

## Executive Chairman's Report

The Railway Technical Society of Australia (RTSA), which is celebrating its 10th anniversary this year, has been commended by Engineers Australia for its Professional Development initiatives. Speaking at the second RTSA Professional Development Symposium in Sydney on 12 February 2008, Steve Dilli, Associate Director, Professional Development Program at Engineers Australia pointed out that the RTSA is the first industry-based organisation which has embarked on a structured approach towards professional development to improve the standing of railway professionals and to assist industry efforts to address the critical skilled work force shortage.

Several presenters, representing various sectors within railway industry, also participated in this half day seminar. It was evident that large and successful organisations within the railway industry are already participating, or are trialling, a professional development program (PDP). They regard PDP as an essential component to attract and retain high calibre professionals within their organisations. The PDP programs adopted by the majority of these organisations are linked to the Engineers Australia professional development program. It is acknowledged that the introduction of the RTSA professional development program complements these programs and it creates an opportunity for railway professionals working in smaller organisations (which do not have a structured program) and elevates the professional standing of the entire railway industry. It is anticipated that such a benchmark development program will prepare the railway industry to cope with modern work force practices, where significant movements occur among young professionals in the early part of their career.

As part of the PDP program, the RTSA is currently seeking expressions of interest from experienced professionals to provide mentoring support for young graduates joining the railway industry. Research has shown that mentoring provides significant benefits to those who are providing the support. The benefits include improved professional recognition, an increased support network and provision of intrinsic satisfaction and self fulfilment in playing a part in shaping the future of the railway industry.

It was identified during the Symposium that fragmentation within the railway industry has led to a lack of comprehensive training opportunities in various fields within railway technology and it is one of the stumbling

blocks to creating well rounded railway engineers. A rotational training program, administered by an industry body, may alleviate this training difficulty and could assist in improving this requirement. The rotational graduate training program developed in Melbourne by the Rail Tram Industry Infrastructure Committee (RTIIC) was identified as a possible model for consideration.

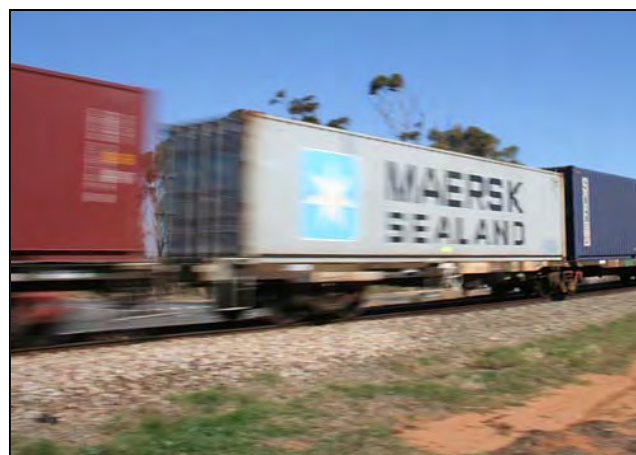
The Symposium also identified that railway organisations should become more proactive in encouraging young school leavers and early undergraduate students to consider a career within the railway industry. The RTSA is planning to conduct presentations to first and second year undergraduates in various Universities to highlight opportunities within the railway industry.

## Launch of New Zealand Chapter

In another positive development, the long awaited RTSA New Zealand Chapter will be officially launched on Tuesday 1 April 2008 in Wellington New Zealand. Following the launch, a seminar on *Innovation & Change on Rail*, together with a series of presentations on past, present and future railway innovation, will take place. The New Zealand Chapter, in addition to the five Australian Chapters, will provide a strong platform to strengthen the links between railway professionals in both countries.

*Ravi Ravitharan*  
*RTSA Executive Chairman*

For additional information on the RTSA and its activities including professional development initiatives I encourage you to visit the revamped RTSA web site at [www.rtsa.com.au](http://www.rtsa.com.au) OR contact the RTSA Secretariat on (02) 6270 6569.



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**RTSA**

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## Point of View

Max Michell

Capacity is an interesting issue. Superficially, bigger means higher capacity – but is it? If we take the intermodal rail case there is an interesting conundrum. When Superfreighters were first operated on the East Coast they were around 600 tonnes gross and maybe 300 metres in length - perhaps 40 TEU (twenty foot equivalent length containers). Even the prevailing relatively simple terminals could strip a train of this size in maybe 90 minutes. Over time the permissible East Coast train length has grown to 1500 metres – up to 220 TEU long. Such trains, even with higher productivity terminals, can take up to 240 minutes to strip. So while the longer train allows more ‘capacity’ on the main line by using fewer paths, it actually is less efficient from a rolling stock utilisation point of view. After all if the terminal dwell time for the whole 1500 metre train is extended by notionally 150 minutes as compared to the shorter train, in theory it will be possible for the little train to get more trips in over any given time.

Sometimes there are other forces at work in the capacity game. In the coal network of the Hunter Valley for instance, where the average length of haul is a bit over 100 km,

logic would suggest relatively short trains to limit standing time during loading and unloading. However the tonnage of coal wanting to get to port is such that with the number of trains required, even with moderate length trains (5700 tonnes of coal in 1000m trains) the track is hard put to cope. In this case, and most high volume commodity hauls, the commodity is of sufficient value that it can ‘pay’ for sectional inefficiency (excess dwell time and consequent increased rolling stock numbers) in order that the capacity of the coal supply chain can be maximised.

A new book just released (Sydney’s Electric Trains by John Beckhaus and Stephen Halgren) has a largely pictorial coverage of the electric trains of Sydney since they started running back in 1926. This admirable work, not surprisingly, has around half its pages devoted to double deck cars in one form or another. In fact these are introduced at page 69 with the comment “... in 1962, Railway Commissioner Neal McCusker embraced the concept of double deck cars as a solution to Sydney’s rail transport future.” Initially double deck trailers were spliced between single deck motor cars, but after some experimentation a production run of completely double deck trains started in 1972 and continued through to 1992 to completely replace all single deck cars that had been in Sydney suburban working – Sydney then having a completely double deck EMU fleet. The standard eight car single deck set had up to 560 seats as compared to up to 1000 in an all double deck set, so superficially there had been a gain of something over 70% in seating capacity with no additional track capacity. But was there?

Back in 1955, before the final bit of the City Circle was opened between St James and Wynyard, it has been reported that St James was scheduled to turn back 30 trains per hour in peak periods. Practical headways at that time were 2 minutes between trains, although it must be said that the turnback management at St James must have been quite something to keep this rate up! So a simple sum suggests that the track capacity of the St James side of the city lines pre 1956 was around 17,000 seats per hour.



