

NEWSLETTER No 4/2006



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

APRIL 2006

NEXT MEETING

Please note:

There will be NO meeting in May 2006

Due to the CORE 2006 Conference the proposed meeting for May 2006 has been cancelled. The next meeting will be held on Thursday 6 July 2006.

Full details will be provided in the May & June Newsletters.

Continuous Professional Development (CPD)

IEAust members are reminded that attendance at RTSA technical meetings contribute towards CPD requirements. Each RTSA technical meeting generally has a value of 1 CPD point.

LAST MEETING

The last meeting of the PWI - SA Section was held on the 6th April 2006. This meeting was a site visit to Intercast & Forge at Wingfield.

Intercast and Forge mass-produce castings for the rail, automotive and other industry segments. The equipment used by Intercast and Forge is some of the modern available today. As such they are able to compete and supply product to the components market, worldwide.

The site visit allowed members to observe Intercast & Forge's foundry in operation and learn about the latest in high-speed mass casting technology.

Two brochures that describes their product range and process (kindly provided by Intercast and Forge) may be found attached.

After the factory inspection, Intercast & Forge provided a barbeque.

A total of 23 members and visitors attended the inspection and a Vote of Thanks was provided by Stephen Townsend

CORE 2006

Core 2006 will be held between 30th April 2006 and 3rd May 2006 at the Grand Hyatt Melbourne.

A total of 62 high quality technical papers will be presented over two days. The papers will focus on a range of railway related issues including Projects and Planning, Systems and Management, Safety and Risk Management, Track and Rail Maintenance, Vehicle and Wheel Maintenance, Vehicle-Track Interaction,

Signalling, Rolling Stock, Locomotives and Condition Monitoring. A range of site tours will be held on the third day.

All Core conferences are noted for their excellence and value and this conference is expected to be one of the best.

Registrations are now being accepted. To register or for additional information about the conference, go to:

www.core2006.org

POINT OF VIEW – Max Michell

I recently travelled to Campbelltown, a southwest suburb of Sydney, on a weekday at around midday. Not surprisingly there were a number of stabled EMU trains in the yard there – not surprising since it was the off peak (between peak) period. What was rather surprising was that all three were Millennium trains (the newest and very good trains), while the train I was in was one of those tawdry six car non air-conditioned R sets, with reduced capacity due to every car having a real or former driving cab taking up otherwise useful passenger space. There at Campbelltown alone was \$75 million worth of new train that could, by definition, only be required for peak hour services. The between peak period is the busiest of the non peaks yet these new trains are not required at that time – ipso facto they are not required at night or on weekends either. Factor the 'additional peak train' premium across the whole network and there is probably somewhere between 40% and 50% of the suburban fleet that is in reality a peak period train required only for a few trips per day. At the same time most of the Rail Clearway program (but not all) is associated with provision of infrastructure capacity for peak periods. It would be hard to argue, for instance, that \$70 something million would have been needed at Bondi Junction to lift capacity from 14 to 20 trains per hour when the weekday between peak service is typically 6 trains per hour. That expenditure is entirely associated with peak hour needs, as is much of the metro area expenditure of the past and present. Whenever the word 'capacity' is used in the context of metro railways, have a quick check and work out just how many improvement projects, if any, are to do with overall capacity rather than the narrow time band capacity driven by conventional working hours.

There are two mitigations to the issue of peaking on metro railways – flatten the peak demand and increase the off peak demand. The former is primarily an issue of city planning, social policy, work location and working hour conventions, all of which are outside the railways ability to change (but not beyond the range of some well designed 'hand grenades').

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Increasing the demand at off peak times, particularly between peaks, is quite another issue. Marginal costs are very low - the trains are free, train running and crew time is simply straight time worked and power (fuel) is linear with use - while the demand is highly price elastic. The conventional response is to run relatively low frequency services with some reduction in fares. In Sydney the standard off peak frequency is 30 minutes but with 15 minutes or better where routes have combined services, while the normal off peak fare is around 61% of the normal day return fare.

