APPLRG / *pteg*: Light Rail and the City Regions

Transcript

Day 1 - 27 October 2009

Session 3 – Parry Associates / Sustraco

Questions 41 - 54

Q41 Paul Rowen: This session's looking at innovation with ultra light rail and the experience of Sustraco and Parry Associates so who wants to kick off first?

John Parry: My company was founded in 1973. It's initial work was not in transportation, but in other elements of urbanisation. In the first twenty years we concentrated on healthy, affordable housing, generating sustainable livelihoods, mainly working in about fifty different third world countries introducing manufacture of the products to build houses. We were then, and still are now, providing services and manufacturing equipment with which people can make just about all the components that go into the building of houses and schools. Our company has a successful track record with twenty countries where there is sustainable evidence of customers and people using our technology for between ten and twenty years. We have as many as ten thousand school classrooms in about fifteen countries, ranging from Nepal to Malawi. We are now involved in building a complete new town in Kenya which all the materials technology was supplied by Parry, a Black Country company. But we realised there was a missing element in urbanisation that was safe, affordable transportation. The figures are starkly available that the cost of traffic accidents in the cities of the third world countries is double the total aid provision by the West. Everybody concentrates on AIDS and malaria and things like that but certainly a huge element is part of their problem of traffic accidents. A small study was commissioned in ODA (the predecessor of DFID) The conclusion that it's now too late for all these cities to put in suburban rail as we know it. But not too late to thread light rail through city centres and so we began looking for a way of producing a suitable form of light rail having come to the conclusion that what was being built at the time in Manchester, typical of the new light rail systems coming in in the West, wouldn't work. This was because of the vulnerability of the catenary overhead power supply. But they still need to use small amounts of energy, preferably renewable forms of energy. So the challenge was there to devise an appropriate form of technology. We prototyped something in the early nineties and a British Passenger Transport Executive, Centro, noticed this from an article written in one of the railway magazines. Centro had a problem that they wanted to solve, the Stourbridge town branch line. This was a survivor of 'the Beeching closures', retained because the road journey to the junction station about a mile away from the town centre, was convoluted and when the Passenger Transport Executive tried to substitute the rail service which was always losing a lot of money by a bus service, the passenger patronage fell not only on the branch, but also the mainline trains. They felt there must be a way of creating branch line service, presumably rail in a much more affordable form and gave us a job to devise a form of railway which would be much more affordable. And so we developed, having looked at different ways of reducing and regenerating energy, we arrived at flywheel technology based on what had been done in the 1950's by the Swiss. The 1993 Centro feasibility study led nowhere for several years because the branch line was part of the railway network which had its troubles following privatisation. In 2006 we were allowed to run a Sundays only experimental service which was a success. And it led into the PPM vehicle being considered in the franchising process and then we finished up actually entering the

mainstream of heavy rail, with a franchised train service running between Stourbridge Town and Stourbridge Junction in replacement of the previous heavy rail service. And so that began operation with two rail cars in May this year. The service has just carried its first 100,000th passenger. Stourbridge was previously a very sleepy branch line when we did the original feasibility study, with passengers only in the mid to high hundreds per day. As a result of improved mainline services but also more frequent services because of the light weight tram-like equipment, this can do six services an hour, (once every ten minutes) instead of four services an hour by the heavy rail Class 153, a 40 tonne unit. This change has stimulated patronage and now it's approaching two thousand a day. The pattern by which people are using the service has changed. They don't now come to catch a time-tabled train, instead of arriving just before the train leaves, they're just trickling in all the time. So it has had the effect of showing turn up and go frequency on a railway line and from the point of view of the light rail interest, what we have achieved is the energy efficiency, the quietness, the cleanness and the acceleration of light rail on old heavy rail infrastructure. The opportunity yielded by this we think is considerable. In the mid to late 1990's, there was huge interest by local authorities right across the country in tram schemes. That was all the rage at the time but when feasibility studies were performed the results showed light rail to be too expensive. But the reasons always for the the huge expense of light rail is electrification. This may be essential when you've got heavy, heavily patronised corridors like Nottingham, Manchester and Sheffield. But for Hereford, Worcester or other medium sized towns and smaller cities, they can't find two hundred million pounds of investment necessary to put in a light rail scheme with all its power distribution arrangements. But if it were possible to genuinely produce a tram-like vehicle which could run with energy on board, which we have been able to do with a hybrid system, then that would open up the possibility of this type of transit being made available to dozens of towns and cities which previously put away the feasibility study and said "We can't do it." Why we welcomed the opportunity to come to this Inquiry is that, with the success of winning the franchise, we now have vehicles in service. But the response to the opportunity is so slow. The potential is there but the steering from the Department of Transport having made up its mind, probably the late 1990's, that light rail is too expensive and those are the words that just came out again and again, "Light rail is too expensive, why not look at buses instead?" They have constantly steered the local authorities and PTEs, to always look into a quality bus option first. But the point that I make is, that I know that Stourbridge provides a perfect example, when you put the buses on, the passengers previously using public transport find a way of going to work by car. There is an extra attraction with rail systems which will help in the mode switch away from private car.