Assuming the whole city circle had similar headway capabilities (it all had similar signalling) then the entry of the all double deck fleet by 1992 should have provided around 75% lift in capacity – to 28500 seats per hour. But not so. Having been through the crush at Town Hall station several times recently, I took it upon myself to note a few dwell times of the double deck trains there. It would hardly be news to any local but peak dwell times of between 60 seconds and 120 seconds are quite the usual practice. Poor platform layouts, poor car interior design, limited door numbers in relation to the numbers and location of seats, and the power door opening and closing ‘rituals’ are all contributors to this unfortunate situation. In practical terms the Sydney city railway now has a capacity of around 20 trains per hour – the difference between now and 54 years ago being entirely taken up by extended dwell time. So in reality track capacity on the city railway is now no more than 20,000 seats per hour, a gain of less than 20% using rolling stock with 75% more seats. In fact the blighted practice of running 6-car sets (roughly 600 seats) almost negates any benefits of running double deck trains on some lines. These trains not only have reduced capacity but they demand even more extended dwell times as punters take longer to scramble into the shorter train

Apart from the trains themselves the platform design, admittedly from another era, is far from ideal. But once again the trains are a major factor in platform inadequacy. Back then a train every two minutes would clear say (for arguments sake) 600 people at 2 minute intervals. If the same people were there now there would have to be 900 people to clear with each train (at 3 minute intervals) to move the same total number of people. In other words the city platforms now have to deal with 50% more people at any one time, as compared to back then, in order to handle the same number of passengers on the trains.

As if to validate this capacity issue I travelled in to Melbourne in the morning peak recently. The preceding train was cancelled, so we had a ‘double load’ (which meant seriously full), and to make matters more interesting the train was a Siemens train with only two doors per car – 12 doors in all (Sydney DD trains have 16 doors and will continue to do so as long as we persist in building the world shortest DD cars). The train filled to a standing load within a few stops but at no time was there any stop longer than 30 seconds – in fact the majority of stops were around 20 seconds. There were several mitigating factors – platforms were more than adequate for the numbers of passengers, single deck trains are far more ‘passenger flow’ friendly and one man operation (yes Virginia! – Melbourne suburban trains have been entirely one man operated for more than 10 years now) saved several seconds between door closing and departure at each stop.

There is obviously a place for double deck trains – routes where extended city station times are less important than provision of line capacity for longer distance journeys such as the Penrith, Campbelltown lines, and for semi fast trains with limited stops for instance. But for shorter distance journeys, and particularly for those lines where there are frequent stops, the DD trains are quite inappropriate. The local obsession, followed over many years, of ‘one size fits all’ was no doubt the reason that the consultant’s recommendation for single deck trains for the Eastern Suburbs line when it was built in the late 1970’s was ignored in favour of DD trains. The result these days is that even with as little as 3 -5 minutes between trains the three stations on the Eastern Suburbs line can well and truly fill a DD train – but with such short distances most punters will not fight their way into the double deck seating only to have to fight their way out again a few minutes later. They mostly stand near the doorways, just where efficient operation demands there be a free flow of passengers at stops. And presumably this will go on for decades yet until the time that new single deck trains are acquired to serve the 50 % of suburban stations that even now would be most efficiently served with free flowing lower capacity trains. Instead we now look forward to 78 new eight car double deck trains which will only marginally improve the capacity position on the central half of the CityRail network – and there are persistent suggestions that these train will be indivisible sets with the guard relocated (but retained) at the rear, where no doubt the departure ‘ritual’ will be even slower.

Strangely I quite enjoy the Endeavour and Hunter cars – they are unsurprisingly single deck and well matched to the services they run. Pity we can’t all have such consideration. I shall enjoy the day when Melbourne, with a fleet of single deck trains, overtakes Sydney as the busiest suburban railway – on current trends pencil in around 2018.



### Sydney Metro plan can provide transport solutions

The RTSA recently issued a press release giving qualified support to proposals for a new metro style railway linking Sydney's north-west suburbs.

The RTSA has welcomed the commitment of the New South Wales Government to invest in a modern metro-style rail link for Sydney and believes the plan has the potential provide a sustainable solution to some of Sydney's growing transport needs.

The proposed \$12 billion plus Metro, that will link the developing suburbs of the North West and the Sydney CBD, echoes the vision shown during the Bradfield era of the 1920s when much of the current suburban electric railway network took shape. However careful attention will be needed when integrating the new system with existing rail and bus networks.

This proposed new railway will lay the foundations for the next generation of public transport, responding to the emerging challenges of congestion, climate change and liveability, as they affect Sydney.

In the larger cities of North America, Asia and Europe, metros are a mode of choice, carrying vast numbers of commuters. New rail technologies have higher levels of productivity and energy efficiency than the existing rail system, delivering higher levels of customer performance.

The RTSA has long been aware of the need for alternative public transport technologies to provide sustainable transport solutions for Sydney's growing population.

Prior to this announcement, the RTSA had already begun planning for a major symposium, which will be held later this year in Sydney during November, with the aim of building industry and community awareness of the benefits of improved rail technologies.

The symposium will hear from speakers on the latest in Metro rail developments and the part that these can play in reshaping Sydney into becoming a more liveable and accessible city.

One of the key issues to be addressed at the symposium will be the smooth integration of any new rail system with existing rail and local bus services. Better integration of transport systems builds greater network resilience, providing valuable services at interchanges and an improved range of travel routing options. The RTSA believes that integration of local transport and community services should involve higher levels of collaboration between State and local governments.

**Andrew Honan**  
*Chairman, Government Relations Committee*

### Inland rail alignment study underway

The Australian Government has commissioned an extensive study to determine the economic benefits and likely success of a new multi-billion dollar standard gauge inland railway between Melbourne and Brisbane.

The Australian Rail Track Corporation (ARTC) has been requested to undertake the study – using the \$15 million that was earmarked in the previous Government's May 2007 Budget allocations.

Previous studies have indicated that an inland route through the Central West of NSW has the potential to slash the Melbourne to Brisbane rail freight transit times from 36 hours to just 21 hours.

In developing a detailed route alignment, the ARTC will generally follow the far western sub-corridor identified by the North-South Rail Corridor Study released in 2006. The ARTC study will build upon this earlier work and determine the optimum alignment of any future inland railway after taking into account the needs of potential users as well as possible engineering, planning and environmental considerations.

As well as determining the route alignment, the ARTC study will provide both the Government and private sector with information that will help guide their future investment decisions, including likely demand and an estimated construction cost.

Importantly, the study will provide the Government with a basis for evaluating private financing options for part or the entire project.

Federal Transport Minister Anthony Albanese has requested that all working papers developed as part of the study be placed on the ARTC website after the completion of each stage of work, giving the public the chance to make comment.

The objectives of the study are to determine:

- The optimum alignment of the inland railway, taking into account user requirements and the economic, engineering, statutory planning and environmental constraints. The alignment will be sufficiently proven up so it can be quickly taken through the statutory planning and approval process and into detailed engineering design and construction, should a decision be taken to proceed;
- The likely order of construction costs +/- 20%;
- The likely order of below rail (infrastructure) operating and maintenance costs;
- Above rail operational benefits;

- The level and degree of certainty of market take up of the alignment;
- A project development and delivery timetable;
- A basis for evaluating the level of private sector support for the project.

