

Edinburgh trams

Interim report



Prepared for the Auditor General for Scotland and the Accounts Commission
February 2011



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Summary

This report

1. The Edinburgh trams project is currently the fourth largest public capital project in Scotland. During the period since the City of Edinburgh Council (CEC) gave its approval to the project's final business case in December 2007, there has been significant media attention given to it with concerns raised about cost over-runs and delivery delays.¹ In October 2010, the Auditor General and the Accounts Commission decided that an audit report should be produced to provide an update on the project's progress and to consider issues for the future. It is intended to be an interim report which might lead to further audit work and another report at a later date.
2. The decision to produce this report follows a previous report which the Auditor General published in June 2007 reviewing the arrangements in place for estimating the costs and managing the Edinburgh trams project and the Edinburgh Airport Rail Link. At that time, both projects were still at a relatively early stage. In the case of the Edinburgh trams project some utilities diversion works had commenced but major contracts for the construction of infrastructure and tram vehicles had yet to be awarded. While the project was approaching a critical phase, the City of Edinburgh Council (CEC) had yet to approve the final business case.
3. This report is a factual commentary which builds on work completed for the 2009/10 annual audits of Transport Scotland and CEC. The report is augmented where necessary by further analysis of the project's progress and costs (most of which is based on information already in the public domain) and interviews with key parties such as Transport Initiatives Edinburgh (**tie**), the company originally established by CEC in May 2002 with responsibility for delivering the project.²
4. There is currently a very public contractual dispute between **tie** and the Bilfinger Berger Siemens consortium (BBS). It would be inappropriate for us to make any comments that may be regarded as prejudging any issue of fact or law that might be perceived to have a bearing on that dispute, or its progression or resolution. We did not interview any contractor as part of the report's preparation and no inference is to be drawn from the inclusion in this report of views expressed by **tie**. The report does not include a detailed review of the various works contracts which are in place. We do not express any opinion on the project's management, the cause or cost of time overruns or the

¹ The biggest three projects are the construction of a new £1.7 billion to £2.3 billion Forth Crossing, a new £842 million South Glasgow Hospital and the £692 million M74 Completion project. The Scottish Parliament approved the Bill for the new Forth Crossing and the final business case for the Southern General Hospital in December 2010. The M74 Completion is due to open in June 2011.

² CEC transferred ownership of **tie** to Transport Edinburgh Limited, another CEC owned company, in August 2009. See Part 3 of this report.

performance of any of the contractors involved. In particular, we have not examined in detail the form of contract or contractor performance relating to infrastructure construction.

The Edinburgh trams project

5. CEC established **tie** as a wholly owned subsidiary in May 2002 to conduct investigations into how best to deliver CEC's local transport strategy, including the desirability of building one or more tram lines in Edinburgh. Following consideration of three options, the then Scottish Executive announced its support for the construction of a northern tram loop connecting Granton and Leith to the city centre and a western tram line from Edinburgh Airport to the city centre. Bills to construct these lines received Royal Assent in spring 2006.
6. The Edinburgh trams project is intended to support and promote a growing local economy and create a healthy, safe and sustainable environment for Edinburgh. The project is being taken forward in stages. Phase 1a consists of a tram line connecting Leith Waterfront to Edinburgh Airport. Phase 1b consisted of a tram line between Roseburn and Granton Square but this was postponed in April 2009 due to the economic downturn. CEC has not indicated when construction of Phase 1b might commence.
7. The Scottish Government, via Transport Scotland, committed up to £500 million to Phase 1a. The grant agreement between Scottish Ministers and CEC required CEC to provide evidence that it had approved a final business case showing that the capital cost would not exceed £545 million; that the project would deliver more benefits than it costs; and that the tram network would not require any ongoing subsidy once trams become operational. CEC approved the final business case, which confirmed these conditions were achievable, in December 2007 and provided the required evidence to Ministers. The balance of funding is expected to come from CEC, most of it from developer contributions and capital receipts.
8. Construction of Phase 1a includes a number of different stages and contracts:
 - Project design including design drawings for all infrastructure and associated land purchase and traffic regulation requirements
 - Utilities diversion works and other enabling works, such as construction of a park and ride at Ingliston, which were intended to take place before tramlines and other infrastructure was installed
 - Infrastructure construction including tramlines, a tram depot, overhead power lines, ticketing machines and passenger shelters

- Construction of 27 tram vehicles.
9. CEC's governance arrangements for the project are intended to allow the work of **tie** to be subject to scrutiny while keeping all elected members informed of the project's progress. They also reflect the planned future role of another council owned company, Transport Edinburgh Ltd (TEL), in providing integrated tram and bus services. TEL is now responsible for strategic and other material decisions affecting the project subject to delegated limits. The Tram Project Board, as a formal sub-committee of TEL, continues to be the project's main governance body.

Key messages

The project's progress to date

- The original plan to have trams operational by summer 2011 will not be achieved. Utilities work is now 97 per cent complete and good progress is being made with the delivery of tram vehicles. However, greater than anticipated utilities works and disputes with the contractor responsible for infrastructure construction have delayed progress. It is possible that trams will not be operational until at least 2013.
- The dispute between **tie** and BBS, the consortium responsible for infrastructure construction, shows no sign of abating. **tie** has tested a number of principles associated with the contract's scope and specification through formal dispute resolution processes, with the stated intent of driving down the estimated cost of contract changes submitted by BBS and getting work started at a number of locations. While this has had some success, it is resulting in **tie** incurring additional project management costs and significant disagreement between **tie** and BBS remains about the interpretation of elements of the infrastructure construction contract.
- Negotiations have been protracted and, although a further round of talks involving an agreed mediator is planned for March 2011, **tie** and BBS have not yet achieved a more co-operative way of working. Some 28 per cent of infrastructure construction works have been completed against an original plan of 99 per cent by the end of December 2010. Works which do not involve the installation of tram lines on existing streets have seen a little more progress (40 per cent completed against a plan of 100 per cent) than on-street works (11 per cent against a plan of 99 per cent).

The project's costs to date

- **tie** has spent a total of £402 million on Phase 1a to the end of December 2010, representing 74 per cent of the available funding. Infrastructure construction has cost £150 million to date. While **tie** considers it can accurately predict the final outturn expenditure for most elements of the project, the final cost will need to include the cost of resolving the infrastructure construction dispute, which is at

present largely unknown. **tie** has, however, indicated that it is unlikely that all of Phase 1a can be delivered for £545 million.

- Due to the programme and cost difficulties experienced so far, **tie** and CEC are in the process of developing options for taking the project forward. **tie** has been considering an incremental introduction of Phase 1a and the possible impact on the project if the contract with BBS was terminated. The council has been undertaking contingency planning around options to increase its funding of the project. The current situation between **tie** and BBS is, however, complex and the outcome of mediation talks will help inform the options to be taken forward.

Governance arrangements

- Elected members of the current administration at CEC hold differing views of the Edinburgh trams project, and considerable debate is generated at council meetings when the subject is discussed. This has made it more difficult for CEC as a whole to present a unified commitment to the project.
- CEC's governance arrangements for the project are complex and are intended to allow the work of **tie** to be subject to scrutiny while keeping elected members informed of the project's progress. Some members of the project's main governance body, the Tram Project Board, are also members of **tie**'s own board. CEC's Director of Finance and Director of City Development also exercise a number of different oversight roles in the project.
- Transport Scotland considers its need to be represented on the Tram Project Board ended in June 2007 when, following a Scottish Parliament debate and vote, Ministers announced that the Scottish Government's contribution should be capped at £500 million. Transport Scotland does not consider that it has the same oversight role for the trams project as it has for other Scottish Government transport projects because it is neither the promoter of the project or has a contractual relationship with any of the private sector bodies engaged in the project's construction and delivery. Transport Scotland does, however, hold quarterly meetings with CEC where the project's progress is reviewed.
- **tie** makes regular reports on the project's progress to the Tram Project Board and CEC also provides regular reports to elected members at full Council meetings. The commercially sensitive nature of the dispute with BBS and future financial projections, however, has meant that the information presented to members who are not directly involved in the project has been limited. Given the high profile of the project, the lack of detail which has been made available to some councillors has caused frustrations.

Key issues for the project

10. The Edinburgh trams project is at a significant decision point. There is a high level of concern and media coverage about what the project may finally cost and whether a tram network will be realised. Progress is now largely at a standstill although **tie** is still incurring staff and other project management costs. While **tie** is aware of the issues and has attempted to enforce compliance with its interpretation of the infrastructure construction contract, it is imperative that CEC, **tie** and BBS work together to establish a clear way ahead for the project. The following table outlines the key issues which need to be considered in taking the project forward.

- The continuing dispute between **tie** and BBS over the infrastructure construction contract is clearly a matter of public concern. It is vitally important therefore that a cost effective resolution of the current dispute is achieved. In particular, care needs to be taken that a negotiated solution secures value for money for the public purse. It is important that CEC and **tie** maintain a clear view of the benefits of a negotiated solution when compared against any additional costs which might be incurred.
- At the same time, if a satisfactory solution cannot be found from mediation, CEC and **tie** will need to consider fully the consequences of alternatives including terminating the contract with BBS. This needs to take into account the value of any proposed financial settlement and any project delays which may flow from such action.
- Given the circumstances of the project, there is significant concern about what the project may finally cost and whether it will deliver the expected benefits. CEC and **tie** should continue to work together to develop options for the project which clearly set out costs and timetables for delivery. If an incremental approach to the delivery of the tram system is adopted, **tie** should update its calculations of the benefits accruing for each extension of the tram line and ensure that the benefits are maximised for the additional costs which will be required. All budgets and option appraisals should be subject to independent scrutiny and verification, with any requirements for overriding confidentiality constraints kept to a minimum.
- As **tie** has indicated that it is unlikely that all of Phase 1a can be delivered for £545 million, it needs to define its strategy for the project to ensure that its commitments and available funding are aligned.
- CEC and **tie** urgently need to strengthen public confidence in the project. In addition to the above measures, there are a number of steps which they could take to help this:
 - a number of staff have left **tie** in recent months and others may also leave creating a risk that it may lack the necessary skills and experience to complete the project. **tie** is aware of the effects that criticism of the project is having on staff morale and organisational resilience, and may therefore wish to consider how best it can reassure the public over its project management

capabilities including its organisational structure and reporting lines.

- develop more effective communications with the general public on the project's complexities and progress. Without sufficient public engagement, it is difficult to see how criticism of the project can be managed or prevented. In particular, there is a need to consider how best to communicate the project's benefits compared to the costs incurred.
- Project governance arrangements are complex. Although CEC has agreed to review the operational and governance arrangements necessary to integrate bus and tram services once trams are operational, it needs to consider the scope for a wider review of governance arrangements while the project is still in the construction phase. In particular, CEC needs to be able to satisfy itself that the membership and remit of each element of the governance framework contains sufficient scrutiny of the project's progress and risk management arrangements.
- Because there are differing views held by elected members, it may be difficult for the council to present a unified commitment to this major project. There are also difficulties in allowing elected members who are board members of TEL to share full information on the project's costs and progress more widely with political group colleagues. CEC needs, therefore to consider the best ways to ensure elected members are kept informed about the project while having due regard to the requirements of companies act legislation and any commercial confidentiality of the issues under consideration.
- Although Transport Scotland already monitors project spend, the Scottish Government has a significant financial commitment to the project and it needs to consider Transport Scotland's future involvement in providing advice and monitoring the project's progress. In particular, if CEC decides that an incremental approach should be taken to the delivery of Phase 1a, there may be implications for the conditions of the grant which would require to be considered. The Scottish Government should also consider whether Transport Scotland should use its expertise in managing major transport projects to be more actively involved and assist the project in avoiding possible further delays and cost overruns.

