

19 June 2014

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09:32

NC	Prof Bonsall asked Mr Chadwick as to which graphic diagram - we've put in a note which will be APP-136. And we've done an attempted draft e-mail to Mr Sunderland [DfT]. And I understood it referred to funding so I put in "in relation to funding".
GJ	We're not objecting to DfT procedures, any of them. That's what the Insp is concerned about.
MW	I don't understand what the problem is about retracting it
NC	If you want to say, "in approving NGT".
MW	Use the same words that were used. Just to clarify that really. Whoever had written it might not have meant it.
NC	I'll suggest, Sir, that we use the same language. But I don't want to have to do it again.
GJ	My personal preference is "relating to" NGT. It's slightly loaded - procedures are not for "approving" but for considering the NGT.
MW	I'm fine with that.
NC	Yes Sir.
MW	Can we have another look before it's sent off.
[Michael Fitzsimons]	Can I ask if NGT know whether the Park and Ride in Stourton is being abandoned as there is activity today?
MW	Do you want to put something in writing?
NC	Have sought guidance from Mr Gifford. Nothing he's aware of but will speak to Mr Fitzsimons to see what is of concern.
Peter Bonsall (PB)	It's been clarified that the version was "all seats taken but plenty of room for standing". C-4-24, Appdx A. Second page, bottom of the page. The graphic of crowding was the middle one. 12 seated and 1 standing. So should have been described as "in all time periods 1 in 10 were to stand" but was presented as if it was a test where everyone was standing. Wording at 2.5.6.
Ch	I think I indicated I was happy with the test. Rebuttal 2 to 1719. I think it's consistent. At 2.11, third sentence - "assumes that in all time periods <i>all</i> passengers will have to stand" but I suggested yesterday that it be changed to <i>some</i> .
PB	The values we're using are taken from C-2-4 table 2. $2.75/2.41$ which gives you 1.14 as the ratio of travel time. Is that the effect?
Ch	Yes.
PB	Turn to E-3-16, page 16. This is the section of WebTAG discussing representation of crowding - para 6.4. Its indicative value was 1.5x the normal number. That's the sort of number DfT were suggesting. 1.14 was the value we had.
Ch	I don't agree with that- a number chosen to illustrate how the parameter was to be applied.
PB	Your example of crowding is less than that exemplified in WebTAG.
Ch	No status other than illustrating a multiplication- equally, they could have chosen 1.14.
PB	We're not going to agree on that. If you took 1.5 would give a penalty of journey time of 9mins from Bodington to City Centre.
Ch	Yes but we haven't.
PB	Just take it that it were. Can we go to Table 2 in C-2-4. $13.29/3.41$ which gives 5.41 for no crowding. Then $13.39/2.75$ gives you the crowding penalty - 4.86. Diff 0.68.
Ch	I don't agree that's the approp way to apply a crowding factor.

PB	That's what you did.
Ch	The quality factors at the stop are independent. Perceptions of the vehicle are independent. Then there's a debit for crowding. Proper way to do it is add rather than take away from all the quality factors.
PB	That's what you did at top of page 4 of C-2-4.
Ch	That sets the penalties then if there is a crowding
PB	You've run a test described as "al passengers have to stand" now agreed it's some and the way you did it was to divide the quality penalties.
Ch	My understanding is, the penalties were the penalties and then a different time penalty was added.
PB	Going from bad to worse- now told what Mr Chadwick did for the standard sitn is not what they did for crowding. We need clarity what they actually did. Quite alarming.
MW	
Ch	We assessed the impact of crowding by assessing the value of time of people travelling in crowded conditions. Not my understanding that we applied it to the other quality factors.
GJ	Well we've not been told that. He's the only witness standing and we understand that the position is as set out in the evidence not as his now being said by Mr Chadwick.
MW	Are you able to clarify whether there is anything in the evidence?
Ch	Maybe Mr Cameron can take instructions.
GJ	Now MR Chadwick is here to give evidence.
Ch	My evidence is on the economic modelling .
GJ	Most unusual to seek instructions- can Mr Chadwick be given an opp to identify whether the position he's stated is right - it may be right. Can we not see first of all whether he can link it to any evidence that's before the inquiry.
Ch	To answer Mr Jones' question, I can't point to anything in evidence. If I could, I would have done.
NC	The impt thing is that you Sir and SoS have the right info- if Mr Chadwick can't answer and others in his team do, it's impt to have the right info.
MW	I agree- Mr Jones you can put it in your cross-examination.
GJ	You've been anxious tthat late evidence not come in. It is prejudicial and unfair. He's the witness who's supooosed to be the expert in the field. How are other parties supposed to have prepared their case if in fact the evidence isn't the evidence that's before the inquiry.
MW	Yes but the purpose of this inquiry is to uncover these things. And I need to know for the SoS's decision. We are where we are but don't see where else we go.
GJ	Promoters are saying "trust us" and we're saying "you can't trust them" and it is impt to establish that Mr Chadwick is at this stage unable to point to evidence before the inquiry. We need to see it for credibility of promoters. Don't want to jump immediately to it.
MW	Mr Chadwick has made that clear now and it hopefully won't affect the X-EX as it goes on.
NC	With all the work that goes into a business case, there are a lot of specialists involved. Mr Chadwick is here to speak on elements of the business case. If there are questions he can't answer, either I call another witness or provide the info in another way.
MW	Might need to recall a witness or something and it may delay proceedings.
NC	I can see if I can get the answer now- short break.
PB	I would like to carry on. Mr Chadwick has said he's only here to speak about the economics. It;s his company and he signed off on the report. The team doesn't seem to know what they are doing yet they tell us DfT are supposed to know what is going on.

	This is ridiculous. I'd rather just carry on.
MW	Is it going to be affected?
PB	If Mr Chadwick is willing to answer the question.
Ch	[needs a comfort break]
MW	Inq adjourned for 10 mins]. [10:05]
MW	[10:15] Mr Cameron any answer?
NC	I'm told the answer can be provided but will take a bit of time. Can I suggest we carry on - answer can be put in note form and given to Mr Bonsall and Mr Jones and we can come back to it.
MW	When?
NC	I'm hoping 20 minutes.
PB	Best for Prof Bonsall to have it over lunch to consider what it says.
NC	That's why I'd suggest moving onto a different subject now.
PB	I can do that. This is the second occasion when my questions on crowding have been interrupted by a lack of info.
	I left you with a copy of the UK Tram report by Johnson et al that you commissioned. Have you read it?
Ch	Yes and the Paul Report I read the concs and intro.
PB	Don't you recognise they described your assumptions as "dubious".
Ch	Yes but didn't cr [???? 10:18]. Talk about how the lighting was applied. So not different from what we discussed yesterday. 3 other things I'd like to note. I did help to commission it and took the lead role in the brief. Our SDG view was it was an independent piece of research and improper to challenge it but doesn't mean we agree with what they said. The work was overseen by a DfT official on the steering group who was involved in the brief and the stated preference work and the 2009 [NSCT?] and the 2012 programme entry business case. And are also some conclusions I'd like to talk about. Not in evidence but I'd suggest we submit the full report and submit a note.
GJ	It has been submitted to the Programme Officer yesterday. Can't we say now? I'm concerned about timing.
Ch	I was concerned to save time.
PB	I don't want another interruption. Want to stick with my questions. I he wants a note and to be cross-examined later then so be it.
NC	That is unfair. This was Prof Bonsall's document and I suggest we do what he suggests or comment now.
PB	If he wants to comment he can but does need to be cross-examined on it.
Ch	I don't want to write a note while on the stand. I proposed doing it after giving evidence.
GJ	Does need to be tested or will carry less weight.
NC	Sir can I suggest he give a note and it'll be for you to decide whether he be recalled to be cross-examined.
PB	NWLTF-119. My question was whether he accepted that they described what he did as "dubious" and he said yes. Do you also accept that they expressed surprise at the size of your lighting parameter on the next page? "will people really pay 29p for better lighting". And rescaling.
Ch	Yes. I didn't read that as a technical meaning of rescaling.
MW	Can you move on.
PB	Can we turn back to C-4-24, para 5.11. A description of the fieldwork procedures on page 28. "expected number of indivs not met" - a number of days, "poor weather". I suggest Mr Chadwick might have considered that poor weather in winter would result