The study is to be carried out in three stages, with a review of progress and direction at the end of each stage.

Proposed stages are as follows:

- Stage 1 – Determination of the preferred route;
- Stage 2 – Engineering, environmental and land baseline analysis;
- Stage 3 – Development of the preferred alignment.

Each of the stages will represent a milestone for the project as a whole. The progress of the study will be reviewed in detail at the end of each stage. Progress to the following stage will be dependent on satisfactory outcomes for the study to date.

Within each stage there will be a series of working papers produced to document the progress of the study. The ARTC will consult with key interested parties during the study. The study is to be due to be completed in August 2009.

## Disappointment at procurement of new trains from overseas

The Australian Railway Industry Corporation (ARIC) has expressed its disappointment over the Victorian Government's recent decision to procure a \$230 million order for suburban electric trains from overseas.

ARIC has questioned the decision not to opt for some degree of local manufacturing content as offered by the various tenderers.

New electric trains that were delivered previously to Melbourne in 1999 included up to 30% of locally sourced and manufactured items along with final assembly that provided thousands of jobs. This was only achieved through the last-minute intervention of the newly elected Brack's Government.

Mr Ian Robb, the Executive Officer of ARIC said, "Our concern is over Governments bypassing the Australian rail manufacturing industry in their ordering of new trains from overseas, when there is a strong home-based industry capable of supplying significant local industry content.

"The VLocity diesel trains are a shining example of this. Designed in Australia and manufactured in Dandenong by global industry leader Bombardier, these award winning trains have been a huge success and included over 70% local content."

ARIC Chairman, Mr Alan Burns said, "Our export target markets certainly understand the need for local content as part of their own balanced economies. Australian industry

is regularly confronted by requirements for local content as a "non Tariff Trade Barrier, around 30% in most Asian countries."

"Even under our Free Trade Agreement with the USA, a project of this magnitude funded by the US Government, would be influenced by "Buy America" regulations that require more than 60% of the cost of all the manufacturing and final assembly of the rolling stock to be sourced in the United States."

"Meanwhile in Australia, the strength and resolve of our railway manufacturing industry continues to receive a battering, while as nation we are crying out for industry skills and experience to be retained and strengthened."

ARIC is concerned that the current State's procurement guidelines actively disregard local content as a leading selection criterion and will again be used to discount the value of the State's "Meeting Our Transport Challenges" initiative when large train contracts come up later this year.

"Over \$1 billion in trains and trams could again go offshore, as local manufacturers consider their options to continue the trend to offshore their manufacturing," Mr Robb said.

The 2003 Victorian Tram Rail Manufacturing Strategy Mark II established that acquiring only 40 light rail vehicles locally per year would:

- increase annual output of Victorian manufacturing by \$120 million per year
- generate of a further \$87.2 million in supply chain income
- generate direct employment of 150 full time employees for a period of 10 years
- add a further 450 full time employees in the supply chain
- provide direct value adding input to the State's economy of \$605 million over the contract life and boost export opportunities from Victoria.

"These are the types of benefits that also have a positive impact on our Terms of Trade, investment in industry in Australia and the retention of critical rail industry skills."

ARIC has urged Victorian Government to:

- intervene and review the decision to buy \$260m of suburban electric trains offshore in light of the reported local content options that were offered to Government.
- overhaul the Procurement Guidelines to promote local content as part of the key selection criteria and
- provide a firm local content commitment from Government for the \$1.3Bn MOTC procurement.



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## CRC for Rail Innovation: All Systems Go

The CRC (Cooperative Research Centre) for Rail Innovation is responsible for the single biggest research program in the history of Australian railways. The CRC is a collaborative venture between leading organisations in the Australian rail industry and Australian Universities. The CRC for Rail Innovation receives \$21m support from the Commonwealth Government and will invest around \$100m in rail industry research over the next 7 years.

Rail plays a key role in every Australian's life. In 2006 a whopping 634 million rail journeys were made in urban areas and a total of 9.4 million journeys in non-urban areas. In addition, 635 million tonnes of freight were carried by rail, and 615 million of those tonnes were iron-ore and coal. Our vision is to undertake rail research to generate significant economic and social benefits to Australia.

The CRC for Rail Innovation has a broad scope embracing 5 programs

- R1 – Economic, Social & Environment
- R2 – Operations & Safety
- R3 – Engineering & Safety
- Program 4 – Education & Training
- Program 5 – Commercialisation & Utilisation

Rail has some inherent advantages over other forms of land transport and the CRC intends to optimise its performance particularly as we face the growing challenge of climate change and sustainability. I am pleased to advise that the CRC for Rail Innovation is now well and truly up and running. All agreements are signed and the CRC Board has approved fifteen research projects including issues such as:

- Emission Trading – developing rail industry foresight
- Environmental Regulations pertaining to rail
- Survey of railway level crossing safety research and development
- Tools to evaluate human factors issues of new technologies
- Longer life insulated rail joints
- Scoping current practices in driver performance monitoring and feedback

Whilst the CRC operates as a virtual organisation, a small leadership team is now in place. During the next seven years we intend to:

- Pursue world class rail research and education
- Become the research provider of choice for the Australian Rail Industry

- Ensure that the Centre research will deliver economic, environmental and social benefits to the Australian economy, rail industry and centre Participants

This is a very exciting period for rail in Australia. It is our goal that the CRC for Rail Innovation becomes recognised nationally and internationally with high levels of adoption and commercialisation of the rail research it generates.



*David George, CEO - CRC for Rail Innovation*

For more information on rail research in Australia please visit [www.railcrc.net.au](http://www.railcrc.net.au)

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## Patronage figures soar on Perth to Mandurah railway

Patronage on the new Perth to Mandurah railway which opened just after Christmas, has already exceeded by more than 40% the numbers forecast for the previous planned deviation via Kenwick.

WA Planning and Infrastructure Minister Alannah MacTiernan said that average weekday passenger journey numbers were more than 40,000 and reaching 45,000 on some days.

"We have exceeded 80% of our predicted patronage in just 11 weeks, which is an outstanding result," Ms MacTiernan said.

"So far, the new railway is carrying between two and three times as many passengers as the average 16,000 people who rode the buses along the same route.

The Minister said she was amazed that the WA Opposition still appeared to support their inferior alternative route.

"Our strongest patronage is coming from the very stations the Opposition said we shouldn't build, with current boardings at Canning Bridge (154% up), Bull Creek

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(128%) and Murdoch (127%) well above predicted numbers.

"Given the new line's overwhelming acceptance, especially in Perth's southern suburbs, it is surely time for the Opposition transport spokesperson to acknowledge he has got it wrong.

