

RTSA NSW CHAPTER NEWSLETTER

SEPTEMBER 2011 EDITION



NEXT MEETING

THE ALTERNATIVE RAILWAY – WHAT HAPPENS WHEN THERE ARE POSSESSIONS AND SHUTDOWNS

Nigel Parker - Manager Alternative Transport, RailCorp



Everyone is familiar with the bus replacement for trains during Trackwork. At one stage it was relatively uncommon but now it is something that is done to a greater or lesser degree most of the time. It can range from replacement of a single service in the middle of the night to a multi-week shutdown for major track re-building. It can also range from a short section between stations to a long line involving almost 200 route km of track.

Nigel's role in RailCorp involves alternative bussing when that organisation cannot run the normal timetable, as well as managing the NightRide bus services and dealing with all the ancillary tasks associated with both these activities.

There has been much discussion here, and particularly in the UK, regarding the desirability of the 7 day railway – Nigel will give us an insight into NSW issues that underlie the current bus replacement practices and policy

TECHNICAL PRESENTATION

VENUE:

**477 Pitt St – ground
floor South Tower
(opposite the tram
ramp from Central
main concourse)**

DATE:
Wed 5th OCT 2011

TIME:
11.30 for 12.00

*LIGHT REFRESHMENTS
WILL BE PROVIDED*

MEMBERS, GUESTS AND
INTERESTED FRIENDS
ARE MOST WELCOME TO
ATTEND.

The Railway Technical Society of Australasia (RTSA) - NSW Chapter

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THE ROOM THAT MOVES

The venue matter is slowly untangling itself.

The next two meetings (on Oct 4th and Nov 2nd) will be at 477 Pitt St – the same place as last meeting.

The meeting on Dec 7th will be at a venue to be advised – watch coming Newsletters

From the February meeting 2012 we will be back in our old venue, the Bradfield (meeting) Room on the main concourse at Sydney Central Station. That is the good news. To do so we have had to change to the first Tuesday of each month – a day earlier than our traditional date.

To repeat – we will continue to meet on the first Wednesday of the month for the remainder of 2011 but as from February next year (2012) we will change to the first Tuesday of each month.

Just in case it is always wise to check each Newsletter closely for confirmation of the next meeting date and venue.

As always if things change at short notice we will send out a Flier by e-mail and also post by snail mail to the relatively few remaining members without e-mail.

WORDS FROM THE CHAIR

The first month as your new Chapter Chair has been quite busy with the ongoing saga of where to meet each month being high on the agenda.

After many Emails and phone calls we have once again secured the Bradfield Room at Central Station, however on a different day of the week. From February 2012 the NSW Chapter will meet on the first Tuesday of the month commencing at 11:30 for a light lunch followed by the meeting commencing at 12:00. Usually the presentation is concluded by 13:00 to allow members to return to their work places without too much disruption. My apology if this change of day conflicts with other standing arrangements but it is judged to be a better outcome than having to revert to evening meetings.

For the remainder of 2011: in October and November we will meet on the usual first Wednesday of the month in the RailCorp building at 477 Pitt St on the lobby level of the South Tower, access is past the security desk, commencing at 11:30 for a 12:00 start. We have not secured a venue for the December meeting as yet, so watch the next Newsletter for arrangements.

Now that the venue arrangements are finalised, the committee can concentrate on approaching presenters and compiling the 2012 program and as usual we would like to have a balanced variety over the 11 meetings during the year. It is up to the members to indicate if they have favourite topics and if they would perhaps be willing to contribute to one meeting during the year.

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I appreciate the committee members who have continued on in their respective roles for the next 12 months and thanks to Malcolm Cluett as the newly appointed Chapter Secretary, I hope that we can provide a suitable program for members. To those committee members who stood down at the last election, I thank each of you for all your efforts during your term in office and wish you well in your careers in the rail industry.

Coming events, other than the monthly meetings, that members may attend include AusRail Plus in Brisbane in November. This is shaping up to be a great event with the largest exhibition so far at an AusRail since 2003 when the rail associations came together in a united front. Two special trains have been chartered to take delegates from Southbank to the Gala Dinner. Local commuters may be taken unaware when the special trains pass through Brisbane Central Station during the evening peak hour with male delegates all dressed

up in Black Tie outfits and the ladies in their evening finery.