	in unusual result.,
Ch	At that time of year it was difficult to recruit people to do the survey.
PB	Because weren't in centre of town.
Ch	Doesn't mean were not in the centre of town. No relationship can be inferred between weather and their travel behaviour. Would not be wandering in the street at lunchtime.
PB	Wouldn't have been there because of the weather. But one of the factors in their mind would have been it's a good idea to have a bus shelter.
Ch	When we did the survey we asked people to think about a ourney they had recently made. Clearly if that journey had been in the rain would have considered the value of shelter. Similarly if made at night would vale the lighting.
PB	If you do a survey in January in poor weather, at a time people would have been more likely to thin about darkness and poor weather than if you had done it at random over the whole year.
Ch	That's a hypothetical question.
PB	No adjustment for time of year?
Ch	No but appropriate and applied with care.
PB	I was asking about assumption that ...[??? 10:39]. You said I should consult Mr Robertson's models for 2031.
Ch	That's where the assumptions for junctions that came into runtime.
PB	But Mr Robertson ddidn't do any modes for 2031. So why is his model for 2016 relevat?
	Imagine traffic down Headingley Hill to Hyde Park Corner- a section where there is no sepwrate lane and the NGT can't overtake the traffic. I put it to you that if we have increased congestion on the road, the vehicle would slow down.
Ch	If that were te case yes.
PB	Yet the run times make no allowance.
CH	Yes.
PB	How could the rujn times be insulated from congestion?
Ch	The runtime model represents the whle of its length. Over its length it will be insulated materially. We're talking hypothetically. Overall we would maintain the runtimes. Mr Robertson has made cautious assumptions.
PB	Has Mr Roberston kept spare capacity that has been kept back for yo if there is congestion in 2031?
CH	Would't suggest there is a reserve of capacity. But he has taken a prudent approach.
PB	You seem to say the runtimes will stay the same because if it got any worse Mr Robertson's work with the traffic signals could make it better again.
Ch	Yes. Overall the sections where there is interaction with traffic are very small and over the whole length the impact on journey time is small.
PB	If he could give more priority he would have done for 2016.
Ch	There is a distribution around the average. If he gives extra priority the distribution around the average would increase so a trade-off.
PB	You would expect him to adjust the signal to give the best result for any conditions in every year?
Ch	The best result has 2 dimensions to it. You consider the mean journey times but I consider the variance is important as well. So there is an area of judgment.
PB	The model just gives 1 number.
CH	In real life as opposed to the model you have to make these decisions.
PB	The business case is based on the model. Proof at 3.39 you state a number of key assumptions underpin the alternatives. 3.38 refers to specification of "do minimum"

	case. First Q: why you advised that the quality penalty in 2007-8 be used rather than a reduced penalty reflecting trends towards new technologies and improved customer experience?
Ch	I think it does assume that. It assume that over the lifetime of the appraisal period the differential will be constant - inherent in that, both bus and NGT facilities have their own cycles of maintenance and renewal. There is a recognition that over time bus fleets and stops will be renewed but the assumption is over the life of the appraisal on average the differential will remain constant.
PB	You say, only need to concern ourselves with relativities. And that the relativity will remain.
Ch	On average.
PB	You say, buses might get better but so too would NGT.
	Are you saying the differential you start with looking at perceptives of differential of old buses and new buses in 2007, it's safe to assume it remains the same through till 2031.
Ch	Yes that is effectively the assumption. The facilities and technologies for buses will advance and so will the technology for NGT vehicles.
PB	Bus operators replace their fleet every 4 years.
Ch	Is that right? Certainly facilities at the kerbside are maintained and periodically renewed with whatever the contemporary standard is.
PB	You say the differential will remain constant. But say an improved version of WiFi came along. You assume that what we do for bus stops couldn't possibly be as good as for NGT stops?
Ch	No - investment would be appropriate for those standard of stops. Metro have specifications.
PB	You say NGT will be renewed to a higher specification so the differential is maintained?
Ch	No, not so the differential is maintained. It's a consequence. There is a cost profile set out in the business case. £2m a year for maintenance of NGT infrastructure which includes overhead lines and stops. And also a renewal cycle and vehicles renewed every 12 years.
PB	Seems extraordinary that the conditions in 2007-8 were assumed to be a good reference point for the "do minimum".
Ch	It is a fair assumption. We have reviewed the facilities provided at each bus stop and if necessary made adjustments for that. Moving forward a fair assumption because the uncertainty surrounding any other assumption is even greater.
PB	You accept that the differential quality penalties between bus and car and walking in 2008 are still true now and in 2016 and 2031?
Ch	Yes an inherent assumption in all modelling that the sensitivities don't change.
PB	You could equally well have put in a parameter that showed the relativities would change. You didn't - the parameter was chosen to be constant.
Ch	Well I think fair assumption and uncertainties about others.
PB	I'm only talking about "do minimum" not NGT. You have assumed there is no difference in penalties for bus stops using buses in 2031 than in 2008.
Ch	We've established that, yes.
PB	Why, when Mr Henkel told us about improved passenger info at bus stops, improvements of bus stops throughout the county. You've told us you assume they have no effect.
Ch	The way the NGT is specified, a reasonable assumption is that the differential is maintained.
PB	I'm not walking about differential between NGT and buses but the assumed differential - assuming no improvements in quality of buses since 2007? That's the implication of the parameter you gave to Mr Hanson.

Ch	We're assuming no change in differential between bus and NGT at any date. Correct to say what the model doesn't assess is any difference in the consideration of car users or active modes. Assumes they will regard bus in the same way.
PB	You assume that no change in bus facilities in the do-minimum.
Ch	Yes
PB	Have been improvements since 2007 and would be extraordinary if none in future?
Ch	We've taken them into account for stops.
PB	Not for vehicles.
Ch	Effectively.
PB	You accept that if you had, the 'do minimum' would give an increase in demand for buses?
Ch	Yes if it were material.
PB	We know from your surveys that perceptions of the very new bus meant they would be prepared to pay a lot more for it.
Ch	Yes.
PB	In your terms, that means reduce the penalty.
Ch	Yes.
PB	Yet you didn't reduce the penalty.
Ch	Didn't think it appropriate. Main thing is differential between NGT and bus - 70% come from bus. We're focusing on that. Whether that means in the do minimum there might be slightly more car users using bus you're right we've not considered it.
PB	But what drives your business case is the difference between "do minimum" and NGT. So important to get it right.
Ch	We've adopted an assumption we thought reflected the majority of users.
PB	Haven't allowed for fact vehicles have and will improve, so a greater benefit from 'do minimum' than there would otherwise be?
Ch	Yes but reasonable.
PB	Another assumption is about boarding times. Mr Henkel on Day 15 says he saw a clear trend towards smart technologies to speed up boarding times.. FWY say currently 15 seconds and there is scope for significant improvement. Would you agree that in the "do minimum" making no allowance for improved boarding times is odd?
Ch	I think Mr Henkel is right that electronic ticketing will change boarding times but for the purpose of this work we cannot sensibly say when it will be so we cannot reasonably allow for it in a way specified in the guidance. Not the way specified - include schemes that are committed and that we have a reasonable prospect that we think will happen. This is a change that certainly isn't committed and hypothetical. Reasonable to say it will happen but when will it be and how - smart cards? From the trial in South Yorks where you swipe in and out it's very little improvement.
PB	This is exactly the situation where you should do a sensitivity analysis. Where have you done one?
Ch	We haven't done a sensitivity test. There are many things that might happen in the future that might or might not have any impact. What we've done is no diff to schemes we've done elsewhere and consistent with guidance and in future other things may happen.
PB	Some things are more certain than others and this is something everyone in the industry expects to happen.
Ch	Something expected for years and has taken decades. Not a reasonable certainty of when it would happen and how it would happen. There is an infinite no. Of tests we can do. Mr Henson said each run of the test take 1 to 2 weeks. Only 2 computers that can run the model. A five-figure sum. The software licence is a five-figure sum. We