Ms MacTiernan said the massive reorganisation of bus routes and increased frequencies and the addition of 80 new buses had also proved popular with patrons, especially at the busiest stations.

"About 60% of passengers at Murdoch and Bull Creek are arriving by bus. Although we have more parking bays than at comparable stations on the Northern Line, we acknowledge car parks are full.

"We are building more bike storage facilities at Bull Creek and Murdoch to encourage those living within one or two kilometres of the station to use their bikes rather than cars.

"Over the next three months, we will also consider what opportunities there may be for additional car parks."

Some rail industry observers have noted the WA Government's claim that rail patronage is two to three times the 16,000 passengers who previously rode by bus along the Mandurah corridor, illustrates that rail is a much more attractive alternative than bus for the motoring public in this type of application.

The same observers note that Mandurah people previously had the option of relatively fast double deck coaches (not buses) for many of their Perth trips before the railway opened. Bus-centric planners and the current 'bus-biased' Brisbane City Council might like to note this.

They claim the Mandurah line should also now put to rest the sweeping generalisation that Australia's suburban population density is too low to support heavy rail - something that has been trotted out over the years to debunk proposals like Melbourne's Doncaster railway.

At AusRAIL 2007, Peter Martinovich Deputy Project Director, New MetroRail of the Public Transport Authority of Western Australia noted, "Even after the decision to electrify the rail network in 1985, in mid-1988 transport planners recommended to the State Government a consultant's report to build a bus system to serve the northern suburbs. And then, despite electrification of the existing railway and building of the Northern Suburbs Railway (NSR), initial proposals in the early 1990's for a mass transit mode to serve coastal suburbs south of Perth linking the cities of Rockingham and Mandurah, heavily favoured buses. It was only the assertive efforts of rail planners in support of the State's Department of Planning and Urban Development in 1992-94 that resulted in government acceptance of a rail route from Perth to Mandurah."

Minister MacTiernan at AusRail 2005 said, "The big picture plan is designed to future proof Perth delivering a sustainable and exciting city for the 21st Century. We need to build resilience into our city if we are to manage growth and deal with/withstand the global challenges of climate change and oil depletion.

"... While buses will always be an important part of our public transport system, the evidence is that rail services have the greatest ability to attract commuters who have a choice. If we are to get people out of their cars and onto public transport, rail is a much better bet."

Peter Newman, Professor of Sustainability, Curtin University said recently, "By 2001, there was bi-partisan support for building a new Southern Railway. Later Allannah MacTiernan took on the job of implementing this policy and we all watched as she battled cynical opponents of the railway until 23 December 2007 when no opponent seemed to be left standing.

"Those who have flocked to the new train have experienced a first class urban rail service. The predictions for the whole network in five years are around 100 million passengers a year. Meantime, every train is full at peak hour and events like the football just couldn't happen without the train.

"(Perth's rail revival) is a remarkable turnaround. It is also a source of great hope when we look at issues like global warming and peak oil to see that public movements can help set the long term agenda for a better future of our city."

- *Additional input from Philip Laird and John Hoyle*

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## **Kerang Level Crossing Report**

Victoria's Transport Safety Chief Investigator has released his findings into the Kerang rail level crossing disaster which claimed 11 lives in June last year. The report reviewed all the factors leading up to the disaster but remains partly inconclusive in its findings.

On Tuesday 5 June 2007 V/Line passenger train 8042 was struck by a loaded articulated vehicle at a level crossing on the Murray Valley Highway about six road kilometres north-west of Kerang. The train was operating the 1300 service from Swan Hill to Melbourne and the semi-trailer was on a regular freight run from Wangaratta to Adelaide.

The semi-trailer collided with the second passenger car of the locomotive-hauled three car train. As a result, a large section of the body-side was torn away by the truck trailer and several seats on the right side of the car were torn from their mountings. Eleven train passengers received fatal injuries and a further 14 and the truck driver were injured.

At the time of the incident the level crossing flashing lights and warning bells were operating and activated slightly more than 25 seconds before the train entered the crossing

which exceeds the minimum warning time of 20 seconds specified in the relevant Australian Standard.

The report observed that the investigation was unable to determine the reasons why the truck driver involved did not heed the level crossing warning devices. The lights were activated when the truck was about 700 metres from the crossing. Also, that there was no impediment to the flashing lights being sighted from at least 300 metres and that the advance warning sign, located about 260 metres from the crossing, should have provided an adequate opportunity for the driver to observe the flashing lights and stop his truck prior to the crossing.

The report recommends some improvements to the design of passenger rolling stock, to lessen the consequences of a collision such as the one that occurred at this site. Also, importantly, the report recommends reconsideration of the speed limit for road vehicles at crossings, and the education and reassessment of heavy road vehicle drivers. It is somewhat incongruous that drivers of trains are subject to much more rigorous health checks, shift duration limitations, training regimes, and performance reassessment, than are drivers of heavy trucks. Would a commonality of driver management standards across the two transport modes have lessened the likelihood of this accident occurring?

Improvements were made to the crossing before it was re-opened after the accident – boom barriers to supplement the flashing lights, rumble strips on the highway approaching the crossing, automated advanced warning signs, updated warning signage, and a rail level crossing predictor to standardise warning times for approaching trains. All of this on a crossing previously assessed as priority 140 on the Victorian list for safety improvements.

Surprisingly, the report's recommendations mostly relate to physical aspects, with little involving "human factors", specifically road user behaviour at level crossings. For some reason a "stop" sign at a railway crossing seems to mean something different to the same sign elsewhere on the road network. Flashing red lights are often treated similarly. This appears to be an area deserving of more research and investigation.

It is unfortunate that notwithstanding improvements in crossing safety, and increasing numbers of installations with active protection, the incidence of serious collisions at level crossings does not seem to be diminishing. Despite public calls for more boom barriers, one wonders that in a situation where the approaching train is visible, the locomotive horn is sounded, the headlight is illuminated, warning road signs are displayed, and flashing lights are flashing, would the addition of boom barriers really prevent a collision which would otherwise occur?

• *Mark Carter & Duncan McLeod*

The report on the Kerang incident can be found at [www.doi.vic.gov.au/chiefinvestigator](http://www.doi.vic.gov.au/chiefinvestigator)

## Toll NZ back on track for new rail offer

Time is ticking away for Toll Holdings to come back with an offer to break the deadlock in talks with the New Zealand Government on the sale of rail assets back into state ownership.

Toll is believed to have come up with a new offer to breach the substantial distance between the two parties.

Toll NZ chief executive David Jackson today defended the company's performance since gaining control of Tranz Rail in 2003. He also warned that new investment in rail had to be in the right places - the implication seemed to be that the company thought it might not be if all rail assets were owned by government.

The Government was preparing to play hardball with Toll and enforce an existing rail access agreement with high access fees, but after high-level telephone calls Toll got another two weeks to come up with a new offer.

