

20 June 2014 Friday

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09:34

MW	The e-mail to Mr Sunderland is OK.
MW	Prof Bonsall
PB	One key claim is that the scheme will aid regeneration. At 3.120 you say "Net disbenefit". Is that right?
Ch	Yes it is.
PB	Yet 3.128 you say "a well specified rapid transport scheme can support regeneration". Given that it predicts disbenefits to business, what is the basis for that?
Ch	Monetised impacts in TEE tables are not the complete impacts on business. It's the impacts from LTM. But the LTM adopts a relatively restrictive assumption of the impacts of schemes on land use and development. The way we build these models is popn and employment are constrained by DfT. On top of that we apply the Urban Dynamic Model which relaxes that constraint and allows popn and employment to move based on transport supply. Also as Mr Farrington set out in his evidence, it's accepted that provision of good transport links is one factor that can support realisation of development goals. The evidence in the round is clear and conclusive that NGT will support regeneration.
PB	There can't be any evidence about NGT but you are referring to evidence about other permanent schemes.
Ch	Yes literally correct. Of course the connectivity can be provided in another way but this is the scheme that is under consideration.
PB	You have evidence - UDM and an assumption about permanence.
Ch	An inference not an assumption. Evidence of other schemes in a paper. Mr Jones is quite right that those schemes are rail schemes. We made an assessment of rail schemes and made an assessment whether the NGT would have the features of those rail schemes and came to the conclusion that it would. Wouldn't be as strong as a rail scheme but would have some features. An inference. Perfectly normal method to establish.
PB	I wanted to establish which bits were inference and which UDM. UDM bases forecasts of changes in land use on changes in generalised cost and those changes in generalised costs come from LTM. It says if the cost goes down that will help to generate extra economic activity. Is that a fair enough thumbnail?
Ch	Um it certainly has elements of what you say. It is not an equilibrium. It simulates how the economy develops over time on a year by year basis. Transport is just one input - also business formation, household formation etc etc. What you say is incomplete.
PB	To attribute changes in economic activity to NGT that is predicted by the changes in generalised costs?
Ch	The UDM covers a much wider area - in an equivalent level of detail all of West Yorks and in a like level of detail the area surrounding that. For the starting conditions we need info on transport costs. Starting conditions are derived independently of LT as we have to have the same for the whole area. Then we adjust the starting conditions for the area that NGT serves. That data is derived from LTM. Because LTM is telling us there's very little change in highway generalised costs (because the zones are much bigger in UDM) we just use LTM for changes in public transport costs.
PB	Consequence of that is, UDM predicts reduction in journey times on the highway.
Ch	Correct but given the zone sizes and sensitivity of UDM it doesn't make a difference. [9:46]
PB	You've presumably done tests to establish that?
Ch	We haven't. But we have made other tests when developing UDM over a long time.
PB	Would you agree that to an extent (that we don't know) you are underpredicting the increase in car journey times?
Ch	Within the tolerance of the model no. That comes down to the size of the zones.
PB	You are absolutely sure?
Ch	Can never be absolutely sure but based on a decade of applying this model that is our view.
PB	DfT not convinced the wider benefits can be forecast?
CH	Not yet. Not sure they have a methodology they can universally apply to all schemes and areas. That's why it's below the line [9.50].
PB	In meeting of 22nd June DfT reporting to Permanent Sec said they had only seen the outputs of this work and not the detailed assumptions that underpin it?
Ch	Yes - UDM is not smth we have spent any time talking to DfT on. That's because it's "below the line". Our focus has been on impacts that are above the line. But they are aware of UDM

	and have commissioned us to apply UDM in a particular city (not in Leeds or West Yorks).
PB	When?
Ch	5 or 6 years ago in Milton Keynes. And then in a paper UDM is reviewed and we are quite candid about the strengths and weaknesses.
PB	So 5 years ago you say they had considered it but yet 1 year ago said they still were not aware of the assumptions.
Ch	They are aware of the model as a platform like a SATURN but what we have not made the aware of is the application.
PB	Sir the quotes are Pddx 2 of the NWLTF Statement of Case.
MW	Can you explain what you mean y above and below te line?
Ch	"Above the line" are the benefit numbers in the TEE tables that we use to construct the BCR. What the UDM forecasts is an additional benefit that the Dept recognises exists but found it difficult to come up with a method that can be universally applied.
PB	"We've only seen the outputs of this work and not the detailed workings or assumptions that underpin it". OBJ1719 , Statement of Case, H2, page 4 of 4. You said on Weds that there were detailed discussions and took programme entry approval as approval of all their models and assumptions. Not right?
NC	Witness needs to see the document.
PB	The final side is referring to questions about business and community support and make observations why the business community might have supported it. Will lead to delays but businesses may not be aware. They give a map from UDM and then the quote.
Ch	In the runup to the decision we provided DfT with ay info or documentation that they asked for and answered any questions that they chose to ask us around that. They asked us about the things they thought were pertinent. If they chose not to ask us about UDM then they cannot have thought it pertinent for their recommendation to Prject Board and to Ministers.
	If they had wanted it, they would have asked for it.
PB	They were in a hurry to make the decision (see previous slide).
Ch	I don't accept they were in a hurry - no evidence for that hypothesis.
PB	The evidence is in the slides.. Do you still maintain they endorsed all your models and assumptions?
Ch	Well I can't point to a piece of paper that says we endorse your assumptions. The oly way I can do it is look at what flows from the decisions they have made and it is a natural consequence of the decisions they have made. If they hadn't endorsed it they wouldn't have made he decision. They have accepted the strategic and economic case. [10:03]
Pb	They haven't seen the assumptions and workings so how could they possibly have endorsed them?
Ch	They have given those numbers less weight in the decision and if they thought those were the tipping factor wouldn't have [???:10:05]
PB	[???:??]
Ch	What I said was they haven't adjusted the highway costs resulting from NGT.
PB	Does take account of changes nothing to do with NGT but not the changes resulting from NGT. Does it include changes in journey time on PT?
Ch	It does.
PB	Does it exclude changes in quality factors?
Ch	Something I would have to confirm. My understanding at the moment is that it is based on time and not the quality factors.
PB	You yesterday told us it was impossible to disaggregate them and quality factors so how can you now say you did it?
CH	The times are the times from A to B and it's a simple time skim. Didn't say impossible to do a time skim but o separate out the time savings from the overall benefit.
PB	Is it not odd that a model should have been specified in a way that you don't know whether it included the quality factors?
Ch	This is not a memory test - I'm not a mastermind. Not odd that I don't remember.
NC	I'll find out and produe a note. As he says it is not a memory test. If a witness is not able to recall it's quite proper that he says.
PB	Another one - are you sure it excluded the ASC in the parking model
Ch	Oh yes I'm quite sure of that.
PB	But not quality factors?
Ch	Yes.

