

EDINBURGH TRAM (LINE TWO) BILL COMMITTEE

Wednesday 22 June 2005

Session 2

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EDINBURGH TRAM (LINE TWO) BILL COMMITTEE

† 8th Meeting 2005, Session 2

CONVENER

*Bill Aitken (Glasgow) (Con)

DEPUTY CONVENER

*Jeremy Purvis (Tweeddale, Ettrick and Lauderdale) (LD)

COMMITTEE MEMBERS

*Marilyn Livingstone (Kirkcaldy) (Lab)

*Kate Maclean (Dundee West) (Lab)

*Alasdair Morgan (South of Scotland) (SNP)

*attended

THE FOLLOWING ALSO ATTENDED:

Malcolm Thomson QC (Counsel for the Promoter)

Ian Mowat

THE FOLLOWING GAVE EVIDENCE:

Brian Evans (Gillespie's Ilp)

Aileen Grant (City of Edinburgh Council)

Steve Mitchell (Environmental Resources Management)

Andrew J Oldfield (Mott MacDonald)

David Todd (Dublin Street Residents Association)

Stuart Turnbull (Jacobs Babbie)

Alan Welsh (New Town, Broughton and Pilrig Community Council)

CLERK TO THE COMMITTEE

Terry Shevlin

LOCATION

Committee Room 1

† 7th meeting 2005, Session 2—joint meeting with Edinburgh Tram (Line One) Bill Committee.

Scottish Parliament

Edinburgh Tram (Line Two) Bill Committee

Wednesday 22 June 2005

[THE CONVENER *opened the meeting at 09:38*]

Consideration Stage

The Convener (Bill Aitken): Good morning ladies and gentlemen—I extend to you all a warm welcome to the eighth meeting in 2005 of the Edinburgh Tram (Line Two) Bill Committee. We are now at the first phase of the consideration stage, when the committee will consider in detail the objections to the bill and take evidence from the promoter and objectors. Ultimately, the committee will report to the Parliament on these outstanding objections and must provide a decision on every one. The committee takes that task very seriously.

It is useful for all objectors and witnesses to bear the role of the committee in mind when they come to give evidence. The committee can make recommendations to amend the bill only on the basis of the evidence it hears.

We will take evidence on 16 objections today, of which 13 objectors are resting on their original objections, which means that they will not provide oral evidence. The promoter has provided witnesses for all the objections. For the remaining three objections, we will take evidence from witnesses provided by the promoter and the lead objectors.

Representatives of the promoter and the objectors attended a timetabling meeting in May at which the procedure and order for oral evidence taking was explained and agreed. For the benefit of everyone present, I will briefly recap the procedure.

The committee will take evidence on each objection in turn. For each objection, we will first hear from all the witnesses for the promoter and then from all the witnesses for the objector. Every witness will face the same three-step process. First, he or she will be questioned by their representative. Questions will be restricted to any issues that remain outstanding after the relevant witness statement and rebuttals have been exchanged between the parties. A witness should be questioned only on his or her witness statement and any rebuttal of it. Secondly, they will be cross-examined by the opposing side. Finally, they will be questioned again by their representative, but that will be restricted to matters

covered in cross-examination. The committee can, of course, ask questions whenever and of whomsoever it wishes.

Following completion of all the oral evidence-taking for each objection, the promoter's representative and the objector's representative will each be given a maximum of five minutes to make any closing comments. Those closing statements must not introduce any new evidence or issues.

The committee already has all the witness statements and rebuttals, as well as a copy of all the background documents that have been referred to. I want to put on record our thanks to the objectors, the promoter and all the witnesses for their detailed written evidence. It is greatly appreciated.

I remind all witnesses that they should refrain from simple repetition of points that have been made previously in the written evidence. Also, all issues raised in oral evidence must have been raised in the original objection and subsequent witness statements and rebuttals. Evidence will not be taken on new issues. I am sure that all parties would welcome brevity and clarity in the questions and answers.

There are various other issues that I will clarify for all those giving evidence today. I am sure that everyone will appreciate that as the trams project progresses, documents will become available, for example, as a result of negotiations between objectors and the promoter. However, I do not want the committee to hear oral evidence on documents that it has not had the opportunity to consider. It would not be courteous to the promoter or to an objector to expect them to cross-examine witnesses on information in documents that they might not have had the opportunity to consider. I therefore make it clear that the submission of new written material of any kind at committee meetings will generally not be tolerated.

Similarly, any documents that may be referred to in oral evidence but which have been published by the promoter or objectors immediately prior to committee meetings may be ruled out if the committee and the opposing party have not had sufficient opportunity to consider them. Although such incidents will be considered on a case-by-case basis, I do not expect them to occur often.

Further, the committee is aware that negotiations might have progressed after the submission dates for witness statements and rebuttals. I strongly recommend that if objectors or the promoter need to update the committee during oral evidence taking on the current state of negotiations, that information should be provided in response to questions from the respective questioners.

The committee wishes to ensure that fairness is shown to the promoter and objectors. This is not a court of law—the committee will carry out its proceedings more informally. That said, I expect all parties to act respectfully to one another and, indeed, to the committee.

Finally, I ask everyone present to ensure that all mobile phones and pagers are switched off.

With the permission of the committee, and for administrative reasons, I intend to take agenda item 2 first.

Proposed Route Changes

09:45

The Convener: The purpose of item 2 is to consider a proposal from the promoter for the tramline to be altered at two points—in the Haymarket yards area and the Gyle area—which would take the line outwith the limits of deviation. Committee paper ED2/S2/05/8/26 sets out the procedural implications for the committee if it decides that the proposals are worth investigating. It is worth putting on the record a reminder that the promoter does not have the power to amend the bill at any stage of the private bill process. Only members of a private bill committee can lodge and agree to amendments to a bill at consideration stage.

The committee must discuss whether there is merit in the promoter's proposal. To assist the committee in making up its mind, we have received letters from two of the existing objectors in the Gyle area. Do members agree that there is merit in examining the promoter's proposal?

Members *indicated agreement.*

The Convener: The paper sets out a series of further decisions for the committee. If members do not have questions, does the committee agree to the new advertisement, notification and objection period that is suggested?

Members *indicated agreement.*

The Convener: Do members agree to consider the revised and supplementary documentation that is suggested by the promoter?

Members *indicated agreement.*

The Convener: Do members agree that in any subsequent objection period there will be a truncated process for the receipt of written evidence?

Members *indicated agreement.*

The Convener: That concludes agenda item 2.

Consideration Stage

09.46

The Convener: We return to item 1. The first objection for the committee to consider is from the New Town, Broughton and Pilrig community council. Before we take evidence, I point out that Dr T Robinson will not give oral evidence on behalf of the community council, despite having provided a witness statement. I ask members to disregard his witness statement and any rebuttals to it that the promoter provided.

There has been a change of witness: Mr David Todd will provide evidence instead of Michael Dawson. In common with all cases in which a substitution of witnesses occurs, the new witness is bound by the original witness statement.

The community council has not rebutted Aileen Grant's witness statement and will therefore not be able to question that witness.

The first witnesses for the promoter are Aileen Grant, Andrew Oldfield, Steve Mitchell, Stuart Turnbull and Brian Evans. Mr Evans replaces Karen Raymond. Before we commence evidence taking, the witnesses must take the oath or make a solemn affirmation.

BRIAN EVANS, ANDREW J OLDFIELD, STEVE MITCHELL and STUART TURNBULL took the oath.

AILEEN GRANT made a solemn affirmation.

The Convener: Each witness is bound by the terms of their oath or affirmation.

The first witness will be Brian Evans, who will address the impacts on the world heritage site. I welcome Malcolm Thomson QC, who will question on behalf of the promoter, and Mr Ian Mowat, who will question on behalf of the community council. Mr Thomson, please proceed.

Malcolm Thomson QC (Counsel for the Promoter): Mr Evans, will you deal briefly with the question of why, from your perspective, the tramline should pass along Queen Street rather than round the north side of St Andrew Square?

Brian Evans (Gillespie's Ilp): St Andrew Square is the complement to Charlotte Square. The particular genius of the world heritage site in Edinburgh is the relationship of the High Street, with architectural monuments at either end, and George Street, with the two squares at either end. The relationship between the old town and the new town—the medieval and the renaissance—with vistas and monuments that are related to the topography make the place extremely special. As St Andrew Square is one of the two squares and is extremely special, there should be minimal intrusion into it in the pursuit of modern life. The

square is not perfect: St Andrew Street and St David Street run north to south from Princes Street down to Queen Street and they therefore run right through the space, whereas, on the north and south of the square, the streets are truncated by buildings at either end. In my view, it would achieve a better composition to bring the tram on a direct alignment along St Andrew Street and St David Street and to return it along Queen Street and Princes Street.

Malcolm Thomson: Is that the reason for the apparent inconsistency, in that it is acceptable to have trams passing along two sides of St Andrew Square, while it is unacceptable to have them on a third side?

Brian Evans: In principle, yes. One of the key aspects about St Andrew Square is its symmetry. Therefore, to have trams passing on one side in one direction and on the other side in the other direction would retain symmetry and would minimise intrusion into the square.

Malcolm Thomson: There have been two iterations of the design manual so far. The first one was published around March of last year and a second edition was produced recently. Am I right that you were involved in the preparation of the first draft, but not the second draft?

Brian Evans: That is correct.

Malcolm Thomson: So any questions that concern the current draft specifically would be better directed to Ms Aileen Grant.

Brian Evans: Indeed.

Malcolm Thomson: In paragraph 4.2 on page 5 of your witness statement, you make a comment that has been picked up by the objectors. You state:

"In accordance with Prior Approvals, the promoter undertakes to consult with the appropriate statutory consultees and the objector as part of the detailed design and construction processes."

Will you clarify precisely what you mean by that undertaking?

Brian Evans: It has always been my understanding that the promoter wishes to undertake full consultation with all parties during the design and development of the system.

Malcolm Thomson: Does that include the present objectors?

Brian Evans: Yes.

Malcolm Thomson: Does the undertaking relate to the detailed design process, the finalisation of the design manual and the prior approvals process?

Brian Evans: It is my understanding that the promoter wishes to consult, but I cannot in any way guarantee that.

Malcolm Thomson: Again, that may be a question for Ms Aileen Grant.

Brian Evans: Indeed.

The Convener: Does Mr Mowat have questions for this witness?

Ian Mowat: Yes.

Mr Evans, I see that you have great experience as a chartered town planner. In your view, what is currently the main east-west/west-east route for road traffic through central Edinburgh?

Brian Evans: My personal understanding—I am not a traffic planner—is that Queen Street is the main route.

Ian Mowat: Thank you. In your witness statement, you say that it is important not to break up “long vistas”. Paragraph 3.9, which deals with plans to mitigate visual intrusion, states:

“This is of particular relevance given the long vistas afforded along Queen Street, leading into York Place and Picardy Place and the setting of the Scottish National Portrait Gallery.”

Will not that long vista be broken up by the fact that the tram, which I understand will have overhead wires, will turn into that vista at the eastern end of Queen Street?

Brian Evans: The centre of Edinburgh, and the new town in particular, is a composition of vistas. There is a vista along virtually every street. In my opinion, some of those vistas—for example, the view down Castle Street to the castle—are more iconic than others. I agree that there is a vista along Queen Street. One would wish to minimise intrusion into any of the vistas in Edinburgh’s first Georgian new town.

Ian Mowat: If the placing of the tramline was such that it turned a little earlier, in the north side of St Andrew Square rather than in Queen Street, would that break up any vista in St Andrew Square?

Brian Evans: In my opinion, it would be detrimental to the design set piece that is St Andrew Square.

Ian Mowat: If tramline 1 were not also planned to come down into Queen Street—we know that it is planned that tramline 1 will do that—would you still think it wise to extend tramline 2 from St Andrew Square into Queen Street?

Brian Evans: It is not really my place to say. My role is to consider the unique heritage quality of the townscape for all of line 1 and the relationship between line 1 and line 2 in the world heritage site. That has been my principal concern, but I have also had to consider the character and qualities of that area in a vibrant competitive modern city. It is not my position to seek to have a tramline situated

in one place or another. I consider and evaluate the consequences of the route and give advice, from a townscape point of view, about the best way of introducing such a line.

Ian Mowat: Is it not the case that the City of Edinburgh Council planning committee insisted back in 2003 that only two sides of St Andrew Square should be used?

Brian Evans: That may well be the case, but I do not have the paper in front of me. My opinion as an urban designer is that the minimum amount of intrusion should be made into St Andrew Square for the reasons that I gave when Mr Thomson introduced my evidence.

