

CORRECTED VERSION

SELECT COMMITTEE ON TRAIN SERVICES

Inquiry into the factors leading to and causes of failures in the provision of metropolitan and V/Line train services

Melbourne — 22 September 2009

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Dr P. Mees, senior lecturer in transport planning, RMIT University.

The DEPUTY CHAIR — I welcome Dr Mees to the public hearing of the Legislative Council’s Select Committee on Train Services. Today’s hearing is in relation to the factors leading to and causes of failures in the provision of metropolitan and V/Line train services. All evidence taken at this hearing is protected by parliamentary privilege as provided by the Constitution Act 1975 and further subject to the provisions of the Legislative Council standing orders. Any comments you make outside the hearing may not be afforded such privilege. All the evidence you give today is being recorded by Hansard. You will receive a copy of the transcript, and you will be able to amend any errors. If you would like to make an opening statement, we will then ask you questions on it.

Dr MEES — Thank you very much, Deputy Chair. I want to start by saying that I am very grateful for the opportunity to talk to the committee. As some of you probably know, these are issues that I have been concerned about for quite some time, and I think it is great that there is an opportunity to ventilate them, shall we say. Since I have been able to start a little bit early, I hope I will not necessarily need to use up the entire time until 4.30 p.m. that you have allotted to me.

What has been handed out to you is a very crude substitute for a PowerPoint presentation, if that makes sense. I have given a couple of extra copies to Mr Willis, so it is possible that if anyone in the gallery wants to see it he may be able to let them have a copy as well. I am not very proficient with PowerPoint technology, so I thought this might be a little bit easier.

I have started with a couple of pages of extracts from a recent report of another parliamentary committee that I suspect many of you may be familiar with in any event. I have just extracted some of the pages of that report that I think may be of value to this committee. The Senate report into investment in public transport was by an all-party committee. I think it included everyone up to and including the Greens but not Family First or Senator Xenophon. This part of the report was unanimous, so I guess in that sense it carries greater weight because it is a cross-party report.

Over on page 2, if you will forgive my crude hand numbering, there is a heading ‘Need for better institutional arrangements’ and this seemed to be something of a concern to the committee. I am not just quoting them because they have relied to some extent on evidence I gave them, but I think they have correctly identified what in a sense is a core issue. I guess it is a core issue for this committee as well because when you come to look at things like problems of train unreliability there are, if you like, the proximate causes, but then there are the ultimate causes that lie more deeply beneath them; or if you like, there are the symptoms and then there is the disease, and in a sense it is very easy to get caught up in the symptoms. There are a huge number of them and we could talk about them for days on end, but the key challenge really is to identify the underlying problems.

The Senate committee, at paragraph 4.36, has started by quoting Infrastructure Australia. The passage from IA they have quoted is a very sensible one and very applicable to Melbourne, I would suggest. It states:

Simply investing in more capacity is not the only requirement to improve public transport in Australia. Public transport is not administered and managed in Australian cities as well as in many cities overseas.

Over on the next page, at the end of that paragraph, Infrastructure Australia said:

... now is the time for nationwide reform to improve public transport governance.

That is a statement I would certainly endorse. In the next paragraph the Senate committee says that in their hearings across Australia a:

... key element of good governance was usually said to be a single regional public transport authority with the power and responsibility to plan and deliver the city’s public transport service in an integrated way under a single brand ...

In brackets it goes on to say that that is regardless of whether you employ private subcontractors to actually provide some parts of the service or not.

You will notice that in the next paragraph they speak plainly when they say:

Perth has such an authority ... Brisbane has recently established one. Sydney and Melbourne do not.

They go on to say that the current system for running public transport in Melbourne has been:

... particularly criticised for creating a lack of clear accountability.

Then they quote my evidence extensively, but I should say that the Department of Transport, Connex, the Transport and Tourism Forum and Professor Currie from Monash University all gave evidence to the Senate committee. That Senate committee did not accept their evidence, and I believe this committee should not accept the evidence from that particular body of opinion which essentially asserts that the governance arrangements of public transport in Victoria are not part of the problem or are not a major part of the problem.

You will notice on page 4 of the paper slides I have given you that the committee's conclusion at paragraph 4.41, which I must say I wholeheartedly endorse, is that:

Australian government funding for transport initiatives should be conditional on reforms to state and territory transport and planning departments to create central coordinating agencies along the model of the Public Transport Authority of Western Australia.

It is probably fair to point out that I think the chair of the Senate inquiry was from Perth, but I do not think that is the only reason the Public Transport Authority of Western Australia was proposed as an example. I think there is a good deal of evidence — and this federal committee collected it — that while things are by no means perfect in Western Australia, they have made a lot more progress than we have at establishing governance arrangements, if you like, for public transport that enable reliable services to be delivered and to cut through some of the accountability problems that I will suggest in a moment are at the heart of the concerns we have here.

I was shocked to read in the *Age* just the week before last that of all people Dr Michael Porter, who used to be at the Tasman Institute and is now at the Committee for Economic Development of Australia, also agrees that this reform is needed. I think it is sometimes believed it is only people like me who are critical of privatisation who make this argument. Many people have said many things about Dr Michael Porter, but I do not think anyone ever accused him of being anti-privatisation.

The problem is, I think, that if people like me and the Senate committee and Dr Porter and perhaps Ed Dotson, who spoke to you this morning — I do not know in detail what he said but I am familiar with his views, and I might say that I think I would probably agree with virtually all of them and certainly endorse them — all agree, then the problem lies ultimately within the administration of public transport in Victoria. If you try and put yourself in the position of, say, the Department of Transport, when people like me and Ed Dotson and others suggest that, understandably you tend to get a bit defensive because it seems like an attack on you, and in some respects I suppose it is. So my submission to you is that part of the problem we have here is that the department, and to a lesser extent the operators but ultimately it is the department, has become so defensive that its primary focus is on making excuses for poor performance rather than fixing the problems.

I wonder if I could beg your indulgence. I have just included a couple of examples of what I mean by that. That is because one of the things that is kind of strange is that if you look across Australia generally and you look at people with experience in other places, and Mr Dotson is a very good example, on the whole they seem to think we are not doing very well here in Victoria. On the other hand, if you listen to the Department of Transport, apparently we are world beaters. They cannot both be right. Over on page 5 I have photocopied an extract from the Department of Transport's submission to this inquiry replete with a graph down at the bottom showing per capita public transport patronage in Australian cities. It purports to show that in 2006 per capita patronage in Melbourne drew level with Sydney, and since that time we have overtaken Sydney. On the next page of the submission it states:

Melbourne is now Australia's public transport capital, with higher per capita patronage than any other city.

You will note that no sources are given for this information, which naturally gives rise, at least in suspicious people like me, to a desire to check whether this is in fact the case. So I did. Over on page 7 there are then some further statistics given suggesting that we have had more rapid growth in train patronage than anyone in Australia, and you can kind of see where that is leading. Not only are we world beaters but you cannot blame us if we have reliability problems. You will note that at least that graph has a source, and that is Connex. Personally I feel that people like the department should be doing their own work. But anyway, I did it for them. I went to the Bureau of Infrastructure, Transport and Regional Economics and asked them who they thought the public transport champion in Australia was, and over on page 8 you will see that according to BITRE in financial year 2007 per capita passenger journeys in Sydney were 138 and in Melbourne were 110. So we were

nowhere near the Sydney figure. Although the Department of Transport told this committee that we were the same in 2007 and we have since overtaken them.

That is not the only way of measuring public transport usage, of course. The chart below it shows passenger kilometres, which takes account of how many trips are made and also how long the trips are. You will see again that the Sydney figure is 50 per cent higher than the Melbourne figure and that we are actually the same as Brisbane. This, I suppose, is what I mean. The Department of Transport has this one view of things, and I am not quite sure that it corresponds with the reality or that anyone else shares it.

Over on page 9 I have included some figures, again from the bureau of transport and economics, as I still call it, using its old name, in Canberra; it now has 'infrastructure' and 'regional' in its title, which bulks out the title a bit. This is from a presentation seminar it runs every year by the chap in charge of the rail expansion program in Perth. It is interesting, because at the top it tells you what patronage was in 2005 and at the bottom it tells you what patronage was in 2008, and if you do the maths on those figures, that is a 55 per cent increase. Yet according to the Department of Infrastructure, over on page 7, the increase in Perth was 30.6 per cent, which makes Melbourne the champion. If the figure was in fact 55 per cent in Perth, then we are not the champion. Since that time, in the last financial year Perth's patronage has also grown more rapidly than Melbourne's. Our figure is about 9 per cent and theirs is about 13 per cent.