Q42 Paul Rowen: How much does it cost then? Are you making a profit?

John Parry: Well, under the railway franchise is really nothing to do with making a daily cash profit from the operation. The funding comes from an agreed contract through London Midland, which is one of the big franchise train operating companies. A small train operating company was specially formed for the purpose because the big boys didn't want to take it on. But we are at the point now where if you charged a pound fare we could make a profit.

Q43 Tom Harris: So how much do you charge?

John Parry: Well we don't, it's all bundled up with the rail fare from Stourbridge down to Birmingham …If you turn up and want to buy a fare, it's eighty pence. On some railway branch lines, you would do well to give the passengers £8.00 or £5.00 each and tell them to go away because you'd save money by not running the train. But in Stourbridge, having been a heavy loss maker when the Centro first took a look at it, it could now be operated at a profit, if it weren't contaminated by heavy rail procedures which bear down on efficiency. You finish up

by doing all sorts of ridiculous things which for sheer practicality and safety reasons you don't really need to do, but you do it because the Good Book says you must. And so there is an opportunity here. We think that there's dozens and dozens of branch lines, former branch lines with now occasional freight movements, sometimes mothballed, sometimes in the hands of heritage railway enthusiasts, all over the country. Using these, up to seventy towns and population centres could be reconnected to the national railway network. It would mean using these branch lines and operating them with light rail type procedures.

Q44 Paul Rowen: Bob, do you want to come in on this?

Bob Chard: My name's Bob Chard I'm a transport planner, consultant at the moment. My early career was in town planning, I have qualifications in town planning, architecture and environmental science. Over the last twenty years I've specialised in consents and approvals procedures for major transport infrastructure projects and I work from the, on the previous ones, Channel Tunnel rail link at cross rail down to small ones. Barry and I and other people have had discussions about smaller ones and I now work self-employed, really, for two companies: Temple Group, which is an environmental consultancy particularly related to the rail industry which I helped to set up and the Sustainable Transport Company. In the field of light rail I worked on Docklands light railway extensions, millennium transit busway, Greenwich waterfront transit, which was one of the few transit projects which remained technology neutral for some of its life, but unfortunately was not a success. And I've had smaller inputs into about ten or fifteen different transport projects including Themes Gateway bridge, the public transport element. And in my career I've also worked as an academic in universities as well as in local government and in consultancy. So what I'm wanting to do now is to bring my expertise to bear on this very important issue of helping the Sustainable Transport Company to progress what I consider one of the best technology solutions to deal with the issues of climate change and pollution and oil shortage that you've heard about. My take on this is that it's no use having excellent tram vehicles if you can't get access to the tracks or you don't have the tracks or you can't set up whole systems. And that is really a big part of the problem because eighty-five percent of the cost is not in the vehicle but in the tracks and other equipment and most of the consents and approval issues are to do with tracks and routes and objectures and compensation issues which I deal with, not to do with the actual availability of excellent vehicles which I'm sure John Parry will tell you we have.

Q45 Tom Harris: I mean I'm glad, John, that the Parry People Mover is doing so well and you obviously think that the same model can be used in other parts of the network, in the West Midlands as well as anywhere else. But I wonder if you could just detail for us some of the hurdles that you've faced in your negotiations with, for example, Network Rail in terms of ticking all the health and safety boxes when it was, you alluded to it in your opening statement, that having the top down rules of the industry kind of impeded your progress. Could you say a bit more about that?