Reports vary but the Government was believed to have offered in the mid-\$500 million area and Toll wanted as much as \$1 billion. Mr Jackson said that Toll had invested \$265 million since arriving in NZ.

"We have taken no dividends, we have improved the efficiencies, we have motivated staff and we have a business that is now viable. We have done a lot of this with fundamentally the same set of tools (people, rolling stock and assets) that we started with." Tranz Rail was technically insolvent and its failure was imminent when Toll took majority control of Tranz Rail in 2003. It now wholly owns it.

It was recognised by both Toll and the Government that the network was in far worse condition than anyone had anticipated, Mr Jackson said.

"We are prepared to invest more but require reasonable returns. We want a regime that puts tensions in place to achieve the most cost-effective outcome, that all stakeholders are accountable in this essential service to the country, and that a true, positive economic outcome is achieved.

He said the customers of rail services had been overlooked in the debate. A subsidy to rail would benefit customers, whereas most of the comment in editorial pages had focused on Toll benefiting from the subsidy.

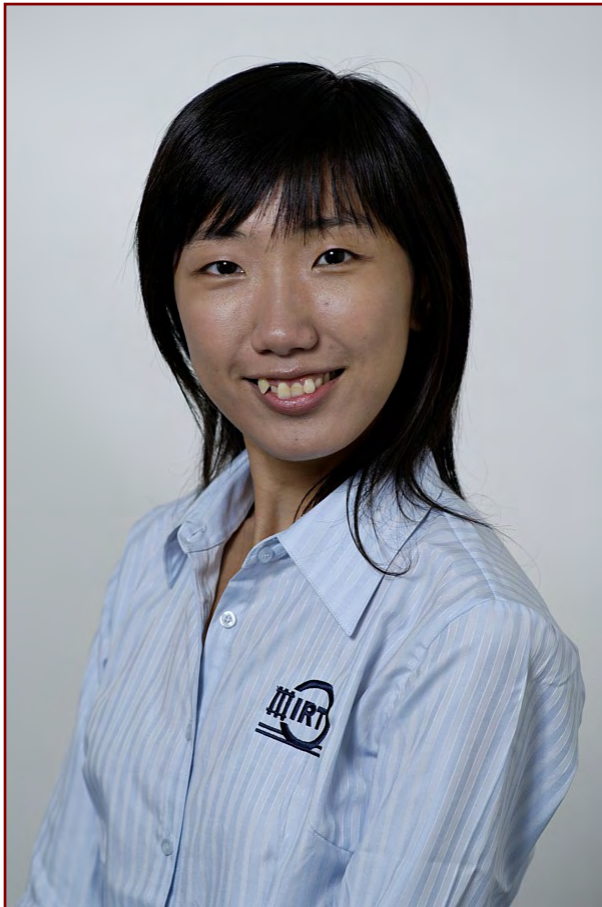
He said road transport did not pay the full costs of its impact on roads. There was no recognition of road operators receiving a subsidy but arguably they did.



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# Society and Chapter News

## First to Join the RTSA PDAP Program



Naty Lee, who recently joined the railway industry, is the first person to enroll in the *Professional Development Assessment Program (PDAP)* introduced by the *Railway Technical Society of Australasia (RTSA)*.

She completed a Mechanical Engineering Degree with Honours at Monash University in October 2007. She worked as a graduation student with the world renowned *Institute of Railway Technology (IRT)* at Monash University from November 2006 gaining valuable knowledge and experience in how railway systems work. Then following her graduation she was accepted as an IRT graduate engineer and has worked on several rail defects-related projects for various Australian rail-based organizations.

Naty is looking forward to an exciting and challenging career in the railway industry. She is a graduate member of Engineers Australia (EA) and a member of the RTSA.

The RTSA has worked closely with EA to develop the *RTSA Professional Development Assessment Program* which is designed specifically to suit the requirements for career development within the railway industry. It should be noted that the RTSA is the first industry based organization to introduce a structured professional development program which is now accessible for all young graduates within the railway industry.

For additional information on *RTSA Professional Development Assessment Program*, please contact RTSA Executive Chairman, Ravi Ravitharan - [ravi.ravitharan@eng.monash.edu.au](mailto:ravi.ravitharan@eng.monash.edu.au)

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## Report on RTSA Professional Development Symposium Sydney 12 February 2008

Presentations and discussions were of a high calibre and a number of clear messages emerged from this half day symposium. Thanks to all those organisations that participated thereby demonstrating their commitment to professional development in rail engineering capability.

Many organisations that presented have already signed up to Engineers Australia Chartered Status Professional Development Program. **Steve Dilli** from **Engineers Australia** outlined the program's aim, of moving graduate engineers through to Chartered status in a structured manner. Gaining Chartered status has many advantages to both the individual and the organisation. It marks the person out to be a competent engineer, able to provide a level of practice above a graduate engineer and has implications in law. The framework also commits the engineer to continuous professional development, to maintain their practice relevance.

**Ravi Ravitharan** outlined how the **RTSA** can help facilitate individuals through this Engineers Australia ...



**Steve Dilli – Engineers Australia**

program, particularly for those individuals not employed in a company sponsored Engineers Australia program.

**Brian Hastings** outlined the **Interfleet** 'Passport' scheme developed in the UK and challenged the RTSA to set up a similar scheme in Australia. The issue was that engineers could not gain all the competencies from one employer and thus not attain Chartered status via one employer. There was a need to allow individual to move through different employers to gain Chartered status.

**Garry Whiting** from **ARA** provided some background research from their industry outlook survey on skills gaps. There is indeed a looming crisis in rail engineering skills, particularly from retiring rail engineers (50+ years of age) with little uptake coming into the industry. There appears to be a heavily weighted age profile in the industry towards the senior years. Garry highlighted the low completion rates of engineers through university and questioned what factors led to non-completion. A higher supply of graduate engineers would obviously assist in the rail industry.

**Jenny McAuliffe** and **Phillip Campbell** from **ARTC** each gave a presentation; one on the mentoring program and one on the engineering program. The mentoring program matches up a mentor with a 'mentoree' and runs across the entire ARTC Corporation. This was a one year pilot program sponsored by grant money from government.



**Jenny McAuliffe - ARTC**

**David Roberts** outlined some of the key features of the **GHD** program. GHD also has a mentoring component as well as endorsing the EA chartered program. There were a number of in-house and external short courses which GHD endorses, and GHD believe these are effective ways of continuous professional development.



**David Roberts - GHD**

**Kim Fletcher**, recently employed in **TIDC** and in charge of 'learning and development', outlined the future program of TIDC. Kim also discussed rotation of graduates as an issue.