Part 1. Introduction

The Auditor General's 2007 report on the trams project

11. In June 2007, the new Scottish Government asked the Auditor General to carry out a high-level review of the arrangements in place for estimating the costs and managing two transport projects for Edinburgh which were then being developed. The Auditor General's report examined whether:
 - the Edinburgh trams and Edinburgh Airport Rail Link (EARL) projects were progressing to time and cost targets
 - appropriate management systems were in place to promote successful completion of the projects.
12. The review was a short exercise and examined the process for estimating project costs and project management arrangements on the two projects. It did not provide assurances on the accuracy of the estimated project costs, nor did it examine the operating costs or projected revenues, and it did not review the options appraisals for the project and the benefits they were expected to generate.
13. At that time, both projects were still at a relatively early stage. In the case of the Edinburgh trams project some utilities diversion works had commenced but major contracts for the construction of infrastructure and tram vehicles had yet to be awarded. While the project was approaching a critical phase, the City of Edinburgh Council (CEC) had yet to approve the final business case.
14. The Auditor General's report concluded that the arrangements in place to manage the trams project appeared sound. It said that a range of key tasks, such as the commencement of utilities diversion works and negotiations with bidders over the infrastructure construction contract, needed to be completed before the business case could be signed off. It added that unless work progressed to plan, cost and time targets may not be met.
15. Following publication of the Auditor General's report in June 2007, the Scottish Parliament conducted a major debate on the future of the Edinburgh trams and EARL projects. After a vote, the Scottish Parliament called on the SNP administration to proceed with the Edinburgh trams project within the £500 million budget limit set by the previous administration. The Scottish Parliament also noted that CEC should meet the balance of any additional funding required. Scottish Ministers subsequently agreed with this motion but decided to cancel the EARL project

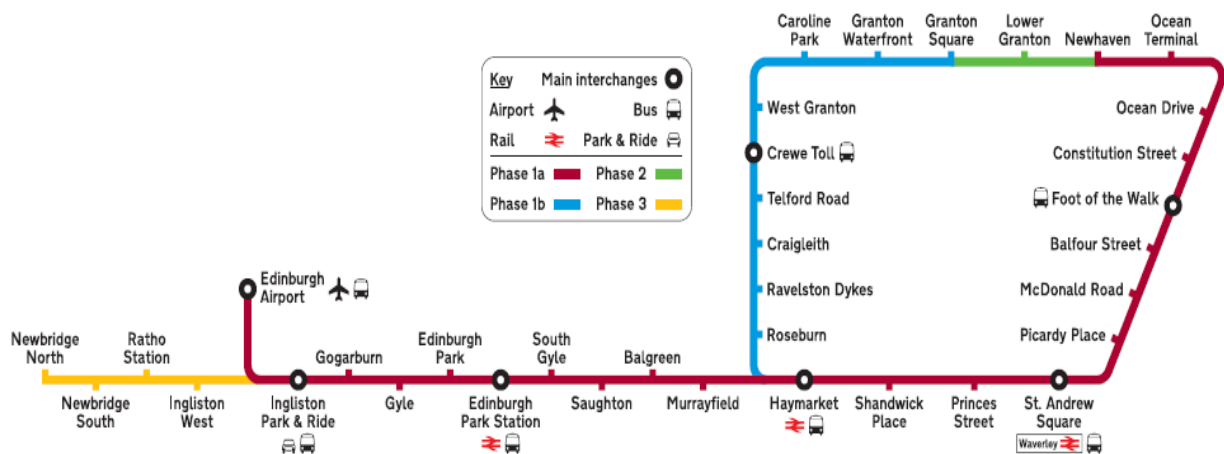
Background to the project

16. The City of Edinburgh Council (CEC) established **tie** as a private limited company, wholly owned by CEC, in May 2002 to conduct investigations into how best to deliver CEC's local transport strategy, including the desirability of building one or more tram lines in Edinburgh. In September 2002, **tie** submitted its proposals to CEC, identifying three trams lines as the most promising in terms of economic viability and benefits to the city:

- A northern loop connecting Granton and Leith to the city centre
- A western line connecting the city centre to Edinburgh Airport
- A south-eastern line connecting the city centre to the new Royal Infirmary.

17. In March 2003, following CEC's decision to take these lines forward, the Scottish Executive announced its support for the construction of the northern loop and western line ([Exhibit 1](#)). In January 2004, two Bills were submitted to the Scottish Parliament which received Royal Assent in spring 2006.

Exhibit 1: Proposed route of the Edinburgh trams project



Note: While legislative approval was obtained for all three phases of the project, only Phase 1a is currently being progressed.

Source: *Trams for Edinburgh website*

18. As the tram Bills were being considered in the Scottish Parliament, **tie**'s review of costs indicated that a complete network of both lines was unlikely to be affordable in one phase of construction. CEC

and **tie** concluded that the project should be taken forward in stages. Phase 1 of the project consists of a tram line connecting Leith Waterfront to Edinburgh Airport via Haymarket and Princes Street (Phase 1a - involving 18.5km of track) and a section from Roseburn to Granton Square (Phase 1b - involving 5.5km of track).

The Edinburgh trams project has a number of objectives

19. The project's objectives are to:

- support the local economy by improving accessibility
- promote sustainability and reduce environmental damage caused by traffic
- reduce traffic congestion
- make the transport system safer and more secure
- promote social benefits.

20. Phase 1 in its entirety was expected to deliver benefits of £2.31 per £1 of cost.³ Phase 1a was expected to generate benefits of £1.77 per £1 of cost. Phase 1b was expected to generate higher benefits than Phase 1a because it was expected to contribute to the regeneration of Granton. Other outcomes expected from Phase 1 include:

- 3,800 residential units and 43,800m² of factory, office and retail space through regeneration of the Granton area
- 930 additional jobs of which 590 are attributed to Phase 1a (through a mixture of construction and regeneration)
- improved air quality, traffic noise and CO₂ emissions resulting from the transfer of car trips to public transport
- enhanced opportunities to make journeys on the public transport network through bus-tram service integration and ticketing arrangements
- improved access to key trip attractions and destinations.

21. Phase 1a was expected to be constructed first, although contractual arrangements allowed CEC to commit to Phase 1b at any time until March 2009. In April 2009, CEC announced that, as a result of the economic downturn, Phase 1b of the project was being postponed. This report therefore concentrates on Phase 1a.

³Edinburgh Tram Network Final Business Case Version 2, December 2007, **tie**

The Scottish Government agreed to provide a maximum of £500 million towards Phase 1a

22. In January 2008, Scottish Ministers, via Transport Scotland, offered grant support for Phase 1a of 91.7 per cent of eligible capital costs subject to a maximum grant of £500 million. The Scottish Government's grant offer was conditional on CEC approving a final business case for the tram network containing:
- an affordability assessment that the capital cost of Phase 1a will not exceed £545 million
 - a benefits cost ratio (BCR) for Phase 1a which was greater than 1 i.e. benefits were to exceed costs
 - a projection that the Edinburgh tram network would not require any ongoing subsidy during its operation i.e. income was expected to exceed the tram network's running costs.
23. The purpose of the agreement is to enable Scottish Ministers to ensure that grant funding is being properly applied to the project. There is no requirement in the grant offer that the Scottish Government's continued funding of the project should be withdrawn if it became clear that Phase 1a could not be delivered for £545 million.
24. CEC is expected to provide the balance of funding for Phase 1a, up to £45 million, mostly from developer contributions and capital receipts. Consultants reported in December 2007 that CEC's strategy for delivering this funding was a sound basis on which to proceed.⁴

⁴*Independent Review of Tram Funding Strategy – Council Contribution*, report considered at CEC meeting of 20 December 2007. Consultants subsequently reassessed this strategy in light of the economic downturn and the results were reported to CEC in August 2009.

Part 2. Progress and costs to date

Key messages

- The plan to have trams operational by summer 2011 will not be achieved. Greater than anticipated utilities works and contractual disputes with the consortium responsible for infrastructure construction have delayed progress. It is possible that trams will not be operational until at least 2013.
- **tie** has spent a total of £402 million on Phase 1a to the end of December 2010. This represents 74 per cent of the available funding. While **tie** considers it can accurately predict the final outturn expenditure for most elements of the project, the final cost will need to include the cost of resolving the infrastructure construction dispute, which is at present largely unknown. **tie** has, however, indicated that it is now unlikely that all of Phase 1a can be delivered for £545 million.
- Due to the programme and cost difficulties experienced so far, **tie** and CEC are in the process of developing contingency measures. **tie** has been considering an incremental introduction of Phase 1a while CEC has been considering options to increase its funding of the project. The current situation between **tie** and BBS is, however, complex and the outcome of a further round of mediation talks planned for March 2011 will help inform what options are taken forward.

tie's procurement strategy was intended to transfer risks to the private sector

25. **tie** developed its planning for the delivery of the tram infrastructure at the same time as the Scottish Parliament was considering the tram enabling Bills and the project's funding was being finalised. In forming its procurement strategy, **tie** visited a number of other light rail projects, such as the Lewisham extension to the Docklands Light Railway, and sought to learn lessons from these and relevant guidance. For example, the NAO found that the design, build, maintain and operate form of contract which was used in five out of the seven light rail projects in England it examined could result in higher construction costs because consortia might not be best placed to bear all the revenue risk of running a light rail system⁵. **tie's** procurement strategy was therefore designed to have separate construction and operation contracts. It also sought legal advice on the form of the contracts, including how best the form of the contracts could be used to transfer risks to the private sector where this was appropriate.

⁵*Improving public transport in England through light rail*, National Audit Office, April 2004

26. **tie's** procurement strategy involved a series of different contracts intended to reduce the overall time taken to deliver the project, provide certainty over costs before construction began and allow the selection of the optimum combination of vehicle and infrastructure providers. The procurement strategy included:

- **The early involvement of an operator in the design and development of the project.** Developing the design as far in advance of procurement as possible was intended to reduce uncertainty and improve cost estimating of the construction phase.
- **Undertaking detailed design ahead of the award of the main construction contract.** Early award of the Systems Design Contract (SDS) was intended to facilitate the early identification of utility diversion works, land purchase requirements and traffic regulation requirements.
- **Tendering the utility diversion works as a separate package and diverting these in advance of the main tram works contract.** Risks associated with utilities diversions are difficult for the private sector to manage and price, and have been seen as a barrier to progressing light rail schemes. Separating utilities diversion work from infrastructure construction was intended to provide more cost certainty for infrastructure construction bidders. Advanced utilities diversion was also intended to reduce the risk of disruption to the progress of infrastructure works.
- **Tendering the infrastructure construction contract (infraco) and tram vehicle contract (tramco) separately.** This was intended to allow the parties responsible for providing infrastructure and vehicles to concentrate on their strengths.
- **Tendering the infrastructure construction contract as one large package.** The infraco contract included all civil engineering works, systems construction works and integration of the whole system.

27. **tie** also considered that there would be benefits in having a single consortium responsible for the overall delivery of construction and other works. The procurement strategy therefore included that on the award of the infraco contract, **tie** would transfer the SDS and tramco contracts to the infraco contract.

28. As a result, **tie** sought to award initially six contracts associated with the project ([Exhibit 2 overleaf](#)). Most of these contracts were designed to ensure that a high proportion of costs were fixed or, in the case of utilities diversion where the volume of work was unclear, based on agreed rates. Payment mechanisms were intended to provide incentives to contractors by ensuring that full payment was not made until the task was successfully completed.

29. For the reasons outlined earlier on in this report, we have not considered in detail the procurement strategy or the form of contracts used. Issues arising such as the overall risk management arrangements, and the potential benefits and risks from having a procurement strategy which differed from other tram projects, are matters for any subsequent examination of the project.