These questions are of course all relevant to the issue before the committee, which is: are things so different here that we cannot be expected to run our trains reliably? Over on page 10 I have given you an extract of the transcript of the department's evidence to this committee a couple of months ago. You will see that Mr McKenzie, who is the director of public transport, says in particular at the end of his first paragraph:

The underground railway —

meaning the city loop —

as Jim said, was not designed to increase the capacity of the system as such.

Over on page 11 you see that I have included a document from the department's own website, which is the transcript of a video produced by MURLA, the Melbourne Underground Rail Loop Authority, at the time they were building the loop. I have quoted it in my submission, and I think Mr Barber quoted it to Mr Betts when he was giving evidence. I am sorry, I forgot to indicate the paragraph; it is nine down from the top:

At the moment Flinders Street station handles about 100 trains an hour during peak periods. When the loop comes into operation, the five-station city terminal will be able to cope efficiently with twice as many trains and twice as many people.

So you see the department says the loop was not intended to increase capacity, but the department's own website shows you that the people who built the loop thought that it was, and that, it seems to me, is a critical problem. It is a problem that relates, firstly, to the underlying issue, which is: do we have a rail system that is so close to capacity that it cannot be expected to run reliably? But it also relates to the question — and I am sorry to have to put it like this — can you trust what the department tells you?

Unfortunately it is not just the department that seems to have fallen into this trap. Over on page 12 I have extracted for you an article from the *Sunday Age* from Professor Currie from Monash University. He has made a submission to this committee, so presumably he can discuss this with you when his turn comes. He is open and up-front in that submission about the fact that the department and the operators pay his salary. He says that his views have not been influenced by that, but I am not completely convinced. Back in February, when we had the particular problems that I guess have brought home the issues most dramatically to people, Professor Currie said:

... Melbourne trains are not designed to work at high temperatures and they never have been.

... Train drivers are perfectly justified in cancelling trains that are unsafe ...

and then over towards the end:

... the fact is that historically —

in Melbourne only 1.2 per cent of days are over 40 degrees.

When we then come to look, interestingly enough, at the evidence that Connex provided to this committee, it seemed to me that it was kind of interesting that although Connex was defensive and was trying to justify itself as well, I think it actually came closer to revealing the full story than the department did. I think there is something significant there. Over on page 13 is some evidence it provided about how temperatures have been increasing over time, as indeed they have. But if you look at that graph very carefully you will see that in fact the hottest average year was 2001, not last year. I am not going to start joining the Andrew Bolt line of thinking on global warming, but as I understand it — and it is not my area — the essence of global warming is that it is a relatively modest rise of temperature that has big effects because it melts the ice caps and goodness knows what, and it is not a matter of saying that one particular year is enormously hotter than the year before it.

Perhaps more important is the question of how many days we do in fact have of over 40 degrees in Melbourne. I asked the weather bureau to tell me that, and the answer to that is on page 14. It is true that the average is a little over one, but relying on the average is very misleading, you see, because in the summer just gone we had five, in the year before we had four and in 1991 we had five. In some years we do not have any days over 40, but in other years we have as many as five. What that suggests is that the temperatures we had over summer, while they did break the records, they did not break the records by so much that they were completely without historical precedence. It is a bit like when someone breaks the record for the 100 metres freestyle nowadays. They do not break the record by doing it in half the time someone else did; they break the record by shaving one hundredth of a per cent off the margin. I think it is relevant, particularly to this issue — and I know that people in the department do not like it when I point out — that it was hotter over the summer in Adelaide than it was in Melbourne, particularly on those key three days when it was very hot here. It was hotter in Adelaide on each of those days.

The reason why that is relevant is that the majority of the trains in the Adelaide fleet are Comeng trains. They are of the same make as the Comeng trains that have caused problems here, they were made in the same factory in Dandenong and they are powered by diesel rather than electricity, so in some respects they should be even more prone to heat breakdowns. I believe the location of the air-conditioning unit is not as unhappy on the trains as it is in Melbourne, but essentially they are the same as ours, and, as I understand it, there was not a single train cancelled in Adelaide as a result of air-conditioning breakdowns. They did have a section of tracks buckle and they had to close one entire line for an entire day. So you can see that in other respects their system reacted in similar ways to ours. But they did not cancel any trains because of air-conditioning problems, even though you would have expected those problems to be at least as serious.

Why did they not? Here on page 15 we come to some aspects of the Connex submission, and Professor Currie and the department just seem to take all this stuff on faith. Under paragraph 8.1.1 'Air conditioning vulnerability', on the fourth line it says:

The Comeng train was designed to operate up to an ambient temperature of 34.5°C.

You will note that no source is cited for that, and as far as I have been able to ascertain — and I cannot find the documentation; I have just done it by talking to people, talking to academics who are experts in air conditioning and talking to railway engineers — that statement is not true. However, it is followed shortly thereafter by a statement that I was able to independently establish is false:

The current Comeng air-conditioner refrigerant is R22 which has major limitations:

Connex is advised that the R22 refrigerant cannot operate effectively at ambient temperatures over about 38°C, even in ideal circumstances.

So it does not matter what kind of air-conditioning system you have, once the temperature hits 38°C they all conk out if they use R22.

Air conditioning is not my area. So I went to talk to some academics for whom it is, but unfortunately they do not want me to tell you who they are because they are afraid they may never get any government contracts again. R22 was in fact the most widely used refrigerant until troubles with the ozone layer led to it being phased out. One of these academics gave me a table, and I have reproduced it on the next page, from a manual from Hitachi which makes industrial air conditioners setting out a number of their models that use refrigerant R22. I apologise for the very poor quality of the photocopy on page 16; a pretty, coloured slide would have worked better. But if you look down about 10 lines from the top you will see 'Refrigerant', and across each of the seven columns you will see the refrigerant is R22. If you go right down to the bottom of the table to the heading

‘Working range’, outdoor HX temperature maximum degrees Celsius, you will see the maximum is 52 in each of the seven columns. If R22 cannot operate above 38°C under any conditions, then it is very odd that Hitachi is still handing out manuals saying that their air conditioners that use it can operate up to 52°C. I think there is something strange going on here.

Over on page 17, and I am almost finished — I am sorry, I was supposed to only take 10 minutes for this — there is another extract from the Connex submission which I think comes closer to telling us what the real problem was. Underneath the table there it says:

Of the 263 Comeng faults over the five very hot days, 57 required repair/replace actions. Most later tested okay or just required resetting.

About 80 per cent of the so-called air-conditioning faults that happened over this period were not serious and could have been sorted out relatively simply.

In addition, and again this is not mentioned in their submission and I am not an air-conditioning engineer so I am just passing on what other people have said, we have to think about how our trains work. A typical train is six carriages long and there are two air-conditioning units in each carriage. If one of those air-conditioning units breaks down you can still use the carriage; it will be a bit hot and people will probably prefer to sit in another carriage but it does not become an occupational health and safety hazard.

The question is: on how many occasions did both air-conditioning units in a single carriage break down over summer? I do not know the answer to this because nobody seems to have provided any evidence but as far as I am aware, not once. If it was more, it was a microscopic minority of the time. I do know that in Adelaide on a couple of occasions both air-conditioning units in a single carriage did break down on their trains but they did not cancel the trains. They kept them running. They did not even lock the carriage off; they just said to people, ‘If you want to sit there, so be it. But we should warn you that it is a very hot carriage’. And remember it was a good 2 degrees hotter in Adelaide on all those days than it was in Melbourne.

The DEPUTY CHAIR — Where would they have been sitting if someone had died? If it was that hot and an elderly person — —

Dr MEES — I do not know. I am not recommending this.

The DEPUTY CHAIR — I just air conditioned my house. Sorry, continue.

Dr MEES — If it was up to me, I would rope the carriage off and say, ‘Sit in one of the other five carriages’. It is a very good question and I am not trying to suggest that Adelaide is in any way international best practice. I might get into a fight with the Lord Mayor, but Adelaide is generally regarded as having the most run-down and poorly performing rail system in Australia. Their own government has admitted that and they are investing to upgrade it and electrify it and fix up the tracks so they do not buckle in the heat. Even Adelaide was able to operate throughout the problem we had without creating any disruption.

What was the real problem? As far as I can work out, it seems to have been twofold. The first is the problem that Connex identified on the last page that I have given you, page 18, down the bottom in the last paragraph, where it says now they have sorted out their industrial problem with the train drivers they can reduce cancellations by as much as 80 per cent compared with what happened here. It was almost entirely an industrial problem.