It has been reported that of all the submissions to IPART on the issue of rail fare pricing only two argued for an increase - RailCorp and our redoubtable Philip Laird. RailCorp are reported to have argued that off peak fares should be lifted to around 75% of the day return fare - a somewhat mechanistic response to a price elastic market but one that is possibly institutionalised by the cumbersome fare setting process. The trouble with this approach is that relatively few peak hour fares would actually be bought as 'day returns' - most would be weekly (7 day) or longer period fares. Comparing off peak fares with 7 day fares (5 return trips) shows that if the former are lifted to 75% of the periodical peak hour fares - a bit cheaper out to 45 km but more costly beyond. Comparison with longer period fares (out to 12 months) shows that the proposed off peak fares would be more costly than any day fare equivalent bought as a periodical for longer than a month or two.

The response of RailCorp to IPART is really quite disappointing. While most other metro rail systems in this country are reported to be achieving handy passenger number increases (significantly assisted by the continuing high petrol price) the reports from Sydney (from such authoritative publications as MX it must be admitted) are of marginal growth at best. In part this is a consequence of Sydney having a higher than average market share of urban travellers, and in part a legacy of past poor performance amplified by a heavy overdose of politicization and tabloid drum beating. Looking rationally at the existing situation there is not much that can be gained from trying to increase already high peak numbers (other than achieving even more belly-aching letters in MX), but there is a considerable potential at other times of the day, particularly during the between peak period. Attracting this market is neither easy nor quick.

One aspect that is singularly lacking in Sydney is a flexible and accessible fare system. The range of fares and their peculiar and pedantic application is real steam age stuff amongst the plethora of more customer friendly fare systems in Australia let alone the rest of the world. It is not that Sydney doesn't have the technology

- the magnetic card readers common to buses, ferries and trains are capable of reading dates, times and locations across all modes so presumably could handle an appropriately friendly fare structure. The principal advantage of the Seniors and Pensioner fare is not the give away price but the flexibility of the ticket - all modes within the defined boundaries for the day. An off peak ticket that gave similar all modes capability within more tightly defined boundaries for a set time period would be a far simpler transaction and travelling experience than the present system, even if the fare was then equivalent to the normal adult fare (i.e. the access to travel was improved rather than the price being dropped.

A second aspect is the facility of the network. This is primarily a function of frequency and connectivity. The latter issue is all about not having to wait a long time at junction stations. In a system like Sydney's this is difficult to control directly, however if frequencies are improved then connectivity is automatically improved.

One of the features of off peak trains is the vast number of empty seats being whirled around the network, coupled with the unfriendly design of Sydney double deck cars for low volume use. Perhaps the solution is to make use of the 'part time' Millennium trains, and their Tangara antecedents and split these into four car trains during off peak and after peak and use the increased number of trains (but same number of cars, and consequently electricity) to give a higher frequency service. A more radical step would be to have one-man operation of these short trains, using peak hour guards as off peak drivers. All other networks in Australia (apart from Brisbane) have gone to one-man operation with relatively little disruption. Peak hour trains (or in fact full length trains at any time) would continue to be two person worked - this proposal is all about trying to improve the off peak service aspects without adding to the cost impost on the system, not just a traditional cost reduction exercise. Increasing frequency and simplification of the fare structure off peak may allow rationalization of station staffing to cover a greater on train presence - providing an element of safety, security and income protection which would be seen as a positive gain by most travellers.

The issue of off peak should be all about maximizing users during such times. It is not about pretending that revenue gains can be made, along with the politically acceptable increased passenger numbers, by jacking up off peak fares with no offsetting service quality gains that are appropriate to the discretionary off peak market.

Submissions to the IPART review have closed with apparently an unfortunately high list of 'no change' submissions. Holding revenue down (or even limiting it to the politically acceptable CPI level) is not a way to

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enable the network to grow and properly fulfil its function as part of the total public transport of the city. Intelligently structuring the fares and service levels to maximize use of the system would be. It would seem that few if any submissions to IPART have taken this approach. Maybe next time there will be many more submissions from people (such as your good self) who have more than a passing interest in rail transport.