In March next year we have combined with the PWI to present a STORE (Study Tour of Railway Engineering) in the Hunter Valley. This three day event will include technical presentations, site visits and a run up the valley by rail to see the extent of the mining operations and the upgrades to the rail facilities to support the mining industry. Please mark 23rd to 25th of March in your planners for 2012, booking details will be available once arrangements are finalised.

Please feel free to contact me or any of the committee with any suggestions to improve our meeting contents and of any site inspections that you and your company could provide for a group of RTSA members. Committee contact details appear at the end of this Newsletter.

POINT OF VIEW – MAX MICHELL

Progress is sometimes an elusive concept. Over a long period of time the evolutionary changes seem slow and frequently not particularly remarkable, but from a distance they can be quite significant. Rail is very much in this situation – high capital costs mean that progress can be slow and hard to discern. There are also cases where the way of doing things disguises the progress being made.

One example is on the east coast main lines between Melbourne, Sydney and Brisbane. A few decades ago the NSW North Coast line was repeatedly claimed to be at capacity and it probably was. Back around that time I travelled on an extra express from Sydney to Brisbane which got as far as Taree in daylight. I well remember that we

crossed a train at every second crossing loop on that journey – maybe nine trains in all between Telarah and Taree. Most were freight trains so there would have been between 2500 and 3000 metres of train that we crossed.

Nowadays the North Coast line is largely deserted for most of the day – a journey by daytime XPT will be lucky to meet more than a couple freight trains on the whole journey – but those freight trains will amount to much the same length of train as in the earlier example. What has happened – where the progress has been happening – is that line capacity has been increased maybe threefold by lengthening freight trains on the line.

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The pity of it all is that there has been no commensurate growth in traffic on the line – all the growth in freight transport on the east coast has been on road. If only our predecessors in the industry had realized the consequences of *slow progress* and aligned their activity to take advantage of the increase in capacity we may have had a different result. In practice the mantra of the line being at capacity survived long past the time when that was in fact the case.

Another area where an evolutionary progress has been happening is in permissible axle load on the normal (non bulk) part of the railway. Back 50 years ago, when four wheel wagons were rife, the heaviest axle load for normal (commercial) wagons was around 16 tonnes with some newer designs (including post war bogie stock) reaching 18 tonnes. Now we have 23 tonnes axle load (TAL) across the inter-capital network with short term ambitions to lift that to 25 TAL. NSW have already achieved 25 TAL across their coal network and 30 TAL in the increasingly busy Hunter system

The slow progression to higher axle loading has been partly driven by the operating companies and as such there has been a quite noticeable take up of the higher standards as they have arisen, even though the majority of that has come from bulk and steel. Inter-modal has been able to make some use of these standards for 20 metre flats and articulated wagon designs, and would make substantial use of increased axle loading if double stacking of containers was more widespread.

It is in the area of outlines – structure, rolling stock and loading – that limited change has occurred. The obvious and most frequently talked about change is for double stacking of containers – something that is only a reality west of Parkes and Adelaide. This is no small change and requires a 'square' outline to around 6.8 metres above rail to

be fully effective (the current maximum height limit on the east coast is 4.3 metres at the top of an egg shaped outline). A square configuration outline to the existing height constraint would allow some gains for other than inter-modal simply by providing capacity to design wagons with more cubic (and hence payload) per metre of wagon

One major issue is the inability to import rolling stock or rolling stock designs to this country without having rework them to fit the local dimensional constraints. A relatively small increment in height of around 0.50 metres and width of around 0.25 metres would allow a far wider range of readily available designs and equipment to be used here with a commensurate reduction in cost (and possibly introduction time). The ultimate would be to have the AAR universal outline (AAR Plate C) such that locomotives and wagons built to those standards could be run here. Importation of second hand stock to that outline would then be a matter of simplicity and economy. It is also possible that a new market for export of new and used rolling stock could also be developed over time.

Progress in motive power and rolling stock is probably one of the more visible aspects of railways. Even so it is salutary to reflect that the 16 cylinder engine that produced 1500 hp in 1951 in a grown up form now develops 4300 hp. Similarly wagons have not only grown very substantially in capacity but in many cases have the same or lower tare than their much earlier incarnations in the 1950's and 1960's.

One area that is outstanding for its lack of progress is the alignment of our main lines. In the same period that we have realigned and duplicated 800 km of the Hume Highway and more than half that distance on the Pacific highway the main rail routes have been endowed with a small number of minor

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alignment improvements and as it stands are only in line for a series of curvature tweaks in the foreseeable future.

