraints and key criteria. It is considered that this option will best meet CEC/~~tie~~**tie**'s procurement objectives and has flexible features that will be beneficial to the scheme. In addition, this procurement route will allow the following.

- Allow early commencement of works;
- Facilitate greater control by CEC/~~tie~~**tie**;
- Lend itself to long term funding solutions; and
- Provide the best balance of cost control, risk transfer, flexibility and delivery to programme.

~~8.2.~~7.2. Risk Transfer

~~A detailed assessment of the relative risk allocation has not been undertaken at this stage. [Can't get away with this – need to set out Risk Matrix – what transferred/what retained/what shared etc.]~~An assessment of the relative risk allocation has been undertaken and summarised in **Appendix A**, for the different risk profiles of the above procurement options in terms of risks transferred to the InfraCo partner, retained by **tie** or shared. ~~However, T~~The following principal risk areas are considered to be significantly reduced by the adoption of preferred procurement solution.

- Design risks;
- Construction and development risks;
- Technology and obsolescence risks;
- Control risks;
- Planning (Cost and Approval) risks; and
- Land risks.

The following risks appear to be unaffected by the procurement route and will be actively managed by ~~tie~~**tie**.

- Performance risks;
- Termination risks; and

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- Residual value risks.

7.3. Infrastructure Procurement

Following on from selection of the proposed preferred procurement option, it is recommended that the scope of the contract be 'maximised' to include the full development of the tram system.

This will result in definitive timescales to achieve relevant approvals and enabling legislation.

tie will seek to reduce scope uncertainty in tram system contracts by developing contract documentation to a detailed level and by transferring the liabilities of relevant key sub-contractors into the infrastructure contractor's team at contract award.

A framework pricing structure is to be developed which will allow for separable portions within lines as well as for the lines themselves. This will minimise time and process risks associated with tendering before Royal Assent.

tie recommend that the contract will be structured in such a way as to allow for **tie** to maintain options on expansion of the system over a timeframe of up to July 2007, and subject to funding and agreement with InfraCo, allow a framework option to include the construction of Line Three.

Payments should be regulated with milestones approved by an independent third party acting on behalf of all interested stakeholders (banks, lessor, Scottish Executive, CEC, Network Rail, **tie** et al). A condition regarding 'maximum' funding drawdown throughout the construction period will be agreed where appropriate to control interest arising.

Following the transference of the design team the final detailed design of the system will be integrated within a turnkey (design, construct and commission) contract for the full system.

Scope risk, particularly street works impacts will be reduced by obtaining critical planning approvals, to the maximum extent possible, prior to the award of the Infrastructure Provider contract. **tie** note that finalisation of the design requires accurate tram performance information and critical information on OHLE and ticketing systems.

Thereafter the responsibility for any other approvals outside of the critical planning approvals will be the responsibility of the infrastructure provider and not with **tie**.

It is anticipated therefore that during the bid process the contractors will be addressing the project at a greater level of detail with their proposed sub-contractors than has previously been the norm on other PFI contracts. This will reduce procurement risks and allow **tie** direct access to the selected key sub-contractors during the bidding process and avoid delay in committing to suppliers.

7.3.1. Key Issues

The most important aspects of the infrastructure contract are the manner in which the following issues are addressed:

- Programme to service commencement;
- Scope of contract and framework;
- Design and planning approvals;
- Utilities diversion;
- Vehicle procurement and maintenance;
- Systems Integration;

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- Market Interest;
- Third party interface agreements and approvals (e.g. Network Rail); and
- Commissioning of system.

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Risk premiums contained within the Infrastructure Provider contract will be minimised by establishing a **de-risked project "platform"** by addressing the areas of highest scope, cost and time risk before entering into a PFI delivery contract.

7.4. Public Utilities Diversion Procurement

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As highlighted in the recent NAO report on "*Improving public transport in England through light rail*", utilities bring the most significant pricing risk into the overall infrastructure procurement. The NAO recommends that "*adequate proposals to manage risk associated with the cost of diverting utilities*". It is recommended that the risks associated with utility diversion be eliminated to remove the areas of risk detailed below:

- Scope uncertainty;
- Location uncertainty; and
- Negotiation weakness of infrastructure provider – relative to CEC/**tietie**.

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The risks to **tietie** are minimised on both time and cost and will require a bespoke solution in Edinburgh involving:

- Agreements with utilities to address, through **tietie**, the minimisation of utility diversions;
- Assessment of the actual 'long-term' access risk of not diverting with the Operator;
- Dispute resolution involving **tietie**, Operator and utility;
- Diversion of **critical utilities** and Network Rail assets;
- Identification of 'long-lead' diversions with early diversion and direct contract engagement by **tietie**;
- Incentivisation to minimise cost below target maximum cost;
- Integrated services identification and section programming with 'partial' and 'limited' full street closure and associated **traffic management**;
- Limitation of utilities powers within the working envelope of the tram system (including OHLE);
- Single point of contact. Each utility to provide a dedicated Project Manager to facilitate utilities diversions;
- Street management working meetings involving CEC;
- Undertake **critical design**, operations and possessions (restriction of use) strategy for all utilities diversions to minimise diversion requirements; and
- Undertake **site investigation** activities to cover archaeological, geotechnical and environmental risks.

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tietie recommend the minimisation of utilities diversions through challenging the proposed engineering solutions and adopting an acceptable level of disruption risk arising from utilities issues with the full support of the Operator of the tram system.

The anticipated outcome is a **hybrid procurement** with **tietie** diverting 'long-lead' and 'critical' "within track/LOD" utilities. In order to achieve an operating tram system in 2009, a significant number of utilities diversions will require to be commenced prior to Royal Assent.

OHLE pole base diversions will be left to the contractor who can leave many utilities within pole base foundations with adequate protection (e.g. sleeving) but each foundation does require a specific design. This is a low level risk to **tietie** and the Operator.

It is noted that the locations of the pole bases may vary during the detailed design process and as a result this aspect of **diversions/ and protection** should be cost-effectively left within the scope of the infrastructure provider. This risk will be minimised by requiring the Infrastructure Provider to adopt the engineering design and planning approvals which **tietie** has obtained in critical areas. **tietie** anticipates that the Infrastructure Provider bidders will adopt and secure sub-contractor and specialist design input as a key part of the BAFO process.

7.5. Tram Vehicle Procurement

tietie's approach to Tram Vehicle Procurement is a direct response to lessons learned on other light rail projects, where selection and delivery have resulted in severe delays and commensurate cost increases. Separating out this key element from the main PFI and transferring into the successful bidder at contract award reduces the risk of downstream delays.

The general shrinking in the **Tram vehicle supply market** reduces the potential for InfraCo bidders to leaver an effective competitive advantage and will not be their core market.

It is therefore recommended that **tietie** manage the initial vehicle procurement directly, as follows:

- Development by **tietie** of a tram supply, commissioning, maintenance and spare parts supply contract;
- The contract should be developed with two separate parts:
  - 1). Tram procurement and commissioning; and
  - 2). Tram maintenance.
- Following preferred supplier selection the tram vehicle procurement and commissioning contract, detailed information will be transferred to the infrastructure bidders and used in BAFO stage to allow accurate bidder pricing and up to financial close;
- The Infrastructure Provider contract will thus address the issue of system integration and **EMC (electromagnetic compatibility)** issues and this will be a critical part of the bid; and
- The tram vehicle maintenance contract will be either through the infrastructure contractor, through the Operator (or directly with **tietie)** and is partially dependant upon the nature of any proposed tram leasing agreement and funding.