	have to target which tests are appropriate.
PB	I'll come back to that and which tests you have chosen to do. But your assumption is you can make changes for NGT but not for bus. Why for NGT passengers will board in 0.7 seconds but buses will board in 12 seconds?
Ch	It's because there is a specification and we can say what the consequence of that specification is. And the dwell time was based on some empirical evidence. We don't know what's going to happen and don't know what the impact is.
PB	Why do you assume improvements in traffic signals will cease in 2012 for the do-minimum? Have assumed will remain forever when Mr Robertson agreed that there was scope for further enhancement - Blackmore Lane could save 4 secs given a budget. You're assuming none of these problems will be addressed in the do-minimum.
Ch	Well a list of improvements is set out in AECOM report. But it's whether we can be certain how likely they are to come forward, what the impact would be. Aspirations don't go in.
PB	It would have been more prudent to assume that some improvements would take place rather than none?
Ch	Don't agree- consistent with guidance and other schemes up and down the country.
PB	You accept that if the
Ch	No- cant say. Would be a difference.
PB	It's obvious- if buses runing times improve and boarding times and perceptions improve people will use the buses more and less benefit for NGT.
Ch	In the abstract yes, but we cannot say what improvements will be. This is standard practice on every scheme and every scheme will be assessed against their dominimum.
MW	Which appraisal?
Ch	Monetised cost-benefit appraisal.
PB	Has CCTV roll-out been included for 2016.
Ch	Remains the same as the reviewed do-minimum.
PB	Is that the same as 2007?
Ch	No- when modelling was refreshed we looked at the bus stops.
PB	So what difference in penalties from 2007 are you assuming for 2016?
Ch	The value of the parameter doesn't change but when the mode was refreshed in 2012 for Prog Entry Business Case if there were changes in CCTV provision that would be taken into account.
PB	Are you saying on stops if we looked at the penalties they would reflect the sitn in 2012?
Ch	Can't give exact dates off top of my head but we did look at in when we refreshed it.
PB	Are you confident that it reflects the position in 2012?
Ch	That's my understanding.
PB	Who would know.
Ch	Someone in my team wd know.
PB	Can we have that. I'd like to know what assumptions are in the model in terms of the penalties that have been applied at bus stops, not the parameters, and what year they relate to.
MW	Might be helpful if we know.
PB	Important given the high value placed on CCTV.
NC	So the assumption made...
PB	Not the value of the penalty but what year was used.
	Where can I find a definition of what propoprtion of these penalties you actually

	applied?
Ch	Won't find that in Core Docs.
PB	A proportion of CCTV parameter is taken off for buses (but not stops)?
Ch	That's right yes.
PB	If you had allowed for the A660 improvements identified in 2006, would have weakened the case for NGT?
Ch	Depends. On 2 things. Benefits for NGT are a product of the general journey times savings associated with it and the number of trips in the corridor. If the no. of trips increased it's possible for the aggregate benefit of NGT to increase if the differential per passenger did not.
PB	If we had bus lanes, you say that because the NGT is perceived as better than bus, the NGT would get even better,
Ch	No. The differential would go down but if the total size of the market goes up then the benefit goes up.
PB	You seem to be suggesting that if the buses are improved then because there is a fixed differential you will capture for NGT more.
Ch	No I'm saying the differential would come down because the buses would get faster. But if the market grew a lesser proportion of a bigger market could be bigger.
MW	[5 min adjournment] [11:32]
MW	[11.37] How much progress made by Prof Bonsall?
PB	Hard to tell - so much put off. Won't finish today.
GJ	If we don't finish, would have to come back another day.
NC	I would be deeply unhappy.
PB	Why did you assume advantage of NGT would continue for 60 years when bus fleets are refreshed every 4 or 5 years but Trolley Vehicles every 12 years and continual improvements in bus vehicles?
Ch	Don't agree. Will also be similar improvements in trolley vehicle technology as well. Assumptions they'll be maintained at a high standard and the costs of the assumption are set out,
PB	The current bus fleet in 2007-8 had some potential for improvement. The NGT vehicle has been specified to have all those things. So it's "used up" all the improvements we can imagine. Yet you have assumed those improvements we can imagine will be implemented in NGT but you assume they won't take advantage of the low-hanging fruit you want to put on NGT.
Ch	You are assuming incorrectly that the differential between bus and NGT is limited to those factors. We say the differential is an inherent feature of an all-electric vehicle, such as quieter, acceleration deceleration smoother, less vibration, less heat from the engine. True that modern diesel vehicles, those conditions can be improved but can't be removed altogether. So long as they are diesel powered that will remain the same. On top of that any other improvement can be applied to NGT as well. On average and with cycles. You can reasonably say that over time we will move from a diesel fleet to an electric fleet and we don't know when and can't take it into account.
PB	Can you take me to a sensitivity analysis. You say you assumed the differential would be maintained. The reason is even though improvements in WiFi and Aircon what's relevant is quieter vehicles etc?
Ch	No- they can be applied equally to NGT and buses.
PB	You've got them in NGT but why do you never assume they will arrive in buses?
Ch	Now First already have some buses with WiFi. But you don't make assumptions about something that may happen in future at an uncertain time and what mode.
MW	Answer the question- it's on sensitivity analysis and I don't want to go round in circles.

PB	Any sensitivity test for differential to increase b/c of improvements in Wifi etc?
Ch	There is no such test.
PB	You've explained your reasons why diff between old and new bus can be taken as differential between NGT and bus. But would have assumed people would have been asked in the stated preference work what value people put on acceleration and quietness etc?
Ch	[We thought it was the best]
PB	DfT were sceptical about maintenance of the differential?
Ch	Wanted to make sure we were claiming the benefit but also showing the costs of maintaining it. So the maintenance schedule was produced.
PB	Not asking about the reasonableness of the assumption?
Ch	It's standard on other schemes across the country.
PB	[11.50?]
Ch	Assumption was associated with the previous assumption on the vehicle time. On reflection, our view was it was worthwhile exploring sitns where the quality was half the TV and where it was the same as the TV. We sought to say our preferred comparison would be with the "half quality".
PB	That's the sort of thing you should have done with all he other things we were discussing.
	Let's look at the results of the "full quality" NBA. Had a benefit-cost ratio of 3.49?
Ch	Naturally- exactly the same as the trolley vehicle from the user perspective and the only difference is the costs of the thing. But not realistic- for half the route a plug-in hybrid works like a diesel bus and for half like the electrc bus so half-quality is appropriate.
PB	Any diff btwn buses and LCA in respect of fares and stps for LCA?
Ch	No
PB	3.147 [Proof] You say some improvements in punctuality. In response to FoI, Dr Dickinson was sent some maps in NWLTF-116. He'd asked for maps to show the extent of the priority assumed for LCA. Maps indicated new lane Hyde Park to Richmond Avenue?
Ch	Yes.
PB	Can we move to table in APP-7-3-1 (appendices to your proof). I had assumed the journey times in LCA were longer. In EiC you explained it was because the LCA bus had to pull into Bodington but if we look at C-1-18 to see the implications of that. I've looked at the amount of time assumed to take to get into Bodington P&R (tables towards the end). Have taken off the element of time which in "do-min" is from Otley Old Road to Weetwod and in "LCA" from Bodington to Weetwood, to look at a comparsion of the same route from Weetwood to Ciy Centre. When you d that, the LCA is still slower than "do-minimum". For the morning peak it's faster by 0.54 of a minute. O you regard that as material?
Ch	Possibly. It will have some but a modest impact.
PB	So a modest improvement. I can produce the numbers later if you are not happy.
Ch	I'll check later and let you know.
PB	In southboud, no advantage and the LCA is still slower than the do-minimum southbound. Is that not odd?
Ch	It should be faster.
PB	If as figures show, it's not aster what's your conclusion?
Ch	In that respect, the benefits would be understated and the costs-benefits understated. But take comfort from sensitivity test were we splt the journey times. Still shows the LCA is an inferior one in monetised terms. But not the same as cost-benefits. And monetised net present value is less.