PB	Did you reassemble the P&R trips so they became 1 trip rather than 2?
Ch	UDM has its own parking model. It has its own approach to that. As I understand it that's what happens - it treats P&R in an appropriate way. To use your words it disassembles.
PB	It has each element of P&R as a separate trip?
Ch	That's my understanding.
NC	I can check that.
PB	Proof at 3.131 you claim a strong beneficial impact on physical activity. But LTM predicts a reduction in the use of active modes doesn't it?
Ch	In the way that it describes active modes but as Mr Hanson set out, that is a synthetic treatment and doesn't fully capture active modes.
PB	What is the evidence that there is a strong positive benefit from physical activity?
Ch	An improvement in facilities for cyclists. Does introduce additional facilities for pedestrians that makes it easier to cross certain roads and junctions. And each public transport trip includes 2 walks - to the stop to get on and from the stop to get off.
PB	2 assumptions and a reasonable supposition. I would accept the last one is a reasonable assumption but is there any evidence in relation to the first two?
Ch	That was assessed informally in the run-up to the business case and is set out in the Annex to the rebuttal to the Cycling Campaign?
PB	What is the evidence that those facilities will lead to a strong increase in cycling and walking. Can you summarise it for us?
Ch	The evidence is an audit of the existing facilities compared with the proposed facilities from experts on assessment of cycling facilities.
PB	That's the specification of the scheme. What's the evidence it will have a strong impact on physical activity?
Ch	That is our judgment. There is no mechanistic way to do it.
MW	I'm confused- the model predicts a reduction in physical activity and you say the facilities will increase it. How do you link the two?
Ch	It comes down to the model being synthetic. It is not saying there is a one to one diversion (e.g. 'I'm currently walking Headingley to Hyde Park but will now go on NGT) but people may instead travel further and then go shopping in town. It's just a modelling device so I give it no weight in this assessment.
MW	So how are you then able to take that step and say there will be more people cycling?
Ch	DfT issued a call for bids for a "Cycle City Ambition Plan" - looking for promoters to come forward to bid for funds for cycle provision. Leeds bid for that and is building a £32m cycleway to Bradford. We took the methodology for that and applied it to this. Is that a deterministic method, no? Now you have to understand what the cycling flows are already. It's the type of forecasting we used elsewhere.
PB	I put it to you, "we assume" it will have a strong benefit because you've ignored LTM and assumed activity will increase.
Ch	You're right I've ignored LTM. It gives nothing useful about miles cycled or footfall.
PB	Table in accordance with DfT Local Transport White Paper. Would be surprising if something with such optimistic quality assumptions didn't reduce car trips, yet as you say in your proof it would give an increase in car miles driven- so isn't it misleading in this table? [10:25]
Ch	No - we've been clear in the overall business case.
PB	Would you agree that the claimed delivery of mode shift from private car ought to have been qualified?
Ch	Car trips are less but car kilometres increased. My view is I don't need to qualify it and I'm happy with it as it stands.
PB	You are happy it is fair and balanced?
Ch	Yes. If I had to describe what the model said in 12 words or less that is what I would say.
PB	Mr Hanson says total reduction in car trips is less than the reduction in active mode trips. You don't mention those?
Ch	Because this is a description of context of White Paper.
PB	Are those not "low carbon trips"?
CH	They are but in the context of the White Paper I am happy.
PB	"sustainable transport"
Ch	I didn't look at LTM. We can go through it all now and I can tell you I have no reason to qualify any of the statements. In the context of this document they are fair and balanced. Part of the business case and it has to be read in the round. The Business Case has 5 elements.