Exhibit 2: The main contractors associated with the Edinburgh trams project

tie's procurement strategy resulted in a number of different organisations being appointed to deliver different elements of the project.

Tram operator: **tie** appointed Transdev as the tram operator in May 2004 to assist planning of an integrated service network with Transport Edinburgh Limited (TEL), the CEC subsidiary company with overall responsibility for delivering an integrated tram and bus network for Edinburgh. The contract with Transdev was later ended by mutual agreement in December 2009 and CEC now intends that TEL, or a subsidiary of TEL, will be responsible for operating an integrated tram and bus service.

System Design Service (SDS): **tie** awarded the SDS contract to Parsons Brinkerhoff in September 2005 to facilitate the early identification of utility diversion works, land purchase requirements and traffic regulation requirements and the completion of design drawings. **tie** transferred the SDS contract to the Bilfinger Berger Siemens consortium (BBS) when the infrastructure construction contract was signed in May 2008.

Utilities diversion: **tie** appointed Alfred McAlpine Infrastructure Services as the contractor responsible for the diversion and protection of utilities along the tram route in October 2006. Carillion bought-over Alfred McAlpine in December 2007 and assumed contractual responsibility for delivering utilities diversion works. When Carillion completed its agreed work package in late November 2009, **tie** appointed Clancy Docwra and Farrans to complete utilities diversion works.

Tram construction (tramco): **tie** signed pre-contract agreements for the supply and maintenance of 27 tram vehicles with Construcciones y Auxiliar de Ferrocarriles SA (CAF) in October 2007. When the infrastructure construction contract was signed in May 2008, **tie** transferred the tram vehicle construction contract to BBS, and CAF joined the consortium.

Infrastructure construction (infraco): **tie** awarded the contract for the design, construction, commissioning and maintenance of the tram infrastructure, including rails, overhead power cables and a tram depot to BBS in May 2008. On award of this contract, **tie** transferred the contracts for systems design and tram vehicle construction and maintenance to it.

Source: Audit Scotland

The original plan to have trams operational by summer 2011 will not be achieved

30. **tie**'s project plan, when the infrastructure contract was signed in May 2008, stipulated that Phase 1a was expected to be open for service by summer 2011. However, several elements of the project have experienced delays and it is not yet clear when trams will be operational ([Exhibit 3](#)). **tie** advises that delays in the completion of design work and the movement of utility pipes and cables created an unplanned overlap with infrastructure construction work, and further delay to the project has resulted from a contractual dispute between **tie** and BBS over infrastructure construction.

Exhibit 3: Phase 1a delivery against key milestones

The main construction elements of the project have all taken longer than planned.

Note that construction of the Edinburgh trams system is a complex project and the key milestones shown below simplify to a considerable extent the complex programming issues involved.

	Year Quarter number	2006		2007				2008				2009				2010				2011	
		3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	
Business Case	Planned		1	2		3	4														
	Actual		1	2		3	4														
Design and Traffic Regulation Orders	Planned				1	2	3	4					5								
	Actual				1																5
Utilities	Planned	1		2	3	4					5										
	Actual	1		2	3	4															
Tramco	Planned			1	2		3						4		5						
	Actual			1	2			3								4					
Infraco	Planned		1	2	3		4	5					6		7						8
	Actual		1	2	3			4	5												

Key Milestones

Business Case	1	Approval of draft final business case by CEC	Tramco	1	Completion of initial evaluation/negotiation of bids
	2	Confirmation of Infraco tender prices to CEC		2	Recommendation of preferred bidder
	3	Approval of final business case by Tram Project Board		3	Award of Tramco contract
	4	Approval of final business case by CEC		4	Delivery of first tram
Design and TROs	1	TRO process commences	Infraco	5	Delivery of all trams
	2	Completion of construction drawings - utilities diversion		1	Return of Stage 1 bid
	3	Completion of planning drawings		2	Completion of evaluation/negotiation of Stage 2 bid
	4	Completion of detailed design construction drawings		3	Recommendation of preferred bidder
	5	TRO process complete		4	Award of Infraco contract
Utilities	1	Award of utilities diversion contract	5	Construction of track and tram depot commences	
	2	Completion of pre-construction period of utilities diversion contract	6	Depot completion	
	3	Commencement of utility diversion works trial site	7	Commencement of test running	
	4	Commencement of utility diversion works	8	Delivery into revenue service	
	5	Completion of utility diversion works			

Source: *Edinburgh Tram Network Final Business Case version2, 7 December 2007, tie and Audit Scotland*

Utilities diversion work is almost two years late but is 97 per cent complete

31. **tie** expected that utilities diversion work would take 70 weeks between July 2007 and November 2008. Surveys undertaken by **tie** along with information received from individual utility companies indicated that the original scope of the work would cover 27,000 metres of pipes and cables. However, **tie** had to significantly extend the scope of work once the physical conditions underground became clear. According to **tie**, the complexity of utilities along the tram route, congestion of pipes and cables in key locations and unforeseen obstructions were much more extensive than originally anticipated. In addition, records held by utility companies and CEC were far from comprehensive.⁶
32. Carillion finished its contracted works package at the end of November 2009 by which time utilities diversion work had covered some 40,000 metres of cables. **tie** now estimates that the final extent of diverted utilities is around 50,000 metres and it has appointed two contractors, Clancy Docwra and Farrans to complete it. **tie** has reported that around 48,500 metres of utility diversion work has now been completed. In **tie**'s view, the remaining utilities diversion work, mainly in the vicinity of Baltic Street, would not prevent infrastructure construction work from going ahead.

Contractual disputes over infrastructure construction have resulted in significant delays to the project

33. The planned infrastructure construction programme required the project to be delivered in a series of sections with tram lines and overhead line equipment being installed after utilities diversion work was completed ([Exhibit 4](#)). **tie** had also programmed for design drawings to be largely completed before relevant elements of infrastructure construction started.
34. **tie** intended to obtain cost certainty for infrastructure construction by agreeing a lump sum, fixed price contract (infraco) for an agreed delivery specification and programme. It appointed the Bilfinger Berger Siemens consortium (BBS) as the preferred bidder in October 2007. Between then and contract award in May 2008, **tie** and BBS held a series of meetings to discuss the terms of the contract. As part of the negotiations, BBS submitted a request for additional funding of £12 million. This resulted in a further series of meetings which culminated in **tie** agreeing to pay up to £4.8 million in incentive bonuses and to underwrite BBS's demobilisation costs of £3.2 million in the event Phase 1b did not proceed.

⁶Edinburgh Tram Project – Update Report, report considered at CEC meeting of 24 June 2010

Exhibit 4: Planned infrastructure construction programme

tie planned that infrastructure construction would take place in stages.

Note that the Edinburgh trams system is a complex project and the programme phases shown below simplify to a considerable extent the construction work necessary to deliver it.

	Year Quarter number	2007			2008				2009				2010				2011
		2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1
Newhaven to Foot of Leith Walk	Utilities																
	Roads and Trackworks																
	Overhead Line Equipment																
Foot of Leith Walk to St Andrew Square	Utilities																
	Roads and Trackworks																
	Overhead Line Equipment																
St Andrew Square to Haymarket	Utilities																
	Roads and Trackworks																
	Overhead Line Equipment																
Haymarket to Edinburgh Park Station	Utilities																
	Roads and Trackworks																
	Overhead Line Equipment																
Edinburgh Park Station to Airport	Utilities																
	Roads and Trackworks																
	Overhead Line Equipment																

Sections:

Newhaven to Foot of Leith Walk

Newhaven to Ocean Terminal
Ocean Terminal to Port of Leith
Port of Leith to Bernard Street
Bernard Street to Foot of Leith Walk

Foot of Leith Walk to St Andrew Square

Foot of Leith Walk to Balfour Street
Balfour Street to McDonald Road
McDonald Road to Picardy Place
Picardy Place to St Andrew Square

St Andrew Square to Haymarket

St Andrew Square to Princes Street West
Princess Street West to Shandwick Place
Shandwick Place to Haymarket

Haymarket to Edinburgh Park Station

Haymarket to Roseburn Junction
Roseburn Junction to Murrayfield
Murrayfield to Balgreen Road
Balgreen Road to Saughton Road North
Saughton Road North to South Gyle Access
South Gyle Access to Edinburgh Park Station

Edinburgh Park Station to Edinburgh Airport

Edinburgh Park Station to Edinburgh Park
Edinburgh Park to Gyle
Gyle to Depot Stop
Depot Stop to Gogarburn
Gogarburn to Ingliston Park and Ride
Ingliston Park and Ride to Edinburgh Airport

Source: *Edinburgh Tram – Construction Programme, report to the Tram Sub-Committee, CEC, 12 May 2008*

35. The overall result of the negotiations between **tie** and BBS was an increase in the budget for infrastructure construction from £223 million at the time the project's final business case was approved in December 2007 to £243 million in May 2008. In exchange, **tie** considered it had achieved more cost certainty and also transferred more risks to the private sector in line with its procurement strategy of having a series of discrete contracts based on fixed costs where possible.
36. The infrastructure construction contract also sets out mechanisms to discuss and resolve the financial and time impact of additional work not covered in the contract. However, its form, which has

not routinely been used in other tram projects, may present a risk because of lack of legal precedent with which to inform the outcome of any contractual dispute between the purchaser and contractor.

37. Contractual disputes between **tie** and BBS began almost as soon as infrastructure construction commenced. The first major dispute arose in February 2009, one week before track-laying work was due to start in Princes Street, amid claims that BBS was seeking an extra £50-80 million funding, mainly to compensate for incomplete utility diversion works at the Mound and alleged design changes. **tie** considered these claims to be unsubstantiated. In its view, in addition to the impact of delays caused by utilities work, the contractual difficulties with BBS are associated with:
- design issues, including delays in design completion
 - failures to achieve progress on the works.⁷
38. **tie's** strategy for systems design work was to appoint a contractor who would be responsible for completing systems design drawings for items such as utility diversions, overhead pylons, electronics, power supply and passenger ticketing machines and shelters before infrastructure construction began. **tie** appointed Parsons Brinkerhoff to the Systems Design Service (SDS) contract in September 2005. **tie** then transferred the contract to BBS in May 2008 when it was awarded the infraco contract. BBS assumed overall responsibility for integrating the track, vehicle and systems design after May 2008, although Parsons Brinkerhoff still undertook the work
39. **tie** told us it encountered a number of problems with the delivery of the SDS contract including slow mobilisation, poor quality of design work requiring several revisions and late delivery. As a result, design packages which were expected to be finished by May 2008 were not delivered until autumn 2008.
40. **tie** has also expressed concern about the quality of design work after May 2008 when it transferred responsibility to BBS for managing the SDS design contract to completion. According to an audit conducted by consultants on behalf of **tie**, around 80 per cent of the design work has been completed although a complete design package which integrates tracks, vehicles and supporting systems has still to be delivered.
41. Following the dispute over the Princes Street works, **tie** and BBS agreed to convene a Project Management Panel, as allowed for under the contract, with the aim of resolving a number of other contentious differences between the parties. Although this showed some potential to assist the resolution of outstanding issues, the early impetus was not sustained. In June 2009, **tie** and BBS

⁷Edinburgh Tram Project – Update Report, report considered at CEC meeting of 24 June 2010

held a week of informal mediation which examined, among other things, the interpretation of key clauses in the pricing schedule, the allocation of risks and the substantiation of claimed contract changes.