Each potential tram supplier will establish different supply chain characteristics to meet the tender requirements. Critically matters associated with alternative (cost effective) suppliers need to be addressed by **tietie,** as the ultimate owner of the system, during the tender process.

Different vehicles have different EMC issues and this matter needs to be addressed between bidding infrastructure contractor and systems integrators, preferred tram manufacturer, Network Rail, Operator and **tietie** in establishing the Infrastructure Provider agreement. To minimise slippage in this complex area **tietie** will engage an EMC **specialist engineering firm** under the engineering design team to specifically address the risks associated with this interface. The results of the tram/EMC analysis will be provided to the Infrastructure Provider bidders.

The matter of latent defects and extended warranty risks for the vehicle can be addressed through the above contract structure through a value for money review.

To obtain greater **volume discounts** and **continuity of supply**, an option for inclusion of the Line Three vehicles will be added to both the tram procurement, maintenance and

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any leasing agreements with a latest anticipated decision date of additional rolling stock requirements being July 2008. **tietie** will review progress in the definition of requirements during contract preparation.

7.6. System Integration Procurement

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The market for competent systems integrators is considered to be limited.

tietie recognises that in other completed UK tram projects the **systems integration role** has been significantly underestimated and under-managed. This has translated into significant time delays which have been magnified by not utilising existing systems engineering solutions and problems with integrating system and tram solutions. These solutions now exist but are the **intellectual property** of individual suppliers.

tietie recommends that systems integrators are, with contractor bidder agreement, restrained from entering exclusivity arrangements with bidders in the initial bidding phase. This constraint can be released during BAFO. This will allow bidders to have access to the limited systems integrator and supplier market.

tietie will weight its bidder selection process in favour of **proven systems** with associated technology improvements.

The **tietie** design team will require access to all alternative systems integration solutions prior to selection, with the preferred bidder, of the best solution for Lines One and Two and allowing for **optional system expansion** into Line Three.

By **tietie** preparing Infrastructure Provider tender documents, having detailed the scope of the EMC (combined with accurate knowledge of Network Rail assets) and developing tram design through BAFO, the systems integration solution is expected to be priced competitively and competently.

Upon award, the InfraCo provider will thereafter be fully responsible for the systems integration risk.

A single Systems Integration contractor is a preferred step for **tietie** where the option to expand to include Line Three is not undertaken.

tietie will retain 'client support services' for contract administration purposes and will require to separately procure design services (to be assigned to InfraCo) to maintain a detailed understanding of its systems.

~~8.3.~~7.7. Key Work Streams ~~[This is a key section for Pat's OBC. Suggest it is moved to the end of the section defining our preferred strategy – it sets out what we would need to do next to get ready to procure, and key issue is how quickly SE allow us to do this]~~

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Development of the procurement strategy enabling service commencement in 2009 has been done alongside of programme ~~constraints~~[?]requirements. This does not affect the overall procurement route, but does accelerate the timetable of some aspects of the programme including the requirement for **tietie** to undertake certain key activities in advance of Royal Assent, as set out in the following Sections.

The following activities are designed to create a considerably lower 'risk platform' for the delivery of the operational system.

~~8.3.1.~~7.7.1. Design and Planning Activities

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- Develop a **Public Sector Comparator (PSC) model** for bid review;
- Develop all **agreements with third parties** (as outlined later in this paper);
- Develop **construction and traffic management strategy** for bidding process;
- Develop **finance strategy** and obtain indication of pricing;
- Develop full **performance specification;**
- Mobilise Transdev to provide **professional advisory services**, through DPOFA , during the Project Development phase from July 2004;
- Obtain **commitment** for abortive tender cost support;
- Review the potential benefits and determine the use of **emerging technologies** in tram, infrastructure and ticketing;
- Review the adequacy of current technical, financial, legal, property and insurance **advisor remits** and identify need to procure additional services;
- Undertake **application for planning** approvals in all critical areas;
- Undertake **critical area review** of DPOFA to minimise interface risks to ~~**tie**~~tie in Infrastructure Provider delivery, particularly at mobilisation and trial running phase and negotiate necessary changes in DPOFA;
- Undertake critical design, operations and possessions strategy for all **utilities diversions** to minimise diversion requirements;
- Undertake **design work** in critical areas to **consolidate planning** approvals process;
- Undertake temporary and permanent **traffic regulation orders** to facilitate construction strategy and input into Infrastructure Provider bid process.

~~8.3.2.~~7.7.2. Procurement Activities

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- Undertake **design team tender**, document preparation and action bids under two commissions – ~~**tie**~~tie continuity services and detailed design services;
- Undertake **tram tender** process, document preparation and action bids;
- Undertake **PFI tender** process, document preparation and action bids;
- Undertake **site investigation works** for accurate utilities mapping and input into diversion strategy;
- Engage a **specialist electromagnetic compatibility** ~~Electro Magnetic Current~~ (EMC) company;~~.~~
- Undertake **site investigation** activities to cover archaeological, geotechnical and environmental risks;
- Undertake ~~**Network**~~ **Network Rail asset investigation study** and prepare accurate engineering drawings for input into the detailed design process and ~~Network~~ Network Rail agreements; and
- Undertake **CPO and alternate land acquisition** processes defining any Infrastructure Provider land acquisition and compensation liabilities.

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~~**tie** recommends advance diversion of **critical utilities** and **asset confirmation surveys** to increase cost certainty and separate these 'high risk' elements out from the main contract in line with NAO recommendations.~~

~~**tie**~~tie recommends advance diversion of **critical utilities** and **asset confirmation surveys** to increase cost certainty and separate these 'high risk' elements out from the main contract in line with NAO recommendations.

~~9. FUNDING STRATEGY~~ [As before, sits oddly here. Do we want this in this paper? If so, maybe should be a separate annex or at the end, and should reflect the 3 affordable options approach that is being taken in Pat's 'OBC']

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~~The funding strategy is interlinked with the procurement strategy and the development of a robust business case.~~

~~Planned expenditure is presently **disaggregated** as follows:~~

~~1. Operator involvement and related consulting and management work;~~
~~2. System procurement execution;~~
~~3. Land acquisition;~~
~~4. Utility diversion; and~~
~~5. System construction (at this stage to include vehicle acquisition)~~

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~~Further disaggregation and possibly aggregation is under consideration.~~

~~Items 1-4 are described as **Advance Costs**, being costs which will require to be incurred prior to the commencement of the main tram construction period. This approach not only supports the programme timetable but also disaggregates the procurement process in an optimal manner. c90% of Advance Costs relate to **utility diversion** and **land acquisition**.~~

~~If it is necessary to **minimise advance costs** prior to Royal Assent this may cause a delay in commencement, depending on the Parliamentary timetable. This key issue is under active review.~~

~~For **financial evaluation** purposes, two cases are examined below:~~

- ~~Capital funding up-front to cover~~
  - ~~a). Advance Costs ; and~~
  - ~~b). System Construction (the "up-front" model)~~
- ~~Advance costs funded up-front, and system construction costs financed through a PFI (the "PFI" model)~~

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~~The **business case evaluation process** is in the following stages:~~

