

NEWSLETTER No 10/2004



Railway Technical Society of Australasia
SA Chapter
Engineering House, Bagot Street
NORTH ADELAIDE SA 5006

OCTOBER 2004

NEXT MEETING

**A presentation on TRAMS
or in modern parlance LIGHT RAIL
17.30 at Bagot St North Adelaide on
THURSDAY 4th NOVEMBER**

**Stephen Townsend will present an Overview of the
Historical Development of Light Rail and Its
Potential to Meet the Future Transport Needs of
Modern Cities**

Beginning in the late 19th Century, most major cities in the developed parts of the world evolved extensive light rail systems in response to their need to provide transportation for the greatly increasing populations within those cities. Ian Manning, many years ago, in fact argued that the relative speed and ease of tramway systems was the first step in the outward geographic growth of major cities – Sydney and Melbourne, as well as Adelaide all showed rapid growth with and following introduction of trams.

Probably the country where the greatest need for mass transportation developed was in the United States where by the early 20th Century great cities such as New York and Chicago developed extensive and integrated light rail systems of various types including street running, segregated surface running, elevated and underground light rail systems. It could be said that the development of these light rail systems and the efficient transportation system that they provided was the catalyst that enabled these cities to grow to their great size and many of the geographical aspects of the cities can be directly traced to the light rail systems built.

These light rail systems were not restricted to the larger cities; indeed most cities even of moderate size had some form of light rail transport. In some areas of the United States extensive networks of high speed light rail systems were also developed and provided a much more effective and convenient alternative to the traditional heavy rail systems.

The introduction of mass production and the availability over time of increasingly affordable motor vehicles together with their vastly increased convenience and versatility caused a swing by the population away from public to private transportation. The move to private transport resulted in a gradual decline of these great light rail systems and despite the introduction of significant improvements and initiatives to retain riders, most became unprofitable and were forced to close during the 1950's.

However not all of the light rail systems in US cities did close. For various reasons a number of cities chose to retain most or some of their light rail systems and these struggled on through the 1960's and early 1970's. With the shock increase in the price of oil in the mid-1970's, the growing congestion of road traffic and the increasing cost of providing road infrastructure, an awareness of the benefits of light rail began to grow. In turn this has led in the 1980's and 90's to the modernization of these older systems, the redevelopment and reopening of new light rail systems on old alignments and in a number of cases the construction of completely brand new rail systems of which the major example is the BART system in San Francisco.

With the aid of some video footage and with an emphasis on North America, the historical development of the light rail systems, their rise and decline and subsequent rebirth will be covered.

What has this to do with Adelaide?

Adelaide once had an extensive light rail system and its development, decline and closure except for the Glenelg Line, in many ways mirrored that of the systems in North America. Like the remaining systems in North America the Glenelg line has struggled on through a number of decades and an awareness of its benefits are now becoming realized. As a first major initiative since the closure of the other parts of the Adelaide Light Rail system, the South Australian Government has decided to extensively invest in and upgrade the Glenelg Tram Line including new trams and significantly improved track. This initiative is to be applauded.

The obvious question is where to from here, how should the Adelaide light rail system be developed? We obviously cannot go backwards, however a review of the past development of light rail, as shown in the presentation, shows that light rail has many avenues of potential and some may excite the imagination and provide some indication as to the direction of future light rail development in Adelaide.

Finger food nibbles will be provided as usual at 17.30 with the presentation proper at around 18.00. A good subject on which to end the normal general meeting program for 2004.

LAST MEETING?

There was no last meeting; however in a perverse way this will allow us to trumpet the coming **AGM / Dinner** to be on **Tuesday 30th November**. This year the venue

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will be the **Rising Sun Inn** in Bridge Rd Kensington, a well respected and much loved establishment by those who are lucky enough to know the place. It promises to be a delightful sociable evening in the pleasant November mild weather – a grand end to our calendar year. Further details, with dinner booking and committee nomination forms et al will be separately distributed in a week or two.