There is no doubt that rail realignment is high cost stuff, but so is realignment and duplication of road. At some time in the future we must face up to the fact that the railway we currently have is incapable of creating the turnaround in fortunes that we all hanker after. No amount of enthusiastic fiddling with the existing alignments will ever provide the big bang change required to shift rail into a pre-eminent roles as the carrier of choice. As the situation progressively deteriorates for the east coast main lines, without any 'big bang' projects to shift perceptions we simply make the future harder for those who follow.

It has to be in our interests, and for the nation as a whole, to try and break the stagnant cycle of decline of rail here. If the east – west main lines can capture a majority share of traffic there has to be some hope, however faint, that rail on the east coast could achieve the something similar.

The serious projects that might engender such a shift, notably the Inland Route in recent times, seem to bring out as much negativity among the rail fraternity as they do support. If the industry cannot see the future for the existing clutter then what hope is there. We can achieve big things, but only if we seriously believe in ourselves. At present I don't think we do believe in ourselves much at all and certainly not enough to generate the major change in progress that we need it we are to survive.

LETTERS TO THE EDITOR

No words this month but we received a picture that potentially is the same as 1000 words.

Col Rees is the owner of The Hub rail terminal at Ettamogah, just to the north of Albury. Col is not only a very strong supporter of rail but is also endowed with an unusually capable entrepreneurial ability. It was Col who created the CargoSprinter – a freight equivalent of the XPT type concept which uses standard truck engines in power units that also double as container carriers.

Col recently acquired a number of the former Victorian VQAW three pack articulated container wagons. These wagons had been stored for some

time and were generally rather unloved. They were also fitted with a variety of non standard operating equipment.

Col has had SSR at Bendigo do a thorough makeover of these wagons, including standardising the wagon equipment – things like triple valves, load compensators, inter platform couplings and constant contact side bearers.

He has sent a picture of one of the newly restored PQAW wagons following restoration. These wagons will turn up in revenue traffic at some stage in the not too distant future.



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COMING EVENTS

RTAA / RAILCORP ANNUAL FIELD DAY

The RTAA, in conjunction with RailCorp, will again be holding their Field Day at Clyde Yard on 26th and 27th of October. This event is the only one of its kind in Australasia and is expected to again have over 50 exhibitors.

The displays are primarily to do with track and track maintenance (which includes working displays of some quite impressive machinery) so will be of considerable interest to people who are involved in

the rail industry at any level, people who are interested in rail, people who are studying engineering and anyone who is considering a career in rail.

Entry is free and includes morning tea, lunch and a 'show bag' of goodies from the exhibitors. Further information is available on the RTAA web site – www.rtaa.org.au

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AusRAILPLUS2011
CONFERENCE & EXHIBITION

2011 Theme:
Innovation and Customer Relations

22nd – 24th November 2011
Brisbane Convention & Exhibition Centre

HUNTER VALLEY STUDY TOUR

This event will now be a joint two day event with PWI up in Newcastle and intended to run over three days from Fri 23rd March to Sun 25th March next year. The plan is:

Friday 23 March 2012

Following arrival of the morning train from Sydney
Short bus tour in Newcastle area

Lunch at Monte Pio at Telarah
3 - 4 Papers on topics concerning coal and train operations in the Valley
Evening dinner at Monte Pio
Overnight at Monte Pio or other accommodation

Saturday 24 March

All day bus tour to a number of new, exciting and interesting facilities relating to the coal operations
Lunch included
For those wishing to return to Sydney by train, the bus will return to Broadmeadow

Overnight at Monte Pio or other accommodation

Sunday 25 March

Optional Rail Motor tour to Gulgong via Muswellbrook and Ulan giving an opportunity to see the numerous rail and mining activities underway in the Valley.

Lunch will be served at Gulgong

Return to Broadmeadow in time for a train to Sydney

As a number of attendees will be locals, the various activities will be optional and able to be booked separately.

An attractive all-up price will be available for those who have the time to enjoy the full weekend.
Partners will be most welcome.

It is anticipated that booking will be open late this year.