PB	If you assume the same vehicle as 2007.
Ch	Yes
PB	I've been making point that too little attn been paid to LCA.
Ch	Purpose in this appraisal is to ensure that a minority of benefits are not provided by a majority of the costs. It is not to say whether you prefer the LCA or the NBA . If it did show a majo
PB	Mr Robertson was not asked to look at the benefits that could be achieved from improvements in signalling. Why?
Ch	His purpose was to assess the preferred option.
PB	Too little attention to LCA.
Ch	The purpose was not to make a strategic choice between options on the table but to confirm that the preferred option was superior in monetised cost-benefit. Not my opinion but I think that's the Department's view.
PB	Did LCA allow for any improvements in bus boarding times?
Ch	No.
PB	I can see for your do-minimum a reason for not doing so. But can't use that excuse for LCA.
Ch	No the rationale is the same. About testing things in the promoters' gift to implement. What's in promoters' gifts are P&R, bus stops and bus lanes. The promoter is not in position to mandate any type of ticketing or fares system that may or may not affect boarding times.
PB	No logic. For NGT and NBA you make assumptions but not LCA?
Ch	Reason for that is logical to make assumptions about operator response. And operators will not run services in perpetuity at a loss, over a 60 year appraisal period. Not a reasonable assumption to say in preferred option that buses will remain the same.
PB	What we're talking about is why you assumed for LCA that bus operators would not make any improvement in vehicle fleet [extraordinary assumption] since 2007 and in boarding times.
Ch	Repeating what I've said already.
PB	Would you accept [??][12.11]
Ch	I think the sensitivity testing demonstrates that clearly.
PB	Why do you not accept that a very new double-decker bus will not be perceived as if it were a double-decker bus.
Ch	All I can do is repeat the answer I've given you.
PB	I understand the argument you think TV will be more attractive than old buses. And understand you say the aspiration is more important than the stated preference. But I'm talking about diff between old and new buses where you have the data. I can accept you might want to make an allowance between <i>average</i> rather than very old, and new buses. But why <i>zero</i> ?
Ch	We set out the assumption that no penalty associated with the buses. The rationale is that new buses become old buses and over the, over time, there will be continued improvement in technology and relative to the new bus they will be perceived to be worse. On average over the appraisal period the assumption is the correct one.
PB	No-where near answering the Q. Why do you not accept that a very new double-decker bus would not be perceived as if it was a new double-decker bus?
Ch	B/c a new bus today will be perceived as an old one in 10 years time. And in 10 years time the new bus will have some improvements. We don't know what they are.
PB	But you've assumed no improvement.
Ch	It's relative.

PB	No it's assuming that there is no improvement over 2007 and it's staying constant. Your reasons for do-minimum were "wrong to assume something we have no control about".
Ch	And we can't control it either as a promoter.
PB	Answer straight - the assumption is that buses will remain the same as in 2007?
Ch	Yes. We can only include in the test the things that promoters can implement.
MW	Can we move on.
PB	The LCA would have performed extremely well if the vehicle had been perceived as a new bus?
Ch	No what is your criteria for "extremely well"?
PB	BCR.
Ch	That in itself is not enough overall.
PB	Bus stops are within Metro's purview so why are the improvements to the bus stops in LCA so limited?
Ch	Engineering consultants came to a view as to what it was physically possible to introduce at those stops, also combined with the level of use of those stops.
PB	It's a matter of budget?
Ch	In some respects it is- by definition it needs to be low cost to squeeze the costs down.
PB	On the costs APP-103, question 1. Shows assumed reduction in penalty at LCA down from 7.1 to 5.4?
Ch	Yes.
PB	According to answers to Q7 in APP-103. I says budget for LCA 2.96m for improvement to 52 stops and £1.39m for 14 new stops. Total £4.35m. My question is why can you do so little for that, given that you claim you can reinstate 66 bus stops in preferred option for £500,000.?
Ch	Those estimates were produced by MottMacDonald. I think the answer is that in the preferred option they are integral in much larger works and it's not the cost on an empty street of coming along and doing the works. This is a marginal cost in a much larger programme.
PB	Mr Henkel says a programme goes on all the time and they are always moving bus stops. So seems odd. Let's not talk about marginal costs. For £5.2m you say you can do all the stops of Preferred option and achieve reduction in penalty of 5.8mins.
Ch	No a reduction from 7.1 to 5.8?
PB	No these are bus stop penalties. What's the average NT stop penalty?
Ch	About 1.8 mins.
PB	Let me finish the Q. In LCA you spend £5.2m. For that you manage to build all the NGT stops and make the adjustments to bus stops. And on NGT side you manage to reduce the penalty by 5.8mins. But in LCA you manage to spend £4.35m and only manage to save 1.7 mins. There's an error and the relationship seems bizarre.
Ch	I think some of the NGT stops include wiring and CCTV and things that are in other cost items. I'd have to come back to you. There's a limit to how sensibly you can disaggregate the costs at this stage without a detailed bill of costs you'd have in a construction programme.
PB	We'll have to look in more detail at the costings. You accept a reduction in the stop penalties would have increased the demand for LCA?
Ch	Yes
PB	Done any sensitivity tests for reduced stop penalties to NGT levels?
Ch	No.
PB	What effect do you think they would have?
Ch	You can't drop an NGT-stop equivalent at every stop.

PB	I'm asking have you any idea of the extent to which it would increase it?
Ch	No idea. Not realistic.
PB	Something gives us an indication. C-2-32 on page 7 of 50. This is Test No 5. A reduction in NGT patronage. Defined in Table 2, where NGT quality is set as the same as bus stops. E mirror image of what we are talking about. Now I accept that
C	I go futher than that. This was wrong. Rejected by Dept and that's wy the forecast was 27m.
	This is from the LTM and went into Best and Final Bid dated 2011. Was wrong and rejected.
PB	So everything down to that date is wrong?
Ch	No - the LTM results were fine but NSCTS model was not and we were asked to migrate to LTM. We were not happy either. That's why instead of accepting the Best and Final Bid like others we were asked to have another go.
MW	Do you have a similar test for the other model?
Ch	No. Simply saying any conclusions you draw from the BAFB test is very limited.
PB	Well Test 5 does reduce the patronage by a significant amount. At the time you were happy with the model?
Ch	No.
PB	You put in a model you were not happy with?
Ch	Every promoter of a major scheme had to put in a BAFB by a given date. If we hadn't it would be dead. We volunteered to Dept and they had told us to migrate to LTM so we weren't ready and had no choice to do so. We negotiated and got another chance.
PB	You can produce a document saying you warned DfT the results were wrong?
Ch	No. The more sensitive it was the less likely it would be to be written down. That's how civil servants work.
PB	Not asking about them but you. You say they were warned?
Ch	There were discussions subsequent to submission. Not allowed to contact the Dept before submission. After submission we certainly had discussions.
PB	Mr Jones wil come back. Did it not strike you that Test 5 had a dramatic effect - effect of the stops was more than half the patronage.
Ch	Yes
PB	At the time you did it, must have believed it?
Ch	No we didn't. [PB] You produced a result you knew was incorrect?
	Yes the alternative was to say to the Dept that the scheme was dead. We had to jump through a hoop.
PB	You agree that the stop quality is a significant factor?
Ch	Yes. [??[check 12:43]
MW	We'll adjourn till half past one.
NC[13:30]	APP-137 describes the sensitivity test. APP-138 is what Mr Chadwick described 2012 business case but was actually 2013. A note on bus stop penalty changes since 2008.
Ch	I made a mistake and I apologise for misleading you.
PB	So I said a penalty - APP137- of 5.5mins in central case and alternative 4.87 for people standing. 0.68 of a minute. What the test was was reducing the penalty by 0.68mins. That's about 4p of time given your "Value of time".
Ch	Yes I'm happy.
PB	If we turn to G-4-13. AECOM study of "soft factors". On page 18. Third paragraph