Ian Mowat: Will not the greatest intrusion come from running the tram along the west side of St Andrew Square such that, from George Street, people will see the tram and its overhead wires on St Andrew Square? Will not that break up the vista?

10:00

Brian Evans: Yes. If one is standing in George Street looking east, a tram passing through St Andrew Square will pass through that vista. However, whereas on one hand Edinburgh’s world heritage site is of international importance, on the other it is home to many people and many businesses and is a principal visitor attraction not just for Edinburgh but for the entire nation. Therefore, in considering any introduction of a transportation system into Edinburgh, one needs to consider how one can achieve a system that is efficient for those who live and work in and visit the city in the most elegant and simple way and how one can minimise intrusion into the internationally famous work of art and dream of great genius that is central Edinburgh. There will be an intrusion into the vista, as there is when a 52-seater visitor bus comes into it, although I distinguish clearly between objects such as vehicles that will come and go and other things that are permanent. Particular attention must be paid to the permanent infrastructure associated with the trams, its quality and the minimisation of its intrusion.

Ian Mowat: I turn to the permanent infrastructure. You say in your evidence that the design manual aspires to minimise clutter by ensuring that the overhead line and electrification poles are kept to a minimum in the city centre around listed buildings. Surely the best way to keep them to a minimum is to use ground rail electrification. Would you, as a planner, not prefer to see that? You might be aware of the example in Bordeaux, which we believe is now working at 99 per cent efficiency.

Brian Evans: It is plain that a tram without overhead line electrification will be less intrusive than a tram with overhead line electrification.

Ian Mowat: So you, as a planner, would prefer to see written into the bill an insistence on not using overhead rail but ground rail, at least in the central area.

Brian Evans: My role has been to advise on the best integration of a tram system into the city centre. There are many things to consider in achieving that. We have to bear in mind that, with the introduction of a tram system, it might also be possible to effect reduction in clutter in other aspects of street scene, which is an important aspect of the system. As an urban designer and planner, I concur: what is characterised popularly as a wireless system would have less intrusion into the world heritage site than a system with overhead line infrastructure.

Ian Mowat: I have a final question. If an amendment were proposed that, like the one that we heard about under an earlier agenda item, would alter the limits of deviation, in this case so that the tram ran around the north side of St Andrew Square—for reasons relating to the residents and congestion, to which we will come—would you regard that as a complete disaster or a decision that you would prefer not to have been taken but which was acceptable in planning terms?

Brian Evans: I would consider it to be extremely unfortunate. I believe that the design set piece of St Andrew Square, Charlotte Square and George Street creates a relationship into which we should seek to minimise intrusion. I would consider a decision to route the tram around St Andrew Square and turn it into a tram roundabout to be regrettable.

The Convener: The next witness is Aileen Grant, who will address the design manual and the impact of the tramline on the world heritage site.

Malcolm Thomson: Miss Grant, please give us an update on the status of the design manual.

Aileen Grant (City of Edinburgh Council): A report was made to the planning committee last week, on 16 June, in which we presented an updated draft of the tram design manual. It was fairly substantially refined in the light of increased knowledge on the part of the promoter, which was shared with us in planning and with transport colleagues. That draft has been agreed by the planning committee and can now go out to consultation. The consultation process has not yet started, as the committee asked us to tidy up a few points in the document. We are just doing that, and we hope that the document will go out to public consultation next week at the latest. The situation has moved on a little bit.

Malcolm Thomson: Am I right in thinking that the consultation process will include Historic Scotland, the World Heritage Trust and community councils, among others?

Aileen Grant: Yes. In planning consultations we normally send copies of documents to the community councils. The planning committee specifically asked us to include all community councils and not to differentiate between those whose areas will be affected directly by the tram and those whose areas lie outside the tram routes, so we agreed to send copies of the draft design manual to all the community councils. Historic Scotland and the World Heritage Trust are also on our consultation list, but we have agreed that we will meet them to go through the document in a bit more detail after they have had a chance to look at the new, refined version.

Malcolm Thomson: Will you consult amenity bodies such as the Cockburn Association?

Aileen Grant: Yes. We are just compiling our list of consultees at the moment. We will not necessarily catch everybody, but if we get requests for extra copies we will be happy to forward them or invite further comments from other organisations. It will be a wide consultation.

Malcolm Thomson: I am thinking about what Mr Evans said about consultation at the prior approval stage. How could those objectors—the community councils—be involved in a prior approval process?

Aileen Grant: One of the difficulties is that planning authorities have no procedures set down for prior approval processes. That is why we took a procedure note to the planning committee in November 2003. We obtained comments from Historic Scotland and the World Heritage Trust and reported back to the committee in February 2004 on the procedure. In that procedure note, we say that, when we receive prior notification applications, we will put them into our computer system with our particular tag on them so that it is clear that they are to do with tram prior approvals. We also say that we will include them in our weekly list of planning applications as part of the planning register. I understand that that weekly list is sent out to all community councils and that it is the task of the planning conveners of community councils to check the list for current applications. We also have a planning and building control portal that will contain all the details of prior approvals when they are received. They will receive all the usual publicity that planning applications have.

Malcolm Thomson: So any concerned citizen needs simply to go to the right portal or to scan the weekly list if they want to have an input to the prior approval process.

Aileen Grant: Yes, that is right. That will be the baseline for all prior approvals. The procedure note also suggests advertisement, in certain circumstances, on the basis of how the approval links to what is in the design manual. In other words, if it complies fully it is unlikely that we would advertise it but, if it does not comply with the terms of the design manual, we would advertise the prior approval in our usual weekly advert in the local newspaper. The procedure is a bit like the way in which we treat development that is contrary to development plans—in other words, if it complies with the manual, we would not advertise, but if it does not, we would advertise to invite wider comment.

Malcolm Thomson: I want to change tack and deal with whether the tram should go round the north side of St Andrew Square or along Queen Street, which is a completely different issue. It can be seen from your written statements that the Edinburgh World Heritage Trust and Historic Scotland have not been specifically consulted on that matter. Why have they not been consulted?

Aileen Grant: That issue was first addressed in the planning committee's report in August 2003, when there had been discussions about the routing of the trams. Great concerns were raised in my department about the impact on St Andrew Square and there was a joint meeting, the result of which was encapsulated in the planning committee's report. That report recognised the sensitivities of St Andrew Square, but said that complying with the requirements would be sufficient to minimise the impact on the square and would mean that the character of the area and the world heritage site would not be materially affected. There were no formal discussions with the World Heritage Trust or Historic Scotland in arriving at the principles for St Andrew Square. They have seen the various planning committee reports, but we have not specifically asked for their views on trams running on the north side of St Andrew Square because we ruled that out in the first instance. We did so because of our concerns about the impact on the setting of the listed buildings on that side of the square and about the severance of the square, which is highlighted in the local plan as being of townscape significance and landscape importance in the new town.

Malcolm Thomson: I take it that over the months and years in which the tram project has been considered, you have had discussions with Historic Scotland and the World Heritage Trust about the intervention of trams in the new town.

Aileen Grant: We have had a number of on-going discussions about routing the trams with regard to St Andrew Square in particular. Those discussions are partly linked to on-going work on the public realm in St Andrew Square and trying to

put that in the context of the likelihood that there will be trams here in the longer term, so we should ensure that we are not doing something now that will cause conflicts later on. There have been many informal discussions with Historic Scotland and the World Heritage Trust, but we have not at any time mentioned using the north side of the square. All the discussions have been based on using only two sides of the square.

Malcolm Thomson: Against that background and at this stage in the proceedings, can the committee make any safe assumptions about Historic Scotland's position in particular?

Aileen Grant: I feel that Historic Scotland would strongly resist the occupation of any additional space in the square or the taking of the north or the south side of the square into the tram route.

Malcolm Thomson: What about the World Heritage Trust?

Aileen Grant: I think that it would feel even more strongly about the matter. However, that is only my feeling—we have not asked those bodies for their views.

Malcolm Thomson: So this committee could not safely assume that Historic Scotland would not object if there were a proposal to run trams around the north side of St Andrew Square.

Aileen Grant: I advise that it could not. A number of issues—not least the setting of the buildings on the north side of the square—are involved. When we asked Historic Scotland for its views on the prior approvals process, it raised the issue of the setting of category A listed buildings, for which it has a different statutory duty—it is a statutory consultee under the planning process. Running trams on the north side of the square would affect the setting of the category A listed buildings on that side. For that reason alone, Historic Scotland would be concerned.

Malcolm Thomson: Thank you.

The Convener: Mr Mowat, I note that you have not issued a rebuttal.

Ian Mowat: I would like to make a plea. We had no particular quarrel with Miss Grant's first statement, but she then submitted a statement that rebutted evidence that was given by Mr Welsh and the Dublin Street residents association, with which we take issue. I asked Mr Evans about the planning process and he said that he was not really aware of the council planning meetings, but Miss Grant is. It would be extremely detrimental if we were not able to cross-examine her on the points that she has made today, rather than on her original statement.

10:15

The Convener: I think that it would be in order to proceed on that basis, Mr Mowat.

Ian Mowat: Thank you.

Miss Grant, you indicated that Historic Scotland and the Edinburgh World Heritage Trust have had discussions with you about the two sides of St Andrew Square that are affected. Were they also in discussion with you about the part of Queen Street that is affected and about the Scottish National Portrait Gallery, which the line is planned to run past?

Aileen Grant: No, we have not had detailed discussions with them about that. The focus has been very much on St Andrew Square.

Ian Mowat: I am astonished that such discussions have not taken place. The Scottish National Portrait Gallery is an A-listed building. I thought that you suggested that all A-listed buildings are of concern.

Aileen Grant: The discussions that we have been having are based on the limits of deviation that have been presented to Parliament. The specific focus on St Andrew Square has arisen only because there are current proposals for St Andrew Square, which are under discussion by the council. We are trying to ensure that the current proposals do not conflict with what might happen in the future if the tram gets consent. That is the reason for the focus on St Andrew Square. It is not driven by planning; it is driven by other projects. We have brought Historic Scotland into that discussion to ensure that all parties have an input.

Ian Mowat: That is a bit concerning. Are you suggesting that other projects that the council has in mind for St Andrew Square are affecting where you feel the tram should go?

Aileen Grant: No, I am not saying that. We are basing it on the limits of deviation that have been submitted. We are saying that those projects need to recognise the tram, not vice versa.

Ian Mowat: I am puzzled. You say that there has been so much discussion with Historic Scotland and the Edinburgh World Heritage Trust about your plans for St Andrew Square and the tram plans for St Andrew Square, but none about the passing of tramline 2 along Queen Street and past the Scottish National Portrait Gallery.

Aileen Grant: The details of what happens with the tram route will be submitted to the planning authority at prior approval stage. We are in a stage of preparation for receiving those prior approvals, but nothing can formally happen on that detailed design until after Parliament has come to a decision. It was only because there was work

going on in St Andrew Square that, under central Edinburgh traffic management arrangements and because of various other issues to do with the square, it was in order to ensure that current projects recognised what was likely to happen with the tram. We have tried to ensure that joined-up thinking is going on at this stage, so that we do not do work now or next year that might have to be undone in a couple of years' time. That is the reason for the focus on St Andrew Square.

We expect to have more detailed discussions in the run-up to the prior approval process, so we expect to be engaging with Historic Scotland and the Edinburgh World Heritage Trust over the arrangements in Queen Street, Picardy Place and Princes Street. All those spaces are sensitive. In the new version of the draft design manual, we have indicated that we hope to have joint working with a design working group, which will involve Historic Scotland and the Edinburgh World Heritage Trust, as well as Transport Initiatives Edinburgh and ourselves, in working through some of the detailed design issues. That group has not yet met, but that intention signposts the way in which we shall be taking forward the detailed design process. We and TIE are having a workshop in a couple of weeks' time to discuss how the detailed design working arrangements, and our own working arrangements, will go forward, because we have to plan for the next stage.

Ian Mowat: If I can précis what I think you have said to us, you have said that the planners in TIE took the view that putting a line down more than two sides of St Andrew Square would create considerable difficulties and have an adverse impact. They decided that internally, without any discussion with anyone else. They then let Historic Scotland and the World Heritage Trust know what they are thinking. The World Heritage Trust and Historic Scotland probably said, "Thank God it's not more than two sides—we can maybe live with that." Is it the case that you came to the view first, without going to the outside bodies?