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SEPTEMBER MEMBERS MEETING – REPORTER: MALCOLM CLUETT

Sydney Metropolitan Freight Network - Signalling Separation

Presented by Richard Bonner of AECOM

The background of this project is the expansion of Port Botany, and a planned increase in the amount of container freight handed on the line. The objectives of the upgrading of the Metropolitan Freight Network are as follows:

- Separation of passenger and freight services
- Provide staging areas for trains while waiting for access to Port Botany
- Increase line capacity by raising permissible speeds
- To optimise the line for push-pull shuttle trains 650m long. These will carry shipping containers from inland terminals to the port.
- Achieve a six minute headway
- Control from ARTC's Network Control Centre in Junee

The freight railway will be operated in a similar manner to freight lines in Adelaide or Melbourne, separate from passenger services. A lease was signed between ARTC and the NSW Government in 2004.

Transfer of control functions from RailCorp to ARTC Junee will be staged.

The Metropolitan Freight Network (MFN) has three private terminals at Port Botany (Patricks, DP World and P&O Trans Australia), and others at Cooks River and Chullora. The final scope of the MFN upgrade has not been finalised at this point in

time, for example, regarding the layout at Enfield Yard.

Other freight terminals in Sydney are not connected directly with the MFN.

The current signalling system was installed between 1992 – 1997 except for Wardell Road Junction which dates from the 1970s. It includes some bi-directional signalling, and is controlled from the RailCorp Sydenham control centre.

At present there are a number of different types of freight traffic on the line (coal, gravel, grain, containers). Freight traffic to the former Rozelle and Darling Harbour yards has ceased, and the corridor to Rozelle is currently being converted to a light rail passenger line.

Interfaces with RailCorp system

The MFN connects with the RailCorp system at Flemington and Sefton Junctions.

There is also an interface at Marrickville. The short freight section from Marrickville to Meeks Road Junction will remain under RailCorp control.

A dual controlled signal will be required on the up Goods line in vicinity of Marrickville. On the down Goods line, the layout is such that a dual controlled signal is not required.

Existing crossovers between the Bankstown line and MFN at Campsie will be removed. The MFN will be de-electrified where possible (though some sections will remain electrified for use by RailCorp's EMU trains).

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RailCorp's ATRICS will require some modifications so that it no longer incorporates the Botany line. The system will be booked out of use until then.

A Phoenix mimic screen will be provided at RailCorp's Sydenham signalling control centre (same as for SSFL). This will be commissioned in July 2013.

Signalling systems on the MFN will use a power supply separate to the RailCorp system.

Additional work stations will be provided at ARTC's Junee Control Centre for the MFN.

Port Upgrade

The speaker showed track layout diagrams depicting which sections of track are new, which sections have been removed and which are unchanged. There is more new track being provided than old track being removed.

An overbridge is being built to eliminate level crossings for truck movements at the Patrick terminal. (At present there is a temporary level crossing until the overbridge is commissioned.)

The new signalling system at Port Botany will use Microlok hardware, Kingfisher RTUs and fibre optics. The primary link to the control centre will be via an Ethernet router, with a secondary dial-up link. The internal cabling within Botany Yard will also be fibre optic. DC track circuits are used.

A back-up power supply has been provided.

Cooks River

After traversing the single track section past the airport, the MFN arrives at Cooks River Yard.

A block diagram of the new Microlok interlocking at this location was presented. A large number of new signals have been provided at this location. Catchpoints and derailleurs have been reconfigured.

Telemetry Links – Kingfisher RTU & Next G modem, with a secondary dial-up link.

Shared Corridor Marrickville - Campsie

The MFN passes over the Illawarra railway, and then runs alongside the Bankstown railway as far as Campsie.

Dumont Schneider High-Voltage impulse track circuits are required on this section due to proximity of RailCorp's DC electrified railway.

Wardell Road (triangular junction to the former Rozelle yard and Darling Harbour) will be straight railed, so there will be no possibility of rail-mounted equipment accessing the future light rail line at this point. The signalling system here is a life-expired Relay Interlocking, dating from the 1970s. This will be replaced with a new Microlok system.

Little-used crossovers at Campsie between the Bankstown Line and the MFN will be removed, this simplifying the signalling system and interfaces, and reducing track maintenance requirements.

Enfield Yard

After leaving the shared corridor at Campsie, the MFN heads North West to Enfield Yard.

ARTC and RailCorp are still working towards solution for future requirements. At present the yard is partially signalled, with a local control panel at Enfield. This yard had a major upgrade in the 1990s. The extent of the signalled

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area could be seen in a photo of the local control panel.