~~1. Establish capital cost estimates and financial projections in 2003 prices — Bill Financial Statement — addressing the entirety of Lines One and Two;~~
~~2. Review the up-front model for affordability;~~
~~3. Address sources of funding;~~
~~4. Consider truncation if necessary;~~
~~5. Prepare revised up-front model;~~
~~6. Address PFI option;~~
~~7. Compare PFI option to up-front model and assess VFM in context of risk;~~
~~8. Conclude on funding structure – up-front or PFI, or more likely a further variation; and~~
~~9. Deploy selected funding structure within procurement process.~~

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~~The modelling performed to date, has highlighted a substantial **funding gap** and this is being addressed. In order to fill the gap, a number of matters are under assessment — property development gains, land contributions, advertising and commercial income. If these cannot square the circle, other sources will require to be found or **system truncation** executed.~~

~~The critical influencing factors include:~~

- ~~Extent of grant award, assumed pegged at £375m with **no indexation**;~~
- ~~Availability of **congestion charging** (CC) funds and if so implications for preferred network~~system~~; and~~

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- ~~Impact of Edinburgh Airport Rail Link (**EARL**) on Line Two economics.~~

~~The process of developing an affordable network~~system within funding constraints is well-~~underway. It is important to note that two alternatives have already been fully assessed:~~

- ~~Line One loop in its entirety with a capital cost of £243m at 2003 prices~~
- ~~Line Two to Newbridge with a capital cost of £280m at 2003 prices~~

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~~Both of these solutions are therefore affordable within the £375m grant award. **tie** has also started a preliminary view of an alternative system, which combines elements of Lines One & Two, but falls short of the full system. Next steps will include further truncation assessment and incorporation of Line Three into the assessment; and evolving a view on the effect of EARL. These are complex exercises which will be reflected in the OBC and which may affect 1) the extent of powers sought within the Bills; and 2) communication processes against a backdrop of the Public Inquiry and run-up to the Referendum. The newly-appointed operator will have a key role in supporting this process and they will inherit gain/pain sharing arrangements around the final agreed system.~~
~~Both of these solutions are therefore affordable within the £375m grant award. **tie** has also started a **preliminary view** of an 'alternative' network, which combines elements of Lines One & Two, but falls short of the full network. Next steps will include further~~ **truncation assessment** and incorporation of **Line Three** into the assessment; and evolving a view on ~~the effect of EARL. These are complex exercises and are unlikely to be fully formed for several months. The outcome will also require to be reflected in 1) a decision on the extent of powers sought within the Bills; and 2) communication of changes against a backdrop of the Public Inquiry and run-up to the Referendum. The newly-appointed~~ **operator** ~~will have a key role in supporting this process and they will inherit gain/pain sharing arrangements around the final agreed network.~~

~~It is clear that affordable system solutions are available. The work now is designed to ensure that the **best value solution is defined** and then executed.~~

~~**tie** and CEC have established an excellent working and contractual relationship with Transdev.~~

10. Procurement Programme [Again isn't this for Pat's OBC where we present 3 alternative timetables?]

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The recommended option for Infrastructure Provider procurement is the use of a de-risked PFI integrated contract solution (**Infrastructure and Integrator Consortium Option** as defined in Section 7. of this paper) following the development of a platform to enable minimised scope change risks associated with planning approvals, utility diversions, NetworkNetwork Rail and continuity of design team.

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The key programme dates are as follows:

- Commence full procurement strategy having funding in place .... **July 2004**
- Submit Tram Outline Business Case .... **31 July 2004**
- Commence procurement of design, legal and financial advisors .... **August 2004**
- Commence tram vehicle procurement by OJEU .... **October 2004**
- Commence InfraCo procurement by OJEU .... **November 2004**
- Obtain Royal Assent to Line One and 2 Bills .... **December 2005**
- Close InfraCo contract with trams and design team .... **June 2006**
- Tram system partially open for public service .... **June 2009**
- Tram system fully open for public service .... **October 2009**
- Bus service integration changes made .... **December 2009**

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tie have developed detailed project plan of the workstreams to meet a mid 2009 partial operation, with full operation by October 2009. A critical task to facilitate the procurement of InfraCo and vehicle supply contracts will be to get the technical designers on board in early course.

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~~11. INFRASTRUCTURE PROCUREMENT~~ [these sections are relevant and should follow after 8.2 as 'Detailed description of preferred option]

~~Following on from selection of the proposed preferred procurement option, it is recommended that the scope of the contract be 'maximised' to include the full development of the~~ tTram systemNetwork.

~~This will result in definitive timescales to achieve relevant approvals and enabling legislation.~~

~~**tie** will seek to reduce scope uncertainty in~~ tTram Networksystem ~~contracts by developing contract documentation to a detailed level and by transferring the liabilities of relevant key sub-contractors into the infrastructure contractor's team at contract award.~~

~~A framework pricing structure is to be developed which will allow for separable portions within lines as well as for the lines themselves. This will minimise time and process risks associated with tendering before Royal Assent.~~

tietie recommend that the contract will be structured in such a way as to allow for **tietie** to maintain options on expansion of the Networksystem over a timeframe of up to July 2007, and subject to funding and agreement with InfraCo, allow a framework option to include the construction of Line Three.

~~Payments should be regulated with milestones approved by an independent third party acting on behalf of all interested stakeholders (banks, lessor, Scottish Executive, CEC,~~ NetworkNetwork ~~Rail, **tie** et al). A condition regarding 'maximum' funding drawdown throughout the construction period will be agreed where appropriate to control interest arising.~~

~~Following the transference of the design team the final detailed design of the system will be integrated within a turnkey (design, construct and commission) contract for the full system.~~

~~Scope risk, particularly street works impacts will be reduced by obtaining critical planning approvals, to the maximum extent possible, prior to the award of the Infrastructure Provider contract. **tie** note that finalisation of the design requires accurate tram performance information and critical information on OHLE and ticketing systems.~~

~~Thereafter the responsibility for any other approvals outside of the critical planning approvals will be the responsibility of the infrastructure provider and not with **tie**.~~

~~It is anticipated therefore that during the bid process the contractors will be addressing the project at a greater level of detail with their proposed sub-contractors than has previously been the norm on other PFI contracts. This will reduce procurement risks and allow **tie** direct access to the selected key sub-contractors during the bidding process and avoid delay in committing to suppliers.~~

~~11.1. Key Issues~~

~~The most important aspects of the infrastructure contract are the manner in which the following issues are addressed:~~

- ~~Programme to service commencement;~~
- ~~Scope of contract and framework;~~
- ~~Design and planning approvals;~~
- ~~Utilities diversion;~~
- ~~Vehicle procurement and maintenance;~~
- ~~Systems Integration;~~
- ~~Market Interest;~~
- ~~Third party interface agreements and approvals (e.g.~~ NetworkNetwork ~~Rail); and~~
- ~~Commissioning of system.~~

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~~Risk premiums contained within the Infrastructure Provider contract will be minimised by establishing a **de-risked project "platform"** by addressing the areas of highest scope, cost and time risk before entering into a PFI delivery contract.~~

~~12. PUBLIC UTILITIES DIVERSION PROCUREMENT~~

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~~As highlighted in the recent NAO report on "*Improving public transport in England through light rail*", utilities bring the most significant pricing risk into the overall infrastructure procurement. The NAO recommends that "*adequate proposals to manage risk associated with the cost of diverting utilities*". It is recommended that the risks associated with utility diversion be eliminated to remove the areas of risk detailed below:~~