ADELAIDE HILLS RAILWAY PUBLIC MEETING REPORT

Your editor attended the public meeting held on 12th April to discuss issues related to the existing railway through the Adelaide Hills. His report will be presented in two parts. In this newsletter details of the presentations by invited speakers will be presented. In the next Newsletter, details of the discussions and some observations from the meeting will be provided.

The report is based upon your editors understanding of what was said by the various speakers. Any non-factual statements by the speakers have not been corrected.

Introduction

On Wednesday 12th April, the City of Mitcham hosted a public meeting to discuss issues of concern related to freight trains on the existing route of the Adelaide to Melbourne railway line. The concerns relate to:

- i) Excessive emission of noise
- ii) Derailments and related safety issues
- iii) Inconvenience to road users due to long delays at level crossings

The intended focus of the meeting was to discuss possible solutions, not to reiterate the problems.

The format of the meeting consisted of presentations by 6 invited speakers who spoke about various aspects of the concerns, followed by a question and answer session whereby members of the public could ask questions.

The meeting was attended by a number of dignitaries including Ivor Brooks, Mayor of the City of Mitcham, Mr Ian Evans MP, State Member for Davenport, the guest speakers listed below and approximately 200 people. In addition, Mr Jason Turner from the EPA and Mr Andy Milazzo, Transport Planner, Transport SA (also representing the Minister for Transport) attended to answer questions.

Presentations

Dr Andrew Southcott MP, Federal Member for Boothby

Dr Southcott advised that, as the local Federal Member, he has been pursuing with his Federal colleagues methods by which ways forward can be progressed for the issues of wheel squeal, train safety and a new rail route through the Adelaide Hills.

Dr Southcott considers the level of noise emitted by trains to be unacceptable. He acknowledged that there are a large number of parameters contributing to the noise and that the solution was not simple.

From discussion with people from within the rail industry he had learned that there were a number of initiatives in place to overcome the noise problem. ARTC had introduced "RailSQAD" to provide information by measuring the level of noise being emitted and identifying the offending wagons and axles. The information provides a basis for statistical analysis of the problem and a basis for further examination of offending wagons to determine the key factors.

Dr Southcott advised that with the improved information being provided by RailSQAD, the Environmental Protection Authority was in a stronger position to act on EPA License conditions. This included that ability to review, tighten and enforce license conditions. For example, an operator has 14 days to withdraw and correct axles or bogies that are identified to have a high incidence of noise emission. Due to the improved monitoring, the EPA now has a stronger basis to enforce this requirement and to penalize those operators that do not comply.

Dr Southcott considered that the 2004 derailment at Glenalta clearly focused the community view onto rail safety. He advised that the Rail Transport Safety Bureau had conducted an investigation into this derailment and had released a report that had seven recommendations to prevent a similar occurrence; four for the operator of the train, 2 for the track owner and one for the SA Rail Regulator.

In relation to a possible rail diversion away from the Adelaide Hills, Dr Southcott reported that this has been considered a number of times. A proposal by AN in 1994 as part of the one Nation submission for a new deviation to cross the northern area near Truro was not accepted as being financially viable with the result that the existing route was standardized.

In 2001, ARTC also proposed a similar deviation but this was also not accepted as viable.

Currently a joint study by DOTARS and the SA Department of Transport into an alternative route is

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being undertaken. This study is due to be completed in June/July 2006 after which it will be considered by the Federal Department of Transport.

To conclude, Dr Southcott advised that he was actively meeting with Federal Ministers, ARTC, Operators and the EPA, all with the aim of improving the operation and safety of the rail line through the hills.

Mr David Marchant, CEO and Managing Director, Australian Rail Track Corporation

ARTC commenced operation on 1st July 1998. ARTC maintains the rail track and sells train paths along the track to any operator licensed to operate trains. ARTC does not operate trains.

ARTC has been working to understand the issues that relate to wheel squeal since 1999. In 1999 to 2000, soft rail pads were fitted between the rail and the concrete sleepers, rail grinding to improve the rail surface and the tracking of trains, and a range of friction modifying lubricants were employed on a trial basis to reduce wheel squeal. All failed to moderate the noise.

In 2001 a trial using "Tram Silence" was conducted in conjunction with the EPA. The results were unreliable and inconclusive.