What about the rest? The rest is problems to do with air-conditioning systems that were entirely foreseeable because the kind of weather we had last summer, while it was hotter than it had been previously, was not completely unprecedented. It does appear that although it is not correct to say our trains cannot operate past 34 degrees, when it gets hot the air conditioning becomes less reliable and breaks down more often.

Interestingly enough, when I go back to the newspapers for 1991, there were also five summer days above 40°C, but I could not find any reports of the train system collapsing or even of there being more cancellations than usual. This is just an ordinary event that would be planned for in any competently administered rail system. I guess the core question for me is: what is the underlying problem here that seems to be creating not just this issue but the other issues as well, I would argue? I agree with Mr Dotson, who I understand suggested to you

this morning that the rail system in terms of its trackage capacity is currently operating at about half of its train-carrying capacity. I put in a report as an appendix to my submission saying that.

I might say I have never discussed this question with Mr Dotson. He must have worked it out entirely independently of me, but essentially using the same fairly standard railway engineering techniques. What we seem to have is a problem that for some reason the department has fallen into the habit over the years of arguing that nothing can be done rather than identifying the causes of the problems and fixing them.

My argument is that the ultimate solution to that is in fact the solution that the Senate Standing Committee on Rural and Regional Affairs and Transport has advocated which is one that I have also advocated for some time. Now that I have Dr Michael Porter on my side I am scratching my head a bit. I think we need to reform the governance arrangements in Victoria.

We seem to have established a scenario in which the department, the operator and the union form a kind of triangle which at the moment seems to be blocking progress. I am not an anti-union person; I was a union delegate of the rather lame academics trade union when I was at Melbourne University myself. We seem to have a set of organisational arrangements in which people interact in a dysfunctional way and in which there is no openness, transparency or public accountability. As a result of that kind of arrangement you do not get good performance out of your system. It seems to me that if we were going to change things we would need, as I have said in my written submission, new structures. We would also need some new people, because we have lost the skill base in Victoria that is necessary to respond in a proactive way to issues of rail reliability, so we would need to reskill the workforce. I am happy to report, not least because some of the people who you might want to bring in to improve things are former students of mine, who are generally working outside Victoria because they discovered that they could not make a difference here, that most of them would be very happy to come back if we decided we were going to do that. The ultimate problems that underlie the reliability problems are a disease that is curable. If we can fix the disease, then we will be a long way towards fixing the symptoms. I am sorry to go on for so long with my introduction.

The DEPUTY CHAIR — That is fine. I am not asking you this question because I am looking at a career path for myself, but as far as becoming a commentator on the transport system, your background and your experiences in operating systems — other than being a delegate of the lame academic trade union; I do not know if that was its official name — —

Dr MEES — The definition of being an academic is that in general you have not operated a rail system yourself. The foremost expert on rail operations in the world is a friend of mine, Professor Vukan Vuchic of the University of Pennsylvania. He has never run a train system himself, but — trust me! — every time well-run train systems have a really difficult time they call him in to give them advice about how to fix them. Funnily enough, 20 years ago when they had a big problem in Perth they called Vuchic in, and I think in some respects their good performance is a result of that review. I am happy to report that I have never directly run a public transport system myself, but I do have a PhD in transport planning and I do publish.

I appreciate that for normal people this sounds a bit silly, but the indicia of supposedly knowing something in academia is: do you publish peer-reviewed articles about these things in either academic journals or in academic conferences, and I do. I believe I will be the only person giving evidence to this inquiry that does that — for example, Professor Currie's peer review articles are published mainly on bus operations and on surveying; they are not on rail operations. I believe I am the only person who has been called to give evidence before this committee who is published in peer-reviewed journals.

The point of peer review is that they send it off to some people who supposedly know something so that if you are talking nonsense you cannot get through. Every now and again you do get through, but on the whole the peer review situation works. It is my area, but of course I have not been formally instructed in rail service planning in Australia for the simple reason that there is nowhere in Australia where you can be taught formally rail service planning. In a sense I have had to teach myself out of the recognised textbooks and through interacting mainly with people overseas and interstate who are genuine experts on this kind of thing. I can assure you if someone like Vukan Vuchic was here I would be too embarrassed to come and give evidence to this committee at all. It is only by virtue of being here in Victoria. I am not having a go at Ed Dotson, but I think he would possibly say similar things — that is, that the intricacies of rail operations and timetables are probably not his special subject.

The situation we have here is so stark that we have not got to the point where that degree of expertise needs to be brought in, so I believe as a result of my peer-reviewed academic research I have enough expertise to identify the scale of the problem. Once we have got to that point — if some of my proposed solutions were adopted, and in particular bringing in people with the requisite skills — I would not necessarily be putting myself forward as the person to overhaul the timetabling system, for example. I think I know enough to identify that it needs to be overhauled. I know enough to know what you can get out of an overhauled timetabling system, and I think I could even suggest some people who would be able to do that, but I am not one of them myself, if that makes sense.

The DEPUTY CHAIR — Do you think we have lost a lot of the skills that you are talking about? Was there a peak around the time of privatisation?

Dr MEES — Privatisation was an important part of that process, but it was not the whole of it. If you have a chance to read my report on the rail tunnel that I annexed to my submissions, in the 1920s we really were as good as anyone in the world, and probably better than just about everyone else in the world. By the late 1950s, early 1960s, I think we had atrophied a little bit, if you like. The railways had become a kind of dinosaur. Their business was declining and they were not innovating.

If you talk to people, like senior engineers from that generation, they will tell you that all the good engineers went into the Country Roads Board and the board of works to build roads. The railways had developed a kind of culture in which they did not want outsiders coming in and telling them what to do. The process was under way. What then happened was that the steady decline in patronage accelerated it, because you did not have to be that clever at fitting trains through any more. In particular, once we had finished building the loop, which was designed to enable us to carry vastly greater numbers of passengers — even than we are carrying now — by the time the loop opened we were only carrying about half as many passengers as we have got now. The gap between the physical capacity and what we needed to do was so great that it is not inevitable, but it is understandable, that a kind of slackness gradually creeps into the system and all the operating margins stretch out and the timetables are padded more and more, so that kind of culture of ruthless and rigorous on-time operation that is necessary because you want timetable trains at very close intervals kind of goes out of the system. I think it has been lost.

I do think that, in a sense, privatisation was the final blow, if you like. The last group of people who were there who retained any sense of that culture did leave at that time, so we have got a real problem, particularly within the department. It is partly because in the initial enthusiasm for privatisation the idea was, ‘Now we have got these private firms we do not need any of those skills in the department any more. We can all be contract managers and lawyers and monitors and reporters, and we do not need any of that ourselves’. Unfortunately the operators did not have it either, because the skill base had departed. I think we have lost it from all aspects of our operation.

I think we have lost it from all aspects of our operation. You do not need hundreds and hundreds of these very highly skilled people, like people who can overhaul your timetable procedures — mercifully though because if you needed hundreds of them, it would be impossible. A rail system our size may only require a couple of dozen people in those very tight core skill areas. That is certainly the area that we have lost, unfortunately.

Mr O'DONOHUE — Thank you, Dr Mees, for being here today and for what you have had to say. Just to clarify, you believe our system currently is operating at about 50 per cent of capacity if those efficiencies could be extracted?

Dr MEES — Yes, I believe so. It seems to be common ground — I notice Mr McKenzie mentioned it in his evidence — that essentially we have eight inbound, if you like, if you take morning peak, which is in fact is the busiest time now — tracks heading into the central city terminal. We have got enough platform space to accommodate trains so the simple calculation is how many trains you can get down each of those tracks per hour multiplied by eight. My view is that it is about 24 or 25 an hour, and I understand that Mr Dotson confirmed that that was his view this morning. It is in all the manuals; there is no miracle about any of this. I would have thought this was relatively uncontroversial except down at DOT. Twenty-four times eight is 192. Twenty-five times eight is 200. We are currently running, I think, 98 or 99 suburban trains into Flinders Street both via the loop and directly in that busiest time. So yes, in that very busiest hour we are at about half of our design capacity and at all other times of the day, we are at less than half.

Mr O'DONOHUE — I know you have written extensively about these issues, but just for the purposes of evidence today, given that belief, what is your view on the Tarneit rail link and the east-west rail link?

Dr MEES — I do not believe either of them are needed. I was here for the end of the questioning of the last witness, but I cannot remember who asked them the question, 'How would you rate things like rail lines to Doncaster and Monash University and Rowville versus other investments?'. My argument would be by not building the Tarneit Link and the east-west rail tunnel now we would have the money to construct those links.