Aileen Grant: That was in August 2003, when the initial consultation plans from TIE were in the public domain. That was our response to those consultation plans. Because we were not acting as the planning authority, we were effectively giving a considered planning view to the council. We have specialists in the department who deal with listed buildings and conservation areas; it was a collective view from within our department. I have checked my notes and I do not think that we involved Historic Scotland at that stage.

The view was in the planning committee's reports, so it was in the public domain. It was available for discussion as a result of that, but to my knowledge there was no subsequent

discussion with Historic Scotland on that point. There had been no suggestion about using the north side of St Andrew Square until I saw those papers from the objectors.

The Convener: Mr Mowat, I am getting a little bit concerned that we are drifting back towards preliminary stage issues.

Ian Mowat: I see that, but I would like to put what is probably my second last question. Do you understand that the bill sets the limits of deviation, so that once the bill is passed we cannot legally change the route? The route is fixed when the bill is passed. Is it not right to have the consultations before the bill is passed?

Aileen Grant: I made that point in the planning committee's first report. The planning committee is well aware of the position. We gave a planning viewpoint on the proposals that came from TIE. We made the planning committee aware that there could be no changes. Hence, we have focused the discussion on the proposed limits of deviation. I agree with what you said.

Ian Mowat: So you would see no room to revisit that if strong reasons—matters of amenity, congestion and noise vibration—suggested that it would be better that tramline 2 did not come down to Queen Street?

The Convener: Can I interrupt you again, Mr Mowat? I am sorry, but that is not the remit of this witness.

Ian Mowat: Okay. I will stop.

The Convener: Do members have any questions for the witness?

Jeremy Purvis (Tweeddale, Ettrick and Lauderdale) (LD): From your perspective, what would be entailed if the committee sought to change the alignment?

Aileen Grant: Such a change should be publicised for wider comment. TIE initially published its consultation plans and then there was a period of objection. The Parliament should have a comprehensive perspective on any concerns—of which we could currently not be aware—that might be raised by a changed route. In addition, I suggest that Historic Scotland and the World Heritage Trust should be consulted on any proposed change.

Jeremy Purvis: But those are things that you have not done.

Aileen Grant: The issue has just been raised today.

Jeremy Purvis: As far as I understand it, you have not done those things yet, even on the limits of deviation that have been in the bill and in the proposals for a very long time. You have not even

discussed the matter with the Scottish National Portrait Gallery.

Aileen Grant: As a planning authority, we are not at liberty to suggest alternatives. Because we are not the planning authority with this particular proposal, we have commented only on the proposals put forward by TIE. We have expressly kept ourselves away from any negotiations with objectors because we will be the planning authority at the later stage. There is a Chinese wall in that we are trying to stay separate in this process.

Malcolm Thomson: I think that Historic Scotland was an objector at one stage but has withdrawn its objection.

Aileen Grant: That is right.

Malcolm Thomson: Has it ever objected to the proposal in the bill that the line should run along Queen Street and past the museum?

Aileen Grant: In informal discussions, it raised no objection to that route.

Malcolm Thomson: What about in its formal objection?

Aileen Grant: No, not as far as I remember.

Malcolm Thomson: Has there been any objection from the museum authorities?

Aileen Grant: No, not as far as I am aware.

Malcolm Thomson: So they are not objectors in the process.

Aileen Grant: No, they are not.

Malcolm Thomson: Thank you, Ms Grant.

The Convener: The next witness is Mr Oldfield, who will address the use of rail track and preserved rail routes. Before we begin questioning Mr Oldfield, I would welcome clarification that his witness statements and rebuttals are relevant to line 2 and not line 1, Mr Thomson.

Malcolm Thomson: That is as it should be, is it not, sir?

The Convener: Yes.

Malcolm Thomson: Because we are concerned with line 2.

The Convener: Yes. Would you like to begin your examination?

Malcolm Thomson: Thank you, sir. Mr Oldfield, what is your professional view on an alternative to overhead power lines? We have heard reference to the Bordeaux experience and the suggestion that the system there enjoys a 99 per cent success rate at the moment.

Andrew J Oldfield (Mott MacDonald): I must say that I find that rather surprising. I am aware that an article has been published saying that that system is 97 per cent to 99 per cent reliable but, since the system came into operation, it has been most unreliable and only that article has contradicted that position. The system relies on a power supply that, when the vehicle passes over a certain section of track, re-energises and allows the vehicle to move on. The problem with the system in Bordeaux is that the energising system has been prone to water ingress and failure; so, in order to overcome that, it has been necessary to fit a battery traction system. I believe that the system is particularly problematic in the winter and that weather conditions such as those that we might experience in Edinburgh are particularly relevant to its performance.

It is worthy of note that about 390 of the 400 or so light rail transport systems that operate in the world do so on overhead line electrification traction systems. That is a proven form of technology and there are very few proven forms of technology for non-wire traction systems.

Malcolm Thomson: Thank you, Mr Oldfield.

Ian Mowat: I will take you back to your rebuttal statement and away from overhead electrification. It has been suggested that inadequate consideration was given to running the tram system along the existing heavy rail line between Haymarket and Waverley. You said that you had “no knowledge” of evidence that the line could carry that traffic. You were pointed to the work of David Low of Heriot-Watt University. I do not know whether you are aware of his work, but I am advised that it suggests that the work that is going ahead to increase track capacity at Waverley station would make it possible to run trams along the existing rail line. Do you agree that it would be possible to run trams through the centre of town, avoiding the roads?

10:30

Andrew Oldfield: We did not consider that in great depth. We were aware that there were capacity issues and that considerable work would be required to overcome them. Indeed, on-going work is being undertaken by Network Rail. There are a number of issues about using that alignment. Some of them are about the type of vehicle and railway safety, and some of them are about on-going capacity aspects. We spoke to Network Rail about the matter and it indicated that it would be impossible to run light rail on the line as well as the planned heavy rail systems.

One of the technology issues is that combining heavy rail and light rail on heavy rail infrastructure leads to many complications. We would have to

implement a new type of traction system on the light rail vehicles, which would add weight and cost and take up space. We would also have to implement a train protection warning system on the light rail vehicles, which is complicated and costly and, again, takes up space. We have difficulty with the crash-worthiness of the type of vehicle that we are talking about using in Edinburgh as a light rail vehicle. One other scheme in the UK—the Tyne and Wear metro—operates in conjunction with heavy rail, but it uses a different type of vehicle. The metro vehicle is much sturdier than the vehicle that we propose to use in Edinburgh.

Also, if the tram went through that section of alignment on heavy rail, we would need to find somewhere for the tram to stop to allow passengers to get on and off. It would be difficult to find anywhere for that at Haymarket or Waverley stations other than by using existing platforms. If we used existing platforms, that would take capacity from the heavy rail infrastructure. In addition, we would need the light rail vehicle's floor boarding height to be compatible with the station platforms. That would mean that all the platforms elsewhere on the route would have to be raised, so there are a number of technical issues.

It is also my understanding that the capacity of the section of the heavy rail system that is mentioned in the proposal is limited by the Calton twin tunnels. Theoretically, they could accommodate a four-track formation. They have accommodated that in the past, but I understand that in recent years there has been a collapse in one of the tunnels and there is now buttressing that would preclude the operation of a four-track formation. It is not clear to me how much work and cost would be associated with the reinstatement of that capacity.

Ian Mowat: Thank you. I return to the overhead wires that you mentioned at the beginning. You gave the reasons why you think that other schemes would not be reliable enough. If you put in the overhead scheme, the pantograph would have to be as high as a double-decker bus, would it not? The overhead wires would have to be much higher than normal. As I understand it, the trams will be single deckers, but double-decker buses will have to run under the tram lines.

Andrew Oldfield: Tramways elsewhere in the UK operate at a standard overhead line electrification height of over 5 metres and double-decker buses run underneath them.

Ian Mowat: What about open-top tourist buses? Would they be safe?

Andrew Oldfield: There would be issues with those. One of the things that we are considering, which is potentially an aesthetic consideration, is

raising the height of the OLE. By raising it, it may become less obtrusive.

Alasdair Morgan (South of Scotland) (SNP): Presumably one of the attractions of running trams along Princes Street is that there are plenty of stops near to where there are plenty of potential passengers, whereas—apart from the difficulty of running light rail along the heavy rail track and getting suitable stops—the line down in the Mound cutting would not be as accessible.

Andrew Oldfield: Yes, you have picked up on an omission from what I said. One of the aims of the scheme is to provide accessibility on the street in the city centre; it would not do so as effectively if it went along the heavy rail alignment through Waverley.

Alasdair Morgan: Most of the double-deck tram systems in the United Kingdom—certainly prior to the first world war and during a large part of the 1920s and 1930s—had open top upper decks, did they not?

Andrew Oldfield: Yes.

The Convener: After that frank admission, do you wish to re-exam, Mr Thomson?

Malcolm Thomson: I have covered the only matters that I might have raised.

The Convener: Thank you, Mr Oldfield. The next witness is Mr Mitchell, who will address the matter of noise.

Malcolm Thomson: I wonder whether Mr Mitchell could first of all update us on the noise insulation scheme's progress.

Steve Mitchell (Environmental Resources Management): Yes. The bill makes provision for a noise insulation scheme. Section 4.4 of the noise policy that we produced in March addresses that scheme. At that time, we were still looking into what the scheme should be for noise insulation. We have made some progress since then. We have agreed, with technical officers from the City of Edinburgh Council environmental and consumer services department, the essence of what the noise insulation scheme should be. It will be very similar to the noise insulation scheme that is used in England and Wales under the Noise Insulation (Railways and Other Guided Transport Systems) Regulations 1996. There will be an additional clause to make provision for noise insulation to be offered specifically to address the possibility of wheel squeal occurring on bends.

In my rebuttal of Mr Welsh dated 6 June, I discussed wheel squeal; I do not intend to repeat that unless I am asked specifically about it.

The Convener: I would be grateful if you did not.

Steve Mitchell: I will not. Needless to say, the noise insulation scheme provides us with a mitigation measure if wheel squeal happens, which we do not expect. We will have a back-up facility, subject to finalisation of the noise insulation scheme, which I am confident will happen shortly.

Malcolm Thomson: My only other point is about the suggestion that you have ignored relevant European Union directives.

Steve Mitchell: Again, I have tried to address that in my statement, but I notice that it is an outstanding point from Mr Mowat's rebuttal document, so perhaps I should touch on it. I believe that Mr Thomson is referring to directive 2002/49/EC, the so-called environmental noise directive. In essence, I do not believe that that directive has implications for the tram planning at this stage. The directive requires member states to map noise in major conurbations and to produce at strategic level action plans for those conurbations to address environmental noise. That is all some years in the future. The first round is due in 2007 and is likely to be delayed in this country for various reasons.

At that point, the Scottish Executive, as the competent authority, will be required to produce a noise map of Edinburgh. The Scottish Executive is likely to let contracts to do that work in 2007 or 2008. That will need to include the tram, if it is operating at that point; indeed, future rounds of noise mapping and action plans will need to include the tram, just as they will include every other significant transport noise source in the city. I do not believe that the directive has any implications at this stage, but we have certainly not ignored the matter.

Ian Mowat: In your rebuttal statement to the Dublin Street residents association, you say:

"I note"—

as if it is of some importance—that

"none of these residents have objected to the tram proposals in their own right."

You emphasise that the residents have simply represented their objections through their association. Do you attach importance to that?

Steve Mitchell: No; I have simply noted it. That quotation should be read in the context of a comment that I have already made. In my experience, it is quite common for people such as the Dublin Street residents association, who are living in already noisy situations, to express concerns about additional noise. People will fear that the noise level, which is already very high, will get worse. It is simply of note that individual residents have not objected in their own right.

Ian Mowat: So, as far as you are concerned, the committee should not attach any importance to the fact that the objection has come from a residents association, rather than from individuals who make up that association.

Steve Mitchell: It was not a point that I was trying to make strongly for any particular reason; it was merely an observation.

Ian Mowat: In your rebuttal statement, you produce a helpful table, which specifies the ambient level of noise and the tram noise. You cite planning advice note 56, which I understand is the standard that we should all use for noise in urban areas. My understanding is that PAN 56 requires that daytime noise not exceed an average of 55dB, and that it does not exceed 45dB at night. The tram projects' noise during construction and during operation will be considerably higher than that.

Steve Mitchell: I am afraid that you are not correct to say that PAN 56 requires that transportation noise be less than 55dB or anything else. PAN 56 serves predominantly to give planning guidance on the development of new housing in already noisy situations. It says that, for levels of below 55dB during the day, noise need not be considered as a planning issue. The guidance that it gives on the introduction of new sources of noise, such as in the case before us, is more general. I think that I quoted some sections of PAN 56 in my original statement.