The local committee is urgently in need of people to volunteer as Secretary or Newsletter Editor as the current holders of these positions are no longer able to continue in these roles. In addition any person wishing to participate as a committee member is encouraged to apply as new ideas and input are always welcomed and encouraged.

Do your bit to be involved in the Railway Industry!

THE OBSERVERS SEAT

Philip Laird, our indefatigable voice for rail, is a regular correspondent and in fact we have collaborated on quite a few papers at conferences and the like. We often help each other on rail matters and from time to time get into the more philosophical side of things. One such recent occasion, which has some real significance, was in relation to the outcome of the current corridor planning process being undertaken by ARTC. A key issue for reduced transit times will inevitably be the removal of excess curvature to allow trains to run at consistently high speeds. On the whole run between Sydney and Brisbane for instance a long freight train permitted 115 km/h will actually be able to achieve that speed only on a few occasions aggregating maybe 10 minutes of running in a 20 hour journey.

Having established the need to get rid of the worst curvature the question arises as to what curvature should we actually go for? And that is where our latest electronic debate started from. Curves of 800 metres radius are the tightest radius that would normally be capable of 115 km/h. Curves up around 1200 metres will allow around 130 km/h for conventional trains and up to around 150 km/h for high performance passenger trains. Wider radius curves again will allow proportionately higher speeds, up to the 300 km/h curves of the Shinkansen and TGV which are measured in kilometers radius.

Philip started the discussion going with a small final paragraph in an e-mail on past work on a specific deviation proposal. He said "I think that you should try and go for good design standards - ideally

at least 2200 metre as per QR MLU - as they are going to have to last for the best part of this century. Or 2000 metre or then stop at 1600 metre (a mile minus), except for pinch points (and not too many of them, unless for a few km via difficult country). Certainly, NSW should be able to assist with some of the marginal cost, but then the \$450m from the Commonwealth should go a long way to getting *good design standards*".

Well that got me rather fired up, since I am a strong advocate for no frills functional. So I wrote back "In regard to good design standards I would ask in return *what are good design standards and why should I pay more for them rather than the 1200 m standards?* If for instance we assume that the incremental cost of wide radius curves is 20% then for every \$120 million we spend we will have lost \$20 million we could have spent elsewhere. Over the \$450 million sum (for the North Coast line) that would amount to around \$80 million which means up to 40 km of realignment that would be foregone.

My 1200 metre curves will allow freight at 130 km/h (and pax at say 150 km/h consistently with suitable equipment) which will actually require a change of operating practice to achieve. There is no where in the world where freight is run under normal continuous operation at more than around this speed (European 160 km/h freight is either 'parcels' traffic or has fallen by the wayside in much the same manner that the Concorde fell over - economically rather than technically). The simple fact is that each and every dollar spent on upgrading has to work (and work hard) in achieving the basics - transit time, reliability, capacity and yield. Failure to achieve all of these will place future funding in jeopardy and will more than likely condemn us to long term financial stringencies.

I am sorry to labour the point, and it has taken me a year or ten to learn it, but in the current climate there is no room for luxuries in freight rail. It is my belief that we *will* achieve some remarkable results with carefully focused funding and other managed changes, but there will be no 'beyond existing experience' situations needed to get these results - just application of the basics over most if not all of the corridor. As an instance, provided we keep to the basics, we could well get the Maryvale - Gulgong section built purely on the basis that it is lower cost to do that than to bring the alternate route through Merrygoen up to ARTC main line standards. The implications for 'luxuries' in such a situation are obvious.

The only user for high speed lines (1600 metre plus curves) will be passengers. Australians are wedded to

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cars and planes and unless we could get to European standards of frequency (possible), connectivity (near impossible) and comfort (high starting and retention cost) the expenditure would be a lost investment. If there are to be demonstration routes look no further than the Vic Regional Fast Train lines, or the *potential* NSW interurban fast lines (which the NSW Govt has assiduously avoided so far). If there are to be high speed, high frequency, high connectivity routes it will come from these areas not from the inter-capital routes - and these routes are in the hands of others, not ARTC.