	looks at seat availability and says, "seat availability has the highest value in every study in which it appears". On page 16. A study in Ireland gives a value of 5 Euro cents from a 90% chance of getting a seat to a 5% chance of getting a seat. That's 3x as much as real-time info. That would be worth about 20 cents for a 4km journey on NGT?
Ch	Yes $5 \times 4 = 20$.
PB	So about 16p.
Ch	Sounds plausible.
PB	That's their value. Page 68, three boxes up in Table 3.4. Results from a study in Australia- AU\$ values about 35p to 95p at current exchange rate. Your value is lower than the scores that were reviewed here.
Ch	Yes it's lower.
PB	Why do you think your study came out lower?
Ch	I think it's variation from one study to another. And it's a function of the utility in the area and the socio-demographics and so the difference from Australia doesn't surprise me in the slightest.
PB	Can you give me a specific answer why your study in Leeds 207-8 came up with such a low value?
Ch	The value is the output of the study and based on the survey instrument used and the characteristics of the people interviewed.
PB	So the sample and the way you asked the question?
Ch	And the way it is fitted to the model.
PB	One reason is particularly obvious. The concessionary pass holders excluded from the sample outside of the peak?
Ch	Yes- I don't know if they were excluded in this sample.
PB	You should have gone through the thought process - were there reasons why it was difficult. I'm trying to take you through.
Ch	We did the survey using the checks and balances we would do.
PB	That's telling me about the care with which you took the study.
	The very people most averse to standing were excluded from the sample?
Ch	Yes. But most of the time there will be seats available.
PB	I'm talking about the parameter not its application. Because you excluded the people most likely to stand the parameter is affected?
Ch	Yes.
PB	You say it doesn't matter because they can change the times they travel.
Ch	I didn't say that. Some of them do, not all.
PB	You say there's lots of evidence they do?
Ch	It's self-evident.
PB	You said 30% of passenger journey time they might have to stand.
Ch	Yes.
PB	From a passenger's viewpoint that's abstract. They are interested in how likely it is for them to get a seat when they get on, not % of journeys they have to stand.
Ch	It's passenger hours and a reflection of the percentage of time seats are occupied.
PB	We're concerned with passenger perception and willingness to pay, not abstract variable.
Ch	We're not asking them to consider % of passenger hours spent standing.
PB	C-1-8, table 52. 11 vehicles in peak hours and 10 out of peak. Using NGT3 that's 400 seats per hour in peak and 440 seats per hour in off-peak?

Ch	Mm-hmm
PB	The table shows number of people Table 53 southbound. Flow column. NGT vehicle leaving Bodington P&R has 615 people leaving the P&R per hour. And it arrives at Lawnswood stop with 615 people on it. So how many people would be able to get on?
Ch	No spare seats.
PB	How many spare seats would there be at any bus stop before City Square?
Ch	In NGT3 scenario, no spare seats.
PB	This is the way passengers would view things?
Ch	That's why promoters would have to look at the balance between seats and tanding at difft time periods.
PB	How many spare seats in off-peak between Churchwwod and Lower Bigget?
Ch	Well no spare seats. But why don't we just cut to the chase.
PB	There are n spare seats in inter-peak btwn Churchwwod and Lower Bidget.
	Nor between Met Uni and [?] and so on?
Ch	In that scenario
PB	So we can see why people who don't like standing might avoid travelling on it?
Ch	There will be a churn of seats as well.
PB	More people on bus than spare seats when arrives, more than seats when it leaves but if you're lucky you get a seat?
Ch	Yes.
PB	Can you see why they may prefer to get a bus instead?
Ch	They may.
PB	E-3-17 para 6.44. Mr Chadwick was taken to this to suggest it wasn't always necessary to model crowding. Now, A660 transport capacity <i>is</i> part of rationale for te scheme but I want to deal with changing behaviour. We've agreed they might well change their behaviour in Scenario 3?
Ch	Yes
PB	Thereore impt to know which scenario?
Ch	Yes
PB	Important to model to choose which scenario?
Ch	Don't agree - not made a decision yet -will be discussed with manufacturers. If you asked me, I'd not recommend NGT3 but would recommend NGT1 going on what we know now.
PB	You've made my point for me- need o have some idea of the amount of crowding.
Ch	I think the info we have is sufficient t mkake an informed choice.
PB	You have to model to see <i>how</i> people would change their behaviour. It could indicate how people change their journeys in response to crowding?
Ch	As currently speified you can't. As the guidance says there are specific practical problems. Need the model to do tests in a reasonable amount of time. Trade off between having a model thats usable. We could add in zones and crowding but it increases run time. Already a long time -week to 2 weeks. Where we haven't put things in/ You are asking us to build a model that is impossible to apply.
PB	I'm not- am asking ou to do some sensitivity analysis that you have not done?
Ch	Well we've done the tests we've done. Our approach was to look at volume to capacity.
PB	We're going back over the point about assuming infinite capacity. I'd like to move on.
	Before we agreed you'd excluded from the sample concession-holders who travel before 9.30. Can we go t C-4-24. Figure 6.4, page 32. Age and sex profile. Over-representatio of people aged 20-34?

Ch	Of a sample of bus users, no.
PB	Paragraph opposite at 6.9 you refer to a small no. of respondents of older age bands.
Ch	If you exclude people over 65 age, I would anticipate the 20-34yr age band (we're not allowed to interview schoolchildren) would not be disproportionate.
PB	Would you agree that the sample will show a lower aversion to standing.
Ch	I've agreed exclusion of over 65s.
PB	If representative sample, would have given higher aversion to crowding if you had represented crowding.
Ch	Yes but we didn't represent crowding. I set out the rationale why we didn't represent crowding. This is asking questions you've already asked me in a different way.
PB	I think we'll not get further on crowding. Let's move on to the next topic area. We had got to specification of the LCA. Why did you assume there would be no improvements in terms of new cross-city routes? Mr Henkel told us he would expect operators to respond to new opps.
Ch	We knew that there were already cross-city bus routes e.g. No1.
PB	The benefits you claim are cross-city services. You say, are already there?
Ch	Yes but serving more people not already served.
PB	OK, why did you not assume any new cross-city routes?
Ch	Routes have to be supported by demand already there. If we added new routes you would distract people from the existing routes. Great economically [???] But has to be financially viable. Can't keep adding routes wily nilly as it would add operating costs.
PB	Why did you assume that it would happen in preferred option then?
Ch	He wasn't talking about that.
PB	Yes he was specific and gave us a list like St James' Hospital and said he expected operators to add services.
Ch	We've not assumed any additional links in any option but for preferred alternative we added a route to Stourton.
PB	You say no assumptions about new bus services?
Ch	No. We've not tried to replan the city bus network
PB	The Preferred Option should not include benefits from additional services.
Ch	We've not done the exercise of replanning where the city's bus services would go in 6 yrs or 20 or 30 years time. Cannot reasonably say what the bus services will look like in 16 or 17 yrs. All we have done is model the impacts on the current bus services on the corridor. [??? 14:14]
PB	Inadequate frequency to Bodington?
Ch	In my recollection is 8 buses per hour. Not inadequate for the purposes of the test.
PB	Is a balance between economic benefits and financial viability. No point running 10 or 12 services if revenue will not cover the costs. Actually already 8 services do not cover the costs. [14:16 CHECK]
Ch	The cost curve and the demand curve diverge. Only certain circumstances where it's viable to run a service that in turn is meeting the demand. Mismatch between demand and cost -the costs of running the service go up faster than the revenues. That's why it's very difficult financially to run a P&R.
PB	Bodington is particularly difficult location to make it work?
CH	Yes unless a very fast journey time. At 25 or 30 minutes it's not viable. The cost element of operating the NGT is a marginal cost- borne by passengers in the corridor. If you introduced an express bus it would have to be borne only by the passengers on that route. You can do it only on
PB	[14:19]??