In the last few years population projections for both Australia and Melbourne have undergone a big change. In my broader capacity I am a town planner; I am a transport planner within a town planning department. I think the town planning profession is all over the place on this because no-one was expecting those population projections. It is quite possible that in 20 or 30 years time we might get to the point where we need more rail capacity than that and therefore there would be nothing wrong with starting a very preliminary discussion about which are the best routes on which you would put new rail lines and things like that. What we have done instead is focused our attention on these things and completely neglected to make use of the existing capacity we have got now. I think that is a problem.

I am not suggesting that those things would never be needed, although I must say in the case of the Tarneit Link I cannot for the life of me understand why it is believed to be a good idea to take Geelong trains into the city via such an indirect route when the alternative is that if you need additional tracks for Geelong services you could provide them along the existing route, which is much shorter and more direct. You might have to have a discussion in Yarraville about heritage issues, but along most of the rest of the route there seems to be plenty of space, so I am a bit confused about that.

In fact as it turns out, it would seem to me that the most important rail need for rethinking rail in the western suburbs is really about the appalling route of the standard gauge line to Adelaide which does this absurd dogleg going out to Sunshine and back to Newport with terribly tight radius curves; it is absolutely atrocious. I suspect that the solution to V/Line services ought to be designed in conjunction with fixing up the standard gauge line, and I think that is something that will become an issue before long. For all these other things, I would have thought it would be at least 20 years before you would need to think about any of them.

Mr BARBER — I know you have some other city comparisons. No doubt everybody thinks their own city's public transport is incompetent and no doubt there are people who have been doing it right for a very long time, but if you are saying these changes need to go down a certain path around the governance issues, then what are some examples of cities that really dug themselves out of a hole and turned themselves around demonstrably, and why did it happen in those cities?

Dr MEES — My two pin-up examples, if you like, of this would be Perth and Zurich. I will do Zurich first. It might strike one as odd to think that Zurich was ever in a hole in anything to do with transport because they are Swiss, but if you go back as recently as 20 years ago, their suburban rail system was a complete mess, by Swiss standards at least, which probably means it was doing all right by our standards.

The Zurich suburban rail system was a kind of collection of country lines that had been built by different private companies in the 19th century. They were not very well coordinated. They generally had very poor alignments because of all the hills they had to go up, lots of sections of single track and very old signalling and so on. What had basically happened of course was that the city of Zurich had expanded to become a metropolis, all these country towns and villages were now suburbs and so the previous arrangement of half a dozen trains a day was just completely unacceptable. They did in fact face the challenge of taking a very poorly performing rail system and creating a quantum leap in performance, if you like, both in terms of the actual physical capacity to carry numbers of passengers but also the capacity to serve an urban travel market, if you like, rather than a rural travel market. They turned things around.

There was some infrastructure investment because their main railway station was a dead-end terminal, which is hopeless for running trains into if you have to reverse them all out again. They built a tunnel that connected up with the train station on the other side of town which, if you like, is a much smaller version of our city loop. It was only two tracks rather than four like ours is, so there was infrastructure investment.

Probably even more importantly, they reorganised the administrative arrangements. They set up a regional public transport authority and I often like to use it as an example because you can read its website at

<http://www.zvv.ch/en> — ‘ch’ is for some reason the code for Switzerland — and you get it all in English because they are sick of having people like me ask them how they operate themselves. On the English site you will see their complete organisational chart with the names of all of their staff, all 34 of them, outlining what they do, including all the typists and receptionists.

There are only six staff in what they call the traffic planning division, and their job is to sort out not just for the rail system but for the trams and buses and the little things that go up mountains on cables, to knit it all together, but also to bear down heavily on their rail operator, which is the Swiss National Railways, to make sure that they are squeezing every possible efficiency improvement out of their system. So I would say they are in fact a good example even though we are not used to thinking that they were ever on a low base.

But Perth is a particularly strong example because if you go back to Perth 30 years ago, basically their rail system was, if anything, worse than Adelaide’s is today, and they decided to shut it down basically. They said they were ‘old trains that were falling apart. Hardly anyone is using it. Let’s get rid of it, save the money and put the land to some more productive purpose’, so they were at the absolute nadir.

There were politics about this as well. It is kind of interesting to see how over time between the two major parties, Labor and the coalition, that a kind of consensus on transport policy emerged, and so they now kind of agree with each other more than they disagreed, which is possibly a good sign. I do not know. But again it was infrastructure investment because they reopened rail lines; then they electrified them; then they built new rail lines, in some cases to areas that even I thought you could never justify building rail lines to, and I am happy I was wrong.

But again the skilling of the staff of the agencies responsible and the dynamic organisational reporting arrangements seem to have been an absolutely critical part of things. It is kind of funny because Dr John Stone, who I think gave evidence to you this morning, did a PhD on this, and I was one of the supervisors of it, so I may be repeating some of his material. One of the most interesting findings was that some of the key staff in the department of transport there — and for some reason they always had a different organisational culture in their transport department to the ones on the east coast and I am not quite sure why — some of the key people behind the revival of rail in Perth, were the ones who had fought tooth and nail to shut the rail system down. But at some point, once it became clear that both political parties there said, No, damn it, we are going to have a really first-rate rail system, and not only that, but it is going to be fully integrated with buses as well’, they turned around and made it work. So they immediately went out and hired the best people in the world to make it work, and one of them is Peter Martinovich, who is the fellow whose overheads I have put in a couple of my overheads here, so they are now in a position where their rail system is carrying 10 times as many passengers as it carried 30 years ago, and no-one thinks it has a capacity problem. They are having to order more trains, but no-one thinks that they could not handle more because they are very good at forward planning, I guess. I think those are two good examples, and therefore I think it is quite appropriate that the Senate committee did in fact recommend Trans Perth as a model. Again their actual staffing is surprisingly lean by comparison with the Department of Transport here which has, judging from their last annual report, about 1000 employees. It should be remembered that VicRoads is a separate organisation, so that is a lot of people, and it seems that it takes more people to staff the kinds of arrangements that we have than it does to staff these kinds of leaner and more focused agencies which I think ought to be our model.

Ms HUPPERT — I have a couple of comments. Just in passing, in your comparison of Perth and Melbourne, I note there is fair difference between the number of rail lines, and the number of staffing may have something to do with the fact that — —

Dr MEES — I meant proportionately to the size of the system.

Ms HUPPERT — That is a different issue that I wanted to raise because I have heard some evidence in the course of our public hearings and read the submissions, and there are a couple of things you have said that do not quite gel with some of other evidence that has been given to us. Firstly, the Department of Transport — Jim Betts — is quite clear in the evidence, and I think Mr McKenzie said much the same, that there is more capacity. They acknowledge that there is more capacity that can be taken out of the existing system and that there is work being done constantly to try and improve things, so that seems to be in contradiction to what you have said, which is that they shake their heads and throw their hands up and say, ‘Sorry, we cannot do anything’. We have heard about things like some of the timetabling changes, changing directions of trains

through the loop, stabling at the outer ends of the line so it is quicker for trains to get started in the morning, changing some of the places where drivers get on — things like that. So that is a little different than the evidence you have given.

In terms of some of the infrastructure projects that have been proposed by both the Eddington review and followed up in the transport plan, a number of the submissions received have been about the importance of separating regional and metropolitan trains. The Tarneit line will have effect not just on the Geelong line but also on the Bendigo and Ballarat lines and therefore is designed to improve service. I am glad to say to you that I expect you could be wrong, because obviously you were wrong in the case of some of the lines that were infrastructure projects in Perth. I guess we will have to wait and see because the proof of the pudding is in the eating, so to speak, and these infrastructure projects will take a long time to come to fruition, but it seems to me that the design of these infrastructure projects is to resolve one of the ongoing problems, which is the conflict between the regional and metropolitan rail services. The difficulty that happens if a train service is disrupted by a cow on the line, for example, and the impact that can have on the reliability of the train coming into the metropolitan system, and then the ongoing impact that can have on the metropolitan system, surely separating the regional and metropolitan rail line would have a big impact on the capacity of the metropolitan system.