PB	Are you saying if the Insp reads it he can't take a decision unless he reads absolutely everything?
Ch	I can't tell you how to do your job. We have put in the docs.
PB	Can you advise him that he can take any of these statements at face value?
Ch	As I said, my view is that they are fair and balanced.
PB	At third bullet of 1.31 you claim access to services. Would you accept it in considering access to services it is reasonable to look at the complete door to door journey?
Ch	Yes.
PB	Do you agree that on average and compared to existing equivalent trips by bus, NGT would involve -longer walks to stops, increased average waiting times and less chance of getting a seat?
Ch	No. We discussed seats yesterday.
PB	On average.
Ch	It depends on the distribution.
PB	The average - the mean doesn't depend on the distribution.
Ch	I will agree the NGT stops are further apart.
PB	On average, longer walks to and from the stop.
Ch	[pause, eyes closed]
MW	Mr Chadwick, what is the problem with the question?
Ch	I'm not avoiding it. It sounds like a simple question but it has a complex answer. I'll say yes but things are a little more complex than you are trying to make out.
PB	On average, increased waiting time.
Ch	[10:37]. The headway is greater but the effective headway is significantly grter than the average.[???
PB	[repeats the question].
Ch	On the Headingley corridor yes.
PB	And less likely to get a seat.
Ch	Depends on the capacity of the vehicle. Not guaranteed to get a seat on bus at the moment. There is crowding. I don't know what the answer is, on average.
PB	Do you agree that by concentrating on in-vehicle times you have overstated benefits in access o services?
Ch	No - creating new opps for direct access to services tthat don't exist at the moment. In the south. Leeds Met, Uni, LGI, Colege of Technology all facilities located north of City Centre that they don't have at he moment. Have to go to City Centre and walk.
PB	I meant transport services and you mean hospitals , unis etc?
Ch	Yep. There are new facilities planned for the campus of the College of Tech that will have direct access from the North.
PB	When we spoke to Mr Henkel he assured us that bus operators would put on services if there is a demand - e.g. On why there is no NGT route to St James' Hospital . SO why is it not reasonable to assume that us operators will do so.
Ch	Well we are talking about benefits NGT will provide. And bus operators have to operate commercially.
PB	NGT doesn't have to worry about commercial considerations?
Ch	Yes it does have to. But goes back to P&R. It is serving a whole multitude of services. It can do so in such a way hat the services are marginal revenues . Obviously bus operators do that as well when they plan their routes.
PB	So what's diffit about NGT?
Ch	This is an assessment about NGT and what NGT can do.
PB	So when in your prof you claim a strong beneficial impact it would be quite wrong to assume you couldn't get the same benefits by another means?
Ch	Yes you could achieve it by other means [???10:43-44].
PB	So not the do-minimum.?
Ch	I defined do minimum was matters we had rasonable expecaton of [???
PB	You defined the "do minimum" as what you could be absolutely sure of.
GJ	No you didn't!
PB	Reduction in door to door journey times by bus.

Ch	Yes fewer buses btwn Lawnswood and City Centre, so longer waits o door to door increase, and also a net increase in PT.
PB	For car rips, slower average speeds?
Ch	Yes.
PB	You accept for some people unavailability of seating would make it dificult to use NGT however fast it may be?
Ch	Yes.
PB	So given that increased walking teams, slower journeys by car and bus, inreased waiting times you claim increased access to services. Is that fair and balanced?
Ch	Yes- I gave some examples- NGT wil create new oppos that don't currently exist that in the do minimum would have to be accessed by an interchange or getting off in the City Centre and a long walk. It;s not some weighted analysis of eneralised journey time.
PB	To get to hospitals people will want to minimise waiting time, alking time and have a good chance of a seat. To get to St James' Hospital, which is closer to the bus station NGT or a bus?
Ch	You could still get a bus direct to thye bus station.
PB	Buses will still take longer.
CH	This is not about journey time in that way but the creation of new linkages that don't currently exist.
PB	The guidance on accessibility puts great weight on total times door to f=door and acces by vulnerable groups.
Ch	Yes
PB	You say outweighed by possibility of getting direct from Belle Isle to Leeds Met Uni and LGI?
CH	Yes - outweighed by it.
PB	Is that fair and balanced?
Ch	Yes and we say the benefits outweigh teh benefits so the net effect is strongly beneficial.
MW	How do you weight them up?
Ch	Not formulaic. Based on our judgment and experience. All of these qualitative assssments are fundamentally our judgment based on the data. Every one of these textual descriptions is our judgment.
PB	In C1, are you prepared to answer Qs on claims for increased connectivity.
Ch	Yes
PB	A-08-e -4. On page 15, table 3.6 Kirkstall Forge. socio-economic technical appendix. We find a claim that new housing
Ch	It's clearly rubbish and we've disregarded it.
PB	How was the inspector to know that statement was clearly rubbish?
Ch	I think it was challenged in either statements of case or proofs of evidence. My understanding is that Mot McDonald conceded that. I haven't been through all the MottMacDonakd evidence and rebuttals.
PB	This was raised in September
Ch	This document should have been updated it's clearly not right.
PB	Who has quality-assessed this document?
Ch	I don't know. Mott MacDonald - I'm not responsible.
NC	There are witnesses still to come inc. A Mr Lever who gives evidence on the ES generally. Para 2.95 of the rebuttal to Prof Bonsall accepted it is incorrect.
MW	And a lot of objectors have raised it and said if that's wrong are other things wrong. It doesn't help with the confidence of objectors that that has put it in he benefits.
Ch	It is there in black and white. But have we given it any regard in the qualitative assesment i the business case, no we haven't.
MW	I'll adjourn.
[11:15]	
PB	{???
PB	Variability is afected by congestion
Ch	Yes
PB	Congestion is worse in term-time?
Ch	In peak periods that would be correct.