Part of the problem is in NSW where RIC set the benchmark for over costing and the various consultants here have blindly followed suit. The extraordinarily high cost estimates coupled with extravagant projects, involving monumental tunnels for instance, is a major reason why there are no worthwhile improvement schemes in this state. Even the rail clearway projects in the Sydney area would seem to have a high degree of gold plating compared to the basic simple functional things that could have been done to achieve a similar result. ARTC cannot afford to encourage these people in their wildly mistaken belief that they can simply go on that way.

If NSW want to come up with a business case for say two hour frequency fast passenger trains on the Melbourne and Brisbane routes than I am sure that ARTC would take note. But to suggest that wide radius curves will save the sadly declining XPT trains, let alone encourage newer and better passenger trains is to take optimism to a new high. After all 98% of the passenger activity in NSW is conducted over tracks that are not under ARTC management and nothing of any substance is being done for faster trains there. Why would the other 2% be any different?

Remember that 90% of something is a lot better than 100% of nothing."

There have been a number of subsequent e-mails (we of course don't stop) but there you have the gist of an argument. So if you feel passionately about the sort of issues that Philip has raised then try and respond to my challenge '*what are good design standards and why should I pay more for them rather than the 1200 m (comfortable current technology) standards?*' It might not only provide some entertaining items for Newsletter but may also broaden understanding of issues such as this.

HAPPY BIRTHDAY

I am not quite sure how you say happy birthday to an organisation, but however it is done the PWI SA Section is having a coming of age bash (more civilly described as a 21st Anniversary get together and barbeque supper) at the National Rail Museum on Thursday 11th November next (one week after our next general meeting). PWI members will have received separate notification of this event, but others who are interested might care to contact Stephen Townsend at townsendstephenj@bigpond.com.

TRACK ENGINEERING SEMINARS

The PWI have been running an ongoing series of Track Engineering Seminars as a practical way of spreading greater knowledge and understanding among the rail engineering fraternity. Seminar No 11, featuring Stephen Marich (who is well worth seeing regardless of the topic) will be on Rail Surface Maintenance. It will be held at the Transfield Training Room at Islington on Wed 17th Nov at 13.00. Interested persons who have not been sent the flyer should contact Stephen Townsend on the above e-mail address.

EDITOR GOES MAD

In a moment of madness we have sold our old church in the hills and bought an apartment a few minutes from Circular Quay. Which is all to say that I will not be able to be a SA committee member any longer and will only be able to take on part time writing (of commentary pieces) for Newsletter. I will continue my association with the National RTSA Rail Horizons newsletter. I have enjoyed my time with RTSA SA and will miss the company and friendship that exists here, but hopefully will remain in touch with the goings on from afar.

Max Michell

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Version 6 of Adobe Acrobat Reader may be downloaded free of charge from the internet at www.adobe.com.

Alternatively, Adobe Acrobat Reader 6 is generally included on the CD ROM attached to most computer magazines.

KEY RTSA CHAPTER COMMITTEE CONTACTS

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Articles or editorial comment for Newsletter are very welcome. We have over 100 members locally some of whom will have stories, events or developments of interest that could be reported in Newsletter.

Part of the function of RTSA is to keep members in touch with what is going on in the industry and with each other and to that end we are only too happy to publish items of interest.

Send copy to the Editor, Max Michell at samrom@bigpond.com or fax to 08 8390 3772

Electronic despatch of Newsletter is undertaken by Malcolm Menadue – contact Malcolm on mmenadue@ozemail.com.au if you have any problems receiving Newsletter electronically or in hard copy. Note that electronic subscribers will get their Newsletters and flyers as soon as the editorial stuff is done, while the hard copy mail will of course be some days slower.

For all other matters relating to RTSA SA Chapter contact Roger Wyatt (the Hon Secretary) at e-mail januseng@chariot.net.au or on phone 08 8344 6939