Ch	There to test the benefits of an express service. If you had an express service and existing service the costs would be the same and even less revenue as some would use the other bus. There are fundamental barriers to introducing P&R not just here but across the country. Not down to the specification of the test.
PB	The 2007 vehicle in the specification for the LCA?
Ch	Yes - assumed zero change.
PB	When X-xing Mr Haskins I drew attention to NWLTF-106 para 1.15, second bullet says "There must be consideration of genuine discreet options and not some previously selected option against some clearly inferior alternatives". At 3.146 of your Proof you say "the LCA is specified in order to confirm the need for major expenditure". Never a genuine attempt to explore what could be?
Ch	Absolutely correct. The purpose of LCA is to allow the Dept to confirm that the majority of the benefits cannot be produced by a minority of the costs. An appraisal device. That guidance relates to the process that has already gone on in 2007 - strategic case, looked at every corridor in Leeds and problems and issues and opportunities. I consider that Metro is correct.
PB	Identified the corridors that would be suitable for NGT?
Ch	Looked at the corridors that would be suitable and needing, looking at probs, issues and opps in each of the corridors and on the basis of those the preferred interventions were identified. Some were public transport, some were rail. It is the process set out in the diagram in the following page.
PB	The phrasing in 3.146 is to confirm the need, not see what could be achieved?
Ch	I've said that 3 or 4 times. I'm saying that the strategic decision about promoting the NGT was made before submission in 2009 - a project board, approve the submission of the business case before the submission. Don't just stick it in an envelope.
MW	So the strategic decision was made in advance of the business case?
Ch	Yes but the information was there and they were aware of the business case.
PB	Did you say you don't think the role of the LCA is to explore the alternative options?
Ch	It is there to confirm the quantum and that the
PB	Should it explore what could be achieved without the NGT infrastructure?
Ch	No - the LCA is not about maximising a bus-based package. If for any reason the Insp recommends the order is not made or SoS is not to make it, if for any reason Metro did want to do something on this corridor, you don't just put the LCA in but go back to square one and look again. The strategic decision is made in 2009. Everything else is to convince the Dept to invest in that [14:31]. You could look at a low-cost package but if that was a "major scheme" over £5m that again would need comparison against a lower-cost alternative. The strategic decision was made in 2009 and everything since was to confirm that that investment is needed.
PB	What is the Inspector supposed to do if he knows a more effective low-cost package could be put together but doesn't have the info.
Ch	Not required.
Ch	Everything is about confirming for the Dept to make the investment.
PB	What is the Inspector to do to work out whether there can be a lower-cost alternative that would be effective to meet the original objectives - rat running etc [14:34]
Ch	Should look at the trail of docs through initial business case up to submission of major scheme business case. Frankly everything else after that in terms of strategic alternatives is irrelevant because it's about confirming the funding decision after that. If it wasn't for fact of major economic crisis and the coalition delayed funding the inquiry would be considering that business case. Would have had to update it. Would have happened a year or 18 months after. Fact that the decision's got protracted means that we thought it only right and proper to have a full resubmission of the business case because if we hadn't done that we'd have been pilloried because we'd have come with

	a business case that was over 5 years old. I'm frustrated - have sat here answering Qs about the LCA. Comes from a fundamental misunderstanding of what its purpose is. [14:36].
PB	Para 3.2. Treasury Green Book. Was added as NWLTF-102. Have you read the Green Book?
Ch	Yes.
PB	Para 1.7- "useful for anyone to [14:39]?"
Ch	Useful to understand investment
PB	Context. Para 2.13. In all cases transparency is vital. 2.14 - major costs and benefits should be described and values attached to each clearly shown not netted off. Having looked at the Green Book and the principles, you accept the need for comparability and transparency in appraisal?
Ch	Yes
PB	NWL106- WebTAG on appraisal, para 2.1.2. It says the focus of assessment is on developing a transparent view of the advantages of diff options. Would you accept need for evenhanded response?
Ch	Yes.
PB	E-3-1 para 1.2.2: " <i>to be effective transport appraisal must deal consistently with competing proposals, be even-handed across modes and take account of a wide range of effects</i> ". Accept the need for an unbiased approach?
Ch	Yes
PB	Proof para 3.5 you state: " <i>as NGT has been appraised following WebTAG guidance the project meets Treasury reqts</i> "
Ch	<i>Yes and it does.</i>
PB	E-3-26. Para 2.1.2. The Dept is moving towards valuing more of the impacts in money terms. To adhere to Green Book principles?
Ch	Yes
PB	2.1.4 a recognition we're not there yet. Indicates the current position.
Ch	General point - WebTAG sets out applicn of Green Book to Transport. Green Book is genral principle. It is guidance not a set of requirements. Proportionate approach needed - cost of the project and the scale of the impacts. Guidance has to be interpreted and applied in a way that accords with it. In doing that we have discussed our interpn with DfT in davance of 2009 major business case and included which would be quantitative and not monetised. Included specification of LCA. All substantive elements discussed. Then went on with BAFB which I said was a it of a queer fish They discussion with DfT and on basis that DfT has awarded programme entry that is the only interpretation you can have that they are content. The think about proportionality of application o WebTAG is - you know if ou haven't done enough because they say you haven't done enough and go away.
PB	Or "next time, do more work".
Ch	No those hurdles are significant.
MW	Can we move on.
PB	My question was, is this the list? Look at 4th item. Did you include transport interchange quality factors, for example at P&R sites?
Ch	In the appraisal, no. You had a discussion with Mr Hanson about ASC. One interpretation could be that...they take into account things like interchange value but in appraisal terms no.
PB	I asked him specifically whether they were carried across into generalised cost [14:54 - check?] and you indicated it wasn't?
Ch	A question about his forecats not my apraisal. [????] [14:55]

PB	The generalised journey times include quality of the stop in P&R?
Ch	It includes the quality of the stop. But the way I interpret it is , if you go to King's Cross or a bus station.
PB	Interchange from car to bus is not an interchange?
Ch	Literally it is but not the way this guidance is intended to be interpreted.
PB	Where this says include effects of better interchange but not other quality factors you've not followed the guidance?
Ch	I think this is referring to interchanges like Birmingham New St station.
PB	Can you agree if you'd excluded the quality of the stop, the value would be lower?
Ch	Yes but not the thing to do.
PB	It says "usually excludes ambience".
Ch	Usually. Guidance is there to adapt to the circumstances and DfT are content.
PB	It says exclude them and you included them - why?
Ch	Because it is a major benefit.
PB	If you had excluded it in line with guidance the monetised value would be lower?
Ch	Yes. No need to exclude it.
PB	Says exclude heritage impacts. In this case you were happy to follow it?
Ch	Yes but are not ignored. Clearly stated. Monetising these can hide a multitude of sins and where there are specific localised disbenefits appropriate to highlight them in the ES rather than washing them away. You can put money values on them but no method written into the guidance.
PB	There <i>are</i> methods. The option values he refers to as a benefit are more conventionally used to look at disbenefits. The option value concept arose from valuing heritage, landscape etc.
Ch	I understand that.
PB	So a decision not to depart from the guidance here. Could have indicated monetised values but you thought it inappropriate to monetise disbenefits?
Ch	There are disbenefits we have not monetised.
PB	If you had sought to monetise them, would have reduced the value of the project?
Ch	Yes. But not monetised every benefit either.
PB	Decision to stick with guidance despite knowing the DfT direction of travel.
Ch	If DfT had produced methods in the guidance which we could apply we would have applied them without a moment's hesitation.
PB	Departure where increased benefits. And stuck to it when disbenefits. Can I put it to you, not fair, even-handed and non-biased?
Ch	Yes because VfM statement is a combo of the monetised impacts and non-monetised impacts in the round. Due weight is given to those elements not included in Cost-Benefit ratios.
MW	[15:05] Will adjourn till quarter past 3.
PB	[15:15] 3.41(f) in Proof. Referring to values of time being equity values and guidance "requires" a single value of time to enable the Dept to compare schemes from different parts of the country.
Ch	Yes.
PB	In Transport Economic Efficiency TEE Tables and ANBC Tables and Appraisal Summary Table you don't distinguish between time savings derived from equity value of time and those derived from quality factors?
Ch	Correct.