PB	You didn't take acct of that in looking at benefit of NGT?
Ch	Didn't assume any diff i journey time variability in bus or NGT at diff tmes of the year. In part a question of data availability. In part, in the A660 corridor..there is still significant variability in public transport out of term i the peak periods. So while we cannot definitively say it's the same variability we were happy to assume that it would be.
PB	Why happy?
Ch	Not the only factor is congestion. Caused by dwell times at stops. Can be caused by congestion but also random pattern of arrival.
PB	But the real problems arise when there are new students to Leeds not knowing what tickets to but etc.
Ch	A short term problem. There is still significant variability off peak and weekends and out of term.
MW	Other facors apart from congestion?
Ch	Interaction with other buses e.g. Where a lay-by can only accommodate 2 buses.
PB	Ae you saying you're confident the variability in term time is no different to out of term?
Ch	No - not that it won't be different but that it will still be significant. Because we don't ahve data for non term time that is one reason why we've made incredibly conservative assumptions and taken half of the benefit we could have done [11:24]. Our way of recognising the limitations o teh data we have. If we had data for the whole year we wouldn't have done that.
PB	I would say a significant proportion of the benefits are
Ch	Yes a large proportion of the benefit bis attributed to the reduction of variability. That's why we recognised the data we had and took a very conservative assumption of what the benefits would be. We've taken an incredibly conservative assumption on punctuality benefits. Second issue is there is no demand feedback in the model and not people transferring to NGT because it is more reliable. And not assuming punctuality benefits in the south. So an incredibl y cautious assumption. [11:26]/
PB	Your measure of travel time variability excludes walking to and from stops so higher variability and so produces a hiher benefit?
Ch	Yes that's a mathematical fact that walking time is less variable. But you cannot say the benefit would be higher or lower because no assessment of how people value the variability from door to door.
PB	You referred to "internaly consistent" in EiC. Didn't undestand what you meant?
Ch	We produced a valuation of how people see variability from stop to stop. But not a valuation of variability from door to door.
PB	You don't have door-to-door variability data so you don't know?
Ch	Yes. But consistent with guidance and with the approach taken for rail.
PB	Just wanted to be clear, you say we don't have the data and just don't know?
Ch	Yes.
PB	Now on rail industry they do that because contracts include penalty clauses for variability station to station. Not relevant to passenger valuations here?
Ch	Don't think that's right I'm afraid. Contracts with DfT relate to PPM measure of lateness - counted on time if it arrives within 10 mins at King's Cross and if not it's late. A measure of train operator performance. What the Dept uses journey time variability for is investment in capital schemes in the network to reduce the network element of journey time variability.
PB	I'm happy with that. What's the relevance of that for the passenger's experience The passenger's interest is surely with the overall journey time variability?
Ch	In the round that is true. Ut certai aspects of that they can make allowance for. To take an example, I am confident how long it will take to get to my bus stop.
PB	So you say the main issue is the timing of the bus at the stop but not overall journey time?
Ch	Well the ay we do modelling is not the way people make their decisions.[11:34]. We model decisions in a nice hierarchy. In reality people don't sit there and weigh up all the options in a nice stepwise process, they make a snap decision. So we have to break down the problem into nice convenient chunks and do it stop-to-stop. To give an example if I have to make a journey to London what I think about is the time I hav to ait t the bus stop to get to the station. The way we've done t is consistent wit the facts, with what the guidance asks us to do, what is done in other sectors and that's why DfT are content. Are there other ways of doing it, yes. Wil it produce other outcomes, pssily. There uncertainties about what comes out of the model, the parameters. We accept the unceratnties they are inherent in every modelling exercise.
PB	To reduce the uncertainty in the modelling my point is you should include the parts of the journey that are relatively invariant. But let's move to another topic. C1 p.3-35 - scheme

	objectives and how measured. Efficiency objective "improve efficiency of road and PT networks". Defined as "conventional VFM case- user and non-user benefits". Mr Henkel as clear that he would define it as including all modes. Here it is very clear that it includes the road networks. We agreed Table 3.8 definition isn't very good but this is the one Promoters wish to use?
Ch	You are right - a better measure of efficiency would be a ratio and my preference is to do that.
PB	This is what the promoters want and this is what they've got?
Ch	Correct.
PB	Page 7-6, table 7.2. This reports on the achievement of objectives?
Ch	Yes
PB	Can you read what it says about efficiency of the Preferred Option?
Ch	Page 7-7. [Reads].
PB	You don't mention the £220m [?? 11:43] disbenefit to business from congestion even though congestion was included in the definition?
Ch	That's literally correct.
PB	You've not applied the definition?
Ch	You're right - just the PT benefits and not the overall figure- was clearly an omission.
PB	Why do you describe it as a journey time benefit when it includes quality factors?
Ch	I'm happy to insert the word "generalised"
PB	But you didn't?
Ch	No.
PB	Why did you mention "revenue surplus of £457m" - not relevant?
Ch	It isn't relevant so we shouldn't have.
PB	Why did you include it?
Ch	I think a case of more speed, less haste [sic]
PB	Would have been quicker not to have mentioned it?
Ch	Well one of my colleagues has written the text and it's not been appropriately checked. Should have been picked up in checking process and didn't.
PB	Possibly were looking for a higher efficiency benefit and were trawling around for things to put in?
Ch	Don't want to question the motives of my colleague.
PB	Left out the disbenefits and included an irrelevant benefit.
Ch	We agreed that.
PB	Unbalanced?
Ch	These 3 sentences I would agree that yes.
PB	Do you think the table as a whole is unbalanced?
Ch	No.
PB	You carefully assessed all the items?
Ch	This is the summary but each assessment each business case needs to be taken in the round and it's the whole business case that needs to be considered.
PB	The whole is made of the parts and it is unbalanced.
Ch	I don't think you can say that in a 770 page document where a few sentences have not been well drafted. There are errors and in chief Mr Cameron drew them to attention of the inquiry. Those things we are aware of. Almost certainly there will be other mistakes we are not aware of - known unknowns, we do our best but occasionally things happen working against the deadline. Chapter 11, appraisal of the LCA.
PB	You didn't know about this error?
Ch	Correct.
PB	It's in my rebuttal?
Ch	In that case, that isn't something I paid attention to as we focused on the ones we thought were important. Don't rebut every point objectors make. We focus on the ones that are critical. If it's relatively minor we don't rebut it otherwise we would need another room to rebut it.
PB	While we're in Table 7.2, look at impacts on quality of life through a safe and healthy natural environment. Do you stand by that as a fair summary?
Ch	Er in terms of noise and air quality emissions, the assessment there is neutral so there are some reductions and some increases. What we have done here is highlight decreases so you could