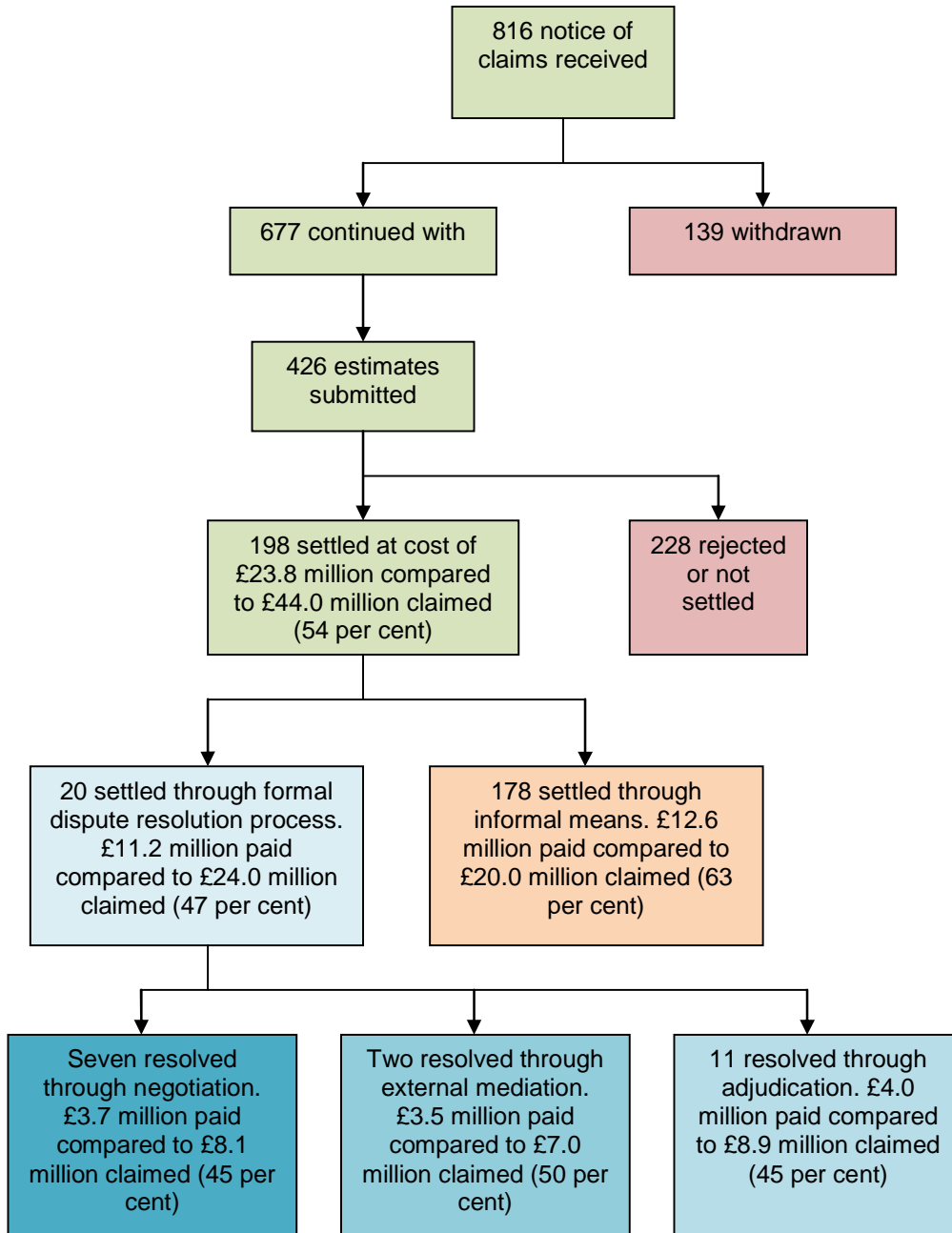
42. In July 2009, **tie** reported to the Tram Project Board that the informal mediation had not been successful.⁸ In light of the ongoing dispute with BBS, the Tram Project Board endorsed **tie**'s strategy of enforcing its interpretation of the contract's terms with the aim of:
- testing a number of contractual principles which lay at the heart of the changes to the contract's scope and specification which BBS were claiming
 - driving down the estimated cost of the changes being submitted by BBS
 - getting work started at a number of locations through the issuing of formal instructions to proceed
 - encouraging a more collaborative working approach from BBS.
43. **tie** accepts that there is liable to be some change in the specification of any large construction project for a variety of technical and commercial reasons. It has accepted that some design-related changes are additional to the contracted scope of works and it concedes that some infrastructure construction works have been affected by delays to the completion of utility works. However, **tie** considers that, compared to other construction projects, the number of claims submitted by BBS for additional payments has been excessive.
44. To the end of December 2010, BBS has submitted 816 notices to claim of which 139 were later withdrawn ([Exhibit 5 overleaf](#)). BBS has submitted cost estimates in respect of 426 out of the remaining 677 notices to claim. **tie** and BBS have settled 198 of these claims with the others either rejected or not yet agreed. The cost to **tie** of those settled has been £23.8 million compared to the £44.0 million claimed by BBS (54 per cent). Included within the 198 settled are 20 which have been settled through formal dispute resolution procedures, as allowed for in the contract.⁹ These have reduced BBS's claims for additional payment from £24.0 million to £11.2 million (47 per cent). A further five cases being resolved through dispute resolution procedures have been referred for external adjudication or negotiation is in progress. **tie** considers these adjudications have helped clarify some of the contractual issues which were in dispute with BBS.

⁸ The Tram Project Board is the project's main governance body. See Part 3 of this report.

⁹ Dispute resolution processes fall into two major types. There are adjudicative processes, such as litigation or arbitration, in which a judge, jury or arbiter determines the outcome. There are also consensual processes, such as mediation, conciliation or negotiation in which the parties attempt to reach agreement.

Exhibit 5: Changes and disputes to date

tie has paid £23.8 million in respect of 198 claims for additional payments submitted by BBS which have been settled to date.



Source: Audit Scotland

45. While **tie** considered its strategy was successful in getting work started at some locations and driving down the final value of the submitted cost estimates, in its view this was intensive of management time and expensive in advisor costs. In December 2009, **tie** concluded that little real progress was

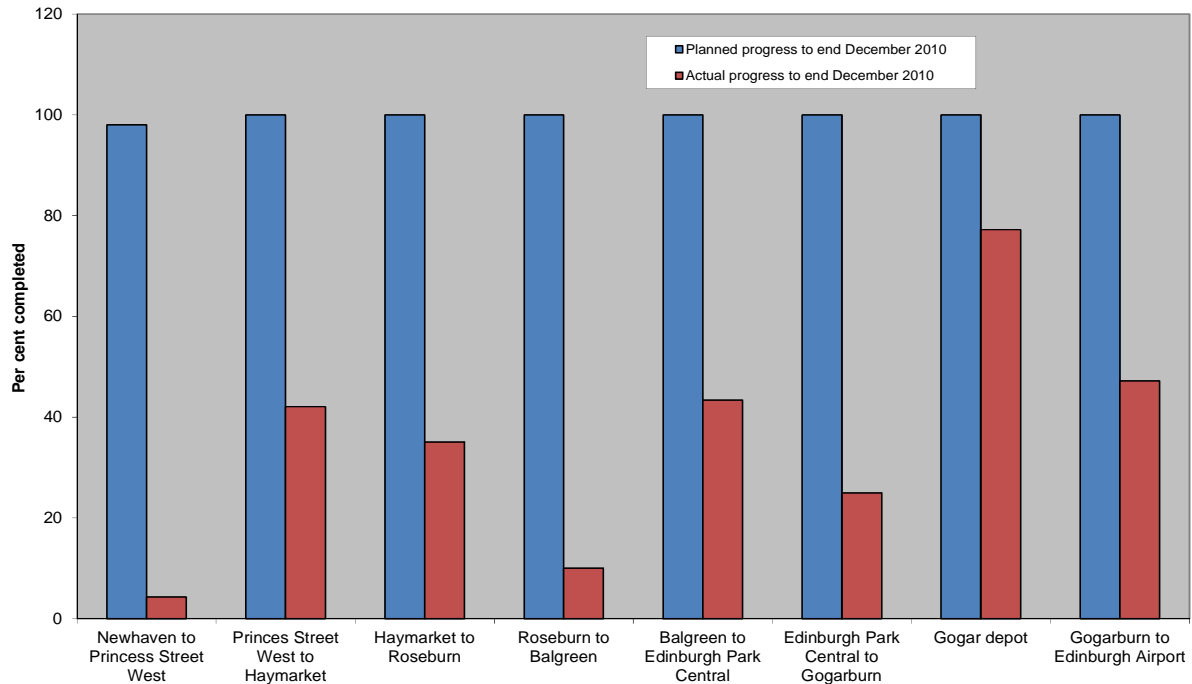
being made in advancing infrastructure installation works. It decided, with the approval of the Tram Project Board, to further escalate its approach to enforcement of its interpretation of the contract's terms and conditions. **tie** also began a fundamental review of the contractual position with BBS.

46. **tie**'s current dialogue with BBS seeks to focus on ensuring a revised programme which clarifies the sequencing of work and the respective parties' responsibilities. However, a continuing difficulty with the progress of infrastructure construction work is **tie**'s and BBS's different interpretation of certain contract clauses. **tie** has issued a number of instructions to BBS to proceed with works in accordance with its interpretation of the contract. According to **tie**, BBS has a different interpretation of its contract responsibilities and is not progressing works where there is a change, or an alleged change, to the contracted scope of works until a price is agreed. In June 2010, it was reported to a full meeting of the council that a large proportion of the changes proposed by BBS remain unresolved, mainly due to BBS being slow to provide sufficient technical evidence to support its claims for extra payments.¹⁰
47. As well as trying to resolve the disagreements with BBS through the terms of the contract including use of the dispute resolution process, **tie** has also begun to consider termination of the infrastructure contract. However, it recognises that any such decision would have significant consequences for the progress of the trams project and it is taking extensive legal advice on the matter.
48. Infrastructure construction is now largely at a standstill except for certain items most of which were not in the scope of the infraco contract and which **tie** has awarded to other contractors. **tie** estimates that, overall, some 28 per cent of the infraco works has now been completed against an original plan of 99 per cent by the end of December 2010 ([Exhibit 6 overleaf](#)). Although significant progress has been made in some areas, such as the construction of the Gogar tram depot, limited progress has been made elsewhere. Off-street works i.e. those which do not involve the tram network running along existing streets, from Haymarket to Edinburgh Airport have seen a little more progress (40 per cent completed against a plan of 100 per cent) than on-street from Haymarket to Newhaven (11 per cent complete against a plan of 99 per cent).
49. In summer 2010 **tie** reported to CEC and Transport Scotland that operational service by February 2013 was achievable although this was dependent on satisfactory resolution of the contractual dispute. **tie** has reported, however, that BBS considers November 2013 to be a more realistic start date based on progress to date.

¹⁰Edinburgh Tram Project – Update Report, report considered at CEC meeting of 24 June 2010

Exhibit 6: Progress to date on infrastructure construction

tie estimates that 28 per cent of infrastructure construction works are now complete although some sections are more advanced than others.



Source: Transport Scotland Internal Period Report, Edinburgh Tram Network, Period 10 2010/11

20 out of 27 tram vehicles have been completed

50. The project plan for the construction of trams expected that all 27 vehicles would be delivered by September 2010. **tie** signed pre-contract agreements for the supply and maintenance of 27 tram vehicles with Construcciones y Auxiliar de Ferrocarriles SA (CAF) in October 2007. However, the plan to transfer this work to the infraco contract and the extensive negotiations between **tie** and BBS before the infraco contract was signed, meant that tram vehicle construction could not start until May 2008, some five months later than planned. CAF delivered the first tram vehicle in April 2010 against the original plan of December 2009. Since then, 20 trams have been completed and the remaining seven are in production. CAF is currently on target to deliver the final tram by April 2011.