Dr MEES — It does not have much impact on the capacity of the metropolitan system, but it does have an impact on the regional system, but, as I understand it, and part of the problem is because these things were all planned in meetings of people in the Department of Transport that were kind of closed — I do not have the minutes of these and so have to rely on what some of the people who were there told me — the basic rationale behind the Tarneit line is that V/Line are sick of their trains being held up by delays on the suburban rail system. The problem is not the capacity as such. The problem is that the suburban system is so unreliable that it cascades on and then impacts adversely on the V/Line system. There are therefore two possible approaches to that. The first, which is much cheaper, is to fix the reliability problems on the suburban rail system. If you look at the suburban rail system in Zurich, the main suburban and rail corridor between Zurich and Winterthur, which is kind of like their version of Dandenong, if that makes sense, the second CBD of the metropolitan area, that is used by passenger trains, suburban passenger services, long distance national expresses, long distance international expresses, long distance freight services — every type of train you can possibly imagine — but because of the very competent timetabling and planning and the extremely reliable operation there is on the whole no problem with those different kinds of trains sharing the same tracks.

It seems to me that the most efficient, in terms of value-for-money way of dealing with that problem that V/Line had, was to fix the reliability problems on the suburban system. But also — and this has been another thing that I think is just appalling — V/Line and suburban services are not timetabled as part of a joint operation. What happens is V/Line says to Connex, which is in charge of it at the moment, ‘We need another path for another train in from Dandenong’ and Connex do all their own stuff and then think, ‘How are we going to fit this V/Line service in?’. Is anyone here from the Latrobe Valley?

Mr O'DONOHUE — I represent the Latrobe Valley.

Dr MEES — When the second train from the Latrobe Valley into Flinders Street station in the morning peak was put on — for many years there was only one, with the fast rail project that I have been a great supporter of, and I think I was even sort of quoted to that effect in the *Sunday Age* — one of the most important things about that was the increase in service frequencies, so they put a second train on. What Connex did was timetable it to leave Dandenong 3 minutes behind a stopping-all-stations train from Dandenong, so it crawls along behind the suburban train stopping between all of the stations, while the suburban train stops at the station in front of it. That is all a problem of planning, management and governance, and it does not require any infrastructure changes, or no significant infrastructure changes, to fix it. It seems to me that that is the major problem.

However, eventually of course you get to the point where you do start to interfere with capacity if you are running so many V/Line and so many suburban trains on the same tracks. I do not believe we are at that level anywhere in metropolitan Melbourne now, or likely to be at that level for the foreseeable future, but to the extent that we are it seems to be out west, as you mentioned, the Geelong, Bendigo, Ballarat lines where there is already a completely separate alignment for those trains to come in from Sunshine to the city, and it has been there since the 1920s.

There is the Bunbury Street tunnel under Footscray station, double track. It then goes out to a double track bridge across the rail lines. The whole infrastructure is already there. It would probably need some relatively modest investment to bring it up to scratch, but it was built in the 1920s when they electrified the suburban system because steam trains were very slow going up hills and so they built it mainly so that steam trains would not slow down electric trains on what is now the Broadmeadows line. It is there already.

Mr DRUM — Is that standard or broad gauge?

Dr MEES — It is dual gauge so you can run either type of train over it. Again, what has happened there is that somebody has said, 'That is national rail, therefore we cannot touch it'. If you go out to Footscray station in the middle of peak hour and stand there and look down over the tunnel, you can be there for three-quarters of an hour and not one train goes through in either direction because the peak time for freight trains is generally in the wee hours of the morning, or very late at night. It is a wonderful piece of infrastructure that is there. 'Ah well' they say, 'but we cannot use national rail infrastructure for passenger trains'.

Why not? In Brisbane, the standard gauge line into Brisbane from the south has been dual gauge and for the whole of the morning peak hour trains from the Gold Coast are operating on that line, using it to overtake suburban trains on the Beenleigh line. It is apparently impossible here where the standard gauge line is double track as well as dual gauge. In Brisbane, where it is only single track, they actually have to suspend all this for a quarter of an hour in the middle of peak hour so that the train to Sydney can come out, going in the opposite direction, and that is not too much difficulty, and then it resumes operations as an overtaking train for the Gold Coast line.

I am sorry to go on for so long, but these seem to be very expensive ways of dealing with problems that would be better addressed if we actually fix the underlying causes which is not, on the whole, the fact that suburban and country trains cannot run over the same tracks. Of course they can. The real problem tends to be with long freight trains because they take so long to pass.

The real problem that we have here is that the suburban system is so unreliable that V/Line would prefer not to have to interact with it at all. My response to them would have been, 'I can understand how you feel, but \$4 billion is a lot of money to spend on that and instead we could have had rail lines to Doncaster, Monash University and everywhere you could possibly imagine into the bargain.

Mr DRUM — It has been very refreshing to hear you speak on these issues. I am interested in this Adelaide comparison with the air conditioners because I have no doubt that within a couple of months we are going to have cancellations, and I have no doubt that whoever the operator is in the metropolitan system they are going to blame the air conditioners. We will be going through this argument and charade again. We need to understand, and this committee needs to understand, very clearly if it is a myth and if this R22 can in fact work up to 52 degrees, or do we believe the rubbish we have been hearing that once it gets to even 32 or 34 degrees that these air conditioners are useless.

This is going to be a huge issue the summer. We, somehow or other, have to find out where the truth is. You are the first person who has come before this committee and has effectively said that this whole idea that the air conditioners will not work beyond 34 degrees is rubbish. You are the first person to say that. Everybody else has been quite happy. The operator and the department have been quite happy to just say, 'Yes, we understand we have got some issues with responsibility because the government were effectively tipped into having responsibility for replacing the air conditioners'. The operator has responsibility for maintaining the air conditioners. But nobody has actually said the air conditioners are okay. They have all said we have got some serious issues with the air conditioning. Now we find out with your evidence on these air conditioners, if they are properly maintained, and if there is no industrial dispute, as an underlying issue, then we actually have the machinery necessary to get us through extreme heat.

Dr MEES — I think that is in fact the case. I should say that for any kind of air conditioner, no matter how well it is designed, the hotter things get the more likely it is to break down, but I do not think that is a source of great surprise or shock to anyone. The fundamental problem does not seem to me to be the fact that the air conditioning cannot cope with the heat. If you think about it, it would be a stupendous indictment of the people who built those trains back in the 1980s when we did have hot summers as well, and I am old enough to

remember them, if they had really designed them not to operate above 34.5 degrees, because it gets hotter than that every year in Melbourne, and they did not; that is not right.

There are aspects of the way the current system is designed that I think probably could be improved on. For example, they do have to replace R22 as the refrigerant in due course because of the damage it does to the ozone layer. If they have to do that, they might as well do something about the fact that — I am a little fuzzy about this — the physical location of the air-conditioning housing is close to something else that produces heat, and that is a little unfortunate. But none of those things should prevent us from running a reliable train service next summer. All they should mean is that every now and again somebody who chooses to sit in the carriage where one of the two air-conditioning units has conked out might get a hot ride home, but I guarantee you they will get a seat and have to make the trade-off of that against crowding into one of the other five carriages. While that is annoying and this is a shame, people could have coped with that, particularly if they had been told. What they cannot and should not have to cope with is this idea of the rail system virtually shutting down. I do not think the problems with the air conditioners had anything to do with that. I do not believe, however, we will have that problem over summer, because since most of it was due to an industrial dispute and the industrial dispute has now been resolved, I think, regardless of the weather, there will not be anywhere near as many cancellations this summer. Then what will happen, of course, is that the department and the new operator will want to claim credit for this tremendous improvement and tell us that this shows that everything is hunky-dory! Whereas I think what it really shows is that what happened earlier this year should not have happened and someone is eventually going to have to take responsibility for it.

The DEPUTY CHAIR — You did preface that you are not an expert on air conditioning.

Dr MEES — I certainly am not.

Ms HUPPERT — I do not think Connex hides from the fact that a lot of it was to do with industrial disputes. You said they are hiding it, but I do not think that is the issue. Both the Department of Transport and Connex in their evidence said they were quite clear that the industrial dispute — or Connex, and the Department of Transport was relying on Connex — caused a lot of the cancellations. I do not think anyone is hiding that. I think it was quite clear from Connex's written submission and the evidence it gave that that had a large part in it.

Dr MEES — I think Connex was more up-front about that than the department in their submissions, as I read them.

Ms HUPPERT — The department said it was not the one managing the industrial relations; Connex is. From that perspective — —

Dr MEES — That is right. Connex is saying that 80 per cent was due to the industrial dispute. What I would say most of the rest of them are things that could have been avoided as well, because if you know that the air conditioning is going to have problems when it gets very hot, then obviously what you do is adjust your maintenance protocols accordingly. As I understand it, in Adelaide on hot days they had at their main railway station an air-conditioning technician, who could jump in and repair things. There is no reason why we could not have that here as well. I am not suggesting that no-one would ever have had a slightly warmer ride home, but they are problems of that scale rather than the total collapse of the system. I am not really sure that anyone has accepted responsibility for that series of events here in Victoria. That seems to be the bottom line for me. Unless you have an arrangement under which someone accepts ultimately the responsibility then the problems are never identified and never fixed.