- ~~Scope uncertainty;~~
- ~~Location uncertainty; and~~
- ~~Negotiation weakness of infrastructure provider – relative to CEC/**tie**.~~

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~~The risks to **tie** are minimised on both time and cost and will require a bespoke solution in Edinburgh involving:~~

- ~~Agreements with utilities to address, through **tie,** the minimisation of utility diversions;~~
- ~~Assessment of the actual 'long-term' access risk of not diverting with the Operator;~~
- ~~Dispute resolution involving **tie**, Operator and utility;~~
- ~~Diversion of **critical utilities** and Network Network Rail assets;~~
- ~~Identification of 'long-lead' diversions with early diversion and direct contract engagement by **tie**;~~
- ~~Incentivisation to minimise cost below target maximum cost;~~
- ~~Integrated services identification and section programming with 'partial' and 'limited' full street closure and associated **traffic management**;~~
- ~~Limitation of utilities powers within the working envelope of the tram system (including OHLE);~~
- ~~Single point of contact. Each utility to provide a dedicated Project Manager to facilitate utilities diversions;~~
- ~~Street management working meetings involving CEC;~~
- ~~Undertake **critical design**, operations and possessions (restriction of use) strategy for all utilities diversions to minimise diversion requirements; and~~
- ~~Undertake **site investigation** activities to cover archaeological, geotechnical and environmental risks.~~

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~~**tie**~~**tie** recommend the minimisation of utilities diversions through challenging the proposed engineering solutions and adopting an acceptable level of disruption risk arising from utilities issues with the full support of the Operator of the tram system.

~~The anticipated outcome is a **hybrid procurement** with **tie** diverting 'long-lead' and 'critical' "within track/LOD" utilities. In order to achieve an operating tram system in 2009, a significant number of utilities diversions will require to be commenced prior to Royal Assent.~~

~~OHLE pole base diversions will be left to the contractor who can leave many utilities within pole base foundations with adequate protection (e.g. sleeving) but each foundation does require a specific design. This is a low level risk to **tie** and the Operator.~~

~~It is noted that the locations of the pole bases may vary during the detailed design process and as a result this aspect of **diversions/protection** should be cost effectively left within the scope of the infrastructure provider. This risk will be minimised by requiring the Infrastructure Provider to adopt the engineering design and planning approvals which **tie** has obtained in critical areas. **tie** anticipates that the Infrastructure Provider bidders will adopt and secure sub-contractor and specialist design input as a key part of the BAFO process.~~

13. TRAM VEHICLE PROCUREMENT

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tie's approach to Tram Vehicle Procurement is a direct response to lessons learned on other light rail projects, where selection and delivery have resulted in severe delays and commensurate cost increases. Separating out this key element from the main PFI and transferring into the successful bidder at contract award reduces the risk of downstream delays.

The general shrinking in the **Tram vehicle supply market** reduces the potential for InfraCo bidders to leaver an effective competitive advantage and will not be their core market.

It is therefore recommended that **tie** manage the initial vehicle procurement directly, as follows:

- Development by **tie** of a tram supply, commissioning, maintenance and spare parts supply contract;

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- The contract should be developed with two separate parts:
  1). Tram procurement and commissioning; and
  2). Tram maintenance.
- Following preferred supplier selection the tram vehicle procurement and commissioning contract, detailed information will be transferred to the infrastructure bidders and used in BAFO stage to allow accurate bidder pricing and up to financial close;
- The Infrastructure Provider contract will thus address the issue of system integration and **EMC (electromagnetic compatibility)** issues and this will be a critical part of the bid; and
- The tram vehicle maintenance contract will be either through the infrastructure contractor, through the Operator (or directly with **tie**) and is partially dependant upon the nature of any proposed tram leasing agreement and funding.

Each potential tram supplier will establish different supply chain characteristics to meet the tender requirements. Critically matters associated with alternative (cost effective) suppliers need to be addressed by **tie,** as the ultimate owner of the system, during the tender process.

Different vehicles have different EMC issues and this matter needs to be addressed between bidding infrastructure contractor and systems integrators, preferred tram manufacturer, NetworkNetwork Rail, Operator and **tie** in establishing the Infrastructure Provider agreement. To minimise slippage in this complex area **tie** will engage an EMC **specialist engineering firm** under the engineering design team to specifically address the risks associated with this interface. The results of the tram/EMC analysis will be provided to the Infrastructure Provider bidders.

The matter of latent defects and extended warranty risks for the vehicle can be addressed through the above contract structure through a value for money review.

To obtain greater **volume discounts** and **continuity of supply**, an option for inclusion of the Line Three vehicles will be added to both the tram procurement, maintenance and any leasing agreements with a latest anticipated decision date of additional rolling stock requirements being July 2008. **tie** will review progress in the definition of requirements during contract preparation.

~~14. SYSTEM INTEGRATION PROCUREMENT~~

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~~The market for competent systems integrators is considered to be limited.~~

~~**tie** recognises that in other completed UK tram projects the **systems integration role** has been significantly underestimated and under-managed. This has translated into significant time delays which have been magnified by not utilising existing systems engineering solutions and problems with integrating system and tram solutions. These solutions now exist but are the **intellectual property** of individual suppliers.~~

~~**tie**~~**tie** recommends that systems integrators are, with contractor bidder agreement, restrained from entering exclusivity arrangements with bidders in the initial bidding phase. This constraint can be released during BAFO. This will allow bidders to have access to the limited systems integrator and supplier market.

~~**tie** will weight its bidder selection process in favour of **proven systems** with associated technology improvements.~~

~~The **tie** design team will require access to all alternative systems integration solutions prior to selection, with the preferred bidder, of the best solution for Lines One and Two and allowing for **optional system expansion** into Line Three.~~

~~By **tie** preparing Infrastructure Provider tender documents, having detailed the scope of the EMC (combined with accurate knowledge of Network~~ Network ~~Rail assets) and developing tram design through BAFO, the systems integration solution is expected to be priced competitively and competently.~~

~~Upon award, the InfraCo provider will thereafter be fully responsible for the systems integration risk.~~

~~A single Systems Integration contractor is a preferred step for **tie** where the option to expand to include Line Three is not undertaken.~~

~~**tie** will retain ‘client support services’ for contract administration purposes and will require to separately procure design services (to be assigned to InfraCo) to maintain a detailed understanding of its systems.~~

~~15.~~8. MARKET INTEREST

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Both **market interest** and **deliverability** can only be properly assessed by discussion with potential bidders. For this reason, and given the scale and importance of the project, the Procurement Working Group is strongly of the view that before finally committing to any procurement option, a structured discussion with key market players will be essential. The aim will be to hold such discussions as part of the next phase of work, to inform the preparation for the procurements.~~in the next month to inform the final version of the Procurement Strategy paper in June.~~

~~**tie**~~**tie** understands that there will be considerable demand from the construction industry to undertake the delivery of the light rail system. In addition, initial market soundings have been undertaken and concluded that the proposed strategy will be well received. The price will be a function of the risks transferred and the quantifiable (or otherwise) nature of the risks.

~~In order to complete the design of an infrastructure and equipment procurement strategy, **tie** recommends that market sounding takes place in **June 2004** in the same fashion as served the DPOFA procurement well. It is considered that the proposed contractual options can be appropriately 'tested' for private sector and funder reaction and can gain from the DPOF Operator's contribution post appointment.~~

The main questions which ~~**tie**~~**tie** would canvass in the consultation process address the following areas.