**Bill Palazzi** from **Parsons Brinckerhoff** outlined their learning and development program and highlighted the success of short courses within PB. They also endorse the Chartered status program

**Diana Cross** from **ARUP** outlined their program and the focus of efforts to have employees come up with their own training needs. ARUP support engineers through their learning and development linked to individual needs and their performance assessment. ARUP are also on the EA program

## **Emerging Themes**

### **Pathways from Graduate to Chartered Status**

There was a clear message that rotation of engineers was needed for engineers to attain the necessary competencies of Chartered status.

The RTSA had tried to introduce the passport scheme in Australia some years ago; however this did not take off.

There was debate as to whether companies, with a profit motive would act altruistically for the collective benefit of individuals and the industry or whether they would act in self-interest. It would depend if development of intellectual capital leading to chartered level was seen as a competitive advantage for particular companies.

Unfortunately there was not a cross section of the manufacturing industry present at the symposium. Would manufacturing employers see growing their human capability organically as a competitive advantage, and not wish to share this with other manufacturers?

The case may be slightly different for consulting companies, where rotation may be seen as filling a capability gap, in the provision of consulting services.

The case may also be different for government agencies for example RailCorp, where it may be in the government's interests to share technologies and develop different work practices. This could lead to an accelerated transfer of technology between industry and government agency, servicing the needs of both government agency and industry.

Certainly in Victoria the Department of Infrastructure has initiated a rotation program with operators and rolling stock manufacturers/maintainers. This was described at the RTSA symposium in Melbourne late last year.

The motivations of the different parties would need to be understood, although the evidence of the UK passport scheme should be a basis to work from.

The RTSA thought that it did not have the resources to run such a scheme by itself, and suggested it was well suited for the rail industry body ARA, through Rail Skills and Careers Council. This body would ensure, at senior levels, poaching of individuals did not occur, and that employees would not work in competitors' fields say within a 3-month period. This body could perhaps administer the scheme with the co-ordination of human resource departments within each of the constituent ARA member companies.

Perhaps these sorts of protocols, including confidentially agreements may be no different to existing employees resigning from one company and moving to another.

### **Enticing Undergraduate Engineers to move into rail**

There was also discussion about getting engineers into rail. The old cadetship scheme, whereby undergraduates were sponsored through some of their course, was seen as an attractive proposition. The ARA definitely believed some organizations would be resurrecting this scheme. A particular example was cited in Newcastle with United Group.

A number of rail specific units are being delivered through the CRC and associated universities. For example CQU for signalling diploma (with IRSE endorsement), and UOW for rolling stock. Could engineers going through general undergraduate disciplined courses be given the opportunity of taking electives in rail technical areas that could go as credit points to their undergraduate degree? For example Mechanical Engineering at University of Sydney allowing candidates to enrol in elective units in the University of Wollongong Rolling Stock units and for this to go as credit points to their undergraduate course? Similarly for Electrical engineers picking up the signalling units at CQU as credit points.

Although universities like to protect their revenue stream, there continues to be a move for universities to accept credit points from other universities, particularly where the units are more specialised, and the demand across the nation is relatively weak. A number of universities have exchange arrangements with other national and international universities.

Perhaps the RTSA with Engineers Australia could help promote rail electives from selected universities into mainstream undergraduate courses?

Providing an opportunity for undergraduate engineers going into year 3, to take up rail electives, may be one way to attract engineers into the rail industry.

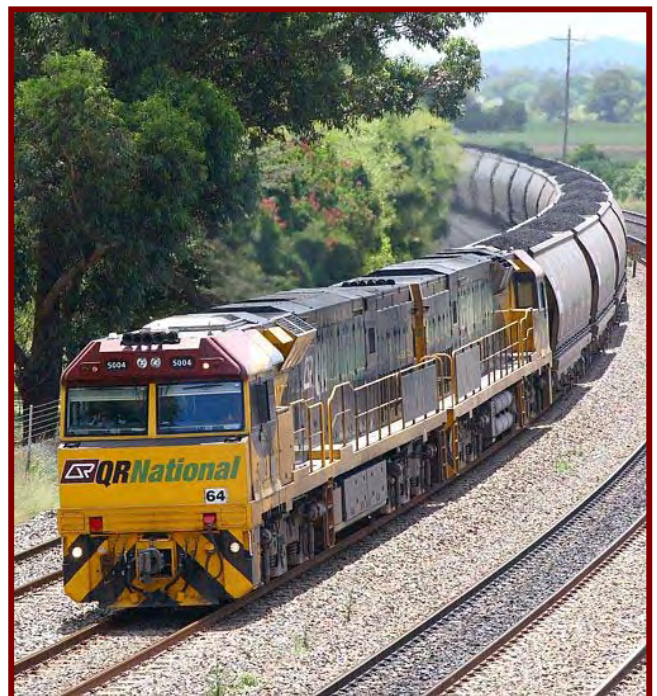
### **Enticing school leavers to consider a career in rail**

A theme that reoccurred at the symposium, and previously discussed with RailCorp was the need to attract young school leavers.

Engineers Australia conducts a number of initiatives including careers nights at school, and national Engineers Week. A number of organisations previously expressed interest in providing resource material, e.g. DVD and brochures that could be used with career counsellors.

Many of the issues identified above will be consolidated with the outcomes from Melbourne, and will be a focus of discussion by the RTSA executive as its next meeting.

**Andrew Honan, NSW Chapter Chair**



## **CORE 2008, the biennial Conference on Railway Engineering, is gearing up to be the best yet.**

Organised by the Railway Technical Society of Australasia (RTSA) the conference is a major event on the rail industry calendar and this year it will be held at the Perth Convention and Exhibition Centre from September 7 through to 11, 2008

The conference continues to grow in popularity and John Goodall, the Conference Organising Committee Chairman, says that the early reaction from the rail industry for CORE 2008 has been fantastic.

In response to the high level of interest the conference is being expanded in a number of areas. Some 120 excellent abstracts were received for consideration, and the technical program will comprise 72 papers, up from the 60 papers included in CORE 2006. Because of the increased number of papers, delegates now have a choice of four technical sessions, rather than the usual three sessions. Two plenary sessions will be included, one at the start of each conference day, to allow for five exciting keynote speakers.

Interest in sponsorship and the trade exhibition has been excellent. With 6 months to go until the conference, some 80% of the sponsorship opportunities have already been sold and all 40 exhibition booths have been taken. The Organising Committee hopes to expand the number of sponsorship opportunity to cater for the anticipated extra demand, and the trade exhibition will be increased to 60 booths.

The conference will be opened by Western Australian Governor and distinguished engineer, Dr Ken Michael AC. Urban rail will be the theme for the plenary session on Day One, with keynote addresses by Dr Geoff Gallop, former WA Premier, and by Reece Waldock, CEO Public Transport Authority WA. Day Two plenary session will focus on freight with keynote speakers Richard Cohen GM Rail, Pilbara Rail and Angelo

Demertzis GM East/West, ARTC, with a third speaker discussing the Goonyella Coal Chain Capacity Review.