John Parry: Network Rail's approach has been a paradox. At the beginning, prior to 2005, they just simply made the whole thing so difficult that anybody who was not so cussed as me would have just gone away. John Armitt, then asked his engineers to look at the issue of how to find a solution to running the Stourbridge trial. Another Network Rail employee, Professor Andrew McNaughton with the present CEO Iain Coucher, devised a concept which they called the Virtuous Circle. This virtuous circle could be applied to branch lines, based on practice in Japan and Switzerland. And the way the virtuous circle works is that if the Network Rail said to itself, "We could improve the quality of the running tracks so the transition curves are nicely shaped and the tops of the rails are nicely level, doing what engineers are supposed to be able to do and that is produce a level, straight line with the rail instead of bumpy surfaces.

Perhaps if Network Rail do that, can't we persuade the rolling stock suppliers to come up with a much lighter form of vehicle for slow speed, low risk, short lines on the periphery of the main network? And if they will provide lighter axle rolling stock, then our maintenance costs of our railway will fall dramatically." Most of the damage that's done to railway track is at joints and bends. Heavy vehicles hit the bend and push the track out of shape, and their heavy running gear hits the joints between the rails and push them down until they become dropped joints. (You hear the clatter of a railway train running over such joints). So they put this idea forward and it went into their Control Period 4 plan that they wanted to produce this lighter category of branch lines. Because all of the circumstances in a low speed, twenty-five mile an hour branch line are so much less dangerous than a mainline. On the mainline trains pass sometimes with a combination of over two hundred miles an hour over complex point work. Entering major stations is like landing at an airport. A branch railway line is just sometimes just a single vehicle running up and down between two points and never getting onto the mainline, pulling into a bay platform at stations. Network Rail saw how this could produce a much more sustainable way of operating the smaller, lighter branch lines. They went to the main rolling stock people Bombardier and Hitachi, Alstom, Siemens and they said "how many train carriages are you talking about? Fifty? No, forget it. We don't deal with small numbers like that." And of course no one is talking about a new market with, immediately, prospects of ordering fifty vehicles. You've got to start with smaller numbers. Even fifty is not big enough for the big suppliers. So this interesting idea has almost gone away simply by lack of response by the industry. Network Rail have been very helpful nevertheless, and have been taking an interest in the Stourbridge branch line. To be frank with you, when we first arrived on the scene, we felt almost as if we were coming in as competitors to the train operating company rather than part of the same operation. Things which they could have done to help us, they wouldn't. The station had lights like the Blackpool Illuminations, but they said we couldn't have a connection to their power supply for our small depot because it might endanger their supply. Things were put in the way of being able to commission the vehicles properly. It really has been very hard to get things started, which is surprising because the one year trial in 2006 came up with a simple approach. But this was set aside. "The Rule Book says thou shalt do this, that and the other." It doesn't matter whether you're, approaching Waterloo station or St Ives in Cornwall. If the same rules apply, then everybody knows the rules. That has an elegant simplicity but it actually does two things wrong. One, it maintains high costs on railways which could be run at a much lower cost and, two, it impedes the possible reopening agenda of dozens of former branch line railways. And at the moment only seven percent of the population of this country has got access to the railway network for their routine journeys because so much of it was closed in the past. And if we have got environmental concerns and we want to switch modes away from the private car, we've got much more chance of doing it if we provide railways. Also the energy use, providing the rolling stock is light, by a rail system is much lower than roads, as you've heard from the previous part of the hearing. So attitudes are, at the moment, against 'disruptive' innovation, but don't object to incremental innovation in which you modify something and make it slightly better, but still stay with the same factories in the supply chain. If you want to innovate in a leap you disrupt this process then you don't half make yourself unpopular.

Q46 Paul Rowen: Bob, do you want to add anything and what would you want to see changed to make ultra light rail more accessible?