That planning guidance is relevant. In fact, it is one of the only planning guidance documents that we have in relation to noise in this sort of case. There are no standards in the planning system in relation to tram noise, however. Nowhere in this country are there written statutory requirements for noise to be limited. What matters in this particular case is clearly illustrated in table 1 in the rebuttal, which you mentioned. On Queen Street—a five-lane highway and one of the noisiest roads in the city—tram noise will be insignificant compared with the existing noise levels.

Ian Mowat: That is clearly what you are trying to show. With regard to the night-time measurement, at what period in the night did you do that measurement? Was it between 11 pm and 7 am?

Steve Mitchell: Do you mean the baseline measurement or the predicted level?

Ian Mowat: Both.

Steve Mitchell: The baseline measurements at York Place, just up the road, were carried out between midnight and half past 12, if I remember correctly. We measured the baseline condition that is shown in the second column of table 1. The predictions apply to the same time. We have considered the noise in two ways: we also

considered the change in the ambient noise level in the last hour of service, up to half past 12 at night.

Ian Mowat: I put it to you that those roads will be much quieter at between 5 and 6 in the morning than they would be at 12 o'clock to half past 12 at night.

Steve Mitchell: I think that that is unlikely. We have done various surveys in Edinburgh in the morning—by which I refer to times around 5 o'clock—as well as at night and we find that there is a pattern. The noise level can, in fact, be slightly higher in the morning than it is at night.

10:45

Because I have been asked the question, I will refer to a document that is not before the committee. "The National Noise Incidence Survey 2000/2001" examined several hundred sites in England, Wales and Scotland. It considered the pattern of noise throughout the day and there was a clear pattern that noise levels at 5 or 6 in the morning are a few decibels noisier than those between midnight and 1 o'clock in the morning.

Furthermore, even if York Place were an unusual, quirky road for some reason, which big main roads tend not to be, the table that is before members estimates the existing night-time noise level at 65dB and the tram noise level at 57dB—8dB quieter than the existing noise level. Even if there is some tolerance in the existing noise level, the tram noise will still be substantially less than the existing noise, so the conclusion that the additional tram noise would be insignificant holds firm.

Ian Mowat: Is additional noise always insignificant when it is of a different type—for example, a higher-pitched noise rather than the low rumble of a lorry?

Steve Mitchell: We generally consider transportation noise to be a type of noise; a tram vehicle passing by in its noise envelope—its temporal distribution, for example—is not dissimilar in character to a bus or heavy vehicle.

If wheel squeal should occur, which might be what Ian Mowat refers to, it is a characteristic noise. That is why I am pleased to say that if it occurs—I do not expect it to—we have the option of offering noise insulation to properties along the route if necessary.

Ian Mowat: You mentioned that before. What does noise insulation amount to in practice?

Steve Mitchell: Noise insulation under the regulations that apply in England and Wales is clearly defined, so we ought to submit that document to the committee. In fact, I think that the

committee has asked for it and we are in the process of producing a copy, if we have not done so already. It is a 20-page document that describes the insulation package. We do not want to reinvent the wheel; there would be the same package here.

The most appropriate form of noise insulation is secondary glazing, which is a completely separate sheet of glass that is put inside next to the existing glazing. In most cases, it does not require the existing glazing to be altered. The existing glazing is left intact and a secondary panel is put in with an air space inside the window reveal.

Ian Mowat: If the tram noise is generally as you predict, but there is also from time to time wheel squeal as the trams come down North St Andrew Street and into the bend—which is nearly as tight as a bend can be for a tram—on to Queen Street, you would not say, “On average, the noise isn’t higher than 3dB more than existing noise and thus we will not give properties any insulation.” You are going to say, “We accept that there will be a noise problem from time to time and we will pay for the appropriate noise insulation.”

Steve Mitchell: First, I have not predicted that there will be wheel squeal; in answer to your question, I predicted that there will not be wheel squeal. If it does occur, you are correct that the noise would not be an average value—it would be what we call a peak value or maximum level. Our discussions with the council are along those lines. It is recognised that such a noise can be a short event so that is the right way to capture, measure and quantify it. You also said that the bend is as tight as it can be for a tram to go round, but that is not the case. Trams quite happily traverse many bends that are substantially tighter than that.

Ian Mowat: Is not it the case that because the tram comes down a slope into the bend, there is an increased risk of wheel squeal on that bend?

Steve Mitchell: That makes the geometry of design more complex. However, the advice that I have had is that there is nothing particularly unusual in the design, which is why I feel that there will be no wheel squeal on those bends.

Ian Mowat: Just to clarify, the L_{Amax} tram noise level is 74dB for day and night in your table. That is not wheel squeal; that is the maximum noise level of the tram.

Steve Mitchell: That is the maximum noise level that I have predicted, but as I said, I do not predict that there will be wheel squeal.

Ian Mowat: What is the characteristic decibel level of wheel squeal?

Steve Mitchell: Wheel squeal varies enormously—as you might imagine—but it could be above 80dB in the location that we are

discussing. However, as you said earlier, it also has a character that makes it more noticeable, so the problem is not just its level, but its character. That is why I am pleased that we have a list of measures—which I have been asked not to repeat—that we are committed to taking in the design process to avoid that happening. To deal with wheel squeal in the unlikely event that it occurs, we have four measures, including the offer of noise insulation if necessary.

Ian Mowat: An environmental statement forms part of the papers that are before the committee. The environmental statement for tramline 1—I apologise for using it, but the environmental statement for tramline 2 stops at Princes Street, so it is awkward—contains a list of possible curve-related noise at various parts of tramline 1, one of which is York Place. The receptors that may be affected by noise are listed as being commercial, which I presume means buildings such as offices. Do you accept that the receptors include residential as well as commercial concerns? I think that the relevant table is table 38—I am afraid that I could not find it today if you asked me to, but you may recall it.

Steve Mitchell: I accept that. I understand that some residential properties lie around that corner, particularly on upper floors.

Ian Mowat: I also noted in tramline 2’s environmental statement that the Noise Insulation (Railways and Other Guided Transport Systems) Regulations 1996 (SI 1996/428) require promoters to offer noise insulation in rooms of a dwelling that are exposed to construction noise that is in excess of 68dB in the daytime and 63dB in the night. A table in tramline 1’s statement shows that at York Place, the noise from daytime enabling work would be 84dB and the noise from track laying would be 71dB. We can probably assume that levels at Queen Street will be the same as those at York Place, which is next to it. Do you plan to offer noise insulation during construction?

Steve Mitchell: No—the regulations that you cite relate to operation of a system, not to its construction.

Ian Mowat: I am pretty sure that the regulations relate to construction.

Steve Mitchell: I am pretty sure that they do not.

Ian Mowat: Oh dear. That is a technical matter. Will you undertake to check that?

Steve Mitchell: I do not need to check it; I have worked in acoustics for 17 years; I know for a fact that the regulations do not relate to construction.

Ian Mowat: I presume that there are some regulations that relate to construction noise.

Steve Mitchell: Yes. Section 60 of the Control of Pollution Act 1974 deals with that.

Ian Mowat: I may have quoted the wrong text. I am sure that I have read a table about noise levels during daytime for enabling work and laying tracks that put the noise level at York Place at 84dB.

Steve Mitchell: You probably have. That is our prediction of construction noise in that area. The 1974 act and the Environmental Protection Act 1990, which superseded the 1974 act to an extent, recognise that essential construction works must take place, so they do not limit noise during construction, which is temporary, as it will be in this case. The noisy work will last a matter of months at most. If the noise level that we have talked about for enabling works is 84dB—I have not checked it, but that could well be the figure—it will last for more like days or weeks of enabling before the track work comes through.

The 1974 act does not set noise limits because to do so could preclude essential construction work. It requires the use of the best practicable means to minimise noise disturbance. That is enshrined carefully in the chapters on noise and vibration in the code of construction practice.

Ian Mowat: I think that that is right. I am sorry if I got the wrong reference.

Steve Mitchell: All that the 1996 regulations say is that if noise insulation is to be offered for the operational phase, it may as well be installed before construction work happens, but that relates more to highways. That is mentioned, but no regulations mention limits for construction noise.

Ian Mowat: Does TIE propose to take the reasonably practicable measure of offering noise insulation during the construction period for the people who are likely to be affected?

Steve Mitchell: I do not think that we do, because the levels that you just cited—the 68dB $L_{Aeq, 18hr}$ and the 63dB $L_{Aeq, 6hr}$ —will not be exceeded by the tram's operation.

Ian Mowat: Okay, so no mitigation at all will be available. What if the noise levels become unbearable during construction? What can a dweller who lives 7m or 8m from the centre line of the road do? What can he refer to?

Steve Mitchell: I am not sure that the residents in question will be 6m or 7m from the centre line of the tramline. As I understand it, the tram is likely to travel down the centre of a five-lane highway.

The Convener: We are entering the realms of speculation.

Ian Mowat: I know. I thought that there was a regulation that regulated such matters, but I have been told that there is not. I want to know what regulates levels of construction noise.

Steve Mitchell: As I have just said, the Control of Pollution Act 1974 and the Environmental Protection Act 1990 are the relevant legislation.

Ian Mowat: What do those acts require?

Steve Mitchell: The 1974 act requires use of the “best practicable means” to minimise noise disturbance. That may sound like a fudge but, as I have explained in my witness rebuttal statement, it is not; it is a tried and tested method of ensuring that the contractor does everything possible to control noise. According to the 1974 act,

“‘practicable’ means reasonably practicable having regard among other things to local conditions and circumstances, to the current state of technical knowledge and to the financial implications.”

Section 60 of the act contains the test of “best practicable means”. The City of Edinburgh Council will have a very powerful enforcement mechanism in section 60 notices. There is also the code of construction practice, which is—if you like—a voluntary scheme. It contains a list of noise control measures that can be contractually required of the contractor.

Ian Mowat: I know that the objectors are concerned that the tramline project could overrun its budget; that is a concern of everyone. There is a great worry that financial considerations may loom largest if that happens.

The Convener: Where are you going with this?

Ian Mowat: Mr Mitchell has mentioned that financial considerations are part of the best practicable means test. There is a concern that, when it comes to minimising noise disturbance, TIE will be able to say, “Sorry, we just don’t have the money to do this; if we do it, the tramline won’t get built.” Can you assure me that that will not happen and that each case will be looked at on its merits? I can well understand that there are certain things that you just could not afford to do—things that would cost hundreds of millions of pounds, but would achieve only a small result. It is a question of proportionality: the test will be proportional and will not apply to the overall budget.

Steve Mitchell: I can assure you that matters will be dealt with case by case. If one of your residents complained about construction noise, the council’s environmental and consumer services department would be statutorily required to respond to that complaint through the processes that are defined in the 1974 act.

In the case of the properties in question, ambient noise levels and whether the owners have already chosen to have noise insulation to protect them—I suspect that some may well have done so—will be considerations. In other words, I am saying that although I accept that such a

construction project will cause some disturbance to people—it is inconceivable that the tramline could be built without people hearing construction noise and being disturbed or affected by it—I do not think that the location under discussion will be particularly badly affected, mainly because it is already very noisy there and I am sure that people will have taken steps to live comfortably in that noisy environment.

Ian Mowat: The last issue that you address is tram vibration, which is associated with noise. You mention three steps for reducing tram vibration with on-street running. One is embedding the rail in rubber and another is isolating the slab that it is in. The third measure would not be possible on-street, so there are really only two options. Are you considering adopting those tram vibration reducing measures in the city centre section?

Steve Mitchell: The street-running sections of the tram will run on a rubber-embedded rail. That is a standard design that offers vibration isolation. Within several metres of the track, systems that have those measures in place meet the standard that we have set ourselves for vibration, which is in the noise and vibration policy—I forget which section. We have set ourselves vibration standards that are taken from the British Standard 6472. We have set our targets using the most stringent standards in that British Standard. We can do that because, within four or five metres of that kind of track and operating at those kinds of speeds, we will meet those standards. If the conditions elsewhere are different, other track forms are available that can do the job better if necessary.

11:00

Ian Mowat: One concern that the Dublin Street residents association has expressed, which may be known to many people in Edinburgh, is that an old railway tunnel runs underground from Princes Street down the line of Dublin Street, emerging at Scotland Street. As the committee may know—

The Convener: I will have to interrupt you again, Mr Mowat. As you will appreciate, we have a volume of papers in front of us. Where does this evidence feature?