Ms HUPPERT — Mr Betts in his evidence did say the buck stops with the department, so I am a bit bemused by that last comment.

Mr DRUM — Dr Mees, I found the concept of having a single regional public transport authority to be quite refreshing as well. You have already mentioned how Brisbane was able to integrate — —

Dr MEES — Brisbane has only just set it up, so I am not quite sure it has integrated very much yet.

Mr DRUM — You also mentioned Zurich and every possible type of rail transport working harmoniously together. Do you have other examples of where the current systems here in Victoria are not integrating with each other or not communicating with each other?

Dr MEES — You really do not have time, but I will try and give you a couple of examples. The clearest example in Melbourne is the appalling situation at almost any conceivable station where you need to get off a train and get onto a bus to complete your journey. The fact is that in a city like Melbourne, which is a spread-out city where we live in houses rather than flats — you cannot have the Paris Metro with a railway station at the end of everyone's street — for the rail system to operate effectively it needs a fully integrated bus system. There are only two stations in the whole of Melbourne where there are bus routes that regularly connect with trains, and everywhere else it is just a completely random event. It seems to me that the most extreme example of it was in fact when the SmartBus service was introduced along Wellington Road, which goes past Monash University. When the service was initially introduced someone in the department published a very glossy timetable showing the times of the trains and the times of the buses, so the timetable enabled you to see that on Sunday mornings, when the trains and the buses each ran every half-hour, the bus was timed to leave the station 3 minutes before the train from the city got in. On Sunday night, when the trains and buses also ran every half an hour, the bus was timed to leave the station at exactly the time the train got in. The trouble is that the Huntingdale bus stop is at least a 2-minute walk from the platform, so all that meant was you would get off the train, see the bus leaving and then wait in the dark for half an hour for the next bus. It was all shown on the timetable with a half-an-hour gap between the trains. It never occurred to anyone — this was a brand-new bus service; for a lot of the time it even ran at the same frequency as the train service — that maybe the timetables should connect.

I am pleased to report that they do now connect, but that is only because I in fact did a PowerPoint presentation; 18 months ago I put this timetable up as a PowerPoint presentation at Ross Garnaut's climate change review when they did a seminar on transport and urban planning. Garnaut then put it on his website, and the bus association was so embarrassed when it read that it rang Grenda, and Grenda fixed it. That is what you had to do to fix that problem. No-one accepts that it is their responsibility in Melbourne for buses to connect up with trains, and as a result they do not. The frequencies do not enable them to connect in general at most stations; the stops are laid out so that it is hard to get from one to the other; the route structures do not encourage connections; the whole thing is a complete shambles. Again it is because nobody is in charge. In one sense that is a different thing from railway engineering, but it is an analogous problem; it is all to do with having a system that operates at the maximum degree of efficiency.

All those things seem to require very clear chains of accountability with someone who is ultimately in overall charge, plus a particular skill base as well. Again, at the department the skill base we inherited is, if you like, in contract monitoring and contract management rather than in proactive planning.

Mr DRUM — Dr Mees, are there any benefits in actually keeping it separate?

Dr MEES — Not that I can think of. There is a certain kind of body of theological economist, if you like, and I must say that now Michael Porter has come on board I am not quite sure there are very many. You might struggle to actually identify anyone who will stick up their hands and say, 'I believe this' any more. But there was a view that if you had one organisation in ultimate charge it would prevent the individual operators from innovating and doing interesting new things.

The problem seems to be that in the best public transport the most important innovations are the innovations of integration — knitting things together into a network. Sure enough if you go to Perth, and I do not know whether you have had a chance to ride on their wonderful new line down to Mandurah which opened about 18 months ago, a lot of people ride on it and get very excited. There are clean trains. You go down the freeway during the middle of the day and you overtake the cars and all that kind of stuff. But for me the thing that is most impressive is when you get off at Murdoch station, which is their equivalent of Huntingdale. It is near Murdoch University; it is their answer to Monash. It is now the busiest suburban station in the Perth system.

When you get off the train at that station you step onto the escalator and go up to the top where the buses are queued up and waiting for you. You cannot do that anywhere in Melbourne, but they have designed it into their system. If you like, it is part of the same overall organisational philosophy which says, 'We want to get

maximum value out of the tracks we have, but we also want to get maximum value out of all of the different bits of the system'. That seems to me to be the most important kind of innovation.

The DEPUTY CHAIR — You highlighted the article from Graham Currie at the point you have asterisked where it says:

Train drivers are perfectly justified in cancelling trains that are unsafe for passengers or crew due to heat.

Is that something you dispute? If I can just take it further on from that, train drivers and operators have certain challenges, it is not just that they deem the line or the train unsafe so far as things like vandalism and trespassing is concerned. Can you suggest a better way for the operators and train drivers to approach those issues?

Dr MEES — Yes, I think there is. I think what Professor Currie said is something that taken in its literal sense is probably correct. But taken in the context in which he wrote it, which was a week after the shutdown of the system, what he basically seems to be saying to people is, 'No, there is no industrial problem here. The train drivers are doing the right thing'. I think that was certainly the conclusion he intended us to draw when he wrote the article. The better approach is the one that Connex now say they have managed to agree with the union, which is that you adopt protocols whereby things are really only cancelled if there is a safety issue, because that was not why trains were being cancelled in Melbourne over the summer period just gone. I do not know quite what is the right word, because it was some industrial action that the union was conducting mindful of the provisions of federal industrial legislation that meant that if it admitted it was industrial action then it had broken the law and so on and so forth.

A long time ago in a previous life I used to be an industrial relations lawyer, and although I am a bit out of date, it is the kind of thing we used to advise unions on when they wanted to avoid getting themselves into trouble. That was in fact going on. There were not safety issues. They were making a point. To be honest, I have never quite been able to work out what point they were making. It seems to have been due to some issues within the different segments of that shotgun marriage known as the Public Transport Union.

You cannot run a rail system with a system where individual train drivers have a kind of unlimited discretion as to whether or not to run a train service — —

The DEPUTY CHAIR — There would have to be instances where you would concede there are things outside the control of a lot of people. Take trespassing. We were talking about people — —

Mr DRUM — We heard about loosely — —

The DEPUTY CHAIR — I am talking about people who actually get hit by trains.

Mr DRUM — No, but I mean — —

The DEPUTY CHAIR — I am talking about people — —

Dr MEES — No, I am happy to talk about both of them. Can I just give you a quick — —

The DEPUTY CHAIR — Can I just go on?

Dr MEES — Yes.

The DEPUTY CHAIR — Mr Dotson is doing a bit of work in Mumbai where, he says, 10 people a day are killed.

Mr DRUM — We are talking about last summer.

The DEPUTY CHAIR — They just push people off the line if they die. I would not expect that to be something we would be encouraging here.

Dr MEES — No. That may not have been the best example. Take Tokyo for example. Tokyo's rail system carries as many passengers in a week as ours does in a year. They have 30 million passenger trips a day on the Tokyo rail system. That means they have a dozen people dying on trains every day, just because of the sheer weight of numbers. This is a First World country. It is not India. But on the main line of the Tokyo subway if

you stop a train for 1.5 hours because someone died on it, the entire system would collapse, so you do not. They have proactive protocols for dealing with these things, and I think that is the essential issue in each of these cases.

What happens here is that we say, 'We have got problems with trespassers being struck by trains. Therefore, we cannot run a reliable service'. No self-respecting rail operator anywhere else in the world says that. We are not the only place in the world where these unfortunate incidents occur. I might say I think we have left ourselves wide open to it in Melbourne because our rail lines are not fenced. I think there is probably evidence to suggest that more people are struck by trains in Melbourne than need to be because we have this bizarre habit of not fencing our train lines. If you get on the Dandenong line between Glenhuntly and Ormond, it is in the middle of a park with lawns. Kids can just wander across the train lines. People from Sydney, which does not have a very well-run rail system, look and they start shaking when they are on the train. They say, 'What is to stop people walking onto the track?'.

All of these things are about having protocols to deal with them. That is the essence of running a rail system efficiently. None of these problems are unique to us, but what we do is throw up our hands and say, 'Therefore, you cannot expect us to run a reliable service because this thing happens here' — which happens everywhere else in the world as well.