Bob Chard: Well quite a few things. We see a main competitor for light rail as buses and in particular busways and the way that busways and trams are promoted is not conducive to giving ultra light rail a fair, competitive position vis a vis busways. For example, the DfT rules require that for a tram system there should be a local contribution of twenty-five per cent, but for a busway it's ten per cent. And ultra light rail, in our opinion, is a different type of

mode of transport from conventional trams yet it's lumped in with them and therefore it carries this twenty-five per cent local contribution problem whereas we think it should have an equal playing field with buses which are the main competitor.

Q47 Paul Rowen: In terms of the cost of the vehicles, you know, still must be more expensive for an ultra light rail vehicle compared to a bus.

Bob Chard: There's limited data but we would say it appears that an ultra light rail vehicle of comparable quality to a bus might cost fifty per cent more at the present time. But of courses buses are mass produced and ultra light rail vehicles are not mass produced, so that could change. It's rather like buying a light bulb if I can make that comparison. You buy an energy efficient light bulb that costs more than a regular one, because over the lifetime of the product you will save money because you don't have to replace it so often and because it has a lower operating cost. Now exactly the same logic applies to spending more on an ultra light rail vehicle than on a bus. It will last longer and it will cost less to operate. Very considerably less to operate. So in the long run it's sensible and it's a better choice.

Q48 Tom Harris: Can I play devil's advocate for a second? This question of the local contribution to bus and light rail schemes, I mean isn't it a bit unfair to suggest that ultra light rail schemes should be faced with a lower local contribution than regular light rail schemes? Because you said yourself that it's difficult to actually get figures for how much these schemes actually cost because there are so few of them. So aren't you actually in fact asking the government to sign a blank cheque?

Bob Chard: Well, I've been involved in trying to get the local contribution and some people would say that twenty-five per cent is too high for any technology. If we really want to have tram use in this country up to the level that it's available in many other European countries then we're tying a bit of a burden around our neck, saying you've got to have twenty-five per cent local contribution, which is difficult to achieve. So there is an issue as to whether any local, or such a large local contribution is appropriate.

Q49 Tom Harris: Sorry to interrupt, but I was under the impression that ultra light rail as distinct from light rail, conventional light rail …

Bob Chard: Yes.

Tom Harris: … was of a scale so much cheaper that actually, the figures we're talking about, even at twenty-five per cent, are significantly less than what would be expected from local contributions on a regular light rail scheme. Would that be right?

John Parry: Yes, that's correct.

Q50 Tom Harris: So you're facing fewer difficulties, then, in raising that cash because although it's the same percentage, it's actually a much smaller amount of money.

Bob Chard: Yes, I think that's true but I'm not sure that's easily appreciated by local authorities, local transport authorities who are the promoters of these schemes.

Q51 Tom Harris: Well whose fault is that? I mean surely, you can't expect the government to come in with a PR company and then do your job for you. If you're promoting an ultra light rail scheme and it's incumbent on you to get a particular percentage of the funding, where do the government come in to that? I mean surely that's up to you guys to do the work if you have

the confidence in your own scheme and you can sell it and you're doing the job of selling it to others. I'm sold on it anyway as John knows, that should be an easy sell to local funders, shouldn't it?

John Parry: Can I come in here because I think it is to do with leadership and probably upset the civil servants by saying “the Department of Transport has given a very, very clear steer to anybody planning new transport schemes that they fear the cost overruns and high costs of light rail, so please, gentlemen, look at buses. Can you do it with buses? We know about buses, we've got roads, buses are getting better and better so don't keep coming up with these tram schemes, do it with buses”. Now, what I'm, and I think James Skinner, is trying to get them to do is take a close interest in the fact that by removing the technical difficulties of electrifying a street tramway, by simply having rails that will be on the surface of the road, non-electrified track, (just a metal rail placed on top of the road and fixed down properly), the costs come tumbling down. So for heaven's sake, given the importance of leadership from the Department they should say “Look at this as well.” I don't want them to sell it for us. That's my job, you know, but just simply say “Look at it as well”. Stop the constant repeating that buses can do everything. The thing that makes one rather cross is the Cambridge busway which is a railway, a concrete railway for buses to run along. They pulled up a metal railway that light rail vehicles could have run along.