Ian Mowat: The question is whether—

The Convener: Can I maybe just finish, Mr Mowat? It might speed things up a bit if I do. Where in the original objection was this material raised?

Ian Mowat: Which original objection? It is mentioned in the Dublin Street residents association evidence. However, it is fair to say that it was not mentioned in the original letter that was written two years ago.

The Convener: Right. That is fine. You will appreciate the problems that we have in finding it. Carry on.

Ian Mowat: Have you considered the possible impact of the tramline on the old tunnel?

Steve Mitchell: I am not quite sure what the question is.

Ian Mowat: Have you considered the possible impact of vibration from the construction and operation of trams on the old tunnel?

Steve Mitchell: No, at this stage I have not.

Ian Mowat: Well—

Steve Mitchell: I can say that a general discussion of damage to structures is to be found in the environmental statement, which talks about the levels that we get from trams in terms of the unit of peak particle velocity. Those levels are not high enough to damage structures at the sort of distances that we are interested in. If trams were to be in the business of damaging structures, the 400 systems that I think Mr Oldfield referred to earlier would have caused all sorts of problems all round the world. Trams do not produce enough vibration to damage structures.

Ian Mowat: Okay. I have no further questions.

The Convener: Basically, we will not be able to consider that evidence because it was not in the original objection. You were allowed a fair amount of latitude, Mr Mowat. I move to questions from the committee.

Jeremy Purvis: I seek clarification on the code of construction practice. As far as you are aware, are the decibel levels that are indicated in the code part of the contract for the construction of the tramline? Will they be policed if contractors go over the levels during the construction period?

Steve Mitchell: I think that the member is asking me about the contractual obligations of the code.

Jeremy Purvis: Yes.

Steve Mitchell: My understanding is that the code of construction practice will become a contractual requirement of the main contractor, although I do not have the fine detail. If the contractor is in breach of the noise limits, it will be in breach of contract.

Jeremy Purvis: Thank you. In answering Mr Mowat's questions or in any of your evidence on the alignment south of the Scottish National Portrait Gallery, would any of your evidence have been different in principle if the alignment was all within St Andrew Square?

Steve Mitchell: That is a very wide question. The member is asking me to recap on what I have

said in the last half an hour or so and to consider the questions for a different alignment.

Jeremy Purvis: You could get back to us on that.

Steve Mitchell: In general terms, I think that there would be no difference in most of my answers. They are, however, not immediately before me for me to process them in my mind.

Jeremy Purvis: If you wish, you could reflect on the question and come back to us. I am not sure whether that is in order.

Steve Mitchell: If the question is whether the other route would be the preferred route, I can say that I see no particular difference between them.

Jeremy Purvis: I was just asking if, to your knowledge, there is anything different in terms of wheel squeal or ambient noise levels and so forth.

Steve Mitchell: The ambient noise levels on the north of the square will be much lower than those on Queen Street. However, a different set of receptors and all the rest of it are involved. We would have to look at the issue in detail. The position is that we do not expect noise impacts in the area; that position would not change.

Jeremy Purvis: Thank you.

The Convener: As there are no further questions from the committee, we return to you, Mr Thomson.

Malcolm Thomson: I have just one matter for re-examination. If I may, Mr Mitchell, I will return to wheel squeal. You said that you do not anticipate wheel squeal's being a problem. You referred to design measures that can be taken to avoid the problem and to the ultimate solution of recourse, which is the noise insulation scheme. Can other measures in between the two be taken? If you take all the care that you can take, follow all the guidance in the design manual and think that you have designed out wheel squeal, but—horror of horrors—it happens, is there anything that you can do before you must have recourse to the insulation scheme?

Steve Mitchell: We can do three things, which I will list in no particular order. We can ensure that the driver navigates the bend at the optimal speed, which can be useful in preventing wheel squeal. We can carefully consider the condition of the rails, because wheel squeal can often be removed from a bend by polishing the rails and by grinding and reprofiling them. We can consider options for lubricating the track in order to reduce the frictional forces that generate the noise. There are various ways of doing that, which I need not go into. Again, if you are unlucky enough to visit a system that has a bend that squeals on a dry day, you might find that there is no squeal on a wet day.

There are examples that clearly demonstrate that even water can alleviate the problem.

The Convener: The next witness is Stuart Turnbull, who will address traffic impacts.

Malcolm Thomson: Mr Turnbull, will you give us an update—

The Convener: I must interrupt you again, Mr Thomson. I stress that you may consider traffic impacts, but not the central Edinburgh traffic management proposals.

Malcolm Thomson: I will certainly not do so, sir. The update that I had in mind relates to Mr Turnbull's meeting last week with the objector. Did any matters arise from the meeting about which the committee should hear?

Stuart Turnbull (Jacobs Babbie): Yes. The meeting was held on Thursday 16 June. I attended, as did a representative from TIE, Mr Mowat and two colleagues. We principally discussed some of the issues that have been raised in the objection and the various rebuttals—the committee has heard much of the matter. The meeting was positive and went a long way towards addressing the major issues, although the community council still has concerns.

Ian Mowat: Mr Turnbull, I note that you have 17 years' experience in transport planning. I put this question to Mr Evans, too: what is the major east-west route for road traffic through the centre of Edinburgh?

Stuart Turnbull: Queen Street is starting to become the main east-west route.

Ian Mowat: Thank you. In your rebuttal, you said that modelling work on the tram's impact on junctions demonstrated that

"in the majority of the locations the impact of re-routing of traffic would be minimal."

Where would the impact be more than minimal?

Stuart Turnbull: I will not go through every junction in the centre of Edinburgh. We reviewed the impact at 25 key junctions in the city centre, from Haymarket to St Andrew Square. We found that an increase of more than 10 per cent as a result of the tram was predicted at only two of the junctions. To give members a sense of what that means, 10 per cent variation is regarded as normal, day-to-day variation in a city context.

The reasons for that are, first, that the tram would lead to modal transfer from car to tram. We have evidence from elsewhere that 15 to 20 per cent of the tram patronage is predicted to come from private car users.

Secondly, the proposed scheme would result in few road closures or bans, so that, when the tram scheme is in place, people who want to drive

through the city centre will continue to be able to use the routes that they currently use. Therefore we expect there to be a minimal impact on people's route choices.

Thirdly, the designs that have been developed to date take cognisance of other road users. Throughout the route there are instances of sections of shared running, for example. The design acknowledges that it is not all about the tram; other road users, pedestrians and cyclists will continue to need to move through the city. The design takes a very integrated approach.

Finally, it is worth bearing it in mind that, on tramline 2, six trams an hour will move through city centre streets that might also carry up to 2,000 to 3,000 vehicles an hour. As a result, I believe that the impact of the trams will be insignificant. I am not surprised that, according to the modelling, there will be a limited amount of what we term reassignment, which means drivers taking a different route.

Ian Mowat: You have not told me the two junctions where there will be a greater than 10 per cent variation.

Stuart Turnbull: I do not have that documentation with me but, from memory, I believe that one of the junctions was certainly in the location of Queen Street and—

Ian Mowat: And North St Andrew Street.

Stuart Turnbull: Yes.

Ian Mowat: And what is the other one?

Stuart Turnbull: From memory, the other one is towards the west end at the junction of West Maitland Street and Manor Place.

Ian Mowat: Okay. The community council and I are more concerned with the junction at Queen Street and North St Andrew Street. If the variation is greater than 10 per cent, are we talking about 11 per cent, 20 per cent or more?

Stuart Turnbull: From memory, I think that it is 16 per cent.

Ian Mowat: Were those figures arrived at before or after the impact of the central Edinburgh traffic management scheme, which has shut the east-west route along Princes Street to cars and pushed them all on to Queen Street, became clear?

Stuart Turnbull: I appreciate that we do not want to get into detailed evidence on the central Edinburgh traffic management proposals, but I should perhaps briefly explain the process that we have gone through.

You are correct to say that the designs in the bill were developed before the introduction of CETM.

Indeed, when the documents were prepared, the CETM scheme had not even been approved. Further information on the matter is available in my witness statement, but I should point out that there have been more detailed assessments of how to integrate the tram and the CETM scheme throughout Edinburgh city centre. If the bill receives royal assent, we will need to carry out a detailed design process on the matter. However, the City of Edinburgh Council, which was quite rightly keen to identify any show-stoppers that might result from CETM, carried out some work that showed that, with some minor amendments to some of the layouts in the drawings to date, the tram and CETM could work side by side.

Ian Mowat: That answer was very general. Did you consider CETM's impact on the junction at Queen Street and North St Andrew Street and come up with any precise figures?

Stuart Turnbull: The introduction of CETM has meant a number of modifications across the city. One key aspect is the move to prevent westbound traffic from going along Princes Street and, in effect, to relocate it to Queen Street, which I accept will impact on traffic flows in that corridor.

As you might be aware, recent improvements throughout the city centre have resulted in the reconfiguration of Queen Street and the junction of Queen Street and North St Andrew Street to provide two westbound lanes for general traffic and, eastbound, one lane for general traffic and one for buses. The junction of Queen Street and North St Andrew Street has also been greatly simplified; the signalised junction has been turned into a straightforward pedestrian crossing and some traffic has been banned from heading southbound into North St Andrew Street.

Although I fully accept that the introduction of CETM will lead to an increase in traffic flows through that area, the physical measures that have been introduced will improve—and indeed are improving—throughput at that junction. I believe that the junction operates more efficiently than it did before. The promoter's current tram proposals would have no impact on the westbound provision on Queen Street. According to the drawings that have been presented, the existing two lanes for general traffic would continue.

11:15

Ian Mowat: So there would continue to be two lanes for westbound traffic.

Stuart Turnbull: Yes.

Ian Mowat: What would be available for eastbound traffic?

Stuart Turnbull: For eastbound traffic over that short stretch, the drawings that have been

presented to date show one lane for general traffic and one lane for trams.

Ian Mowat: What would happen to buses?

Stuart Turnbull: To date, the proposal is that buses would travel in the same lane as general traffic over that short stretch.

Ian Mowat: You say that that is the proposal to date. Is there some doubt about that?

Stuart Turnbull: As we have heard, there is an evolving design process. I expect that, as the detailed design is carried out, a number of issues will rightly be given detailed consideration. A key issue for the operation of that short stretch will be to minimise the length of eastbound queueing outside the Scottish National Portrait Gallery because of the potential for that to have a knock-on effect elsewhere on Queen Street. Through the phasing of the signalised junction at Queen Street and North St David Street, it might be prudent to hold traffic there longer to ensure that the short stretch of Queen Street outside the portrait gallery flows freely. That is common practice. Potentially, the buses might be allowed to share the tram lane over that short stretch. Through the design process, options can be developed within the limits of deviation to address the continuing change in traffic flows that will inevitably occur.

Ian Mowat: All your figures assume an element of modal transfer, as you call it, from the car to the tram and public transport. What percentage of modal transfer is assumed?

Stuart Turnbull: It is difficult to give a single number. Although it has been stated that the trams will result in a 1 per cent reduction in car travel across the city, that figure is almost meaningless because it covers the whole city. Equally, the analysis has shown—

Ian Mowat: I will make the question easy for you. Do you know what modal transfer will take place for the Queen Street junction, which is what I am primarily concerned with just now?

Stuart Turnbull: It is difficult to pull out just the modal transfer figure, as the modelling that we carry out deals with a range of things happening all at once. As the traffic management measures are introduced, there will be differences in traffic flows with and without trams, but not all those differences will necessarily be due to modal transfer, as there will also be an effect on travel patterns. I cannot say categorically that modal transfer will result in an X per cent reduction in traffic at that junction. However, the analysis for line 2 has shown that, for example, the predicted reduction in car trips to the city centre is of the order of 5 per cent.

Ian Mowat: Let me put to you an alternative scenario, which is that buses, as well as cars, will

be held up by the trams, with the result that people will find the bus service less reliable. Thus, given that most public transport journeys in Edinburgh will still have to be undertaken by bus, people might return to their cars, so the modal transfer might happen the other way.

The Convener: We are entering the realms of speculation. We are also returning to matters that were determined when we considered the principles of the bill.

Ian Mowat: I was merely pointing out that an important assumption in working out how such junctions will operate is that there will be fewer cars on the road, but that that assumption might not be right.

Stuart Turnbull: There is no assumption as such. The switch from cars to trams, and indeed from buses to trams, is not assumed but is a function of the traffic modelling that we carry out. The modelling takes account of journey times and levels of congestion for different modes and, on that basis, predicts a level of transfer. It is not that we simply assume that a 5 per cent reduction in traffic will make a change; it is a function of the modelling.