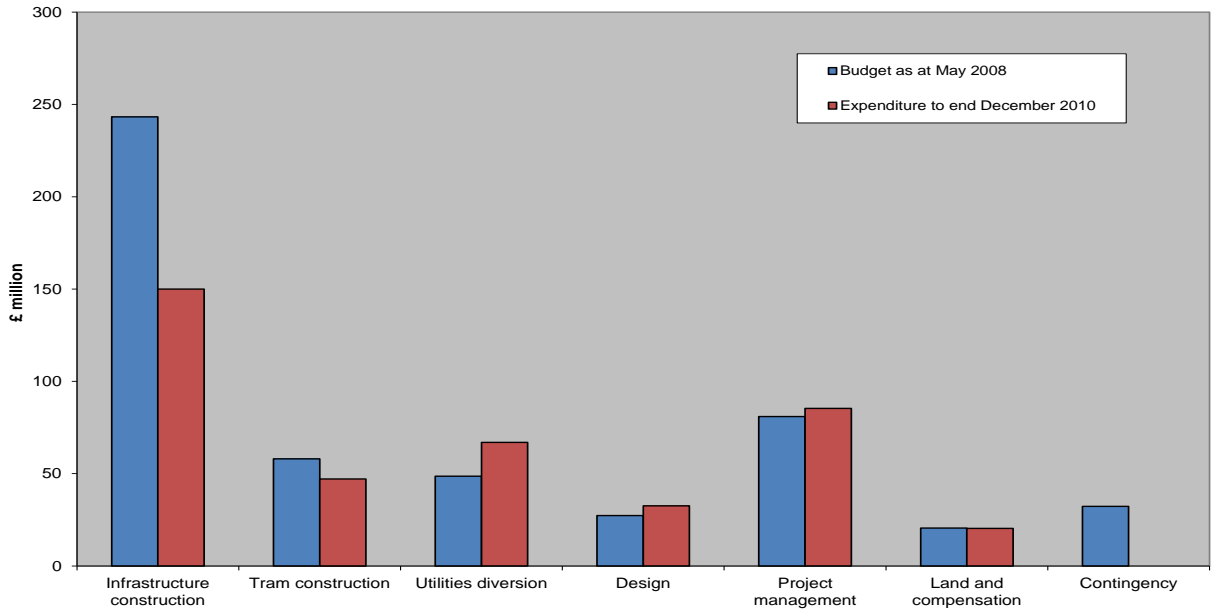
Phase 1a has cost £402 million to the end of December 2010 and is unlikely to be delivered within the current funding limit

51. **tie**'s final business case for the trams system, which CEC approved in December 2007, indicated that Phase 1 was expected to cost £585 million with Phase 1a costing £498 million¹¹. Final negotiations between **tie** and the preferred bidders for the tram vehicle and infrastructure construction contracts in the period to May 2008 when the infraco contract was signed, increased the overall estimated cost of Phase 1a to £512 million. The main reason **tie** provided for this increase was the firming up of provisional prices to fixed prices. This increased the expected cost of both these elements of the project but, because a higher proportion of the project's total costs were considered to be fixed, it also allowed the built-in contingency for unexpected cost increases to be reduced from £52 million to £32 million.
52. **tie** has spent a total of £402 million on Phase 1a to the end of December 2010, some 79 per cent of the estimated cost as at May 2008 and 74 per cent of the available funding of £545 million. Infrastructure construction forms the largest element of expenditure, representing 37 per cent of the total costs to date ([Exhibit 7 overleaf](#)). **tie** should have spent around £501 million to the end of the December 2010 had the project been progressing to plan.
53. **tie** has regularly updated the project's budget over time. A consequence of the delays in the project's progress has been that expenditure profiles have changed with much more expenditure now forecast to occur in 2011/12 than originally planned ([Exhibit 8 overleaf](#)). For example, the final business case planned that £162 million was due to be spent in 2008/09 and £181 million in 2009/10. Actual expenditure in these years amounted to only £101 million and £114 million respectively. As a result, **tie**'s latest expenditure projections show planned expenditure of £87 million in 2010/11 and £111 million in 2011/12, compared to £39 million for both years according to the final business case.

¹¹ *Edinburgh Tram Network Final Business Case Version 2*, **tie**, December 2007

Exhibit 7: Edinburgh tram network spend to the end of December 2010

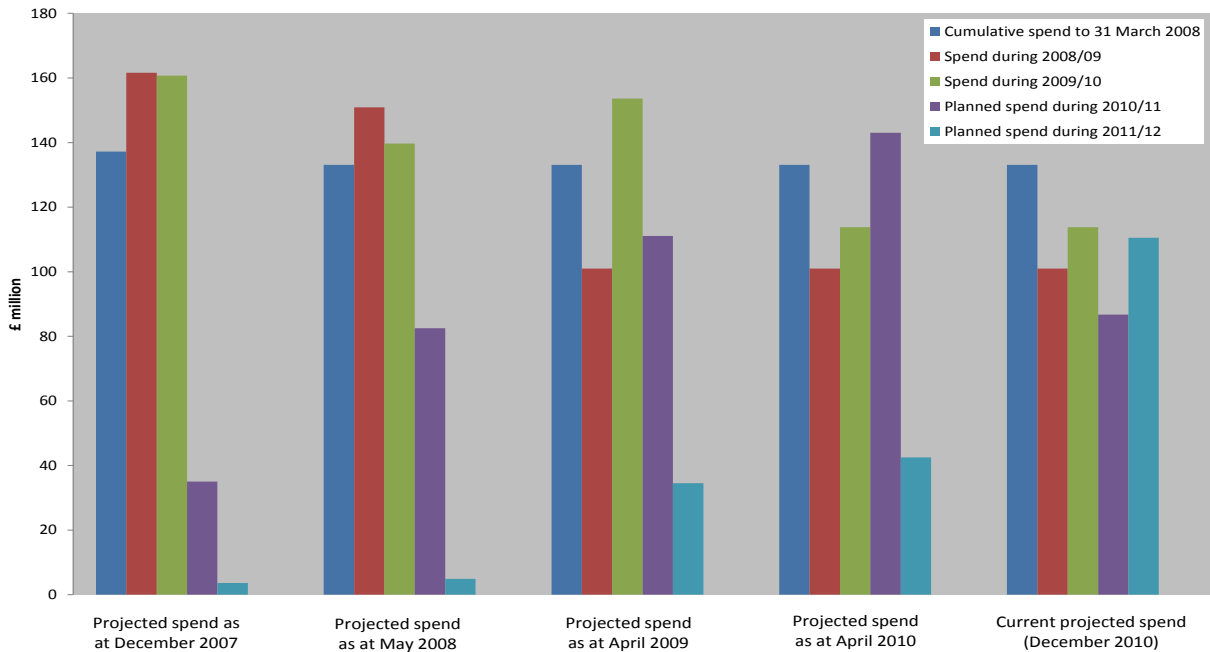
tie has spent a total of £402 million on Phase 1a to the end of December 2010.



Source: Audit Scotland

Exhibit 8: Planned and actual expenditure profiles

A consequence of the project's delays is that more expenditure will occur later than first planned.



Source: Audit Scotland

54. We analysed actual spend to date against the total budget set when the infraco contract was signed in May 2008, and what was projected to be spent at that time to the end of December 2010 ([Exhibit 9 overleaf](#)). The results show:

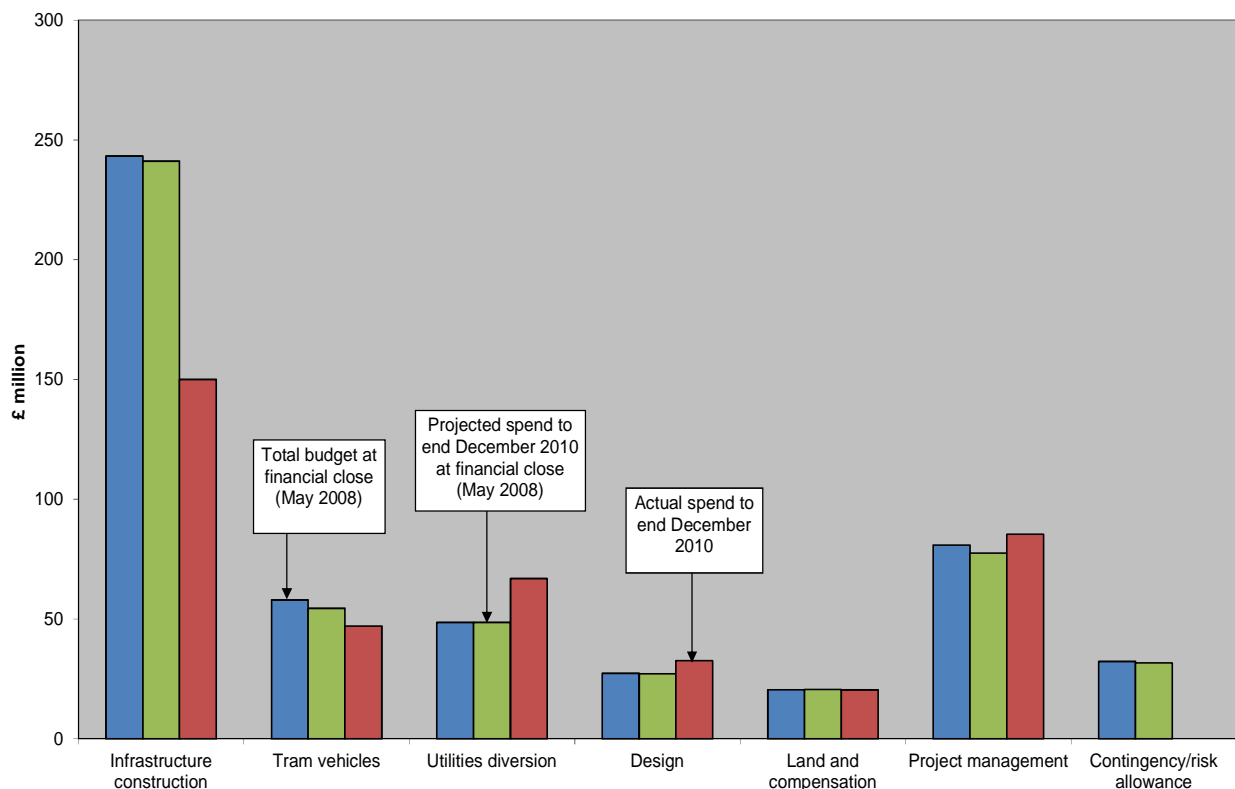
- **Infrastructure construction – tie** has spent £150 million to date on infrastructure construction against a total budget of £243 million and a projected spend to the end of December 2010 of £241 million. Spend to date therefore represents 62 per cent of the budget set in May 2008 while only 28 per cent of the scope of works has been delivered. However, it is not unusual in contracts of this kind to make an initial up-front payment to allow the contractor to purchase materials and to mobilise, and a strict linear relationship between spend and progress should not be expected. Although **tie**'s latest projections set an expected total spend of £276 million for infrastructure construction, this is heavily dependent on resolution of the dispute with BBS.
- **Tram vehicles – tie** has spent £47 million to date on tram vehicle construction against a total budget of £58 million and a projected spend to the end of December 2010 of £54 million. Given the good progress made so far, **tie** is confident that the tram vehicles will be delivered to budget.
- **Utilities diversion – tie** has spent £67 million to date on utilities diversion against a total budget of £49 million. Utility diversion works were expected to be completed by the end of December 2010 so the projected spend to this date is also £49 million. The unanticipated extra amount of utility works which had to be undertaken has contributed to expenditure greater than budget. However, as many of the diverted pipes and cables were old and in need of repair, CEC and **tie** expect that the utility companies will contribute around £4 million towards the cost of this work. Utility companies have yet to agree how much they will contribute.¹²
- **Design – tie** has spent £33 million to date on design work against a total budget of £27 million. Design works were also expected to be completed by the end of December 2010 so the projected spend to this date is also £27 million. **tie** considers that round 20 per cent of design work has still to be delivered and its current projections put the total cost of design work at £34 million.
- **Land and compensation – tie** has spent £20 million to date on land and compensation which matches both the total budget and the projected spend to the end of December 2010. **tie** does not expect to incur further expenditure on land and compensation in respect of Phase 1a.