- Advance works for **public utilities** - responsibility for supervision and execution;
- Detailed design for **'high sensitivity' areas** on Lines One and Two - achieving design risk acceptance/transfer without adverse resource and cost implications;
- **Incremental construction** - potential for framework agreement;
- Market attitude towards **tendering prior to Royal Assent** (appetite, bid cost support);
- Operator - InfraCo **relationship** evolving from the DPOF Bid Offer - side letter;
- System **integration responsibility**;
- The separate procurement of **trams**, related timing aspects, future purchase options to increase fleet size, financing possibilities, technical issues arising from wheel-rail and vehicle signalling interface; Contractor attitude to **novation**; and
- Third party **interface agreements** - delegated functions as opposed to novation; ~~Network~~Network Rail standard protocols, GWA and Maintenance agreements.

Major risk areas need to be and have been constructively addressed in the recommended procurement strategy to achieve the procurement objectives outlined above. Initial soundings show that the industry is very supportive of the outlined approach as it provides a considered risk management approach by involving the party best able to manage the risk before appropriate transfer of risk. Major risk premi~~um~~a are not anticipated as a result of ~~**tie**~~**tie**'s approach to splitting out defined 'very high' risk components and addressing these as individual projects.

~~16.~~9. 3RD PARTY AGREEMENTS

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~~tie~~tie recognises the need to engage in productive dialogue to resolve issues with the key 3rd parties to remove potential conflicts. The importance of agreeing solutions will be paramount to the effectiveness of the overall deliverability and pivotal in securing a 'long term' sustainable t~~T~~ram ~~Network~~system.

At present the interfaces likely to be in place through **~~tie~~tie** are:

- **CEC** - Maintenance agreement – *street-works, track and drainage*
  - Traffic signals
  - Design manual
- **~~Network~~ Network Rail** - Enabling works agreement including investigation
  - Maintenance agreement
- **British Rail Property** - Land purchase and liability
- **TOC** - Station access agreement
  - Through ticketing agreements
- **Developers** - Section 75 agreements
- **Landowners** - Land acquisition
  - Construction and maintenance access agreements
- **Stat. Undertakers** - Stray current code of practice
  - Utilities diversions
  - Easements for access and possessions management
- **Bus Operators** - Ticketing systems, through ticketing, concessionary
  - Interchange agreements
  - Service agreements

This is not an exhaustive list, and the above agreements will be through **~~tie~~tie** but fulfilled by the InfraCo or separately transferred directly to the InfraCo under the recommended contract **Infrastructure and Integrator Consortium Option** (as detailed in Section 6~~7~~.) of this ~~report~~paper.

The requirements of the **~~tie~~tie** agreements with third parties should be discharged wherever possible through the infrastructure provider to avoid cost and time risks being taken by **~~tie~~tie**. This will be an important aspect of the negotiations with third parties.

~~17.~~10. COMMISSIONING

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The DPOFA allows for the services of the Operator to be provided throughout the project development phase and correctly sub-divides the stages of that process. However the current strategy imports considerable risk to ~~**tie**~~**tie** through **commissioning** through the interface between Operator, and Infrastructure Provider.

~~**tie**~~**tie** recommends and has discussed with its preferred Operator (Transdev) that the DPOFA mobilisation services be re-structured so as to provide that the Operator delivers services both to ~~**tie**~~**tie** and to the infrastructure provider through commissioning. This in effect means that the infrastructure provider is actually the first operator (albeit without passengers) of the system. They need to have all necessary drivers and controllers (who will be sub-contracted from the Operator) to enable testing and commissioning to be undertaken.

~~**tie** recommends and has discussed with its preferred Operator (Transdev) that the DPOFA mobilisation services be re-structured so as to provide that the Operator delivers services both to **tie** and to the infrastructure provider through comissioning. This in effect means that the infrastructure provider is actually the first operator (albeit without passengers) of the system. They need to have all necessary drivers and controllers (who will be sub-contracted from the Operator) to enable testing and commissioning to be undertaken.~~

The Operator therefore has two roles:

- To ~~**tie**~~**tie** for acceptance testing and safety related matters and
- To the Infrastructure Provider to make sure that resources are available to allow testing, commissioning and trial running up to the date for service introduction.

Both ~~**tie**~~**tie** and the Infrastructure Provider will be looking for capped costs and by adopting this strategy anticipates that cost over-runs to ~~**tie**~~**tie** will be minimised.

~~18.~~11. GOVERNANCE

~~tie~~**tie** will continue to ensure that the appropriate **governance controls** are applied to the next stages of the development of the t~~T~~ram ~~Network~~System. ~~tie~~**tie** have identified the principals of an emerging procurement strategy with details of the consequential planning~~/~~ and design, procurement and construction activities that will effectively **de-risk** the main infrastructure contract.

In order to manage the activities ~~tie~~**tie** will need to ensure that appropriate and robust controls are in place in order to execute the identified workstreams. These controls will cover the following principal areas.

- Cost;
- Programme;
- Quality; and
- Approvability.

~~tie~~**tie** will need to ensure that each of the key workstreams identified (including the following) have identified a workstream leader, resource requirements (dedicated and shared), programme and budget.

1. Design;
2. Infrastructure ~~&~~and Equipment – acquisition and maintenance, systems integration, funding;
3. Land acquisition;
4. Operator involvement under DPOF – system design, service integration;
5. Planning approvals;
6. Procurement planning and management (the TPSG);
7. Site investigation;
8. Utilities; and
9. Vehicles – acquisition and maintenance, possibly funding.

It is recommended that these workstreams are governed by a **Tram Procurement Steering Group (TPSG)** comprising the following membership.

- ~~tie~~**tie** (Finance Director, Projects Director, Project Manager and Operations Manager);
- Partnerships UK;
- Transdev; and
- Support from Technical, Legal, Financial and PR advisors.

The workstream **leaders** will be required to submit reports as necessary to the Tram Procurement Steering Group. It is considered that the ~~tie~~**tie** Projects Director would report progress and issues arising from the Tram Procurement Steering Group to the ~~tie~~**tie** Board. It is recommended that Projects Director would additionally regularly report on issues to CEC and Scottish Executive.

~~[Need to include reference to day-to-day~~ ~~R~~Responsibility for the ~~P~~project and day-to-day co-ordination of advisor inputs will be in hands of the new Project Manager -- a key appointment currently being progressed.~~]~~

11.1. Procurement Programme

The recommended option for Infrastructure Provider procurement is the use of a de-risked PFI integrated contract solution (**Infrastructure and Integrator Consortium Option** as defined in Section 6. of this paper) following the development of a platform to enable minimised scope change risks associated with planning approvals, utility diversions, Network Rail and continuity of design team.

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The key programme dates are as follows:

- Submit Tram Outline Business Case **3~~1~~0 July 2004**
- Commence procurement of design, legal and financial advisors **August 2004**
- Commence tram vehicle procurement by OJEU **October 2004**
- Commence InfraCo procurement by OJEU **November 2004**
- Obtain Royal Assent to Line One and ~~2~~ Two Bills **December 2005**
- Close InfraCo contract with trams and design team **June 2006**
- Tram system partially open for public service **June 2009**
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~~tie~~tie have developed detailed project plan of the workstreams to meet a mid 2009 partial operation, with full operation by October 2009, subject to funding availability. A critical task to facilitate the procurement of InfraCo and vehicle supply contracts will be to get the technical designers on board in early course.