	reasonably say we could have highlighted increases as well?
PB	The assessment of noise was that it <i>increases</i> ?
Ch	It is how it is perceived that is important. So that's why we said neutral.
PB	Are they slightly above or below the position without NGT?
Ch	Above but to such an extent we can disregard it.
PB	Here you highlight a reduction- why fair and balanced when there is an increase?
Ch	On balance it does give us the right impression taken in the round.
MW	Hang on, you are saying that's wrong, now?
Ch	Further on, it says some properties express an increase and some a decrease...
MW	What should it say or should it be the same?
Ch	Literally it is correct. Either it should say, "some increase and some decreases, overall neutral" or you should delete it.
MW	So strictly speaking it's not correct?
Ch	Strictly speaking.
PB	Let's stick with the one we're in. With the correction you've just stated would you then say it's a fair description?
Ch	Yes
Pb	What about Mr Hanson suggesting increased congestion, accidents, time spent driving and reduced use of active modes?
Ch	[??? 11:58]
MW	Have you got any other evidence- which is the most reliable source for impacts on accidents?
Ch	There is evidence there is high variability in th estimates of accidents that come out of transport models compared to what happens. Two factos - one is variability of model outputs. One is variability in accident rates. The rates e apply are an average across the country b - not all roads are of contemporary standards. New roads are designed to contemporary standards and arte, if designed well, safer. One of the reasons the projections are different. What the model is doing is estimating changes in vehicle kilometres across the network. Only in the NGT corridor are we building to the latest standards. But it won't reflect that we have cycle facilities that will improve safety for cyclists and the crossings that will improve safety for pedestrians. A sensitive thing to say for fatalitis but the impact is negligible.
NC	Sir Mr Smith at 7.8.8 dalt with this in his evidence.
MW	But Mr Chadwck has mentioned it as well.
PB	To summarise, we have an aspiration that the desin will be such that accidents wilo go down. The model predicts it wil go up but we don't believe the model so you don't think it is worth mentioning?
Ch	It's not that we don't believe the model but we appraise and interpret it. It is an aspiration. You are right that it will need designing to be safer- not necessary consequence.
PB	No mention of heriatge, streetscape, envirinment?
Ch	Not mentioned but are set out in the document.
PB	This table is brining out the positives not the negatives.
Ch	Setting out how it helps meet the objectives.
PB	Bearing in mind what yo agreed earlier about a fair and balanced appraisal how can you conclude it will lad to an improved quality of life?
Ch	Some of the reasons you say it won't, we don't agree with. Otherwise I can't say more than I said earlier.
PB	No mention of the negativis. If someone reads this
Ch	This shows us how the scheme helps meet the objectives, positively [12:07].
PB	It says an assessment against the objectives.
Ch	But the table is a summary.
MW	Move on.
PB	Table 6.1 of C1, page 6-3. [12:08]. Can you take us through what it says in respect of what can be achieved on integration that cannot be achieved through the LCA? Is there anything you would point to showing that NGT increases integration?
Ch	This is a bit like the access to facilities point. Certain places like the Leeds City Station the NGT will offer a more direct connection for the south than would exist in the "do minimum".
PB	Any others?
Ch	Can't immediately think of any.

PB	Others have referred to "brand image" - do you think it has implications for integration?
Ch	I think it can have. One of the principles that is employed in designing an interchange is legibility so people have clarity about the modes that are interchanging. E.g. Manchester Piccadilly Rwy station- as well as signage for Metrolink here is also branding for Metrolink. I accept this is subjective but branding can be important in terms of allowing the users to understand the modes that are available.
PB	How does branding promote the integration?
Ch	It makes it easier to undertake those changes.
PB	Branding distinguishes NGT from other services rather than integrating with them?
Ch	No -that's why in London there is a separate brand for LU and for Ldn Buses.
PB	I don't understand what branding has to do with creating integration?
Ch	It creates clarity. Makes it easier for the user to be able to move from one service to another service.
PB	You referred to integration to the station but the bus stop is closer than the NGT stop.
MW	I think we agreed there wasn't much difference.
Ch	Well the bus stop on Park Row is further away but it is in tens of metres.
MW	Personally I wouldn't have thought there's much difference and there are lots of accesses from the station.
NC	A-11, 028, no.1 bus stop is slightly further away but not a lot in it.
PB	The improvement is minor?
Ch	It is from Headingley but not from Belle Isle.
PB	But the bus station?
Ch	NGT doesn't serve the bus station?
PB	The integration with bus services is thereby reduced?
Ch	The bus station is an important place for interchanging but it's not the only place. There is interchange in city centre walking from one stop to another. Would it have better integration with the buses if it went to the bus station yes it would, but it doesn't. We're not saying NGT makes integration better for every journey, we're saying it is better for some journeys. The benefits of the scheme are of the scheme as it is. It is making some interchanges better for some journeys.
MW	Which journeys?
Ch	People from the south to the Rwy station.
PB	Now, there's a claim in C1 that tickets would be interchangeable with other NGT services.
Ch	Yes and I recall Mr Henkel covered ticketing provision.
PB	Of which there are none. Does it say that?
Ch	Sorry I was talking about bus services. There's only the service we have. It was certainly written in the 2009 document because there it was another service to St James'.
PB	On buses, how can that be guaranteed?
Ch	I think Mr Henkel's already dealt with it.
PB	You understand it can be guaranteed?
Ch	I think from the evidence of Mr Henkel.
PB	2 sets of stops means a reduction in integration?
Ch	I don't see that as important. The situation is not significantly different to the situation of interchanging between a bus service and another bus service.
MW	The question was would it be a reduction in integration?
Ch	In my view, no. As I was saying, most of the interchange takes place in the city centre. There are a few stops where someone can alight at a stop and wait for another bus but in most places they have to walk.
MW	Is it a reduction, increase or stay the same?
Ch	I would say stay the same.
PB	Say Sb at Leeds City Centre who wants to get to far reaches of Adel via no.28. Under NGT would catch NGT to Headingley then catch the no.28. At the moment could catch bus to Arndale and then get off and wait to catch no.28 that stops at the same cluster of stops?
Ch	Yes.
PB	In new situation, NGT would stop the other side of Arndale Centre and would have to walk to get NGT.
Ch	Yes they could, or do exactly what they are doing now?