¹²Edinburgh Tram – Multi Utilities Diversion Framework Agreement Update, report considered at the CEC Tram Sub Committee meeting of 22 March 2010

- **Project management – tie** has spent £85 million to date on project management against a total budget set in May 2008 of £81 million and a projected spend to the end of December 2010 of £78 million. The dispute with BBS has led to **tie** obtaining additional advice in areas such as contract and dispute management, technical and forensic planning/delay analysis and litigation. It currently projects a total spend of £98 million on project management although this is dependent on resolution of the dispute with BBS.
- **Contingency/risk allowance– tie** has now allocated the £32 million allowance for contingencies and risk which was set in May 2008 across other expenditure headings. **tie**'s latest projections contain no contingency/risk allowance.

Exhibit 9: Spend by type against budget

Some elements of the projects are over budget while expenditure in others has not kept pace with plans.



Source: Audit Scotland

55. While **tie** considers it can accurately predict the final outturn expenditure for most elements of the project, it is unable to report a robust final cost estimate for infrastructure construction. **tie** says that, until the key contractual issues with BBS are resolved, it is not possible to forecast accurately what the trams project will finally cost. It has developed a range of expenditure estimates based on different scenarios but the contractual dispute with BBS needs to be resolved before these figures can be verified. In March 2010, CEC indicated to Transport Scotland that it is unlikely that the full scope of Phase 1a will be completed within the Scottish Government's cost limit of £545 million.

CEC and tie are now considering different options for taking the project forward

56. **tie** is now considering the completion of Phase 1a in incremental stages due to the programme and cost difficulties experienced so far. The main focus of incremental delivery would be to deliver the Edinburgh Airport to St Andrew Square as the first phase, as **tie** considers this would yield early economic benefits and would allow integration with bus services. **tie** has still to clarify the cost of this, and other sections of Phase 1a which would be delivered later. However, **tie** considers a phased approach would enable the best use of the remaining budget to deliver a viable tram service.
57. According to **tie**'s final business case, Phase 1a was expected to generate benefits of £1.77 per £1 of cost. To date, **tie** has not commissioned a complete reassessment of the benefit cost ratio (BCR) presented in the final business case, although it expects that any future incremental implementation of Phase 1a will require CEC to demonstrate a positive BCR from the additional expenditure. **tie** has, however, done some calculations to demonstrate the continuing economic viability of the project if Phase 1a is completed in its entirety. While we have not audited these calculations they indicate:
- if the costs of delivering the whole of Phase 1a were to increase to £640 million (a 25 per cent increase on the cost when the final business case was approved in May 2008) then, all other things being equal, **tie** estimates the BCR for the project would reduce to 1.37 i.e. £1.37 of benefits per £1 of cost
 - in addition to the increase in costs above, if slower than expected new development and delayed growth in passenger numbers associated with the later delivery of the whole of Phase 1a results in a 20 per cent reduction in the discounted value of time travel benefits, **tie** estimates that the BCR would be further reduced to 1.10.¹³
58. CEC is also considering ways in which it may be able to increase its funding of the trams project. Due to the lack of clarity on the project and its associated costs, CEC is examining contingency planning options up to a capital cost of £600 million. To date, it has achieved contributions of £16 million from developers and other sources, although the effects of the recession mean that contributions are currently lower than expected.
59. CEC is considering whether it may use the contributions already received to cover borrowing with debt being repaid from future developer contributions and capital receipts. The council also

¹³Edinburgh Tram – Business Case Update 2010, **tie** September 2010

considers there is scope to undertake future prudential borrowing.¹⁴ CEC's funding strategy in respect of the tram project is reviewed on a six monthly basis and the results reported to its Internal Planning Group.

60. Following correspondence between the managing director of Bilfinger Berger and the CEC chief executive, senior council officials met with representatives of BBS in December 2010. This meeting was exploratory in nature and provided BBS with an opportunity to raise issues of concern. At the meeting, BBS confirmed its willingness to explore the resolution of outstanding matters with CEC and **tie** via formal talks involving an agreed mediator. The current situation between **tie** and BBS is, however, complex and the outcome of a further round of mediation talks planned for March 2011 will help inform the options for the trams project to be taken forward.

¹⁴ Local authorities are able to borrow to invest in capital works and assets so long as the cost of that borrowing is affordable and in line with principles set out in a professional Prudential Code, endorsed by the Chartered Institute of Public Finance and Accountancy.

Part 3. Project governance arrangements

Key messages

- Elected members of the current ruling coalition at CEC hold differing views of the Edinburgh trams project and considerable debate is generated at council meetings when the subject is discussed. This has made it more difficult for CEC as a whole to present a unified commitment to the project.
- CEC's governance arrangements for the project are complex and are intended to allow the work of **tie** to be subject to scrutiny while keeping all elected members informed of the project's progress. Some members of the project's main governance body, the Tram Project Board, are also members of **tie**'s own board. CEC's Director of Finance and Director of City Development also exercise a number of different oversight roles in the project.
- Transport Scotland considers its need to be represented on the Tram Project Board ended in June 2007 when, following a Scottish Parliament debate and vote, Ministers announced that the Scottish Government's contribution should be capped at £500 million. Transport Scotland does not consider that it has the same oversight role for the trams project as it has for other Scottish Government transport projects because it is neither the promoter of the project or has a contractual relationship with any of the private sector bodies engaged in the project's construction and delivery. Transport Scotland does, however, hold quarterly meetings with CEC where the project's progress is reviewed.
- **tie** makes regular reports on the project's progress to the Tram Project Board and CEC also provides regular reports to elected members at full Council meetings. The commercially sensitive nature of the dispute with BBS and future financial projections, however, has meant that information presented to full Council meetings has been limited. Given the high profile of the project, the lack of detail which has been made available to some councillors on, for example, the project's likely costs has caused frustrations.

61. Corporate governance is about direction and control of organisations. Councils are large complex organisations so good governance and effective scrutiny are critically important. Governance arrangements for the Edinburgh trams project have had to take into account:

- the organisational structures of CEC's arm length bodies that will be responsible for delivering an integrated transport service once trams are operational.
- the need for effective scrutiny of Transport Edinburgh Limited (TEL) and **tie** in delivering the project.

- the high political and media profile of the project and the wish to keep elected members informed of its progress.

Transport Edinburgh Ltd is responsible for strategic and other material decisions affecting the project

62. One of the objectives of the Edinburgh trams project was to reduce traffic congestion and environmental damage caused by traffic. The CEC considered that a key mechanism to deliver this objective was to develop an integrated public transport network which provided high-quality bus and tram services. When the trams project began, in addition to **tie**, CEC wholly, or substantially, owned two companies involved in public transport provision:

- **Transport Edinburgh Limited** – a wholly owned company established in 2004 to promote and develop the implementation of transport projects set out in CEC's local transport strategy; and promote the integration of all modes of public transport in Edinburgh
- **Lothian Buses plc** – a company 91 per cent owned by CEC which runs bus services in the city region.¹⁵ In 2009, Lothian Buses carried some 107 million passengers and generated profits of £5.8 million on a turnover of £112 million.

63. CEC established TEL at a time when it anticipated major investment in Edinburgh's transport infrastructure. CEC considered that TEL would be central to a new company group structure and organisational framework for the delivery of a range of transport services. Since then, the envisaged role of TEL has changed. CEC is currently reviewing its plans but it originally intended that TEL would oversee the running of an integrated bus and tram service once trams come into operation.

64. As an interim step, in December 2009 the council agreed that ownership of **tie** should be transferred to TEL. Under this arrangement, day-to-day management, control and execution of the tram project remained with **tie**. CEC gave TEL responsibility for all other strategic and other material decisions affecting the project except for certain key matters, such as approving project costs exceeding £545 million, which remained with the elected members of the full Council ([Exhibit 10](#)).

¹⁵The remaining shares are owned by East Lothian, West Lothian and Midlothian Councils.

Exhibit 10: CEC delegated limits as they apply to the trams project

TEL is responsible for strategic and other material changes affecting the project within delegated limits.

In December 2009, CEC agreed that ownership of **tie** should be transferred to TEL. **tie** remained responsible for the day-to-day management, control and execution of the tram project while TEL assumed responsibility for all strategic and other material decisions affecting the project. To formalise these arrangements, CEC and TEL signed an Operating Agreement setting out their respective obligations and responsibilities in relation to the delivery of the tram system. CEC, **tie** and TEL also signed a separate Memorandum of Understanding updating an earlier Operating Agreement between CEC and **tie** when **tie** was a separate company from TEL. These arrangements provided TEL with responsibility for all matters affecting the programme, cost and scope of the project except for the following matters whose approval was reserved to CEC:

- any actual or reasonably expected delay beyond three months after the 'baseline date' (the estimated date when trams were to be operational as determined by CEC's chief executive and intimated to TEL from time to time)
- any actual or reasonably expected increase in capital cost which would mean the 'baseline cost' (the estimated capital cost of the project as determined by CEC's chief executive and intimated to TEL from time to time) is exceeded by greater than £1 million
- any substantial change to the design, scope or service pattern set out in the Final Business Case.

In setting the baseline cost and baseline date, CEC's chief executive was also required to obtain elected members' approval to specify a baseline date beyond October 2012 and a baseline cost exceeding £545 million.

In addition, the CEC/TEL Agreement also formalised the council's decision first made in December 2007 that TEL should establish the Tram Project Board (TPB) as a formal committee of the TEL board with delegated responsibilities. The TPB was provided with full delegated responsibility for the delivery of an integrated Edinburgh tram and bus network on behalf of TEL and CEC. The TEL chief executive officer, as project senior responsible owner, was also provided with delegated responsibility for approving more minor changes to the project which resulted in:

- delays to key milestones of up to one month
- increases in capital costs of up to £1 million
- reductions in annual operational surplus of up to £0.1 million per annum
- reductions in the project's economic viability measured by a reduced benefit cost ratio of less than 0.1 i.e. a reduction in benefits of 10 pence per £1 of cost.

The arrangements require TEL to report to CEC on a four-weekly and annual basis with regard to the project's finances and progress. In particular, immediately that TEL becomes aware of the likelihood of a delay to, or overspend in, the project it is required to notify CEC's Tram Monitoring Officer providing reasons for the potential delay or overspend and detailing the steps to be taken to mitigate against this.