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12. FUNDING STRATEGY

The funding strategy is interlinked with the procurement strategy and the development of a robust business case.

Planned expenditure is presently **disaggregated** as follows:

1. Operator involvement and related consulting and management work;
2. System procurement execution;
3. Land acquisition;
4. Utility diversion; and
5. System construction (at this stage to include vehicle acquisition)

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Further disaggregation and possibly aggregation is under consideration.

Items 1-4 are described as **Advance Costs**, being costs which will require to be incurred prior to the commencement of the main tram construction period. This approach not only supports the programme timetable but also disaggregates the procurement process in an optimal manner. c90% of Advance Costs relate to **utility diversion** and **land acquisition**.

If it is necessary to **minimise advance costs** prior to Royal Assent this may cause a delay in commencement, depending on the Parliamentary timetable. This key issue is under active review.

For **financial evaluation** purposes, two cases are examined below:

- Capital funding up-front to cover
  - a). Advance Costs ; and
  - b). System Construction (the "up-front" model)
- Advance costs funded up-front, and system construction costs financed through a PFI (the "PFI" model)

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The **business case evaluation process** is in the following stages:

1. Establish capital cost estimates and financial projections in 2003 prices – Bill Financial Statement – addressing the entirety of Lines One and Two;
2. Review the up-front model for affordability;
3. Address sources of funding;
4. Consider truncation if necessary;
5. Prepare revised up-front model;
6. Address PFI option;
7. Compare PFI option to up-front model and assess VFM in context of risk;
8. Conclude on funding structure – up-front or PFI, or more likely a further variation; and
9. Deploy selected funding structure within procurement process.

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The modelling performed to date, has highlighted a substantial **funding gap** and this is being addressed. In order to fill the gap, a number of matters are under assessment – property development gains, land contributions, advertising and commercial income. If these cannot square the circle, other sources will require to be found or **system truncation** executed.

The critical influencing factors include:

- Extent of grant award, assumed pegged at £375m with **no indexation**;
- Availability of **congestion charging** (CC) funds and if so implications for preferred system; and
- Impact of Edinburgh Airport Rail Link (**EARL**) on Line Two economics.

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The process of developing an affordable system within funding constraints is well-underway. It is important to note that two alternatives have already been fully assessed:

- Line One loop in its entirety with a capital cost of £243m at 2003 prices
- Line Two to Newbridge with a capital cost of £280m at 2003 prices

Both of these solutions are therefore affordable within the £375m grant award. **tie** has also started a preliminary view of an alternative system, which combines elements of Lines One and Two, but falls short of the full system. Next steps will include further truncation assessment and incorporation of Line Three into the assessment; and evolving a view on the effect of EARL. These are complex exercises which will be reflected in the OBC and which may affect 1) the extent of powers sought within the Bills; and 2) communication processes against a backdrop of the Public Inquiry and run-up to the Referendum. The newly-appointed operator will have a key role in supporting this process and they will inherit gain/pain sharing arrangements around the final agreed system.

It is clear that affordable system solutions are available. The work now is designed to ensure that the **best value solution is defined** and then executed.

12.1. Next Steps

The following next steps have been identified.

- Develop the **funding strategy** in conjunction with CEC and Scottish Executive for the proposed procurement approach;
- Review the options available for **minimising spend** in advance of Royal Assent;
- Confirm that **funding is available** to meet the desired delivery programme with trams operational in 2009;
- Address the **funding gap** with assessment of opportunities in property development gains, land contributions, advertising, commercial income and other sources;
- Develop a **robust Outline Business Case** for the Tram procurement with developed rationale by late summer 2004;
- Review the risks of 'early' or 'late' running of the **Parliamentary process** and its impact on the delivery programme and consequential cash-flows;
- Develop a 'best value' **alternative system solution** and include system truncation to address funding short-fall;
- Discuss **critical influencing factors** associated with indexation of grant, use of Congestion Charging revenue and influence of EARL on Line Two economics;
- Develop **individual procurement strategies** for tram vehicles, utility diversions, design development and land acquisition;
- Review **advisor remits** and need for procurement of technical, legal, financial, property and insurance advisors for the scheme; and
- Conduct contractor/ and funder **market testing** for the preferred route for procurement for the 'infrastructure', 'tram vehicle' and 'system integration' elements of tram system through a PIN process as the next stage.

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Appendix A
Procurement Options: Risk Allocation Comparison

~~19. CONCLUSIONS AND RECOMMENDATIONS~~

~~*The procurement strategy is central to the success of the tram project. Considerable work has already been done and the purpose of this paper is to provide the Scottish Executive with an insight into the current thinking on some critical next steps.*~~

~~*The intention is to work with all relevant parties, especially City of Edinburgh Council ("CEC"), the Executive and Transdev, to develop the procurement strategy leading to a robust business case from which formal procurement can commence. It is anticipated that this position will be reached in Autumn 2004 to stay in line with the programme and to provide a proper basis on which to explain the strategy in the context of parliamentary scrutiny.*~~

~~*The theme of the strategy is to ensure that risks are aggressively managed and in particular that **tie**'s stakeholders are not asked to commit to either contractual or financial obligations until each stage has been thoroughly analysed and approved. It is important to note that, with one key exception, namely the early involvement of the operator, no material commitment of new funding is sought at this stage. As explained below, the commitment to the operator is for a very limited sum of money, relative to the scale of the project and the importance of the operator relationship.*~~

~~19.1. Conclusions [This may be better used as part of Exec summary]~~

~~The following conclusions have been identified.~~

~~1. A **preferred route** for procurement for the 'infrastructure', 'tram vehicle' and 'system integration' elements of tTram Networksystem, which will best meet CEC/**tie**'s procurement objectives, has been identified by **tie**'s Infrastructure Procurement Working Group.~~
~~**2.** The preferred procurement route is an **Infrastructure and Integrator Consortia Option** with separate procurement of vehicles ultimately leading to novation of the vehicle contract into a single consortium responsible for all elements of infrastructure. This option has been selected due to the following.~~
~~a. Provides for **optimum risk transfer** (assuming successful novation of vehicle contract and transfer of designs), cost certainty and flexibility of financing;~~
~~b. Allows **tie** to retain control of **choice of vehicle** (and to take advice of DPOF operator) and to **advance design work** for sensitive sections of the lines;~~

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c. Opportunity for **advance design** and **utility diversion work** should increase market appeal and addresses certain NAO observations; and

d. Has a 'very good' **match** with overall scheme objectives, procurement features and selection criteria.

3. The proposed procurement strategy can be implemented **irrespective of financing strategy** and once agreed can allow for outline documentation preparation to commence.

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4. The Operator for the **DPOF Contract** has input to the development of the proposed InfraCo procurement route and has been incorporated into the overall procurement strategy.

Continued and sustained early operator involvement is critical to the success of the procurement strategy and is anticipated to commence in July 2004, with costs of c£2m in the current financial year, including cost invested to date, and will run at that level over the next 4 years until the system is mobilised..

Initial 'soundings' have been undertaken and concluded that the proposed strategy will be well received by market.