PB	But NGt is quicker?
Ch	No - the model doesn't predict they will scoop up 100% of the demand. If they preferred to take the bus they could make that journey by bus. If I were making that journey I'd just walk up to Albion St and get the bus from there.
PB	The assumption is, frequency of no.1 and no.6 will be halved?
Ch	Correct.
PB	So reduced frequency to Arndale Centre?
Ch	Correct.
PB	Consequence will be might have to go on NGT. Not integration but the opposite of integration?
Ch	The diffs in generalised journey time are still taken into account through the appraisal.
PB	No we're talking about integration.
Ch	Well I've set out our position. Our view is that where most interchanges take place in City Centre, will be able to interchange in the same way by walking from stop to stop and there will be multi-modal ticketing to facilitate that.
PB	There will be a different fare structure?
Ch	Probably safe to assume that it will be different.
PB	You still maintain that it's an improvement of integration in the table?
Ch	I see no reason to change it.
MW	How long will you need?
PB	Now a possibility I'll not finish today.
MW	May need Mr Hague to interrupt you.
[Hague]	Need about half an hour.
MW	I'm minded to break for lunch and put Mr Hague in after lunch. 3/4 hr break and resume at quarter past one [12:32].
Hague	[13:35] If you introduced 70-seater, 20 standing what would that do to your business case?
Ch	Mr Robertson set out. Erm the NGT business case is built on a number of foundations - journey time, capacity of the vehicles, quality of the service and punctuality. Way we deliver that journey time and punctuality is giving it priority at traffic signals and putting it on segregated sections on the Highway. Mr Robertson's evidence is that there are practical limits to the no of vehicles that can be given that priority. So capacity is important. So we are providing 10 vehicles per hour at approx double the capacity of the vehicle you describe. We couldn't give priority to vehicles of the type you describe.
Hague	The business case is based on 20% standing in the peak?
Ch	No, no. It goes back to what I was saying - the promoters recognise that in peak times some passengers will be standing.
Hague	On NBA. Can you explain 3.136 where you say "the vehicles will be perceived to have the same quality as existing buses" - does that mean they are inferior?
Ch	It will not be as good as the trolley vehicles. We've also looked at 2 alternatives at 3.139 where the quality offered by NBA is halfway and one where it is equivalent, even though the last one of those we consider to be a hypothetical test.
Hague	Let's look at the route. N and S legs are out of balance - very highly populated north leg and sparsely populated south route?
Ch	Correct that north route is higher density and more people forecast to use the north route, though longer so people more spread out along the route.
H	NBA is rigged to make NGT look better as running it along the same route.
Ch	Yes and as I explained to Prof Bonsall both LCA and NBA are designed to establish or to help us confirm that the third option is vfm, but are not designed to be strategic alternatives we are choosing between. Their purpose is to specify a scheme such that in terms of outputs, stopping times, journey patterns, allows us to confirm the options we have chosen - they are appraisal mechanisms rather than strategic alternatives.
H	Why didn't you include the existing No1 route that includes Beeston as the NBA?

Check audio - 13:15.

Ch	It is not an alternative in terms of choosing one over the other. Wd like to say that LCA in the north operator is assumed to be provided by the current bus services such as the 6, 8 and 27.
H	With the NBA you are building in all the disadvantages of a trolleybus and none of the advantages of an ordinary bus?
Ch	I do dispute that - its purpose is to test the appraisal of the preferred option rather than it being a choice between the 2 alternatives. If we are to provide the priorities at traffic signals, there is a practical limit to the no of vehicles we can offer that priority to. Cannot provide the same level of priority as for a conventional bus- would have a different capacity of vehicles and couldn't have 20 per hour and still offer the same journey times. The journeys would be slower.
H	Could have extended it to Rothwell rather than finish at a field at Stourton where there is nothing there.
Ch	Again, not designed to be a beauty parade. Purpose is to confirm the appraisal of NGT. So strategic decisions about which locations to serve and broad parameters of teh service were settled in runup to orig business case in 2009. Mr Haskins set that out in his evidence on the public transport plan for Leeds.
	[adjournment till 13:52]
PB	I'll go back. Can I just say the reference in C1 was clearly a mistake and must have come from one of the other docs. To recap, looking at the UDM and we've established its estimation of the impact of NGT on jobs and econ activity is based on diffs between PT journey times in the do-minimum and Preferred case.
Ch	Yes- generalised journey time.
PB	Estimate of increase in jobs is about 4,000?
Ch	Correct.
PB	Attributed to generalised journey times for NGt being lower than do-min?
Ch	Correct
PB	Those include the quality factors?
Ch	Yes. Actually, and I apologise the info is in front of me, yes refers to paras in the core docs.
PB	Part of the reduction is due to the reduction in the quality penalties - are lower in preferred alternative?
Ch	Yes
PB	Large parts - you don't know what percentage but we agreed 50% is thereore derived from the quality factors?
Ch	Not correct - 50% of the benefits but it doesn't follow that the jobs are. A product of journey times and quality.
PB	Well if about half of the benefit is due to a reduction in a quality factor, then about half in this case is due to reduction in quality factors?
Ch	When Mr Hanson was giving evidence he gave a example of generalised journey time from a partic stop and the impact the quality factors had. It's a sizeable number but wrong to claim it's half. I don't think there is a linear relation between user benefits and jobs.
PB	But that sort of number. Dependent on how perceived?
Ch	Correct
PB	Derived from comparing the old bus to the new bus.
Ch	We've been through that.
PB	About half...
Ch	The relationship between generalised journey time and jobs is not linear. I'm prepared to say a sizeable proportion but not half.
PB	So sizeable proportion of the jobs are attributed to people preferring a new bus over an old bus?
Ch	Due to the methodology yes.
PB	Another proportion is a result of the run times for NGT?
Ch	Correct.
PB	So two parts- one part is assumption from stated preference and another is assumptioun of run times for do-min and NGT vehicle.
Ch	Yes
PB	Is there anything else that is actually based on evidence?
Ch	In terms of what?
PB	In terms of change in the number of jobs?
Ch	Well the way the Udm is calibrated is through a process of backcasting. A scenario is set up