Source: Audit Scotland

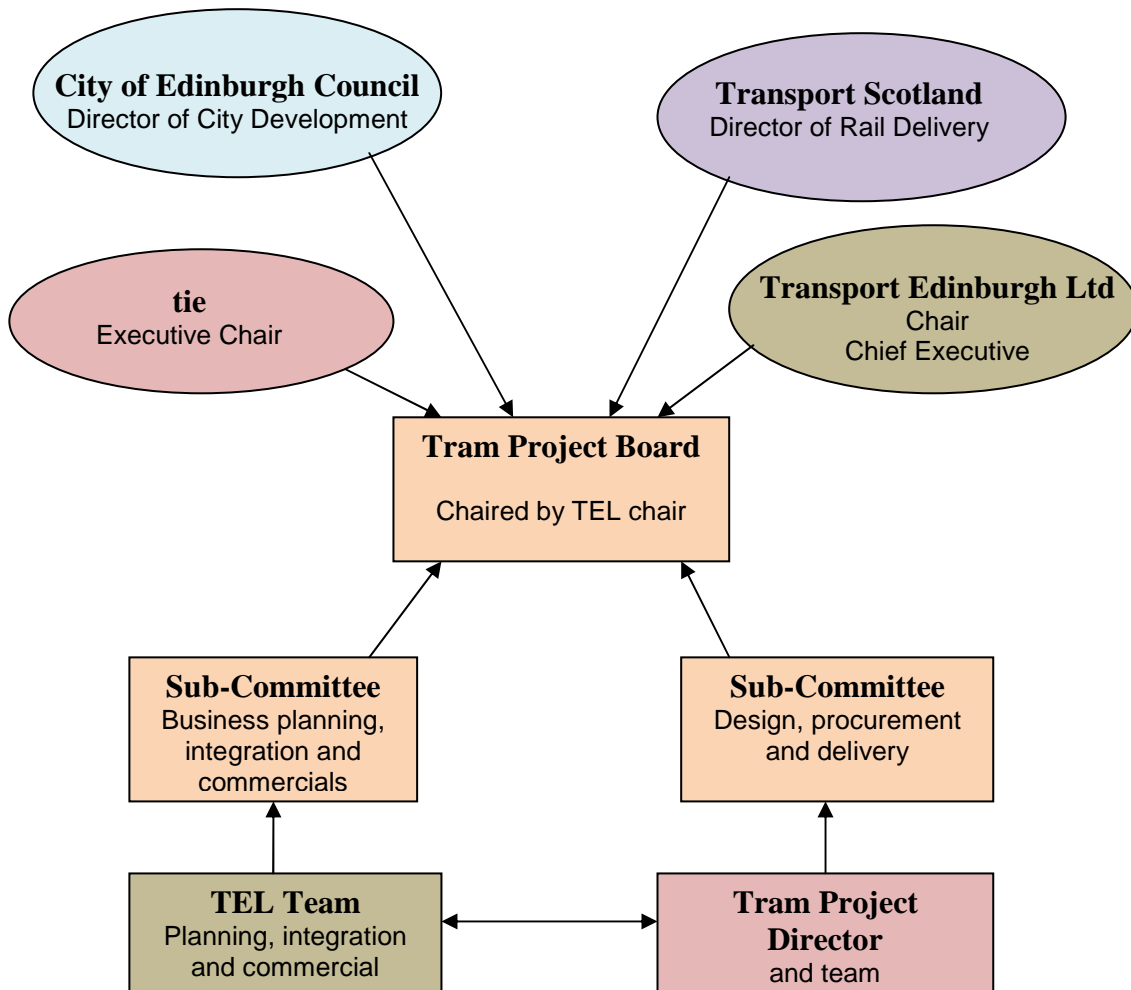
65. In December 2009, CEC also agreed that **tie** should cancel its contract with Transdev as tram operator and allow TEL to take on full responsibility for planning the operational introduction of the trams service. To ensure construction and operational planning was kept in two separate and distinct entities, Edinburgh Trams Limited, a non-trading company then registered as owned by Lothian Buses, was transferred to TEL. Transdev's staff were also transferred to Edinburgh Trams Limited to undertake the necessary planning work.
66. In addition, in December 2009, CEC agreed a revised structure for the board of TEL intended to strengthen its ability to deliver integrated transport across the city. In deciding the membership of TEL, CEC sought to include council officials to provide an operational link with CEC, elected members to provide a political representation and non-executive directors with expertise in transport issues. The board, whose membership is subject to the approval of elected members, now includes:
- a chair
 - the chief executive of **tie** who also became TEL's chief executive when ownership of **tie** transferred to it
 - CEC representation in the form of six elected members, plus the Director of Finance and the Director of City Development to provide operational and political links with CEC
 - a director with specific responsibility for the integration of bus and tram operations
 - the managing director of Lothian Buses to support the establishment of the proposed group structure, particularly in relation to bus and trams operations
 - four non-executive directors with expertise in transport issues (who are also non-executive directors of **tie**).

The Tram Project Board continues to be the project's main governance body responsible for overseeing the work of tie

67. In the Auditor General's June 2007 report we recorded how the Tram Project Board (TPB) exercised overall governance of the project and included senior representatives from **tie**, Transport Scotland, CEC and TEL ([Exhibit 11](#)). At the time, the construction work on the project was at a relatively early stage and the TPB was a free-standing board with no direct reporting lines to other organisations. In December 2007, elected members agreed that TEL should establish the TPB as a committee of TEL with delegated responsibilities ([Exhibit 12 on page 34](#)). The TPB continues to be the project's main governance body. Its broad remit is to oversee the execution of all matters relevant to the delivery of an integrated Edinburgh bus and tram network.

Exhibit 11: Original Tram Project Board governance structure

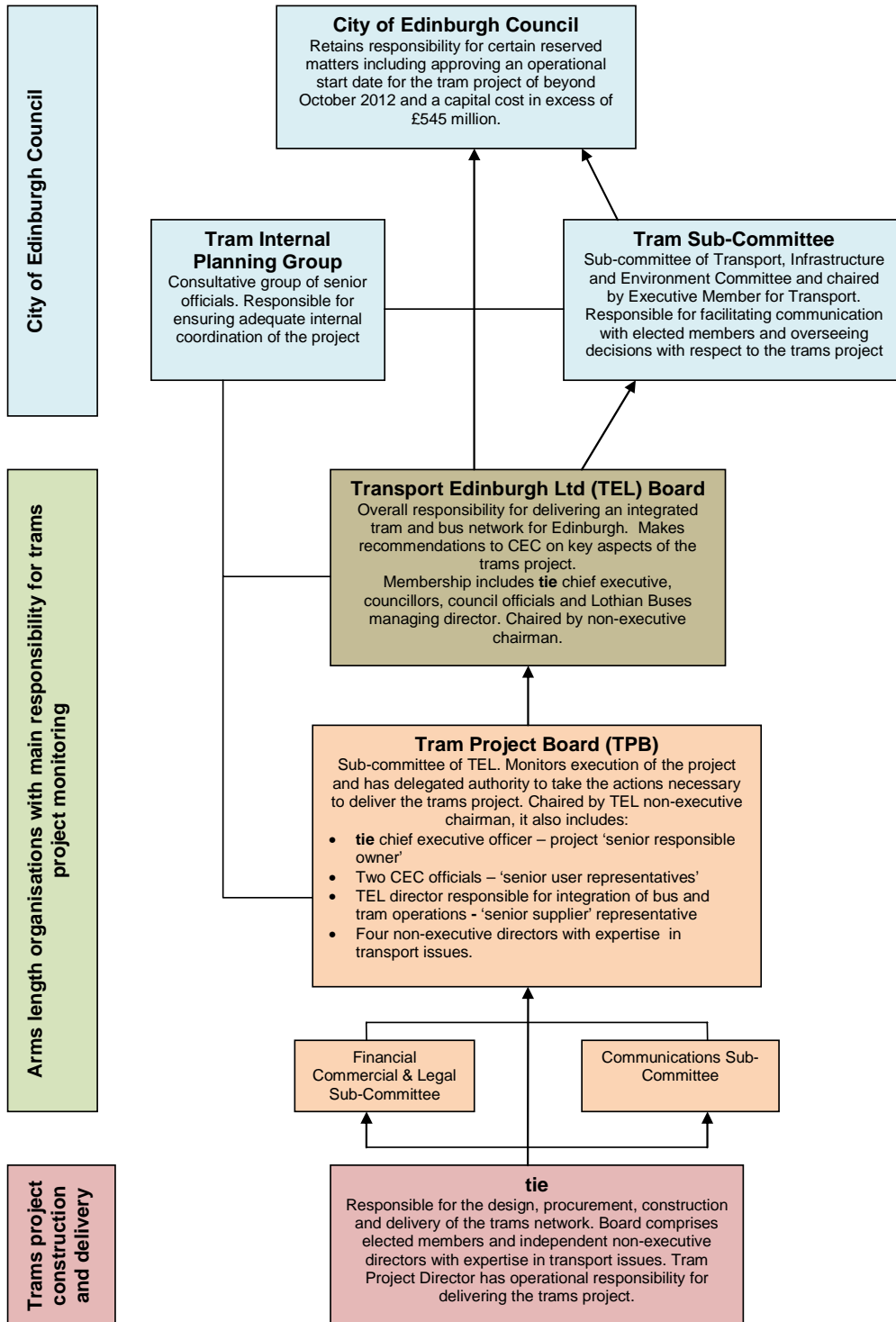
The original Tram Project Board included senior representatives from **tie**, Transport Scotland, CEC and TEL.



Source: Audit Scotland

Exhibit 12: Current tram project governance arrangements

The current governance arrangements are designed to take into account the need to oversee the work of **tie**, the need to keep elected members informed of the project's progress and the planned future role of TEL in providing integrated tram and bus services.



Source: Audit Scotland

Membership of the Tram Project Board includes key roles identified by the Office of Government Commerce

68. The Office of Government Commerce (OGC), amongst others, has published a range of guidance on managing successful projects including the role of project boards. There is significant variability in the way project boards are constructed and the composition of individual boards must suit the circumstances of the project. The OGC has, however, defined three roles which should be represented on project boards.¹⁶ The current membership of the TPB includes these three roles (Exhibit 13).

Exhibit 13: Current composition of the Tram Project Board

The composition of the Tram Project Board includes key roles identified by the OGC.

Membership of Tram Project Board	OGC classification	Role
TEL chair (chair of TPB)	Not classified	The chair provides overall leadership to the TPB.
Chief executive of TEL and tie	Senior responsible owner	The chief executive is responsible for ensuring that the tram project meets its objectives and delivers the expected benefits. He is personally accountable for the success of the project.
TEL director responsible for integration of bus and tram operations	Senior supplier representative	The director represents TEL from the perspective of the eventual supplier of operational tram services.
CEC Director of Finance	Senior user representatives	The two CEC officials represent the ultimate recipient of the trams project. They are there to ensure that the project deliverables are fit for purpose and to provide an operational link with CEC.
CEC Director of City Development		
Four non-executive directors (who are also non-executive directors of tie)	Not classified	The non-executive directors bring expertise in transport issues.

Source: Audit Scotland

69. A key role for the TEL board is to exercise adequate oversight over the project's progress and risk management arrangements. The TPB, as a formal sub-committee of TEL, is responsible for undertaking this role. The chief executive of **tie** and its four non-executive directors are also members of the TPB.

¹⁶Managing Successful Projects with PRINCE2, Office of Government Commerce, 2009

Transport Scotland is no longer represented on the Tram Project Board, despite its significant financial commitment

70. As originally constituted and reported in the Auditor General's 2007 report, the TPB included representation from Transport Scotland. However, in June 2007, following a Scottish Parliament debate and vote, Ministers announced that the Scottish Government's financial contribution to the project should be capped at £500 million and Transport Scotland withdrew from the TPB. This changed the emphasis of its role in the project to managing the grant funding.
71. Under this regime, Transport Scotland considers that it does not have the same oversight role for the trams project as it has for other Scottish Government transport projects which it manages directly, for example, in relation to risk management.¹⁷ Transport Scotland has, however continued to hold quarterly meetings with CEC to discuss progress with the project. There are also clear project monitoring processes, with grant claims or requests for payment checked and authorised prior to processing. Regular reporting to Transport Scotland's Rail Delivery Directorate board and its main board also takes place.
72. While **tie** considers that the whole of Phase 1a will not be delivered within the £545 million limit, Transport Scotland continues to make grant payments to CEC. There is no requirement in the grant offer that the Scottish Government's continued funding of the project should be withdrawn if it became clear that Phase 1a could not be delivered for £545 million. Transport Scotland therefore continues to make payments in respect of valid work undertaken while the project continues. In light of the project's current progress, Transport Scotland and CEC are reviewing the conditions contained in the grant offer letter. The auditor will continue to monitor developments on this as part of his 2010/11 audit of Transport Scotland.