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6. The proposed strategy addresses the critical **project commencement date** and does so by judiciously utilising the early operator involvement and addressing critical aspects of the project, thereby minimising the scope, programme and cost riskInitial 'soundings' have been undertaken and concluded that the proposed strategy will be well received by market.

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7. The proposed strategy addresses the critical **project commencement date** and does so by judiciously utilising the early operator involvement and addressing critical aspects of the project, thereby minimising the scope, programme and cost risk.

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The elements of the strategy are all in **common use** in the UK and internationally.

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9. The strategy directly addresses a considerable number of issues raised by the **recent National Audit Office (NAO) report** "*Improving public transport in England through light rail*".

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19.2. Recommendations

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The following recommendations have been identified.

The recent **National Audit Office** report identified a number of barriers to the successful future development of light rail systems in the UK and made a number of specific recommendations, which included the following procurement related issues.

- **Seek better standardisation** in design of systems, vehicles and methods of construction using experience from existing systems and partnering with promoters of other new schemes;
- **Seek ways of managing risk** and reducing the costs of utility diversion including questioning the need for specific diversion; and
- **Identify the most cost-effective procurement methods** and contract structures as a means of controlling cost.

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tie recommends that the NAO report conclusions be adopted in full and **tie**'s proposed procurement approach addresses these barriers to success at an early stage.

It is recommended that **tie** adopt approve the **Infrastructure and Integrator Consortia Option** (with separate procurement of vehicles — ultimately leading to novation of the vehicle contract into a single consortium) as the preferred procurement option for the tTram Networksystem, as identified by **tie**'s Infrastructure Procurement Working Group on the basis of an assessment against scheme 'constraints' and key 'criteria'. **tie** recommends that a turnkey design, construct and commission contract under a 'PFI-style' contract is utilised for the main contract.

It is considered that this procurement option will have features that will be beneficial to the scheme and allow the following.

- Allow early commencement of works;
- Facilitate greater control by CEC/**tie**;
- Lend itself to long term funding solutions; and
- Provide the best balance of cost control, risk transfer, flexibility and delivery to programme.

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The recent **National Audit Office** (NAO) report also recommended that "adequate proposals to manage risk associated with the cost of diverting utilities" be implemented on light rail schemes and points strongly to the adoption of early operator involvement as a means of improving procurement of light rail systems.

With the above in mind, and prior to implementation of the main **Infrastructure and Integrator Contract** (detailed methodology in Companion Paper – Preferred Procurement Strategy dated 30 April 2004), it is recommended that the overall scheme is 'de-risked' through the **procurement of 'advance works'** to minimise potential scope change, time and programme risks to the main works associated with design, land acquisition, investigations, planning approvals, utility diversions and Network Network Rail. **tie** recommends that the 'design' of the scheme is further de-risked through the early procurement of designers, whose liabilities will ultimately be assigned to the InfraCo.

These 'advance works' would be controlled directly by **tie** in order to manage risk before entering an availability and performance based PFI turnkey contract for the main works having transferred design and trams to the Contractor and thereby managing risk out prior to Contract start.

tie also recommends a 'philosophy' of the **minimisation of utilities diversions** be adopted, through challenging the proposed engineering solutions, and determining an acceptable level of 'disruption risk' arising from utilities issues, with the support of the tram Operator.

tie recommends that advance diversion of **'critical' utilities** and **asset confirmation surveys** and carried out, in order to separate these 'very high' risk elements out and thereby increase cost certainty and reduce the risk of compromising the overall delivery timetable.

tie recommend that the Infrastructure and Integrator Contract be structured in such a way as to allow for **tie** to maintain options on expansion of the Networksystem, and potential inclusion of Line Three.

It is recommended that **tie** manage the initial **vehicle procurement** directly in the form of a tram supply, commissioning, maintenance and spare parts supply contract and examine in detail the nature and options for any proposed tram 'leasing' agreement and funding.

tie recommend that **systems integrators** are, with contractor bidder agreement, restrained from entering exclusivity arrangements with bidders, to allow bidders to have access to the 'limited' systems integrator and supplier market.

In order to complete the design of an infrastructure and equipment procurement strategy, **tie** recommends that **market sounding** takes place in June Summer 2004 in order to 'test' for private sector and funder reaction and gain from the DPOF Operator's contribution post appointment.

~~**tie** recommends (and has discussed with Transdev, newly appointed Operator) that the DPOFA **mobilisation services be re-structured** to ensure that the Operator delivers services both to **tie** and to the Infrastructure and Integrator Consortia through commissioning.~~

~~It is recommended that the identified workstreams are governed by a **Tram Procurement Steering Group**, that reports to **tie** Board via the Projects Director, comprising the following membership:~~

- ~~**tie** (Finance Director, Projects Director and Operations Manager);~~
- ~~Partnerships UK;~~
- ~~Transdev; and~~
- ~~Support from Technical, Legal, Financial and PR advisors.~~

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~~19.3. Next Steps~~

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~~The following next steps have been identified.~~ [This should be the reference to the scope antic

- ~~Develop the **funding strategy** in conjunction with CEC and Scottish Executive for the proposed procurement approach;~~
- ~~Review the options available for **minimising spend** in advance of Royal Assent;~~
- ~~Confirm that **funding is available** to meet the desired delivery programme with trams operational in 2009;~~

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- ~~Address the **funding gap** with assessment of opportunities in property development gains, land contributions, advertising, commercial income and other sources;~~
- ~~Develop a **robust Outline Business Case** for the Tram procurement with developed rationale by late summer 2004;~~
- ~~Review the risks of 'early' or 'late' running of the **Parliamentary process** and its impact on the delivery programme and consequential cash flows;~~
- ~~Develop a 'best value' **alternative network**~~**system** ~~**solution** and include system truncation to address funding short-fall;~~
- ~~Discuss **critical influencing factors** associated with indexation of grant, use of Congestion Charging revenue and influence of EARL on Line Two economics;~~
- ~~Develop **individual procurement strategies** for tram vehicles, utility diversions, design development and land acquisition;~~
- ~~Review **advisor remits** and need for procurement of technical, legal, financial, property and insurance advisors for the scheme; and~~
- ~~Conduct contractor/funder **market testing** for the preferred route for procurement for the 'infrastructure', 'tram vehicle' and 'system integration' elements of~~ t~~Tram Network~~system ~~through an ongoing PIN process.~~

	Full Consortia Option (1)			Infrastructure and Integrator Consortia Option (2)			Infrastructure Consortium Option (3)			'Arranged' Joint Venture Option (4)			Infrastructure Development Partner Option (5)			Traditional Procurement Option (6)		
	Allocation			Allocation			Allocation			Allocation			Allocation			Allocation		
Risk Heading	Public Sector	Private Sector	Shared	Public Sector	Private Sector	Shared	Public Sector	Private Sector	Shared	Public Sector	Private Sector	Shared	Public Sector	Private Sector	Shared	Public Sector	Private Sector	Shared
Development Risks																		
Land Acquisition	✓			✓			✓			✓			✓			✓		
Planning risks[1]		✓			✓			✓			✓			✓		✓		
Utilities diversion risks[2]	✓			✓			✓			✓			✓			✓		
Design Risks[3]		✓			✓			✓			✓			✓			✓[4]	
Contractual interface with vehicle suppliers and systems integrator[5]		✓				✓			✓			✓			✓	✓[6]		
Delays in any advance works	✓			✓			✓			✓			✓			✓		