	for some years in the past. Then the model is calibrated by allowing it to run and comparing the projection from the backcast to the current year. That is the method used to refine the set of parameters that define the relationship between the inputs and outputs. So what is our evidence that the relations work...
PB	No - accepting the mechanism may or may not be a good mechanism, the difference is driven by the change in the inputs. The inputs are changes in journey times and quality factors. I'm asking, is there anything else?
Ch	Still just those assumptions.
PB	So the outputs of the predicted changes in jobs are purely dependent on those 2 assumptions?
Ch	That's correct yes.
PB	Based on assumptions not evidence?
Ch	Yes as is the output of the LTM- we've talked about the rationale from that. We've applied UDM in West Yorks for a number of years we believe we've done it in an appropriate way the predictions are consistent with those made in other pieces of work.
PB	Bits of UDM I'd find easiest to accept is that effect of journey times applied to a level of jobs can be used with "backcasting" to predict future jobs but do you agree the inputs are just assumptions?
Ch	[CHECK ???14:07].
PB	We're now discussing presentation of results relating to scheme objectives. Para 6.9 of C1, page 6-2. You note that a theme of policy is encouragement of low-carbon transport and claim NGT has a strong fit with that objective.
Ch	Correct
PB	The underlying rationale is to reduce GHG emissions?
Ch	In aggregate.
PB	Remind us what the impact is on GHG emissions?
Ch	With the current energy generation mix there is a net increase in GHG emissions.
PB	In what respect is this based - is it fair and balanced?
Ch	Basis is intro of an all-electric means of transport enables us to take advantage of the anticipated decarbonisation of the electricity generation system over an above what is required by DfT.
PB	Why required to do that?
Ch	A prudent assessment is to assume the current mix.
PB	So a prudent assumption is that there will be a net increase in GHG?
Ch	The strategic position of Metro is they would like to be in a position to benefit from the change in generation mix which is widely anticipated to occur.
PB	Is a prudent assessment of the effect of NGT that there will be a close fit with national policy on encouragement of low-carbon transport?
Ch	I believe there is. If you look at total emissions from transport assessed to take place within Leeds it's less than 1% of the total- well within the margin of error. Based on assumptions about the road vehicle fleet. Although it is an increase, like with accidents and increase in car traffic it is negligible, and we consider here will be a decrease. We have to interpret the guidance that is given -it is not a deterministic process and the numbers are negligible and not significant so we look at what the trends might be and take a judgment.
PB	So the assumption about trends, an aspiration, evidence it will increase GHGs, a requirement of govt, and you ignore that and a close fit. To what extent is that fair and balanced?
Ch	These numbers need to be interpreted.
PB	The theme is emerging that you pick the numbers that suit the case. Is that unfair?
Ch	I believe it is unfair- I believe we have gone about this in a proper way.
PB	Shouldn't you have said even though the evidence points one way, we think it will go the other way?
Ch	Could have put in an explanation but it's already a long document.
PB	We went through principles earlier -not transparent but your decision was to ignore the evidence and present the aspiration as evidence. No info to alert them to the fact it is an aspiration not based on evidence.
Ch	Well in the round in the business case document we have presented the evidence we feel the decision maker needs to consider. We focused on the things that we considered most important to help the decision makers come to the view they've come to.
PB	You said earlier that you wouldn't expect the decision-maker to go through all the supporting documentation so how can you expect them to make an informed decision?

Ch	A lot of that is set out in the core docs and that's the best I can say to you.
PB	Table 7.2 final entry. {Page 7-7}. It says "a carbon reduction benefit of £6.2m".
Ch	A figure we have subsequently revised and it says hat in my PoE. In my appendix
MW	Can we go to that?
Ch	7-3-2 Sir, analysis of monetised costs and benefits - third line down - minus 3.128. So my evidence has amended that number set out. Cross-referenced in Table 7.2. Same as Table 17-4. So in my evidence we have highlighted that error and that it changes the BCR but we omitted to change the cross-reference in Table 7.2. Should have said disbenefit of £3.1m but we have drawn that to th attention of the inquiry and should have remembered that there were other references.
MW	But this document was used to support the business case?
Ch	This doc was essentially produced for this Inquiry -an update to the 2012 revised business case that reflects the scheme actually before the Inquiry. The other scheme had the alternative alignment in South Leeds. The DfT allowed us to change the scheme for which Programme Entry had been awarded and were content that ddid not require at that time for us to present the monetised cost-benefit. A letter says it still stands.
MW	So this document presented to the DfT?
Ch	No.
MW	The numbers presented to DfT are similar to this or not? You're putting a lot of emphasis on DfT approval but I want to know whether they picked up there were errors if you say there are errors now.
Ch	Was based on 2012 business case which had CR of 3.86. In their adjudication on that they reduced it to 2.7. They are fully aware of the carbon numbers that were in the 2012 docs.
NC	The reference is C-2 at 8.33.
Ch	I can demonstrate that they were aware because they told us we had misapplied their method.
MW	DfT was told at that time that there was a carbon increase?
	{look at 8.33}
PB	They pointed it out to you, you didn't tell them?
Ch	It's traded.
	The Dept wanted us to take out the monetised value out and we did. Changes the value by a couple of million.
PB	Is the number in C2 before or after the change?
Ch	Before. They were aware of the increased emissions but it was simply that it had been monetised
PB	They pointed out the error and assumed you would get it right next time?
Ch	Umm-humm.
PB	They we come to January 2014 and you got it wrong again?
Ch	A spreadsheet error- simply put a minus in front. Spotted that ourselves in normal checking.
PB	Checking after you had submitted it?
Ch	That goes on all the time to satisfy ourselves it was right.
PB	At thetime you were hapy with it?
Ch	Yes
PB	And the checking you did before submission wasn't enough to spot a minus rather than a plus?
Ch	Thousands of lines in the spreadsheet. Frank and honest answer is, had to be all out there and published at the same time as the Proofs. Timetable set by the statutory process - can't halt it to check through our spreadsheets. We brought that to the attention of the Inquiry through my PoE.
PB	I spent many hours perusing your evidence in January and disappointed you hadn't checked.
Ch	Changing CBR from 2.96 to 2.90 and becaus e we considered the changein emissions as negligible..
PB	You seem to say that because it was not a big difference it didn't matter and wasn't worth checking?
Ch	No - couldn't postpone submitting the docs so we carried on checking after. Had to decide the appropriate way to deal with that. Our view was, a mathematical error that made no diff to the strategic and economic case but we thought it impt to bring it to attentn of Inquiry so on advice we put it into my PoE.
PB	Let's postulate there are people concerned about GHGs and think it an extremely import issue