PB	NWLTF113 at p.1. TAG Unit A41 on social impact appraisal, para 6-2-14.
NC	I've not got it.
MW	I've not got it- was it submitted?
PB	It's been referred to earlier. Is it not in the E-series? There's a reference to using TUBA a second time around to identify the benefits separately [15:20]
Ch	Don't think we need to go to the doc.
PB	Says as journey not [15:21???]. If this is not the case, consideration may be needed to run ning TUBA twice. Why do they say that?
Ch	With a model specified to allow it to be done, t allow soft factors to be split ot from the overall benefits. However in this instance because of the specification of the model and the locksum formula we have considered it and it can't be done [15:22???].
PB	You accept that DfT want to know what proportion of the benefit is real time savings?
Ch	They would - guidance sets out things the Dept would like people to do but has to be tailored to the circumstance.
PB	They want to know and asked for it in2012?
Ch	They did but subsequently the model changed.
PB	What proportion of the benefits was quality?
Ch	Dept's assessment was in region of 50%.
PB	I read somewhere it was 60% but let's say 50%. At least half comes from your stated preference?
Ch	Yes and the package effect [15:24???
	They also said the aggregate benefit was in their view reasonable.
PB	You say, the Dept wouldn't be able to do it now?
CH	No way we have identified. So far not able to produce an estimate that has some reliability around it ad can understand the tolerance around it. Otherwise it's worthless.
PB	So an estimate with a wide tolerance isn't worth anything like a plus minus 30%
Ch	No I'm ot going to say that. That's what Mr Hanson said. We've no idea what the model says.
PB	Can you think of a way coming up with a ballpark estimate. Forget tolerance for a minute.
Ch	Well you yourself have set out a way of doing it in your evidence. We just don't know whether it's reasonabe or not. Have we come up with any alternatives to that, no.
PB	I didn't claim it was a precise estimate. But given that they want to know what propprtion of "time savings" are not real time savins but "quality" benefits - why didn't ou make any attempt to present that to the Inspector so he could know?
Ch	There is no method we have arrived at.
PB	So not worth even a ballpar estimate saying about 50% or 3%.
Ch	I didn't thin it bwould be of any real value. I have no idea what the proportion of the benefits were not real times saving benefits.
PB	You didn't think it important to tell the Insp before now that
Ch	Comes down to what my iterpn of your remit is Sir. My view is your role is to check whether a reasonable likelihood of it being funded so that the powers are warranted. And by interpretation [15:30] is that because the scheme has programme entry that requirement is met/
PB	B/c the prgramme has programme entry it should be approved.
Ch	No a whole range of matters to consider but because it has been given programme entry he should give due weight when considering that matter. There have been a

	whole lot of other matters and any one of those may be sufficient to refuse permission but in terms of my evidence...
PB	Where can Insp find what proportion are time savings?
Ch	He can't find that but he can take comfort from it getting programme entry from the Dept and in respect of that particular matter.
MW	Your Proof covers other 2 elements too - matter 2 and Matter 3. Funding is only one of them.
Ch	Correct but regardless on Matter 12 my evidence is that award of programme entry by the Dept is a very significant factor to give weight to. But...
MW	I must have misunderstood because you say you were giving evidence on Matter 2 and 3.
GJ	I can tell you now, you are the only witness I've got on Matter 3 and I'm certainly cross-examining you on that.
Ch	I think Mr Jones is probably correct that programme entry is less relevant to Matter 3.
MW	Can we move on [15:35]
PB	Would you expect local politicians to immediately realise that the claimed benefits included a large element of claimed quality benefits?
Ch	Not necessarily, probably no. A large number of docs have been submitted around the business cases in mind, all written with the target audience as if it were the Dept. 2009 Major Scheme Business Case, 2012 Prog Entry Business Case. So what we had done in Business Case Review in terms of Appendices, even though the Dept will not make a decision until final approval we sought to present it as though it were to them. The target audience is the informed reader. What we've then done in the PoE is provide an explanation that is readily accessible.
PB	For the detail can the local politician or business leader look at your case or do they need something else?
Ch	Well that's the purpose of this questioning. You are asking questions about alternatives. What we're debating is the business case.
NC	To clarify, Mr Chadwick was not the only witness on matters 2 and 3. Mr Haskins too
MW	Yes but they've passed questions onto Mr Chadwick.
PB	Do you think the local politicians were aware that a lot of the claimed benefits are purely aspirational?
Ch	I don't know - not been present at the meetings and not read the papers that were before them.
PB	How could they have been aware? Who would have told them?
Ch	The liaison was Mr Haskins. If they'd come to me and asked what proportion of the benefits were due to quality factors I'd have given the same answer I've given you.
PB	Did he ask you what proportion were aspirational?
Ch	I think he was aware but did he come to ask me specifically, no. I'm sure he was aware that DfT thought.
PB	Let's assume local politicians find out 50-60% and are horrified wouldn't that jeopardise the funding of the scheme?
Ch	There are many hypothetical matters that might affect the funding. That's why the statement of case doesn't say they will get the funding, says a reasonable likelihood. They are fully aware that the scheme delivers the best possible benefit.
PB	Not aware that only half the claimed benefits are quality factors?
Ch	Well they are aware what the time savings will be - journey times to town centre etc.
PB	You referred to importance of modelling things you have control over. One of the things you do have control over is to make politicians well aware of the ins and outs not m

Ch	No t my responsibility but Mr Haskins' and I will furnis him with the info that he asks for and believes is necessary.
MW	What have you allowed for, for an actual time saving for Bodington for instance?
Ch	To set aside waiting at stops and walking to stops, projection is 20mins Bodington to City Centre on NGT and with bus in the preferred option 30mins so 10 mins faster,
MW	In peak periods?
Ch	In all periods. Obviously as you come down the route the time saving reduces.
MW	Is that an average or what? Objectors have given all sorts of time savings from 3 mins to 14 mins. No-one seems to e aware.
Ch	My Appendix 7-3-1 a table, cut and pasted from the runtimes. So 19.6 inbound which I rounded to 20 and ...
PB	Important that we've already established that these are not what you are predicting, these are assumptions and judgments. To allow the Insp to assume they are predictions is quite wrong.
Ch	These are the times the promoters believe will materialise.
PB	Sir, total time saving benefits that DfT refer to when they talk about time saving benefit ts is total door to door journey time for all the trips in do-minimum compared to total door to door journey time for all the trips .
Ch	You need to say "generalised" cost. The walk times are weighted and the wait times are weighted.
PB	An allowance tht time walking and waiting is valued more highly than time in vehicle. The DfT want to know what that figure is. What's been put into the tables has rolled in, also the quality factor. So when you look to see what the total saving is you can't tell because part of the benefit is the quality of going in a trolley bus.
MW	But this table 7-3-1 doesn't include those?
PB	No.
MW	What tables will the politicians have been given?
Ch	I don't know.
PB	Might find it easier to understand this table than to look at the appraisal tables. It is reasonable to assume they haven't looked at the appraisal tables but this is actually real time saving plus quality benefits.
Ch	Yes we established it yesterday.
PB	We don't know what their reaction would be.
Ch	I don't know.
PB	I'm asking you because the likelihood of the funding is your remit. A major element is local funding that depends on the politicians.
MW	Move on please.
PB	Appdx 7-3-2. Analysis of monetised costs and benefits. We've established that where it says "ambience not valued", it was valued and incorporated in the box labelled "journey time savings"?
Ch	Yes.
PB	That correction will be made?
Ch	In due course.
PB	When a politician comes to look to see whether there are benefits he wil be directed to a corrected table?
Ch	The practice of DfT is that all the business case docs are published and available to all. All docs wil be published and anyone who wishes to comment can do so.
PB	Would you agree that having not made sure that they are aware, you can't really comment on whether the local politicians will actually say go ahead with the funds?