Wayside Inspection Services in conjunction with VIPAC were then contracted to install noise measurement facilities that not only measure the noise but also identify the offending wagons, bogies and axles. This system has been developed into RailSQAD.

The measurements found that misalignments of the bogies and wheels were the major factors causing wheel squeal. For example 80% of bogies that recorded excessive noise had misaligned bogies. Also the majority of the noise was emitted by approximately 1.5% of axles. Of these, 0.2% emitted wheel squeal noise and only 0.1% of axles accounted for the worst wheel squeal noise.

VIPAC is currently further developing the technology to consistently measure and identify the offending axles. When developed, it will be capable of:

- i) Identifying those axles that cause the noise including which axle, which wagon and direction of travel.
- ii) Identify the wheel sound types being emitted.

The data collected by the RailSQAD unit will be passed on to operators for appropriate action with respect of the offending bogies and to the EPA.

The data may be used to identify trends and highlight those axles and issues that are increasingly causing excessive noise. The data may also be used for the

drafting of legislation regarding the emission of noise and the licensing of train operators as well as providing the basis to provide the EPA with the powers to enforce the operators to comply with their licensing requirements.

ARTC has been developing the technology to prevent excessive noise over the past 6 years. It is expected that within 12 months, sufficient data should be available from RailSQAD for it to be used as a tool by ARTC and the EPA.

The average number of trains per week has declined from 26 to 28 ten years ago to 18 at the present time, however the trains today are longer and heavier.

Trains in 1965, mainly steam hauled, were much noisier than the majority of those travelling through the hills today. Early diesel locomotives were also very noisy however modern locomotives are much quieter. For example, the NR Class locomotives are 3 times quieter than previous classes of locomotives. Notwithstanding the wheel squeal, the majority of wagons are also quieter today.

The rail corridor through the Adelaide Hills was established in the 1880's and remains much the same today. The land use adjacent to the corridor has changed significantly in the past 120 years with significant housing developments built up to the railway boundary. That housing development is allowed up to the railway boundaries suggest that the development planning process requires improvement.

Noise barriers along each side of the track have been considered but have not been adopted due to studies that found that fixed barriers may actually increase the noise experienced by some line side properties. Noise barriers are also expensive and are subject to graffiti attack. The preferred option for noise abatement is to plant suitable native vegetation on adjoining properties.

As part of its aims to improve rail efficiency, ARTC have put forward proposals for the diversion of the rail line to more favourable routes. The cost of these alternative routes to date has not proved to be justified.

Mr Bob Hunt, Retired Civil Engineer

Mr Hunt advised that he has been a resident of Bellevue Heights since 1981. He moved to the hills to avoid the noise of the city and enjoy the quiet of the hills. Unfortunately, he has come to realize that he has a very noisy neighbour in the form of a railway.

Mr Hunt civil engineering experience includes extensive experience in the designing of road and rail corridors including a major involvement in the OBahn.

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In respect to the railway through the Adelaide Hills, Mr Hunt claimed that:

- i) There are too many curves
- ii) There is too much noise
- iii) The trains are too long

Mr Hunt claimed that the majority of the railway within the Adelaide hills is curved with 70% with radius less than 300 metres. He claimed that the radius of some curves is as low as 135 metres radius.

Mr Hunt claimed that the tunnels in the Adelaide Hills are too low and cannot be enlarged.

The route was built approximately 120 years ago for steam trains and Mr Hunt considers that it is obsolete for modern requirements. Further, he considers that the route cannot be economically rebuilt for modern requirements.

Mr Hunt estimates that approximately 70,000 to 100,000 people now live near the track along the distance from Adelaide to Nairne. He considers that the level of noise emitted by the trains is unhealthy.

Mr Hunt claimed that there were 80 trains per week using the route. With the proposed forecast increased freight task, he asked how many trains would be using the line in 3 years?

Mr Hunt claimed that train operators were importing cheap wagons that may have high maintenance costs, possibly resulting in deferred maintenance and an increase in noise emission.

Mr Hunt considers the existing route to be too dangerous for the current size of train. He considers that the cheaper alternative is to provide for a new route than try to fix the existing route. Whatever happens, the government cannot afford to do nothing.