Council officials exercise oversight of the project through an internal planning group

73. The CEC established a Tram Internal Planning Group (IPG) in October 2006 to provide an oversight of the different strands of work required to advance the delivery of the trams projects. The IPG has met monthly since May 2008 when construction commenced. In May 2010, the IPG's remit was changed to focus more explicitly on:
- the provision of CEC management scrutiny and oversight of the tram project, including the monitoring of progress against the programme timetable and budget

¹⁷ Transport Scotland is responsible for the delivery of most Scottish Government transport projects and has significant skills and experience in this area.

- the identification, management and mitigation of risks to CEC and Edinburgh resulting from the project failing to achieve its objectives
- ensuring that CEC co-ordinates its resources and activities to support the project's implementation
- ensuring that the interests of wider stakeholders, such as elected members, in the tram project are fully considered and communications with key stakeholders are properly managed
- monitoring and assisting with the integration of **tie**, Lothian Buses and TEL.

74. The core membership of the IPG includes the chief executive and the Directors of Finance and of City and Development who are also members of TEL and the TPB. Other members include the Director of Corporate Services, and the Heads of Transport, Communication, and Legal and Administrative Services. The Head of Transport in particular plays a key role as CEC's nominated Tram Monitoring Officer in providing direct operational liaison between CEC and TEL and in ensuring that CEC's interests are fully represented. Although not a member of TEL and the TPB, the Tram Monitoring Officer is expected to attend their meetings.

The project's progress and risks are reported regularly

75. The TPB meets every four weeks to consider reports from **tie**'s Tram Project Director. Issues which the TPB consider include progress with the project, updates on the dispute with BBS, the financial position, reviews of **tie**'s risk register and health and safety matters.

76. Day-to-day responsibility for delivering the project rests with the Tram Project Director who is supported by five teams responsible for delivery and programme, engineering matters, procurement, finance, and operations and maintenance. The Tram Project Director exercises project control through four-weekly reviews of progress with project managers.

The commercially confidential nature of some of the issues reported has caused frustrations

77. In May 2008, CEC formed a Tram Sub-Committee of the Transport, Infrastructure and Environment Committee to oversee decisions with respect to the trams project and to facilitate communication with elected members on its progress. As part of this, CEC expected that TEL, the TPB and **tie** would provide regular reports and recommendations to the sub-committee. In reality, the sub-committee has met only six times, and not since March 2010. Given the profile of the project, its cost

and the reputational risks involved, most reporting has been made directly to elected members at full meetings of the Council.

78. The full Council has received regular reports on the project's progress and on attempts to resolve the dispute with BBS. There have, however, been restrictions on details surrounding the dispute with BBS and the level of financial information included within council papers due to some of it being considered to be commercially confidential. In particular, in June 2010 the full Council asked officials to provide a refreshed business case for TEL detailing the capital and revenue implications of all the options being investigated by **tie** for taking the trams project forward. The paper considered by the council in October 2010 provided only limited financial detail as the TEL Business Plan contained information on patronage assumptions for buses and trams which were considered to be commercially sensitive.
79. The TEL Business Plan was subsequently provided to elected members at the December 2010 council meeting, although certain information on forecast passenger volumes and TEL profitability was redacted. However, officials gave full copies of the TEL Business Plan to members of each political group on request subject to written undertakings that they would not disclose commercially sensitive information to any other individual or organisation.
80. In addition, elected members who receive full information in their position as board members of TEL (although there are no councillors who are members of the TPB, councillors who are non-executive members of TEL can attend TPB meetings) are unable to share this information more widely with political group colleagues. The auditor of CEC recorded in her report on the 2008/09 audit that this continues to cause tensions and frustrations amongst elected members. This reflects more generally the potential conflicts of interest that can arise where councillors who serve as directors of bodies set up as commercial companies, become subject to the requirements of companies act legislation. These include for example, a responsibility to always act in the interests of the company and to abide by commercial confidentiality.
81. A key factor contributing to the tensions surrounding the project is that there are different views as to the need and value of the trams system. The project was developed and approved when the Labour Party held an overall majority in the council. The current ruling group consists of a Scottish Liberal Democrat/ Scottish National Party coalition. Members of the current administration hold differing views of the Edinburgh trams project and considerable debate is generated at council meetings when the subject is discussed. This has made it more difficult for CEC as a whole to present a unified commitment to the project.

Appendix 1. Project timeline

June 2000	CEC publishes its Local Transport Strategy which sets out that the development of a tram network is central to its transport policy.
April 2001	CEC commission feasibility studies into Edinburgh tram system
May 2002	CEC establishes tie as an arms-length company to investigate how best to deliver its local transport strategy.
September 2002	tie submits its proposals to CEC, identifying three trams lines as the most promising in terms of economic viability and benefits to the city.
March 2003	Scottish Ministers announce £375 million available in principle for tram system.
January 2004	Two Bills submitted to the Scottish Parliament intended to enable the construction of the tram system.
September 2005	tie appoints Parsons Brinkerhoff to facilitate the early identification of utility diversion works and completion of design drawings.
March 2006	Bills receive Royal Assent.
October 2006	tie appoints Alfred McAlpine Infrastructure Services to be responsible for the diversion and protection of utilities along the tram route.
June 2007	Auditor General publishes his report <i>'Edinburgh transport projects review'</i> which includes the trams project. The report concluded that the arrangements in place to manage the trams project appeared sound although the final business case had yet to be approved. It said that a range of key tasks, such as the commencement of utilities diversion works and negotiations with bidders over the infrastructure construction contract, needed to be completed before the business case could be signed off. Unless work progressed to plan, cost and time targets may not be met.
June 2007	Following a debate and vote, the Scottish Parliament calls on the SNP administration to proceed with the Edinburgh trams project within the budget limit set by the previous administration. The Scottish Parliament notes that it is the responsibility of tie and CEC to meet the balance of the funding costs.
October 2007	tie signs pre-contract agreements for the supply and maintenance of 27 tram vehicles with Construcciones y Auxiliar de Ferrocarriles SA.
October 2007	tie announces the consortium Bilfinger Berger Siemens (BBS) as the preferred bidder for construction of the tram infrastructure, including rails, overhead power cables and a tram depot.
December 2007	tie signs a mobilisation and advance work agreement for infrastructure construction with BBS.
December 2007	tie publishes its final business case for the tram network. Phase 1a (Edinburgh airport to Newhaven) is expected to cost £498 million. Phase 1b (Roseburn to Leith) is expected to cost £87 million. Trams are expected to be open for revenue service by spring 2011.
December 2007	CEC approves the final business case.
January 2008	Scottish Ministers offer grant support for Phase 1a of 91.7 per cent of eligible capital costs subject to a maximum grant of £500 million. The Scottish Government's grant offer is conditional on project costs not exceeding £545 million, a positive benefit cost ratio and no requirement for an ongoing subsidy once trams are operational.

May 2008	BBS appointed as contractor for the construction of the tram infrastructure. On execution of this contract, the contracts for systems design and tram vehicle construction and maintenance are transferred to it.
February 2009	Major dispute arises between BBS and tie , one week before track-laying work was due to start in Princes Street, amid claims that BBS is seeking an additional £50-80 million funding.
April 2009	CEC announces that, in view of the economic downturn, Phase 1b of the project is not proceeding in the foreseeable future.
June 2009	A week of informal mediation is held between tie and BBS which examines, among other things, the interpretation of key clauses in the pricing schedule, risk allocation and the substantiation of changes and value engineering issues
July 2009	tie reports to the Tram Project Board that the mediation had not been successful. Tram project Board endorses tie 's strategy of adopting a more formal approach to managing the contract.
November 2009	Carillion (who bought over Alfred McAlpine in December 2007) completes its works package of diverting 40,000 metres of utility pipes and cables. tie appoints Clancy Docwra and Farrans to divert the remaining 10,000 metres
December 2009	Following further disputes with BBS, the Tram Project Board concurs with tie 's proposal that, in view of lack of progress, a fundamental review of the contractual position with BBS should be conducted. If required, formal legal processes should be started to bring the major issues to a head to allow the project to progress.
March 2010	tie informs CEC who tells Transport Scotland that it is unlikely that all of Phase 1a of the project can be delivered for £545 million. £348 million has been spent on the project up to that point.
March 2010	The Tram Project Board approves tie 's strategy for the future direction of the project including management of the infrastructure construction contract with BBS.
June 2010	CEC reports to full council meeting on progress of the project. Council requests a refreshed business case detailing the capital and revenue implications of all options being investigated by tie .
October 2010	CEC reports to full council meeting in response to its June 2010 request. The report provides an update on progress and outlines an incremental approach to the project which would see the opening of a line from Edinburgh Airport to St Andrew Square as the first phase. No cost or benefit figures are provided and the council requests a further report to be prepared for its December 2010 meeting.
October 2010	The Accounts Commission and the Auditor General for Scotland announce their intention to carry out a further review which will provide an independent commentary on the Edinburgh trams project's progress and costs to date and its governance arrangements.
December 2010	Refreshed trams business case is presented to full CEC council meeting. Report includes the consideration of the incremental delivery of Phase 1a, an update on the economic case for Phase 1a, expenditure to date and an assessment of funding and affordability. The council also notes that a report would be submitted within one year on the operational and governance arrangements necessary to secure the integration of bus and tram services.

Appendix 2. Main parties involved in the project

Funders	
Transport Scotland	The Scottish Government, via Transport Scotland, has agreed to provide up to £500 million for the project subject to the conditions set out in the grant agreement being met. These include CEC approving a final business case for the project which shows that the total cost of the project should not exceed £545 million, that the project has positive a benefit cost ratio and that there is no requirement for ongoing subsidy once trams are operational.
City of Edinburgh Council (CEC)	Provides the balance of funding. The Council is currently looking at how to source additional funding up to a maximum project cost of £600 million.
Delivery bodies	
Transport Initiatives Edinburgh (tie)	An arms length company wholly owned by CEC. Responsible for the design, procurement, construction and delivery of the trams network.
Tram Project Board	A formal sub-committee of TEL. Monitors execution of the project and has delegated authority to take the actions necessary to deliver the trams project.
Transport Edinburgh Ltd (TEL)	An arms length company wholly owned by CEC. Has overall responsibility for delivering an integrated tram and bus network for Edinburgh. The original intention is that once the tram network is delivered, TEL will be responsible for delivering an integrated tram and bus service.
Contractors	
Transdev	Transdev was appointed as the tram operator in May 2004 to assist planning of an integrated service network with TEL. The contract with Transdev was later cancelled in December 2009 as a cost saving measure. CEC now intends that TEL will be responsible for operating an integrated tram and bus service.
Parsons Brinkerhoff/Halcrow	Appointed in September 2005 as SDS provider to facilitate the early identification of utility diversion works, land purchase requirements and traffic regulation requirements and the completion of design drawings.
Alfred McAlpine Infrastructure Services/ Carillion	Alfred McAlpine was appointed as the contractor responsible for utilities diversion work in October 2006. Responsibility passed to Carillion when it acquired Alfred McAlpine in December 2007. When Carillion completed its agreed work package in late November 2009, Clancy Docwra and Farrans were appointed to complete utilities diversion works.
Construcciones y Auxiliar de Ferrocarriles SA (CAF)	Responsible for tram vehicle construction. Appointed in May 2008.
Bilfinger Berger Siemens (BBS)	Responsible for infrastructure construction. Appointed in May 2008. At this point, responsibility for systems design and vehicle supply and maintenance passed to BBS, and Parson Brinkerhoff/Halcrow and CAF joint the consortium.

Edinburgh trams

Interim report

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