Ian Mowat: Are you satisfied that the model will be able to handle the 208 bus movements an hour that, I am told, pass through that intersection?

Stuart Turnbull: I have not counted them, but the number is of that order and there are something like 2,000 private vehicle movements.

Ian Mowat: On the question of signalling, you said that there were four options on the priority that could be given to the tram. The options range from treating the tram like an ordinary road user and making it go with the rest of the flow to giving the tram absolute priority. Which option would be appropriate for the junction of North St Andrew Street and Queen Street?

Stuart Turnbull: That is a matter of detail and I can only give a view at this stage. I would expect that the tram would not be given full priority on that short stretch.

Ian Mowat: Would that be priority level 3 in your rebuttal?

Stuart Turnbull: Yes. Level 4 is the absolute priority.

Ian Mowat: Yes, and it would involve the red light changing instantaneously.

Stuart Turnbull: The process is dynamic, because the traffic signalling system in the city centre is linked to reflect traffic movements as they occur at different times of the day. It adjusts itself to reflect queueing throughout the city centre in order to avoid a gridlock developing. It might be that the tram would have absolute priority at

various times of the day but that, on short stretches during the peak hour, the impact of that on other road users would be considered significant enough to warrant lowering the level of priority.

Ian Mowat: Does not that have a huge impact on the modelling of how other traffic will be affected at those junctions?

Stuart Turnbull: I will give you a specific example of how a certain junction will work, although the situation will vary from junction to junction. A traffic-signal junction will tend to work in what we class as a cycle time of 90 seconds or 120 seconds. That means that it takes 90 seconds for the lights to get back to where they were. In the modelling, we have assumed that a tram will arrive during every cycle, which would mean that there would be a tram coming along every two minutes. Clearly, however, that will not be the case.

Ian Mowat: It is nearly the case, because you are going to be running 14 trams—

Stuart Turnbull: We are running six trams per—

Ian Mowat: Yes, but you are going to run another eight on tramline 1, which will come down the same line.

The Convener: I will intervene at this point to draw the parties' attention to the fact that the committee needs to make a determination on each objection. We require to know what you want us to do, because we are now dealing with the minutiae of the situation. I am quite happy to let you go a little further down this route, but I would like to think that, shortly, we will see what you are seeking to achieve.

Ian Mowat: Mr Turnbull, do you accept that we are talking about 14 trams an hour using those junctions, not six?

Stuart Turnbull: We are considering line 2.

Ian Mowat: Come on, it is completely ridiculous to model the junction using only the line 2 trams.

Stuart Turnbull: The modelling that we have done assumes that there will be 30 trams an hour, because we have assumed that a tram will arrive every two minutes.

Ian Mowat: I just wanted to make that clear.

Do you agree that a lot of traffic problems would be solved if line 2—with its six extra trams an hour—did not come down on to Queen Street? Surely that junction would become less congested if those six trams did not use it.

Stuart Turnbull: There would be less vehicle movement through the junction, which would mean that there would be fewer delays and that it would operate more effectively. However, that

answer comes at the issue purely from a traffic point of view and we have heard evidence about many other issues.

Ian Mowat: Can you think of any adverse traffic implications of terminating tramline 2 round St Andrew Square on North St Andrew Street? I appreciate that that is a matter of detail.

Stuart Turnbull: In your previous question, you asked me to consider the fact that we are promoting two tramlines. As we are promoting two tramlines, the intention is still for tramline 1 to come along York Place and to enter the square, so there will still be trams travelling through the junction of Queen Street and North St Andrew Street, irrespective of whether tramline 2 runs round the north side of the square.

Ian Mowat: Yes, I see that. However, I am asking whether, if the six trams an hour on tramline 2 went around the north side of St Andrew Square and the eight trams an hour on tramline 1 went down the route that is planned for it, that would improve the traffic position.

Stuart Turnbull: I could not say for certain, as I have not done that modelling. However, any junction in the city would obviously operate better if there were a reduction in the traffic flow.

Ian Mowat: Would it also help if you had a layover point there so that, if something were to go wrong with tramline 2, tramline 1 would not be blocked, as there would be an extra layover line for tramline 2?

Stuart Turnbull: Potentially, it would help. However, if lines 1 and 2 are constructed, there will be adequate layover facilities, irrespective of the route of the tram round that part of the city.

Ian Mowat: Let us briefly discuss Shandwick Place. You looked at Mr Welsh's evidence and said that putting the tramline down Shandwick Place and into the west end of Princes Street would not result in increased traffic along the access from Randolph Crescent to Queen Street. Do you really hold that position?

Stuart Turnbull: I mentioned previously the requirement to take account of the needs of other road users and the implications of that for the alignment of the tram and the level of segregation. As you are aware, the proposal is that the tramline will share a running section on Shandwick Place and will operate in the same way as other vehicles, with no priority.

Ian Mowat: No priority at all?

Stuart Turnbull: It will operate in a lane that is shared with other road users.

Ian Mowat: So, a car or a bus can sit there and a tram will have to wait its turn. Is that a definite commitment?

Stuart Turnbull: As we have heard several times, the detailed design process, which will consider a number of issues within the limits of deviation, is still to be carried out. I expect that one of the issues to be considered in detail will be the extent of shared and segregated running. As things stand, however, I cannot give a commitment that that will be a shared running section.

Ian Mowat: I have one other question. You are well aware that overhead lines are likely to be used, which will clear the height of a double-decker bus so that buses are not impeded in their flow. Do you think that open-top tourist buses will be able to operate under the proposed regime?

Stuart Turnbull: I do not want to repeat Mr Oldfield's evidence.

The Convener: We have already had that question.

Ian Mowat: In that case, that concludes my questioning.

Alasdair Morgan: Mr Turnbull, let us confirm the figures that you have given for the traffic that will pass through the junction if both tramlines are there. Did you say that it will be 2,000-plus cars, 200 buses and 30 trams? Are those the rough figures?

Stuart Turnbull: No. In assessing the operation of the junction, we look at a traffic signal cycle that lasts for two minutes. We assume—in effect, to test the operation—that a tram will arrive every two minutes. We are not assuming that there will be 30 trams per hour; that figure is used for the design process.

11:30

Alasdair Morgan: You gave us figures of 2,000 or more cars and 200 or more buses. What would be the equivalent figure for the trams?

Stuart Turnbull: The number of trams through the junction would be six per hour on tramline 2.

Alasdair Morgan: And then 14 for the other line. So the figures would be 20 trams, 200 buses and 2,000 cars.

Stuart Turnbull: It would be of that order. It would vary by time of day and time of the year, for example.

Marilyn Livingstone (Kirkcaldy) (Lab): How many trams would run through the evening?

Stuart Turnbull: My understanding is that the figure would be the same. There would be six trams per hour through to 1.30 am, I think, for tramline 2.

Malcolm Thomson: Mr Turnbull, if one took account of both lines, would the number of trams that run through the junction be six plus eight?

Stuart Turnbull: That is correct.

Malcolm Thomson: I am thinking about your evidence on Shandwick Place and the shared running there. Where there is shared running on a stretch such as Shandwick Place, would there be any priority for the trams at junctions?

Stuart Turnbull: There would be a mechanism for that. Along the length of the tram route, there would be some form of detector to enable the tram to advise of its approach to a junction. The control system that operates all our signalised junctions would take appropriate action, which might be to introduce a phase of the lights to let the tram through the junction or to say, "Tough: you'll have to sit in the queue."

Malcolm Thomson: Might the odd car benefit from the priority that would be afforded to the trams?

Stuart Turnbull: Yes, it would in such instances.

Malcolm Thomson: So, even in shared running, a degree of priority would be afforded to the trams.

Stuart Turnbull: Yes. There would be a mechanism for that.

The Convener: Thank you, Mr Turnbull. That concludes the promoter's evidence on the objection. We now turn to the objector's witnesses, Alan Welsh and David Todd. We will suspend briefly so that those witnesses can come to the table and the present batch of witnesses can return to the public gallery.

11:32

Meeting suspended.

11:38

On resuming—

The Convener: We move on to the objector's witnesses Alan Welsh and David Todd.

ALAN WELSH and DAVID TODD took the oath.

The Convener: The first witness is Alan Welsh, who will address service relocation, noise, visual impact, congestion, segregated tram tracks, tram-prioritised intersection signalling and route change.

Ian Mowat: Mr Welsh, I understand that you give evidence on behalf of the New Town, Broughton and Pilrig community council.

Alan Welsh (New Town, Broughton and Pilrig Community Council): That is correct.

Ian Mowat: I also understand that, for a number of years—until this month, in fact—you were chairman of that council.

Alan Welsh: Yes, I was chairman for four years.

Ian Mowat: I understand that you were chairman during the time that the objections were required to be lodged and amplified, until June of this year.

Alan Welsh: That is correct.

Ian Mowat: I understand also that you have a professional background in engineering.

The Convener: Mr Mowat, that is all in the witness statement.

Ian Mowat: I did not think that that latter point was, but I think that it is relevant to hear briefly where Mr Welsh worked.

Alan Welsh: By profession, I am an engineer. For 37 years, I worked with GEC Alsthom as a project engineer—that is, someone who works on technical and other definitions.

Ian Mowat: We have got that, thank you. I understand that the community council has no objection to the tramline in principle but is concerned about the various effects that routing it through the city centre would have.

Alan Welsh: We are particularly concerned about the congestion that might arise during the construction of the tramline and during its operation. We are rather upset that, in the early stages of the tram procedure, no community liaison group was set up for our area of the city. Groups were set up for the west end and for Leith Walk, but there was no community liaison group for central Edinburgh, which our community council covers. To a certain extent we have been disadvantaged, because we came to the process late.

Ian Mowat: Nevertheless, you have lodged a fairly wide-ranging objection. We will deal with the issues one by one.

On construction, are you now content with what you have read in TIE's witness statements and heard from its witnesses? TIE has mentioned the Control of Pollution Act 1974 and certain measures that it will take.

Alan Welsh: We are not content with the assurances that have been given on construction. We are particularly concerned that, although it is generally accepted that, to put a tram track down, it is necessary to remove all surfaces from beneath the tram track, many people are not aware of the repercussions of removing and relocating all underground sewers, water mains, gas mains and electricity mains throughout the centre of the city—in particular, in our case, in the Queen Street and York Place corridors. That will be vastly disruptive. To accommodate the construction process, traffic will, of necessity, be redirected into other areas. We are concerned that the redirected traffic will go through residential

areas. As you are aware, Princes Street is now out of bounds to normal traffic; if Queen Street and York Place are under construction, they too will become out of bounds.

Ian Mowat: Would it ameliorate some of the problems if, as I understand is your suggestion, tramline 2—which we must consider on its own—were to terminate at St Andrew Square and not turn down to Queen Street?

Alan Welsh: That would ameliorate every problem, except for the concern about York Place. However, it would ameliorate every problem in relation to tramline 2.

Ian Mowat: We are dealing only with tramline 2.

Alan Welsh: In that respect, there would be no disruption on the Queen Street corridor, which, as previous witnesses have pointed out, is now the major east-west traffic route through the city. If the tram were not taken in front of the Scottish National Portrait Gallery on Queen Street, there would be no problems with construction or operation.

Ian Mowat: Mr Evans said that St Andrew Square is of such architectural and heritage importance that to run a further line round it would be very serious from a planning point of view. As a former chairman of the community council that covers the new town, do you agree with that?

Alan Welsh: There are problems with St Andrew Square. As previous witnesses have mentioned, there are plans afoot with regard to the public realm. Those plans, which have been played down to a certain extent, have had major repercussions for the response from Historic Scotland and the Edinburgh World Heritage Trust to the location of tram routing through St Andrew Square.

I point out that, although St Andrew Square has a few grade A listed buildings, the buildings within the square are predominantly 20th century—I am sure that you have all been to Harvey Nichols, which is very recent—and many of the buildings are not of the highest quality. There are older buildings on the north side of the square, where we suggest that the tram route could go, but they have been vastly reconstructed—I refer to the IBM office, for example. The quality of the architecture in St Andrew Square is in no way comparable to that in, say, Charlotte Square. It is common knowledge that Queen Street and York Place probably have the longest unspoiled and uninterrupted Georgian architectural vistas in Europe, but they are major traffic corridors and trams could also potentially run on them.

11:45

Ian Mowat: We have heard that there was at least—

The Convener: Mr Mowat, I take it that we will get to the outstanding issues at some stage.