Mr Ron Bannon, Chairman, Pilarna Pty Ltd

Pilarna has been promoting for some years an alternative route that avoids the Adelaide Hills and is known as the Eastern Plains Railway.

The East Plains Railway is proposed as a new route that bypasses Adelaide and provides a direct connection between Murray Bridge and a point to the north on the current standard gauge interstate track passing to the east of the Mt Lofty and lower Flinders Ranges. The aim of the new route is to allow trains destined for points north and west of South Australia to bypass Adelaide and the current Adelaide Hills route.

Mr Bannon stated that the current route is financially and environmentally unsound. He stated that the Victorian Government accepted the proposal by Pilarna but the SA Government does not.

In addition to the East Plains Railway, Pilarna also propose the building of the Pony Point Railway that will link a proposed deep water port at Pony Point, just north of Wallaroo, to the East Plains Railway. Mr Bannon claimed that the Pony Point railway had the potential to attract large tonnages of grain to Pony Point for export as well as providing an alternative port for the trans-shipment of containers to Melbourne.

Also Pilarna propose another branch that would provide an alternative crossing of the Adelaide Hills at a point just north of Adelaide to enable Adelaide bound trains to avoid the existing route through the Adelaide Hills.

In summary, Mr Bannon claimed that the proposal by Pilarna:

- i) Provided a direct interstate route avoiding Adelaide and the difficult section through the Adelaide Hills.
- ii) Would have no clearance problems and allow double stacking between Melbourne and points further north and west.
- iii) Would save fuel and time as a result of faster running.

Mr Mark Parnell, Environmental Lawyer

Mr Parnell stated that as an environmental lawyer he has spent much of his career advising local activity groups on pollution and their rights. He stated that excessive noise and vibration is a form of pollution and quoted the Environmental Protections Act as the source for this statement. The Environment Minister acts in accordance with the Act and the EPA is a statutory body that enforced the Act.

Mr Parnell stated that the current legislation is not designed for the railway situation. It cannot deal effectively with short-term extreme noise. However the Act does require persons or entities to take reasonable and practical measures to minimize harm. The Act does not require the elimination of pollution at any cost. Actions taken must be practical.

As a lawyer, Mr Parnell offers the following advice to groups contemplating any action:

- i) Leave it to the proper authorities. By all means, harry and harass the authorities to take action.
- ii) If the authorities are unable or unwilling to take action, then individuals and groups have the right to take legal action, but it is expensive, time consuming and not for the faint hearted. Legal action is not recommended.

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As a final comment, Mr Parnell stated that action on pollution is a complaint driven regime – keep up the pressure.

Mr Bill Watson, General Manager, TransAdelaide

Mr Watson stated that TransAdelaide owned and operated both trains and track. TransAdelaide's interest lies in the safe operation of its trains on the Belair line.

Mr Watson stated that the December 2004 incident when a loose load on a freight train struck a TransAdelaide train raised concerns in regard to inadequate methods of operation, supervision and regulation of freight trains. To date, no response to these concerns has been received.

TransAdelaide will pursue issues regarding the safe operation of trains with those who share the rail corridor between Adelaide and Belair.

MEETINGS FOR 2006

Future Speakers/Dates/Topics				
Date	Speaker	Organisation	Topic	Venue
1-3/5/06	Core 2006			Melbourne
	No Meeting in May			
	No Meeting in June			
6/7/2006	TBA			IEAust Building – Bagot Street
3/8/2006	R Nancarrow		History of Ultrasonic Rail Flaw Detection/ Current Practices	Riviera Motel and Function Centre – Joint with PWI
7/9/2006	TBA			Joint with IRSE
5/10/2006	Mike Sowden	ARTC	Wayside Detection and Wheel Profile Measurement	Joint with PWI - IEAust Building – Bagot Street
2/11/2006	TBA		TBA	IEAust Building – Bagot Street
28/11/2006				RTSA AGM

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, Stephen Townsend at st771048@bigpond.net.au or fax to 08 8297 0992.

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 Robert Schweiger (Chairman) at e-mail robert.schweiger@jhg.com.au, or by phone on 0413 128 775.

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