	and are deciding whether to object and come and speak. Will see what it says- there's a benefit. Insp can't know there are people who would have objected but didn't.
Ch	Well I've set out our view and you've set out your view and if Mr Whitehead thinks it impt he'll take it into account.
PB	In terms of the rest of the doc- has this doc been checked?
Ch	Since it was submitted it was read through. When it went out, at that time we thought it was true and accurate reflection and fair overall, of the case of the scheme.
MW	The NBA is said to be an overall carbon reduction benefit. Is that figure correct? Are these figs reliable at all? Any of them?
Ch	Well in APP-7-3-8 we report a carbon disbenefit ofI don't think we've put in a revised version of NBA in the appendix so I can ask the team here to check that number.
PB	Well sir, this is one particular example.
	If you knew you had not completed the checks you would have liked to have done, why didn't you add some sort of disclaimer to the docs?
Ch	Well because our view was that it was very unlikely that we would find an error but unfortunately we did. Maybe we should have done. Certainly with SDG it's now our standard practice to add a disclaimer to all docs.
NC	Sir, we've looked at 7-3-8 and Sir you will be aware that in APP-104 it was revised.
Ch	Sir, sorry I misdirected you. The number there is £0.2m in present value.
MW	So NBA isn't 5.6?
Ch	Low cost is 1.2 not 1.3- disbenefit.
PB	Should the Insp start with the latest APP document and work backwards?
MW	It's getting quite difficult to cross-reference all these docs. At some time it might be worth incorporating everything into a set of documents so this can be put before the SoS?
NC	If you would like that, we can do it. But it's in APP104. And I did draw your specific attention in XiC.
Ch	Sir we'll take your direction on that and provide a consolidated errata.
PB	Para 6.7 of C1. A reference to "Door to Door". Table 6.1 mentions the national Door to Door strategy - do you claim a fit with it?
Ch	Have we not discussed this?
PB	We discussed interchange but it goes further. Do you claim a fit?
Ch	Yes we do -because it promotes PT. That's a sufficient reason.
PB	Has it reduced the complexity of travel?
Ch	I don't think it does. As a result we're happy with the fit.
PB	Separate mode - own stops, fare structure and possibly set of tickets. Does it not add an extra decision whic service to use?
Ch	Yes but not a complex decision - the type of decision many people make with no challenge every day of the week.
PB	A source of frustration if you choose NGT but the first vehicle that turns up is a bus at a stop 100m away?
Ch	People will choose things based on what gives them the best journey. Our view is NT will deliver faster and more punctual journeys- may be standing at the NGt stop and see a slower less punctual bus arrive but will be happy with the choice that was made.
PB	Sharing stops would have reduced the complexity of the decision.
Ch	Other witnesses have set out why that cannot be done.
PB	I want what you think.
Ch	Elsewhere other cities, people can navigate through cities on difft services without seeing it as complex and that's why I have come to the view NGT with its own stops and vehicles will not overly, nor even overly increase public transport in Leeds.
PB	Can you not see it's better if all vehicles stopped at same stops from passengers point of view that would be more convenient?
Ch	If it were possible, that would be an additional benefit we've not taken into account but it doesn't negate the benefits we have set out.
PB	At the moment, no prob if you decided to get no1 and no6 turns up but in future will have to make a choice and halving the frequency of the buses- do you not accept a source of frustration?
Ch	No - For instance NGT will get there quicker.
PB	Some people want to get there with a seat, a minimum time spent waiting at a stop. Not always want to wait twice as long and not sit down even if get there quicker overall.

Ch	I do not believe a separate system will increase uncertainty. The aim is not to Hoover up 100% of the demand - there will be some people who make the same journey and can go on the bus and there is a share between the two.
MW	It's 3 o'clock. Many more questions?
PB	I can finish these in about 2 mins.
MW	Finish your bit now,
PB	Already discussed active modes and carbon. Do you think it is fair and balanced to claim a strong fit with Door to Door strategy?
CH	Yes I do - it promotes PT and that's enough.
Mw	Can you give me an idea...
PB	Of the pile I came in this morning I'm 2/3 of the way through. I'd be extremely disappointed if we hadn't finished by Tuesday Lunchtime.
NC	Mr Pursglove is only available till Thursday so didn't anticipate they wished to cross-examine Prof Pursglove at all. And on Friday might move to electromagnetics.