Technical tour planning is well advanced with tours currently being finalised:

- North West railways tour
- Perth urban rail - new network tour
- Workshops tour - urban and freight mechanical construction and maintenance
- South West tour - mining and processing facilities of a major rail user
- Morning commuter experience

Based on the level of interest to date, John expects registration numbers to exceed those for previous conferences, and anticipates at least 500 delegates. Registration brochures will be available from April. Potential delegates are invited to register their interest through the conference website at [www.CORE2008.org](http://www.CORE2008.org).

CONFERENCE ON RAILWAY ENGINEERING  
**CORE2008**  
RAIL - THE CORE OF INTEGRATED TRANSPORT

7-10 September 2008  
Perth Convention Exhibition Centre, Perth, Western Australia

The graphic features a stylized 'C' shape composed of various railway-related images, including tracks, a train, and industrial facilities, set against a background of a tunnel with tracks receding into the distance.

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## South Australia

The South Australian Chapter's 2008 programme has started well.

Our February meeting, jointly with Permanent Way Institution as hosts, comprised a site visit to the nearly-completed Port River rail bridge. This bridge comprises a large opening bascule span, with extensive approach spans. Trackwork is complex, to accommodate the lifting span, together with both standard and broad gauge tracks.

Following the site inspection, members adjourned to the nearby National Railway Museum for a barbeque and refreshments. Our thanks go to Abigroup, builders of the bridge, the National Railway Museum volunteers, and to the PWI, for organising such a successful occasion.

The following meeting, on 6 March, was addressed by Tony Simes, Senior Transport Safety Investigator, Australian Transport Safety Bureau, on the subject of ATSB's level crossing accident reduction strategy.

Level crossing accidents are one of the more serious safety issues faced by the rail industry in Australia. In many cases, level crossing accidents result in death or serious injury and generally account for a large proportion of fatalities associated with railway operations. However, the actions of third parties are often contributing factors to level crossing accidents and largely beyond the immediate control of railway organisations.

The presentation looked at the ATSB's role of investigating level crossing accidents in Australia. A number of significant accidents from the past few years were discussed, including a description of the circumstances leading up to each accident, and an explanation of the investigation findings.

Forthcoming meeting topics include the proposed extension of the Noarlunga suburban line to Seaford (April), maintenance of Adelaide's railcars (May), and TransAdelaide's major track upgrading project (June). Full details can be found on the RTSA website as the meeting dates approach.

***Duncan McLeod, SA Chapter Chair***

## Queensland

### Chairman's Comments

With the Christmas break, the Queensland Chapter has only conducted one presentation during the quarter.

### Recent Meetings

Meetings to note on since last report:

#### 20 February

The Queensland Rail Coal Haulage Network and the Urban Rail Networks in Perth and Brisbane are currently experiencing unprecedented growth. Jerry Jirasek from

Downer EDI Rail discussed the experience with 25 kV Locomotives in Queensland and 25kV Passenger Trains in Brisbane and Perth. There has been a significant drive to improve key performance attributes and recognition of the need to address constraints and these were discussed. (*Attendees 65*)

### Upcoming Events

The Queensland Chapter has another exciting program of activities organised for 2008. This includes Larry Matters from the ATSB discussing the Ghan Level Crossing Accident scheduled for 26 March. There is also a presentation on Geomechanical Risk Management of the Kuranda Range by Wayne Harisson on 23 April as well as the highly successful combined AGM/trivia night in July.

As always, the RTSA Committee welcomes any suggestions for events.

***Mark Wishart, Queensland Chapter Chair***

## Western Australia

The 2008 year has started well for the WA Chapter with the first meeting well attended and office bearers for the ensuing 12 months elected at the Annual General Meeting.

One of the best attendances at meetings was recorded for the 8 February meeting when the Chapter was fortunate to have the Chief Executive Officer of WestNet Rail Mr John Cleland address the gathering of over 40 attendees on the topic covering the challenges and future projects ahead of the rail freight business in Western Australia. Included in his presentation was the current vision for the Midwest iron ore rail network and the options being considered for this important extension to the WA mining boom.

In conjunction with the first meeting a short Annual General Meeting to report on the past year and to elect office bearers for the next year was held. As a result the following will assume the positions for the term:

**Chairman** John Syers

**Secretary** Bill Singleton

#### Committee:

John Goodall, Bruce Greening, Brian Cornish, Hugh Smith, Rebecca Taylor and Keith Jones

The contact details for each of the committee members is available on the RTSA website and any queries relating to the management and events being proposed by the WA Chapter can be sought from these members.

The March meeting was also well supported with almost 40 attending to hear the new laws relating to level crossing management explained by Mr John Fletcher, WestNet Rail. Included in the presentation was an explanation of the Australian Level Crossing Assessment Model (ALCAM) and how it relates to the stakeholders associated with level crossings.

A full program of interesting and topical presentations is planned for the rest of the 2008 year. It has been an objective of the committee to prepare a program of mixed diversity with interest to all fields of railway engineering. Among the proposed meetings in the first part of the year will be a reflection on the performance of the Perth to Mandurah Railway since opening in late December, a review of case histories of Railway Incident Investigations presented by a representative from the Aust Transport Bureau and a site visit to the Perth Urban Transport Authority urban Communications and Centralised

Signalling facilities. Full details of these presentations can be sourced from the RTSA, WA Chapter website.

Membership has remained steady with interest being shown by attendees at meetings to join the Chapter. Membership forms can be obtained from the Chairman or Secretary for any persons within the railway industry wishing to join and support the activities of the local Chapter.

*John Syers, WA Chapter Chair*



## RTSA SPECIAL TENTH ANNIVERSARY PUBLICATION

To mark the tenth anniversary of the RTSA, to be commemorated at CORE 2008 in September at Perth, the Executive Committee has commissioned a history of the RTSA to be collated by Dr Philip Laird, with a review panel comprising John Dring, George Erdos and Robert Schweiger.

The goal is to produce a high quality 64-page B5 sized publication. In addition to lists of award recipients, office bearers and publications, topics will include:

- The establishment in the early 1980s of the National Committee on Railway Engineering (NCRE) within the Institution of Engineers, Australia and work of NCRE
- The formation of RTSA in 1998, plus the recent formation of the New Zealand chapter
- Awards, Standards, Education and Training including the 1999 RTSA, IE Aust, ARA, IRSE reports
- Government Relations, CORE's and STORE's
- The Forward Vision Task Force (2002) report 'Rail in the next decade: where to and how?'

Suggestion for other topics will be most welcome, as would any personal accounts of Study Tours under RTSA (or if particularly memorable under NCRE - including Europe). In addition, contributions of a few hundred words on any relevant topic would be welcome, as would photographs.

Please send them to [plaird@uow.edu.au](mailto:plaird@uow.edu.au), or by post to PO Box 20, Keiraville NSW 2500, or to discuss ideas, phone Philip on 02 4221 3421.