That is the attitude we have to get away from; it is the fundamental problem that underlines all of these issues. The tendency in Melbourne — in a sense as a community we have got into it, but ultimately the change has to come from within the department — is to say, 'Oh, yes, but there are all these things that make it difficult to run a rail system'. Of course there are, but everyone else has to deal with those problems as well. I am not sure that Mumbai would be the model I would be using for sensitively dealing with loss of human life, but there are many other examples of places where they could deal with it without the system shutting down.

Mr O'DONOHUE — You mentioned two stations that connect with buses, that there are only two stations in the network that have proper connections.

Dr MEES — Now you are going to ask me which ones they are, aren't you?

Mr O'DONOHUE — Yes.

Dr MEES — I would not swear to this but I believe there are two rail-bus links in Melbourne; there is one at Cranbourne and one at the end of the Epping line.

Ms HUPPERT — The point here is specific buses that continue on from the end of the rail line; you are not talking about the network of buses.

Dr MEES — That is right.

Ms HUPPERT — Or bus exchanges, for example, Box Hill or Elsternwick.

Dr MEES — That is right, because at none of those other stations is there a regular bus connection. Not one bus route anywhere in Melbourne, other than those two, regularly and religiously connects with train services.

Ms HUPPERT — I get off the train at Elsternwick and there is a row of buses there waiting to collect passengers on the side opposite the brothel.

Dr MEES — Trust me, they are not co-ordinated with the train times.

Ms HUPPERT — But they are there and they do connect.

Dr MEES — No, they do not. Trust me, they do not. I would be very happy to provide you with the timetables and details but I know those services quite directly. The 627, for example, is one of those buses. It only runs every half an hour; there is a train every 9 minutes on the Sandringham line in peak hour. There cannot possibly be one of those buses to meet every train. The only two bus services where there is a bus to meet every train in Melbourne are the rail-bus link at Cranbourne and the rail-bus link at Epping. The problem is that we are so unclear about what a coordinated service is that we do not even understand it. What we actually think in Melbourne is that if you can see a bus waiting there on the odd occasion when the train comes in, that

must mean that everything is hunky-dory, but in fact what you need is the guarantee that your bus will be waiting there when the train comes in.

They do not have this perfectly in Perth but they have a much closer approximation of it than we do. For example, if you take the last train down to Mandurah, which is at midnight or thereabouts, by the time it gets to Mandurah at 12.40 a.m. there will be four buses waiting for the train, but that will be one on each Mandurah route. Every single one of them is rigorously designed to connect with the train. I can guarantee you that the last 627 bus from Elsternwick will have gone to bed 4 hours before the last train comes through Elsternwick station.

Ms HUPPERT — Have you had any input into the bus review process?

Dr MEES — No, I have not been asked.

Ms HUPPERT — But there have been public advertisements — you have not chosen to participate in any of the bus reviews.

Dr MEES — There is only one of me, and I have a lot of calls on my time.

Ms HUPPERT — I am just interested — if that is a particular concern of yours and that is one of the issues that is being dealt with at those bus reviews.

Dr MEES — I do appreciate that, but the problem is that the Department of Transport has 1000 staff and there is only one of me, so I have to try and make my interactions with them as efficient as possible. The issue is a systemic issue.

The DEPUTY CHAIR: I do not think there is a competition. I do not think there is some football — —

Dr MEES — What I mean is that it is very hard for me to interact with them other than at a kind of strategic level.

Ms HUPPERT — Okay, but in terms of the bus review, looking at the issues you have raised, surely that is — —

Dr MEES — They do not as far as I can tell.

Mr BARBER — Going back to these V/Line trains, because we are going to have V/Line come and speak to us at a certain point, it would be worth getting your views on this before we hear from them. A V/Line train is like an express train in a way.

Dr MEES — Yes, that is right.

Mr BARBER — Changes to timetables whereby expresses and stopping-all-stations trains both run on the same line — how does that actually add capacity to a line simply by re-timetabling? It seems you are running the same number of trains but running them differently.

Dr MEES — This is something that is very difficult to explain because you almost require visual aids to do it, but in a sense it is the core principle of railway timetabling. I think it was Sir Harold Clapp, who used to run the Victorian railways in the 1920s, who said — I apologise on his behalf, but it was the 1920s — it was 90 per cent men and 10 per cent machine. In a sense what I think he was trying to say was that the amount you can get out of your infrastructure investment can vary enormously depending on how clever you are at doing it. There are ways of mixing express and stopping-all-stations services that maximise performance and there are ways that minimise performance. In general if you are not really focused on the main game, you will inadvertently end up adopting the performance minimisation approach. To pick the very simple example of that Latrobe Valley service I mentioned before, it needs to leave before the stopping-all-stations suburban train rather than immediately after it. But you are only able to do that if you timetable the entire collection of services that operate on that line as each unit. You will never get that level of efficiency if V/Line is running the show over here and Connex is running the show over there. You will remember that for a while we actually had two rail companies running their shows, and that was even more horrific.

You have to timetable the whole show as a unit, and the way you do it is the opposite from the way you would think. You timetable your services from the centre outwards rather than from the extremities inwards. The reason for that is that the central parts of your network are the most congested, the ones where there is the most difficulty in accommodating services. As the lines branch and you get further and further outwards, on the whole the capacity problems are lessened. What seems to be the best model is to have regular interval services so that you have preplanned gaps in which to slot your country trains and your suburban trains and so on. Again, Zurich is a good example of that. Another example of it is Copenhagen. I think in some respects of all of the European suburban rail systems it is the most similar to Melbourne in terms of its physical plant and layout. In each case they have gone for this model of a kind of metronomic timetable where the express service has the same pattern all day long and it is then weaved in with the same stopping-all-stations services all day long. That is partly designed to enable you to refine the interactions of those trains to optimise throughput, but it is also done so that you can develop preplanned recovery strategies in the event, say, that your V/Line train hits a cow. I was on a train that hit a cow once, but it was in America. It was the overnight train from New York to Montréal and it was 6 hours late, so I would not want you to think that we are the only ones with problems.

The DEPUTY CHAIR — Was it a cow in Texas?

Dr MEES — No, it was in Vermont, I am afraid to say, in the middle of the night. But even in the best-run rail systems in the world there will always be problems. The question is: what do you do when there is a problem? Do you say, ‘Oh crikey, what do we do now?’. That kind of response will usually make things worse, but that is what our poor timetablers and signallers and so on have to do here in Melbourne at the moment. They are all very stressed people, and they tend to get a bit upset at people like me suggesting things could be improved, because they think I am having a go at them and suggesting they are not doing their jobs properly.

The DEPUTY CHAIR — But you acknowledge that they have got protocols.

Dr MEES — That is right. No, it is not their fault; they are in a sense victims of the system. What we want is a system where it is easy to respond to service interruptions because we have strategies that have been thought out in advance. Again the Swiss have the kind of benchmarks for this. Their entire national rail system, of which the Zurich suburban system is only part, operates on a fully integrated system that they call pulse timetables. What that means is that all the long-distance trains arrive at, say, Lucerne station at the same time, within a couple of minutes of each other — 10 or maybe 15 of them from all over Switzerland, and then they all leave again a minute later. What that means is that you can go from anywhere to anywhere. But what it also means is that the system is incredibly sensitive to the smallest service disruption anywhere in the country, so they have had to be incredibly good at preplanning responses so that they can recover from those things.

Again if you have timetabling philosophy based around a regular pattern of services and regular timetable intervals, you can start planning those recovery strategies into your system. Whereas what we do — and I hear that MTR, from some of the stuff it has put out, is proposing to operate somewhat differently from this — is on the Dandenong-Cranbourne-Pakenham line in the morning there are probably about 14 different stopping patterns just on the suburban trains, and then the V/Line trains have a different and inconsistent pattern as well. It results in uneven loadings and makes the system immensely more difficult to operate than it needs to be. But that is another kind of bad habit that we grew up with during the era when we did not have to be very clever to fit all the trains in.

Mr O'DONOHUE — Just on that point, uneven loadings create a problem in that, say, you have an express from Pakenham to Berwick and on one train you have people getting on at Berwick, but the next train stops at Officer and Beaconsfield and at Berwick, and therefore it only stops for half the time at Berwick. Is that what you are —

Dr MEES — Yes, that is right. Or the ultimate example, I guess, is on the Geelong line. There are two very important trains that come in from Geelong in the morning, and they leave about 5 minutes apart. The first is a fast train that runs express and is operated with the new rolling stock, and the one that leaves immediately behind it is an old-fashioned train that stops at more stations and is run with the old rolling stock and is a quarter of an hour slower. When the express train gets into North Melbourne it is full of people and their faces are pressed up against the windows, but you can lay out and have a whole row of seats to yourself on the stopping-all-stations train behind it. That is partly a problem due to the fact that we do not have enough of the new rolling stock, which was forward planning, but it is also a problem with the fact that the rolling stock is not

being timetabled in a way that maximises the efficiency with which it is utilised. This stuff is kind of hard to explain but it is amazing how important it is. All of a sudden, if you do it right, you find that you thought there was not capacity there and it is in fact there. I think my concern — and I believe it is Ed Dotson's concern — is that that is the kind of work that should have been done before we said, 'Let's spend all this money right now on very expensive capacity enhancements'.