[1] Under Options 1 to 5, planning risk may be borne by **tie** in the event that design is carried out in advance of the appointment of an infrastructure provider.
[2] It is currently envisaged that **tie** will arrange for all utilities diversions to be carried out under separate contracts, not as part of the contract with the infrastructure provider. If utilities diversions are not carried out in advance or under separate contracts, this risk will be passed to the private sector.
[3] Under Options 1 to 5, the allocation of design risk to the private sector is on the basis that responsibility for any advance design works carried out on behalf of **tie** is incorporated as a risk within the infrastructure provider's contract. **tie**'s design consultants could be novated to the infrastructure provider as part of any transfer of risk.
[4] This has been allocated as a private sector risk but only a certain amount of this risk could be borne by the design consultants appointed by **tie**, as these design consultants would not have the same financial covenant as an infrastructure provider.
[5] Under Option 1, the infrastructure provider will take the responsibility for the choice of consortia partners and the associated contractual arrangements. Under Options 2 to 5, this risk is shared to the extent that the contractual arrangements of **tie**'s choice of vehicle supplier/systems integrator cannot be agreed with the infrastructure provider. Under Option 6, a single supplier is not envisaged.
[6] There will be no contractual interface as **tie** will have full responsibility to manage the separate contracts envisaged under this Option.

	Full Consortia Option (1)			Infrastructure and Integrator Consortia Option (2)			Infrastructure Consortium Option (3)			'Arranged' Joint Venture Option (4)			Infrastructure Development Partner Option (5)			Traditional Procurement Option (6)		
	Allocation			Allocation			Allocation			Allocation			Allocation			Allocation		
Risk Heading	Public Sector	Private Sector	Shared	Public Sector	Private Sector	Shared	Public Sector	Private Sector	Shared	Public Sector	Private Sector	Shared	Public Sector	Private Sector	Shared	Public Sector	Private Sector	Shared
Construction Risks																		
Construction Cost Increases[7]		✓			✓			✓			✓			✓			✓	
Delays in Construction[8] *Programme*		✓			✓			✓			✓			✓			✓	
Defects in the Infrastructure Works[9]		✓			✓			✓			✓			✓			✓	
Failure of System Integration[10]		✓			✓			✓			✓			✓		✓		
"Wrong" Choice of Tram Vehicles		✓		✓			✓			✓				✓		✓		
Post-Construction/Operations Risks[11]																		
System Availability		✓			✓			✓			✓			✓		✓		
Maintenance risks		✓			✓			✓			✓			✓		✓[12]		

[7] Under Options 1 to 4, it is anticipated that the level of risk transfer to the private sector would be more significant.
[8] Under Options 1 to 4, it is anticipated that the level of risk transfer to the private sector would be more significant.
[9] Under Options 1 to 4, it is anticipated that the level of risk transfer to the private sector would be more significant.
[10] Under Options 2 to 4, the allocation of this risk to the private sector is dependant on this risk being included as an obligation within the infrastructure provider's contract.
[11] Risks associated with the operation of the Edinburgh Tram Network are also dealt with/transferred under the DPOFA.
[12] ~~tie may~~tie may enter into a separate maintenance contract and pass risk to the private sector.

	Full Consortia Option (1)			Infrastructure and Integrator Consortia Option (2)			Infrastructure Consortium Option (3)			'Arranged' Joint Venture Option (4)			Infrastructure Development Partner Option (5)			Traditional Procurement Option (6)		
	Allocation			Allocation			Allocation			Allocation			Allocation			Allocation		
Risk Heading	Public Sector	Private Sector	Shared	Public Sector	Private Sector	Shared	Public Sector	Private Sector	Shared	Public Sector	Private Sector	Shared	Public Sector	Private Sector	Shared	Public Sector	Private Sector	Shared
Operating Cost Risks[13]			✓			✓			✓			✓			✓	✓		
Variability of Revenue Risk[14]			✓			✓			✓			✓			✓	✓		
Technology and Obsolescence Risks			✓			✓			✓			✓			✓	✓		
Residual Value Risks	✓			✓			✓			✓			✓			✓		

[13] Except in relation to Option 6, this risk will be shared on the basis that the risks associated with breach or failure to perform will be borne by the party who is at fault. The public sector risk in relation to increases in operating costs is shared with the Operator under the DPOFA on an 80:20 basis (Operator:~~tie~~tie) with regard to target operating costs and on a 100% risk basis to the Operator in relation to fixed costs under the DPOFA.

[14] This risk is shared on the basis of allocation of fault. The public sector risk in relation to decreases in target revenue is ~~shared under~~shared under the DPOFA with the Operator on an 30:70 basis (Operator:~~tie~~tie).

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Page 18: [39] Formatted **Nicola Rainy-Brown** **10/06/2004 20:47:00**

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Page 18: [40] Formatted **Nicola Rainy-Brown** **10/06/2004 22:53:00**

Indent: Left: 2.22 cm, Bulleted + Level: 1 + Aligned at: 0.95 cm + Tab after: 1.59 cm + Indent at: 1.59 cm, Tab stops: 2.86 cm, List tab + Not at 1.59 cm

Page 18: [41] Formatted **Nicola Rainy-Brown** **10/06/2004 20:47:00**

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Indent: Left: 1.59 cm

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Indent: Left: 1.59 cm

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Page 18: [55] Change — Nicola Rainy-Brown — 10/06/2004 20:46:00

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Page 18: [56] Formatted — Nicola Rainy-Brown — 10/06/2004 20:47:00

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Indent: Left: -0.63 cm, Numbered + Level: 1 + Numbering Style: 1, 2, 3, … + Start at: 1 + Alignment: Left + Aligned at: 1.9 cm + Tab after: 2.54 cm + Indent at: 2.54 cm

Page 18: [61] Change — Graeme Bissett — 09/06/2004 15:11:00

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Page 18: [62] Formatted — Nicola Rainy-Brown — 10/06/2004 22:53:00

Indent: Left: -0.63 cm, Numbered + Level: 1 + Numbering Style: 1, 2, 3, … + Start at: 1 + Alignment: Left + Aligned at: 1.9 cm + Tab after: 2.54 cm + Indent at: 2.54 cm

Page 18: [63] Formatted — Nicola Rainy-Brown — 10/06/2004 22:53:00

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Page 18: [64] Formatted — Nicola Rainy-Brown — 10/06/2004 21:33:00

Indent: Left: 0 cm

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Tab stops: 0.13 cm, List tab

Page 19: [66] Formatted — Nicola Rainy-Brown — 10/06/2004 21:33:00

Tab stops: 0.13 cm, List tab + Not at 1.4 cm

Page 19: [67] Change — Graeme Bissett — 09/06/2004 15:11:00

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Page 19: [68] Formatted — Nicola Rainy-Brown — 10/06/2004 20:59:00

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Page 19: [70] Change — Nicola Rainy-Brown — 10/06/2004 20:57:00

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Page 19: [109] Change	Nicola Rainy-Brown	10/06/2004 20:57:00

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Page 20: [118] Formatted	Nicola Rainy-Brown	10/06/2004 21:33:00

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Page 20: [119] Formatted	Nicola Rainy-Brown	10/06/2004 21:33:00

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Page 20: [120] Formatted	Nicola Rainy-Brown	10/06/2004 21:33:00

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Page 20: [121] Formatted	Nicola Rainy-Brown	10/06/2004 21:33:00

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