The aim, with the assistance of as many RTSA members as possible, is to produce a publication that will be of interest to all RTSA members and the rail industry as a whole.

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# RTSA Diary April to July 2008

## New Zealand Chapter

- 1 April                    **Inaugural AGM and Seminar on *Innovation & Change on Rail***  
A series of presentations on past, present and future railway innovation
- Technological Change & Social Impact, Central North Island from 1950 by Euan McQueen, former Asst. General Manager NZ Railways, Geographer and Railway Historian
  - Locomotive Fuel Savings (EECA Award winner 2007) by Theo Klok (Locomotive Performance Engineer, Toll Rail) and Brent Gillet (Operations Manager, Toll Rail)
  - A Practical Approach to Effective Track Maintenance Planning by Ravi Ravitharan, Executive Chairman RTSA, Business Manager, Institute of Railway Technology, Monash University
  - A Revolutionary Advancement in Rail Management by Dr -Ing Hans Schienenbahn, German Railway Technology Institute, Munich

## NSW Chapter

- 2 April                    Presentation on Earthing and Bonding by David Stuart-Smith Chief Engineer, Electrical Systems, RailCorp
- 7 May                     Presentation on Metropolitan Rail Expansion Program by Tim Parker, TIDC
- 4 June                    "The Flinders Flyer" The Leigh Creek Coal Train by Ross Golotta, Interfleet
- 2 July                     Presentation to be confirmed
- 6 August                 Presentation on AK Test Cars and Mechanised Track Patrol by Daniel Thomson, RailCorp

## South Australian Chapter

- 3 April                    Proposed Track Extension from Noarlunga to Seaford Gareth Evans, DTEI
- 1 May                     Presentation on Maintenance of the Adelaide railcar fleet
- 5 June                    Joint meeting with PWI (topic to be confirmed)

## Victorian Chapter

- 9 April                    Public Transport in Melbourne by Professor Graham Currie, Monash University
- 15 May                    Presentation on railway standards development by the Rail Industry Safety and Standards Board (RISSB) by Kevin Taylor RISSB
- 23 May                    Dinner Meeting with Guest Speaker
- 18 June                   Presentation on European Rail Traffic Management System – (joint meeting with IRSE)
- 9 July                     Presentation on Incident Investigation
- August (tbc)             Chapter AGM followed by a presentation

## Queensland Chapter

- 26 March                 Presentations on Ghan Level Crossing Accident by Larry Matters
- 23 April                   Presentation on Geomechanical Risk Management of the Kuranda Range by Wayne Harisson
- 28 May                    Presentation to be advised
- 25 June                   Presentations on Instrumented Wheel Sets or Kinematics by Ian Goldney

## West Australian Chapter

- 24 April                   Presentation on Amalgamation of Silverton, South Spur & Gemco – What Changes can we expect? by John Hickey, Director Coote Engineering Services
- 29 May                    Railway Incident Investigations – Case Histories by Aust Transport Safety Bureau
- 10 July                    Site Visit – PTA Urban Communications and Centralised Signalling
- 28 August                Presentation on North Fremantle Container Transit Terminal – Update on Rail Facilities by Fremantle Port Authority

The above program is subject to last minute changes. For additional information on the RTSA and its activities, please visit the RTSA web site [www.rtsa.com.au](http://www.rtsa.com.au) or contact the secretariat on (02) 6270 6548.

# 2008 RTSA Railway Engineering Awards

Nominations for the 2008 RTSA Railway Engineering Student Thesis Award and the inaugural Contact Mechanics Award have been evaluated by the RTSA Awards Committee.

For his thesis entitled "Developing the Single Sleeper Push Test Device used to determine Track Lateral Resistance", prepared through the Griffith University in Queensland, **Mr Brendon Gill** has been selected to receive the **Railway Engineering Student Thesis Award**. The thesis makes determinations regarding the lateral resistance of a variety of railway sleepers in a range of ballast conditions. The results of the tests have been used to understand better, and predict, the behaviour of sleepers under lateral loading.

The **runner up** award in this category will be made to **Mr Glen Bearham** for his thesis "Evaluation of Battery Power Boosted Locomotives in Pusher Applications" prepared through the Central Queensland University.

**Mr Mina Hanna** will receive the inaugural **Contact Mechanics Award** for his thesis, through Monash University School of Physics and Material Engineering, entitled "Rolling Contact Fatigue – Microstructure-Mechanical Property Relationships in High Strength Pearlitic Rail Steels of Relevance to Wear and Rolling Contact Fatigue behaviour. The work undertaken for the thesis examines the relationship between material characteristics and rolling contact fatigue in four different grades of rail steels. Through the relationship between microstructure and mechanical properties, the analysis investigates how these characteristics may affect the onset of rolling contact fatigue behaviour.

Three more categories will receive awards in 2008, being; the Individual Award, the Industry Award and the Young Railway Engineer Award. Nominations closed on 29 February 2008 and presently they are being evaluated.

## 2009 RTSA AWARDS

In 2009, the RTSA will be offering awards in four categories. These are; the Individual Award, the Young Railway Engineer Award, the Railway Engineering Student Thesis Award and the Contact Mechanics Award. Nominations for the Student Thesis Award and for the Contact Mechanics Award will close on **Friday 28 November 2008**. For the other three awards, nominations will close on **Friday 27 February 2009**. Further details, and nomination forms, can be found on the RTSA website at **www.rtsa.com.au**

## RTSA Web Site Revamped

RTSA web site has been revamped. Please visit the web site on **www.rtsa.com.au** to find out up-to-date news. Please contact **webmaster@rtsa.com.au** if you have any comments on the new look RTSA web site or have any railway related materials to publish on the RTSA web page.

[www.rtsa.com.au](http://www.rtsa.com.au)

The screenshot shows the RTSA website homepage. At the top, there is a header with the RTSA logo and the text "The Railway Technical Society of Australasia". Below the header is a navigation menu with links for "About RTSA", "Chapters", "Membership", "Awards", "Events", "Professional Development", "Publications", and "Contacts". The main content area features a large article titled "Engineers Australia Commends RTSA" dated 14 Mar 2008. The article text discusses the RTSA's 10th anniversary and its Professional Development initiatives. To the right of the main article is a "Latest News" sidebar with several news items, including "Engineers Australia Commends RTSA", "NSW - Technical Presentation", "New Zealand Chapter Launch - 1st April 2008", "2007 Annual Individual Award Winner", "WA - Technical Meeting 13 March 2008", "2008 Contact Mechanics Award Winner", "2008 Railway Engineering Student Thesis Award Runner Up", "2008 Railway Engineering Student Thesis Award Winner", "CORE 2008", and "VIC - RTSA Symposium on Professional Development". Below the main article is another news item titled "NSW - Technical Presentation" dated 13 Mar 2008, mentioning a presentation on Earthing and Bonding by David Stuart-Smith.