Mr O'DONOHUE — If I could ask one other question. Mr Betts's evidence did say the buck stops with him, and he then went on to say that industrial relations issues between the union and Connex were not a matter for him. But flowing from that dispute and the air conditioning issues, there is now a trial upgrade of those air-conditioning systems. I take it from your evidence earlier that that trial upgrade of the air-conditioning systems is not necessary.

Dr MEES — It all depends on what you mean by 'not necessary'. We should make everything as reliable and effective as it possibly can be, and I still think that if we can avoid people having to sit in hot carriages in summer because one of the air conditioning units has conked out, we should, providing that it is affordable. So I am not necessarily opposed to that upgrade. I think my response to it would be twofold. Firstly, when Connex and the other firm — I have forgotten who it was now; the one who went home to the UK — took over the system 10 years ago, one of the things they were supposed to do was refurbish all the trains. All they did was redecorate the interior colour scheme. That might have been the best time to be doing that. But the second thing I suppose I would say is that providing it satisfies a good cost-benefit test, there is no problem with upgrading the air conditioning, particularly given that it is going to have to be upgraded to change the refrigerant anyway because of whatever the treaty is. I am not saying that it does not need to be done, but I am saying that it is not a precondition to running a reliable train service.

Mr BARBER — When we got the data from Connex about its train failures a lot of them were for other reasons, but there was quite a substantial number that were to do with V/Line trains, where the reason given for that suburban train being delayed was a V/Line train, but I presume it could have been the other way around. Maybe we need to go on a tour to the control room or something — —

Dr MEES — That probably would not be a bad idea, actually.

Mr BARBER — What happens when a train comes in late or early or whatever — a V/Line train coming down the line comes in early? What happens?

Dr MEES — It depends how far out it is, but if it is within the part of the system that is controlled out of Metrol, then somebody at Metrol thinks, 'Mmm, what do I do now?' and they then, to the best of their ability — and it is no criticism of them that in a situation like that the result might be sub-optimal — try to work out where to slot that train in. In the process of doing that they may well make other trains late. You might get a cascading effect whereby a problem on the suburban system held up a V/Line train and then when that train had to be accommodated later than it was usually running that held up some more suburban trains. The whole point of the proactive approach to timetabling is that you have — it is a kind of a field of mathematical research called optimisation or operations research. It is not quite my area; I can talk about the results of it but not the precise mathematics of how you do it. It is a long time since I did maths at university and it has a few too many differential equations for me. The idea is what do you do instead of waiting for it to happen.

There is only a limited number of things that can happen when a V/Line train presents — to use the jargon — at the end of the suburban system, say, at Werribee. It can either present early or it can present late. Therefore it is possible to design ways of fitting a late-running V/Line train in that causes the minimum disruption to the rest of the suburban system but also does not hold it outside Werribee for so long that it delays the next V/Line train. That is an optimisation problem and there are mathematical programming techniques that enable you to deal with it.

The great advantage of having modern signalling systems — and by modern, I mean modern enough that they run with computers, so even Metrol is modern enough for that — is that you can program the recovery strategy into the computerised signalling system and in a sense press a sequence of buttons and it will reorganise everyone. In the old days the train controller would have had a big book which he had to look up to work out what to do. Essentially that is the direction in which we need to be moving but my understanding is that there is

no sign of that happening. Instead we are saying, 'Let us build a completely separate set of tracks for the V/Line trains so they do not have to interact at all'.

Mr BARBER — I think Ms Huppert, in one of her questions, started to ask you about the small changes that have been made such as reversing the loop from Clifton Hill and all those little things. Do you think those changes have been good, and are they good enough to have seen benefits worth talking about?

Dr MEES — I am sorry, I did not respond to that. I am a little confused about what the current position of the department is on the capacity of the current rail system. I have not seen their numerical calculations since last year when they provided them to the Eddington Report. I did analyse them in that document that was annexed to my submission to your committee. I have a table in there — and I will not try to find it now — on one of the pages it has four columns: now, what DOI say we can do, what DOI say we could do with a few more changes, and the final column which I say is what we actually could do if we operate things in accordance with best practice.

At least at that stage, and that was the last time they put numbers on anything, their argument was that all of those changes did not make any difference to the throughput at North Melbourne where all of a sudden the capacity problems were greatest. I do not know whether that is still their position. You get this slightly inconsistent attitude out of them which says, 'No, we can improve the capacity of the existing system but we need to build all these tunnels as well'. It is kind of like, 'Obviously whether you need the tunnel now all depends on how much you can get out of these capacity improvements. Are you still sticking by the figures you nominated last year in the submission to Eddington or is the department now saying that more can be done?'. I am not sure.

I do know, though, that we had this issue with the Dandenong line a couple of years ago. You may remember that we could not run any more trains on the Dandenong line without a third track. I put out a paper, which I think I also annexed to my submission, saying yes we could through smarter timetabling. I am happy to report they have adopted a modified version of my suggestion, although on the whole I think the department would be a little shy about admitting that it was my suggestion. It turns out that we do not need to spend \$1 billion on a third track on the Dandenong line to run extra trains.

My argument is that the same applies across the system more generally. I am not quite sure what the department's argument is. As far as the changes they have introduced are concerned, although taking the Werribee and Williamstown trains out of the loop made some passengers grumpy, I think it was a sensible decision. They were not designed to go through the loop if you look at the pattern of loop entrances. What they should then do is through-run them to the other side of town, and they claim that in due course they will be doing that. I support that change.

As far as the Clifton Hill loop is concerned, the measure they have adopted of reversing the Clifton Hill loop has made the service less reliable than it used to be. If you know anyone who lives along the Clifton Hill lines, they will tell you it has made things worse. The reason for that is it was a long way from being anywhere near 24 trains an hour; it was about half that. They probably did not need to do it but there is a particular engineering problem that they may have explained to you. To get into the loop in the morning, trains have to cross over the trains coming outwards. The answer to that in the long term is to build a fly under not a flyover, which was part of the original design of the loop. That would cost about \$50 million, but in an environment where we are spending \$4.3 billion on the Regional Rail Link, that is pretty small potatoes.

I am not sure about the Clifton Hill line but I think I would accept that the changes on the Werribee and Williamstown lines, although I know of people who are very grumpy about them, are examples of some things that did make some sense.

Ms HUPPERT — You referred earlier to Edward Dotson and some of his evidence. He has revealed that he agrees with you to a certain extent and that there should be some more work done on capacity in the current system. However, he is quite clear that he has no difficulties with and is in favour of pursuing the feasibility and the work that has been done in relation to both the Tarneit line and the tunnel on the basis that while we can get a certain amount out of capacity, we will reach a stage where we will need to put in some more infrastructure.

Dr MEES — I agree with that. I would not use the word 'will' but Melbourne may well end up with 8 million people, and that was the high-end population projection from the ABS for 2050; that is twice as many

as now. We would need to know what the distribution of employment was but it may well be that even twice the current level of capacity is not enough. There is a lot to be said for looking a long way into the future and keeping your options open.

My concern is — and I hope or at least I think this may be Dotson's concern as well — the gaze has been so focused on those future things that we have not mapped out the terrain, so to speak, between now and then. If you build something 20 years before it is needed, an accountant will tell you that you have wasted half the cost of it. You probably understand this better than me; I am not an accountant. Deferring expenditure, providing it is a genuine deferral because you do not need to do it now, can save you a lot of money, and the money can then be put to other purposes in the meantime.

That might be a timing thing. I think there is a lot to be said for thinking hard about where you would build the next underground rail line in Melbourne, if you decided to put it in, because there are very serious engineering issues with trying to put a line under the Yarra River and Flinders Street station. It would be something like 10 or 12 storeys underground and interchanging passengers would have to use lifts. Those are things that will take a long time to work out. Thinking far into the future is a good idea, but that is blue-sky stuff — not quite blue-sky stuff, but very long-term stuff. I think the question about what you do in the intervening 20 or 30 years is where we need to do better.

The DEPUTY CHAIR — Thank you, Dr Mees, for your time. That concludes today's public hearing.

Committee adjourned.