Ian Mowat: I understand that a key outstanding issue for Mr Welsh and the New Town, Broughton and Pilrig community council is that they simply do not agree that tramline 2 should go down to Queen Street.

Alan Welsh: We are particularly concerned about the overhead electrification system. The New Town, Broughton and Pilrig community council has responsibilities for the area from the west end of Princes Street to Leith Walk, which encompasses a large chunk of the proposed line 2 route. I am sure that we are all aware that the prospect from Princes Street has been legally protected for 200 years. There have been many fights over the matter—people did not even want St John's church at the west end of Princes Street to be built because it would block the view. The overhead cables would be a major incursion on the setting of listed buildings on Princes Street.

We have presented evidence on the Bordeaux tram system. The site there is a world heritage site and the mayor did not want overhead cables in his city, so the system was put underground, on the mayor's insistence. There were initial teething problems, but they have been sorted out and the system is now running at 99 per cent capacity. We commend the Bordeaux experience to Edinburgh as a solution to many problems.

Ian Mowat: You are not satisfied that everything has been done to protect listed buildings and so on, and that remains an outstanding issue.

We have heard that you are not satisfied with the construction, so we will pass on to the operation of the trams. I will leave aside congestion for a moment. Are you satisfied with what you have heard regarding wheel squeal and the various ameliorations of it that are possible?

Alan Welsh: As a long term city-centre resident with personal experience of the traffic—I walk everywhere in the city centre—and an engineer with knowledge of tram systems, I dispute what previous witnesses have said about there being no, or hardly any, wheel squeal at a corner. The minimum design radius for the tram is 24m. On the corners that come out of St Andrew Square into Queen Street, the design radius is 25m, which is so close to the tolerance that it is not true. The road is also on an incline—it goes down a hill and then turns round a very sharp corner. Normally in such a system, what is technically known as a third rail would be put on the corner to stop the tram coming off and to stop wear. The third rail would be above the road level by around a centimetre—12 mm—which is an added complication.

Wheel squeal and wheel screech are almost certain to happen at the location in question. The

ameliorations that witnesses have suggested of lubrication and running trams very slowly around the corner are possible, but they are only ameliorations and, technically, there will be wheel squeal. The problem with the noise figures is that they cannot predict the amount of wheel squeal, as they do not show the peak level of noise at any particular time—they are averaged out over an hour. The peak noise that a tram would make when it goes round such a corner for 10 seconds would be considerably in excess of what previous witnesses have said that it would be. Wheel squeal and wheel screech are a problem, and would be a particular problem on that corner.

The Convener: We have the written evidence and we appreciate concerns about wheel squeal. Can we move on?

Ian Mowat: Yes, absolutely. The witness heard Mr Turnbull say that 10 per cent variation in traffic congestion is normal—during the day, I presume—and that the modelling of congestion at that junction suggests a variation of only 16 per cent. Would not that be acceptable?

Alan Welsh: Previous witnesses have admitted that there will be levels of prioritisation for vehicles as they pass through intersections and that the tram will have top priority. We are concerned because the Queen Street and Dublin Street intersection, which is of particular interest to the community council, has three sets of lights—

Ian Mowat: Sorry, but people might become confused. Are you talking about the tramline junction at North St David Street, where the route goes down to Queen Street and up to North St Andrew Street, with Dublin Street blocked off in the other direction?

Alan Welsh: Yes. There is also a bus route. For tramline 2 there would be just two intersections, which technically would have to be linked so that the tram could have priority and not be blocked. The lights would switch simultaneously and other traffic would have to stop to allow the tram free access through both intersections. Therefore, traffic would be held up. The same operational problem would arise at the West End, where three sets of lights, at Shandwick Place, Princes Street and Lothian Road, would have to be switched simultaneously to let the tram through. All other traffic would stop and there would be an appreciable transit time as the tram passed through the intersection.

Ian Mowat: We heard evidence from Mr Turnbull that, at the West End, the tram might well run simply as if it were any other vehicle on the road, and would be given no priority. Would that be workable?

Alan Welsh: I attended a public meeting in Edinburgh that was attended by representatives

from the Scottish Association for Public Transport and Mr Andrew Wood, the manager of Transdev Edinburgh Tram, which would run the tram system on behalf of TIE. Mr Wood is an experienced tram operator who set up and operated the Nottingham system, so he has vast experience of such systems. He said that in his opinion there will be much more segregated tram track than is envisaged in the bill. I expect that the tram will eventually have to run in a segregated lane at Shandwick Place, which will not leave much space for buses and other traffic, because there are only four lanes on Shandwick Place.

Ian Mowat: The community council suggested in its original objection that if the tram ran on the heavy rail through the centre of the city, many problems would be avoided. Mr Oldfield responded that such an approach would not be practical for a number of reasons. Are you satisfied by his response?

Alan Welsh: Mr Oldfield's response to our suggestion raised a number of issues that are of interest—let me put it that way. I am sure that the committee is aware that Waverley station will be revamped and that two more through tracks through Waverley will be provided. To that end, the signalling from Haymarket to Waverley will have to be upgraded. In our submission we noted—

The Convener: We have your submission.

Ian Mowat: The issue is outstanding. The community council made three proposals: first, that the heavy rail option be considered; secondly, that even if the heavy rail option is not considered, the tramline be moved from Queen Street to a route round St Andrew Square; and thirdly, that rubberised track be used. We heard that rubberised track base will be used. Are you satisfied by that?

Alan Welsh: Yes. There are also such things as polythene sleepers. Although rubberised track—

Ian Mowat: It is rubberised track bed, not track.

Alan Welsh: Polythene sleepers provide additional vibration insulation and could be used city centre-wide.

Ian Mowat: You maintain the community council's other two suggestions: first, that the heavy rail option should be considered; and, secondly, even if that is discarded, that tramline 2 should end at St Andrew Square and be routed round the north of St Andrew Square.

Alan Welsh: Yes. The heavy rail option would remove many of the design problems. Most of the problems that arose in objections, that will arise and that will be considered would not arise if the route that was chosen used preserved rail tracks, which are preserved as transport corridors for a

reason. Development has never been allowed on them; they were preserved to be used for transport. I am puzzled about why that engineering solution has not been considered more seriously.

Ian Mowat: Is the committee clear about where Mr Welsh stands?

The Convener: Yes.

Ian Mowat: In that case, I end my examination of Mr Welsh.

Malcolm Thomson: Good morning, Mr Welsh.

Alan Welsh: Good morning.

Malcolm Thomson: First, I will ask you a little about the catchment area of your community council. The original objection says that it includes

"Princes St, St Andrews Sq, York Place, Picardy Place and Leith Walk down to Pilrig Street."

Alan Welsh: That is correct.

Malcolm Thomson: I have read somewhere else that the area ends at Hope Street towards the west. Is that correct?

Alan Welsh: In effect, it ends at Queensferry Street.

Malcolm Thomson: What about Randolph Crescent?

Alan Welsh: Randolph Crescent is included in our patch. We go down Queensferry Street to Dean bridge and down to the Water of Leith. The committee received objections from Lord Moray's feuars, who reside in the Randolph Crescent area, which is particularly inconvenienced by the central Edinburgh traffic management rearrangements. They consider that if Shandwick Place were heavily overtrafficked with trams, buses and normal traffic—

The Convener: I interrupt to point out that that objection was withdrawn.

Alan Welsh: The objection has been withdrawn? No it has not.

The Convener: The witness statement from Lord Moray's feuars has been withdrawn.

Ian Mowat: The witness is not available to give evidence.

Alan Welsh: The feuars have not withdrawn their statement.

Ian Mowat: Technically, the convener is correct. If a witness does not come along, the objection is deemed to have been resolved. On the other hand, the New Town, Broughton and Pilrig community council made similar points about Shandwick Place, so the points were made twice.

The Convener: If Mr Welsh is making the same point from a different angle, that is fair enough.

Ian Mowat: I think that he is.

Malcolm Thomson: Is Shandwick Place outwith the area of your community council?

Alan Welsh: That is correct.

Malcolm Thomson: It is in the area of the West End community council.

Alan Welsh: That is correct. However, the three intersections at the end of Shandwick Place, which are a crunch point, are in our patch.

Malcolm Thomson: The West End community council is not an objector to the bill.

Alan Welsh: I am not aware of that.

Malcolm Thomson: My next questions will help the committee to have a feel for whose views, beyond those of you and Mr Mowat, are being described when you give your evidence. Have your witness statement and rebuttal been before a committee of the community council? Were they voted on at any annual general meeting? Will you give us a flavour of the process?

Alan Welsh: Because of the amount of work that the community council must do, it divides the work among sub-committees. We have a traffic and transport sub-committee, which Mr Mowat convenes. It contains four or five community council members; I am not one of them. That sub-committee has considered all the documentation that has been submitted to the committee throughout the process.

Malcolm Thomson: As I understand it, you were not on the sub-committee, because you were the chairman.

12:00

Alan Welsh: I was on the sub-committee for the first objection at the beginning of the process.

Malcolm Thomson: So how has the work of the sub-committee been factored into your statement?

Alan Welsh: I am sorry, I do not understand.

Malcolm Thomson: We have a witness statement from the community council, to which you have just spoken. Am I wrong in thinking that it is your personal statement?

Alan Welsh: It is signed by me as chair, but it is the evidence of the traffic and transport sub-committee.

Malcolm Thomson: My difficulty is in understanding how you are speaking to something that presumably originated in the sub-committee that was tasked to examine the issue—or am I wrong about that?

Alan Welsh: As chairman, I usually speak on behalf of sub-committee chairpersons.

Malcolm Thomson: So did the sub-committee report its findings in relation to the objection to the full committee, of which you are the chair?

Alan Welsh: Yes.

Malcolm Thomson: Does the witness statement that you have spoken to today reflect the recommendations from the traffic and transport sub-committee?

Alan Welsh: It only does not do so in so far as some of the technical aspects are from my personal experience as an engineer. The rest of the written statement is from the community council traffic and transport sub-committee.

Malcolm Thomson: Did some form of report go from the traffic and transport sub-committee to the main community council?

Alan Welsh: Yes. The traffic and transport sub-committee has separate meetings, and it reports what it has been discussing to the full community council on a regular basis.

Malcolm Thomson: Were the issues in your statement discussed by the full community council?

Alan Welsh: Yes.

Malcolm Thomson: The options that you have been speaking about are for the tram to go either round the north side of St Andrew Square or into Queen Street. Given that your organisation is also concerned with St Andrew Square, was there any discussion in the community council of the pros and cons—particularly the pros—of the tram running into Queen Street rather than round St Andrew Square?

Alan Welsh: Yes. The community council was concerned because as a residential area we are subject to rat-running, as I explained with regard to congestion. The City of Edinburgh Council is aware of rat-running and has been good to us in certain respects by closing off certain streets. Given the amount of extra traffic along Queen Street that will result from the trams, we are concerned.

Malcolm Thomson: Did the community council consider—

The Convener: Mr Thomson, will you clarify where we are going with this? I have not seen any of this in any witness statement.

Malcolm Thomson: I am simply exploring the extent to which we are discussing the views of one person or of a large swathe of the community.

The Convener: I can see the fishing expedition that you are on, but we have to deal with what is before us. I would prefer it if this did not go too much further.

Malcolm Thomson: I hear the point, sir.

Did the community council consider the aesthetic aspects of having the tram running round the north side of St Andrew Square, as spoken to today by Mr Evans?

Alan Welsh: The community council did not consider the aesthetic aspects of that suggestion.

Malcolm Thomson: Because it was more concerned with traffic issues, such as rat-running.

Alan Welsh: It was more concerned with congestion. We are a city community council and we are considering not just our own interests; we are located in the city centre, so we consider the interests of everybody. We can see that there is a major problem with overlaying a tram system on an existing efficient bus system on limited road space. As an engineer, I would love to be able to create space out of fresh air, but that cannot be done. If a road has only four tracks, one cannot make five. One of the major problems with the tram system is that it is attempting to make more space where there cannot be more space. The community council's main concern is that we cannot see how additional traffic requirements can be met within the limited space in the world heritage site without causing major knock-on effects elsewhere.

Malcolm Thomson: Do you know roughly how many listed buildings there are in St Andrew Square?

Alan Welsh: Off the top of my head, I would say that there are not more than 15, and they are mostly on the north side.

Malcolm Thomson: Do you have any particular expertise or qualifications in tram design or tram construction?