Bob Chard: I'd like to add about Luton and Dunstable, because I used to live next to it. That was a branch railway and it was decided it was going to be redeveloped as a public transport link. They went out to consultation on four technologies and the best one, ultra light rail, was not among them. The promoters, the local authorities, went to the Department of Transport and they got advice. I wasn't a party in detail to that advice but I know it's general and the advice is “we have money for busways but we don't have money for light rail schemes because we think they're complex and expensive”. And it's probably true that a conventional light rail scheme for that railway branch line would have been expensive and would have been complex but an ultra light rail isn't. And it wasn't considered and it can't be considered at a late stage because there's so much hanging on this transport link now in terms of urban development, which both central government and local government want to go ahead and they can't take it out.

Q52 Paul Rowen: Haven't you produced some costings?

Bob Chard: The independent costings were produced, presented at the public enquiry but the inspector ignored those costings which were very favourable, I have the numbers here somewhere, to ultra light rail and showed that it was cheaper than a busway. And that's an independent railway consultant's report which was submitted.

Paul Rowen: It would be useful if we could see that, if you could let us have a look at that.

Q53 Clive Betts: Compared with more conventional light rail schemes, how much cheaper are the vehicles just in terms of carrying the same number of people …?

Bob Chard: The vehicles are not the main cost …

Clive Betts: I was going to ask both questions, how much cheaper are the vehicles, are they cheaper? How, if you're putting a new system in, given you haven't got all the overhead power lines, how much cheaper per mile is it …?

Bob Chard: Well I think you have to look at the whole system and I think you have to look at

the whole life which when I work on mainline railway projects, that's at least thirty years, sixty years or a hundred and twenty years, depending on which part of the railway system it is. So we should look at a thirty year life, we should look at all costs including operating costs, translated by net present value to a global sum at the present time and we should look at the busway option compared to the ultra light rail option through cost benefit analysis, and the whole system is a lot cheaper.

John Parry: Well I'm itching to answer Clive Bett's question there.

Bob Chard: The actual vehicles are not a large part of the cost. A large part of the cost is in the track, the overhead is perhaps seven, ten per cent, the vehicles are perhaps fifteen per cent although that varies a lot between projects. The big costs are what you put in the ground.

Q54 Tom Harris: Well all I was going to say was can I just place on record the fact that I was one of the few transport ministers, if not the only one, who received a recommendation from his officials to decline funding for a particular tram scheme and who rejected that advice and approved the funding instead. I'd just quite like that to be on record somewhere. Fleetwood and Blackpool.

John Parry: Yes, I don't know whether you can see it (this illustration) from here but this vehicle is a double vehicle of the Stourbridge type. That can be supplied to carry a hundred and twenty people and the cost will be around about seven hundred thousand pounds. A Siemens type super tram carrying say two hundred and twenty people will be more like two million pounds. A tram train such as Alstom are offering I think you're now talking about three million pounds. So the comparison between an ultra light, non-electric tram and a conventional tram is probably more meaningful than a comparison between a tram and a bus, because they are two different animals. If people want to have a rail based system but they need to do it on the smaller scale, then there is a real chance that they can put in a fleet of say about five or six of these vehicles for about one and a half million pounds and then spend about another ten million on infrastructure. So you could have a small town tramway for under twenty million pounds, whereas everybody thinks in terms of a tramway for their town, city now, goes into three hundred, four hundred, five hundred million pounds. So it lowers the threshold for which people can consider putting in a tram scheme. And particularly if you've got a railway line available to you, then you can have a hybrid system by which the cross country bit can use the existing railway track, just slightly upgraded with the joints straightened out etc. to give decent ride quality. And then, when you get into the town centre, put in a section of embedded track and produce the accessibility and the frequent stopping that makes trams so attractive. This should be the sort of thing that could be actively considered for the eco towns. Any regional town which has got chronic traffic congestion will find that as soon as there is something like the speed and the convenience of frequent rail services, a lot of the heavy traffic will switch onto rail and the climate benefits are obvious from that.

Paul Rowen: That's great. We're going to have to call a finish now John and Bob. Thank you very much. That's been very interesting and it sounds a very useful experiment, I'll certainly have to come and have a look at that.

John Parry: Can I leave an additional short paper behind, just simply an illustration of the extent to which we think existing pieces of railway network can, off the main network, can be turned into light rail?

Paul Rowen: Thanks very much.
ENDS