Ch	25 yrs' transport experience [16:00] teaches me that it's very unwise to second-guess what elected politicians will do. Could well be a new SoS. Could change their mind. All you could do is go on what they've said and done so far.
PB	Could make them aware of what the costs and benefits are so that you have a better idea when they are aware what decision they will make.
Ch	Don't know but a substantial majority have voted to continue.
PB	Is estimate of costs based on the assumption of a fixed trip matrix? [16:03]
Ch	No well you had a discussion with Mr Hanson so when I say no I mean the total size of the highway matrix, public transport and active mode demands can change between do-minimum and NGT.
PB	When I asked Mr Hanso he said solely because Park and Ride counts as 2 trips. [16:04]
Ch	I heard what he said.
PB	Is he right. Diff't to what you've just said?
Ch	He's the expert. But potential confusion about variable matrices [16:05].
PB	Take total no of trips irrespective of mode, destination and time of day. Apart from P&R trips counted twice. Is total no of trips the same in do-minimum and NGT scenario?
Ch	Um...would have to go back and look at AECOM docs- genuinely can't remember how trip frequency is treated.
PB	There isn't allowance for frequency.
Ch	[stays the same] [16:06]
PB	You've adopted procedures for assuming the no of trips is constant? Is that right? Must know what you've assumed?
Ch	No we haven't. 3 time periods- morning peak, inter peak and evening peak. Morning is itself split into 3 hours. What we do is take assignments from the periods, skim the costs and put them through TUBA. Allows people to move from car to PT and vice versa and between time periods so from my perspective it's a variable matrix.
PB	When the trip changes mode, what values of time are assumed?
Ch	Take the value of time of the "do something" scenario.
PB	I can confirm it's the right way to do it. The problem is P&R trips. Mr Hanson gives you 2 trips- origin to P&R and P&R to city centre. You've had some time to think about it. How will the benefit be estimated for a trip in "do minimum" that's a car trip to a
Ch	Deals with it in a rather ugly way. In that a car trip is treated as a car trip and a PT trip is a PT trip. There are a number of things in the appraisal that are "ugly" but also annualisation factors. What Peter is getting at is that there is a change in value of time moving from one mode to another. Effectively it's counted as 2 trips. This is for people who appraise P&R and for people who assess
PB	How did you avoid generating a spurious benefit because each trip, a benefit is allocated to it. What you end up with is a trip in the car matrix that is shorter. Say from Cookridge to City Centre by car previously. Now, Cookridge to Bodington by car, then NGT. The model gives a benefit to reduction in car trip, so a benefit assigned. Then because it is new the public transport trip is assigned a benefit - normally a half - a "rule of the half". So ordinarily a spurious benefit worked out as what would have been the trip before by bus (diff between 32 mins before and 19 now).
Ch	The benefit from the car trip is relatively small. Car benefit is half x sum of trips x cost difference. The cost dif between "Do min" and "do smth" is negligible. Some fluctuation up and down
PB	What's the fluctuation down.
Ch	Inevitably some journeys will have increases in costs and some decreases but overall they cancel out.
PB	Used to have a trip Cookridge to City Centre by car (say 40mins). Now Cookridge to

	Bodington in 10mins so generates a benefit?
Ch	No. The cost from [16:16] Cookridge to Bodington cancels out [??check]. What you're saying is, the comparison is the trip Cookridge to City Centre but it's not. Trip Bodington to City Centre is treated as a PT tri.
PB	A new trip is given a benefit?
Ch	Yes
PB	But isn't really a new trip. It's the same trip counted twice.
Ch	Not counted twice.
PB	It has been - one Cookridge to Bodington and one Bodington to City Centre.
CH	Yes but the difference is zero when you average it out.,
PB	Are you saying there is no problem?
Ch	Same way we've done it elsewhere. But one area in the appraisal process where further development would be beneficial. But we have interpreted guidance and precedents from elsewhere. Are they perfect? No. But applying established practice and precedent.
PB	Well what I'm asking you about is the P&R element. Are you saying there might have been some over-estimate of benefit but this is what always happens when you look at P&R.
Ch	Not necessarily overestimated the benefit. Everyone who uses the P&R gets a benefit or wouldn't use it. No bias to over or under estimate but there is uncertainty,
PB	You say you don't think there is a systematic over-estimate of benefit?
Ch	No. It's something I'd have to sit and consider. Not in 5 minutes. Can we not agree to produce a note on this? I'd have to sit down and do some research and not a day's task and may even be a week' task. There is certainly uncertainty and the key thing is that people know that and are aware of it. The Department. My view is the Dept are aware of it.
PB	What evidence have you got of that?
Ch	Can't give you a doc but my understanding from this case and others is that they are well aware of the uncertainties of estimates. [16:24]
PB	[???
Ch	Thats a fair summary.
B	3.76 you state it is conventional not to monetise impacts during construction because difficult to estimate with precision?
Ch	Yes
PB	Have you made any attempt even back of an envelope to estimate it?
Ch	No.
PB	How can you say it's insignificant?
Ch	Am aware of other schemes inc Nottingham Tram and there was a monetisation of impacts. And the impact on the highway of that tram scheme is significantly greater than this scheme even the nature of tram construction (e.g. Has resulted in closure of one of the major roads there and public transport stops) and the output of that work was that it had incredible small impacts on the benefits costs ratio so none of the work influenced the outcome. A lot of work which was nugatory.
PB	Another one was the Edinburgh Tram where the disruption was much greater and will take a very long time or benefits to outweigh the costs. 2 trams - one impact major and one minor. Shouldn't you have done even a back of the envelope estimate?
Ch	No for the reasons I've given. No significant changes to the highway. No more or less disruption than normal kerb renewal and highway renewal. Would show an impact that

	was small and cost a lot of money and I couldn't advise my clients to waste public money on coming up with an estimate.
PB	Well WebTAG: "costs...should be recorded...if likely to be significant". Would have been prudent to check whether it's significant.
Ch	I do not consider it necessary to carry out a back of the envelope or any other calculation.
PB	Could have done a back-of-envelope calcn in a couple of hours?
Ch	So self-evident it's not even worth taking those couple of hour.
MW	How long will you have finished?
PB	Mr Jones will not have finished. I should have finished.
GJ	Doesn't appear I will finish. Sir I've got to cross examine Mr Chadwick and there's been a huge amount and we're going to have a ...it's not desirable for me to start and get it hanging over. One option is to re-examine Mr Chadwick tomorrow and have him re-called.
MW	Can you give an estimate?
GJ	At least a clear day.
NC	I'd be concerned if Mr Chadwick was left for 3 weeks. It's unfortunate but the only practical solution is recall Mr Chadwick- other objectors then re-examine.