Alan Welsh: I have worked more on aspects of the metro side of the business, on the Jubilee line extension down in London. My firm was also heavily involved with the Docklands light railway, so I do have a certain amount of experience. As a systems engineer, I was taught that if, when one considers a solution to a problem, it throws up more extra problems than one can deal with, it is always sensible to consider an alternative. In my experience as an engineer, if one insists on going down the road of the first decision, the repercussions or knock-on effects can be horrendous. I have worked on many projects in which we tried to design our way out of a problem, but if we had gone back and considered the original design, the problem would have gone away.

Malcolm Thomson: You say in your evidence that planning regulations do not permit double glazing in listed buildings.

Alan Welsh: That is correct.

Malcolm Thomson: Do you accept that secondary glazing is permitted?

Alan Welsh: Secondary glazing is accepted in listed buildings, yes.

Malcolm Thomson: Thank you, Mr Welsh.

The Convener: Do committee members have any questions for the witness?

Members: No.

The Convener: Mr Mowat, would you like to re-examine the witness?

Ian Mowat: No.

The Convener: Thank you for your evidence, Mr Welsh.

We now turn to David Todd, who will address the issues of noise, congestion, route change and visual impact. There seems to be some overlap there, Mr Mowat. I do not think that we want to duplicate evidence.

Ian Mowat: I shall try not to do so.

Mr Todd, I understand that you speak on behalf of the Dublin Street residents association. It would be helpful if you were to explain, especially in the light of Mr Thomson's questions to the previous witness, exactly who the association represents.

David Todd (Dublin Street Residents Association): The association deals with the internal management of the top two houses in Dublin Street, which are on the intersection with Queen Street and North St Andrew Street that we are talking about. There are 18 flats there. Both buildings are entirely residential. I am on the committee that is appointed at the annual general meeting every year, and we deal with internal and external matters that concern the two blocks of flats.

Ian Mowat: Has the proposed tramline been of concern to the residents?

David Todd: It was raised at the most recent annual general meeting, and the committee was delegated to look into the matter.

Ian Mowat: Are all the residents aware of the objection?

David Todd: Yes. It is posted on the notice board in the flats.

Ian Mowat: Am I right in thinking that, of all those flats, several of them—or all of them, perhaps—have rooms facing Queen Street?

David Todd: In the top house, which is on six floors, every floor has a window on to Queen Street.

Ian Mowat: To get to the specifics, my understanding is that you are not objecting to the tramline in principle but that you are simply concerned about the routing of the tramline past the block where you live.

David Todd: Yes.

Ian Mowat: You have listed noise and vibration as a concern. As a resident, are you satisfied with what you have heard from Mr Mitchell about the amelioration that might be made?

David Todd: We are still concerned that the promoter is not concerned about the tunnel, which obviously affects us in Dublin Street. As far as noise is concerned, I do not understand how, if noise were added that was less than the existing noise, that would not make things noisier. I am worried that, although the noise of the tram would be less than the existing noise, when the noise of the tram were added to the existing noise, that would make things noisier. That is how it seems to me, as a layman.

Ian Mowat: Yes. Despite all the proposals and despite what Mr Mitchell said, your concerns about noise remain a matter of contention. You are not satisfied that you will be looked after.

David Todd: Yes. We are also concerned that, although the noise was measured 180m from the intersection, it is a special intersection, in that it is on a curve and on an incline. We understand that it will be used not just by line 2 but by line 1. We think that that combination of factors will make things particularly difficult.

Ian Mowat: Are you satisfied with what Mr Mitchell said about wheel squeal, which, it seems, is the noisiest thing that can happen during operations?

David Todd: He said that there will be no wheel squeal, but we have been told that on an incline and on a curve there may be such noise.

Ian Mowat: He said that emergency measures would be taken and that, if necessary, you would be insulated against that noise.

David Todd: That is correct, although it is interesting that he said that those measures would not be taken in advance.

Ian Mowat: Okay. Moving on, does congestion remain a concern, or are you satisfied with what Mr Turnbull said about that?

David Todd: Again, as a layman, I cannot see how what requires to be done in Queen Street will not cause extreme congestion. We have established that it is a busy street, and it must be that there will be more congestion. The only way to avoid that would be for the work to be done at night, which would disturb the residents.

Ian Mowat: Will you briefly mention your current profession?

David Todd: I am an arts management consultant.

Ian Mowat: I take it that you have no special knowledge of architecture.

David Todd: Not specifically. I am more in the performing arts.

Ian Mowat: Nevertheless, you are a long-term resident of Edinburgh.

David Todd: Yes.

Ian Mowat: And you are interested in the architectural heritage of the place.

David Todd: I am, yes.

Ian Mowat: You heard what was said about St Andrew Square, which is close to you, and its importance. It was said that it would be a planning disaster if the north side of St Andrew Square had a tramline on it.

David Todd: I have a lot of difficulty with the view of one of the previous witnesses, who said that St Andrew Square is a "set piece". That is true of Charlotte Square, but those who created the new town started at St Andrew Square and at that time they did not create palace fronts of the type that are found in Charlotte Square. They moved on to the idea of having complete terraces and palatial fronts after about 10 years of construction. St Andrew Square has always been piecemeal, and at the moment, apart from some of the buildings on the north side, there is a muddle of modern buildings. I do not agree that it requires the same respect as, for example, Charlotte Square.

Ian Mowat: Going back to noise and vibration, which is something that I missed—

The Convener: Vibration was not in the original objection, Mr Mowat.

Ian Mowat: We have certainly discussed it. In any event, in relation to noise, we heard that the test of best practicable means will be used in construction and that something similar will be used in operations. As a resident who will be affected, are you happy with that, Mr Todd?

David Todd: On the face of it, it sounds fine, but there are financial implications. It does not take too much imagination to think of a situation in which we would be affected by the screeching during the day and the grinding of the rails during the night. What could be done about that? The only solution would be unaffordable, so we would be stuck. That is my concern; the code of construction practice seems fair, but at the end of the day it is a question of money and it will be the residents who suffer.

Ian Mowat: I think that you also have a concern about noise arising from maintenance.

David Todd: Yes. As I said, it is not clear how much maintenance will be required. We are told that we will be given notice, but the maintenance, which will be carried out at night, will involve grinding the rails to stop the trams screeching during the day. It is all very well to be warned that one will be unable to sleep, but what if one needs to sleep?

12:15

Ian Mowat: As a catch-all, have you mentioned the main areas about which you are still concerned?

David Todd: Yes.

The Convener: Thank you. We will now have the cross-examination.

Malcolm Thomson: Mr Todd, am I right in understanding that, despite the name of your association, membership is not open to anyone other than a resident of one of the 18 flats?

David Todd: That is correct.

Malcolm Thomson: Were the 18 flats all constructed at the same time out of larger buildings?

David Todd: They were.

Malcolm Thomson: What sort of glazing do they have?

David Todd: Many of them have the original glazing. In some of them, secondary glazing has been installed.

Malcolm Thomson: What do you have?

David Todd: I have secondary glazing.

Malcolm Thomson: Thank you. I have no further questions.

The Convener: Do members of the committee have any questions?

Members *indicated disagreement.*

The Convener: Would Mr Mowat like to conduct a re-examination?

Ian Mowat: No.

The Convener: Thank you very much, Mr Todd.

We now come to closing speeches, which should be a maximum of five minutes.

Malcolm Thomson: In my submission, the issues that, it emerges, lie between the parties concern four matters. Principally, they are: the design process; the use of Queen Street rather than St Andrew Square; noise impacts; and traffic issues.

So far as the design process is concerned, we have heard evidence about the design manual and the prior approval process and the fact that, potentially, the community council would be involved in both those. Therefore, there should be ample opportunity, if the project proceeds, for further design involvement by the community council.

On the major decision as to whether the route should go through the third side of St Andrew Square or through Queen Street, we have heard the evidence of the conflicting—in a way—traffic, design and aesthetic imperatives. We have heard the City of Edinburgh Council's view on the matter through Ms Grant. We do not know for positive what the view of Historic Scotland and the World Heritage Trust would be if they were confronted with a proposal to take the tram along the third side of St Andrew Square. Ms Grant's belief is that they would be opposed to it. What we know for sure is that they have not opposed the current proposal. In my submission, it is entirely reasonable to infer that, from a design point of view, both those organisations are content with the choice that has been made by the City of Edinburgh Council.

We have heard from Mr Turnbull that the traffic issues are not insuperable. Whatever the precise combination of traffic by the time the tram arrives, the situation can be reviewed and detailed options will be available at that stage. The option that is being spoken to at the moment—the preferred option—involves dedicated running for the tram, but inevitably the possibility of shared running along part or all of that stretch of Queen Street would be open.

So far as noise is concerned, we heard from Mr Mitchell on the issue of wheel squeal. He is confident that it will not occur, but, if he is wrong about that, he has described the various methods of dealing with it. First, it could be designed out. Secondly, first-aid measures—if I can describe them as such—could be applied. Thirdly, and ultimately, secondary glazing and noise insulation scheme options would be available, as adopted personally by Mr Todd already.

In those circumstances, I invite the committee to be satisfied with the promoter's proposals and to conclude that the New Town, Broughton and Pilrig community council has raised no issue that might lead the committee to consider further the possibility of amending the bill.

Ian Mowat: The community council would like the committee first to observe that the heavy rail option, which would have involved running the line from Haymarket to Waverley on other railways, might well have resolved many of the design problems, but that option was not adequately considered. I accept that that is not a matter for amendment, but it is a matter for observation.

We are not entirely satisfied that enough work has been done in considering how the design problems that arise because of overhead wires might be ameliorated by the use of ground rail electrification. Such a scheme exists elsewhere, although there is conflicting evidence on whether it is working. Let the bill be delayed and let the promoter provide further evidence on that. Clearly, the strong line that was taken by the mayor of Bordeaux might be to the benefit of the citizens of Bordeaux, but if the bill is passed, it will be left to TIE to do as it wishes on that issue. Indeed, that is true of many issues under the scheme. As we have heard, the witnesses were not satisfied with the assurances that they were receiving about noise.

Above all, our concern is about the congestion that the scheme will cause. As Mr Welsh said, the promoter cannot create road space where it does not exist, but that is what TIE appears to be trying to do, especially in Queen Street. The key moment came when we heard from Mr Turnbull that, as a result of the tramline, west-east traffic in Queen Street will be reduced to one lane for both cars and buses and east-west traffic will be reduced to two lanes.

If we consider tramline 2 on its own—as the committee must do—such a proposal is completely absurd. There is no reason why we need to create that situation, as the problem could be so easily avoided by routing tramline 2 around St Andrew Square instead. We have not heard that that fairly important option was given adequate consideration at an early stage. Rather, we heard from Ms Grant that an internal decision was made that the tramline would impact too greatly on St Andrew Square, but the people whom one might have expected to be consulted about that decision were not consulted. Therefore, the committee is put in the terrible position of having to speculate what people might say about such an amendment. The committee should tell TIE that it will not pass the bill as it stands without that matter being thoroughly considered and advertised.

As a bunch of residents, members of the community council are not experts, even though some of them may have a certain amount of expertise, but they are greatly concerned about the impact of the proposed scheme on congestion in Queen Street, which will obviously add to the noise impact. Any opportunity of removing tramline 2 from Queen Street should be considered carefully. To my knowledge, St Andrew Square has no residents—at least, none has been mentioned—whereas the current proposal would affect residents near Queen Street.

Above all, we urge the committee to give serious consideration to our proposal. The committee

might ultimately decide that TIE is doing the right thing but, from what we have heard, the option has not been given enough consideration.

The Convener: That concludes the evidence for New Town, Broughton and Pilrig community council. I thank Mr Mowat for his attendance.

12:24

Meeting suspended.

12:40

On resuming—

The Convener: Ladies and gentlemen, I am sorry for the delay but, obviously, the process has turned out to be much more complex than any of us had imagined it would be.

Basically, I must inform you that we will not be able to take any more evidence today due to the lateness of the hour, the unavailability of this room and the fact that, if we continued, we would be sitting simultaneously with the Parliament. We intend to take the evidence on the Scottish Rugby Union's objection next Tuesday at 2 pm. The clerks will be in touch with the other witnesses with regard to when their objections will be heard.

I can only apologise to everyone. While it is no one's fault that this situation has arisen, it is clearly a matter of regret that people are being put to this inconvenience. I am sure that everyone concerned appreciates that it is difficult to anticipate the length of time that it takes to deal with each of the objections and that the committee wishes to be as fair as possible to everyone.

I thank everyone for their attendance and apologise for any inconvenience that has been caused.

Meeting closed at 12:41.

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