Future intermodal requirements for Enfield yard have not yet been finalised.

RailCorp will still control the yard. It is possible that an EMU stabling area will be provided to cope with future expansion.

New tracks for the container freight terminal will be provided on the Eastern side of the yard. Some other tracks along the Eastern boundary will be removed.

TIMEFRAME

Stage 1 Commence April 2012
Stage 2 Commence Dec 2012

Q What will be the reliability of the signalling system when it depends so heavily on data links and operators stationed hundreds of km away ?

ARTC have an agreement with Telstra on levels of reliability. ARTC is standardising communication systems and signalling installations which will also improve reliability.

Q At Enfield, the block diagram indicated a Public Switched Telephone Network comms link as a backup to the to 3G network.

Yes – this is a backup between Enfield and the ARTC centre at Junee

Q Alternate power supply ?

Two separate grid supplies, or generators, are provided at each location.

The MFN is not able to stay on RailCorp's power system.

Q Grain, coal and general freight trains – these are longer than the 650m shuttles. How does the signalling system handle these?

A This is a minor matter technically apart from the Port Botany area. Long freight trains already run on other parts of the network, on signalling systems that are optimised for shorter trains.

AUBURN MAINTENANCE CENTRE INSPECTION

An inspection, on Friday 16th Sept, was organised by committee member Silvia Fedakova.

After a welcome and safety briefing, the party viewed the wheel lathe, the wash plant, the yard at the arrival end and the main shed (with devices to remove bogies from cars while they are still coupled together). The shed also features overhead power in the form of a rigid conductor, which can be de-energised and then swung out of

the way. This makes it easier to remove roof-mounted equipment modules such as air-con units.

Of particular interest was the wheel monitoring device, which measures wheel profile, wheel tread condition, etc. These devices operate automatically as each incoming train passes over them.

We were shown the warehouse, and also the planning room where toolbox talks are held and the

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various trades meet to plan what is to be done during their shift.

Some of the early deliveries of Waratah sets were visible, and one was being prepared for the evening peak service.

It was interesting to learn that a train can come off the main line from the Auburn end, go through the wash plant and be back on the main line within 20

minutes. There is productivity for you. It takes longer for the writer to wash his car.

All participants were given a handout which covered the facilities, and the various train movements which were possible.

Thanks to DEDIR for allowing us to visit their new maintenance facility.

RAIL ENGINEERING STUDENT THESIS AWARDS

The following 2012 Railway Technical Society of Australasia (RTSA) student thesis awards are **NOW OPEN** for nominations!!!

THE RAILWAY ENGINEERING STUDENT THESIS AWARD

Presented by the Railway Technical Society of Australasia (RTSA), and in celebration of the outstanding achievements of undergraduate engineering students, the Railway Engineering Student Thesis Award is presented to the author of an exceptional final year project on a topic of Railway Engineering.

The 2012 winner will receive a **\$4000 CASH PRIZE** and a FREE year long membership to the RTSA!!!

To learn more about the award, or to nominate online TODAY

go to www.rtsa.com.au/awards/student-thesis-award/

THE WHEEL-RAIL INTERFACE AWARD

The Wheel-Rail Interface Award is presented to the author of an outstanding final year project on a topic related to the contact conditions between wheel and rail and the consequences of these conditions in terms of material behaviour and damage modes.

The winner of the Wheel-Rail Interface Award will also receive a **\$4000 CASH PRIZE** and FREE year long membership to the RTSA!!

To learn more about the award, or to nominate online TODAY go to www.rtsa.com.au/awards/contact-mechanics-award/

*Please note that nominations for both the above awards close on the **Friday 24th November 2011.***

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WHERE AND/OR WHAT IS IT?

This month there are two picture puzzles to deal with.

The first is at a location in NSW, but where? Just to be helpful the line in the foreground is currently operational.



The second picture is at a more familiar location (Maitland if you must know). Two trains are passing but the rear ends of both trains are well outside the picture. What is the distance between the rear ends of the two trains when the picture was taken? If it helps both trains have three locomotives.

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As expected there were very few responses to last month's Where Is It (miniature below). John Nestor was the only respondent and he was right on the money – it is at Leumeah and is a relic of the days when there was a level crossing at the up end of the station. The crossing was replaced by an overbridge closer to Sydney many years ago and the station has been reconfigured across the old crossing site since – hence the apparently pointless location of the old crossbuck and lights.



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FUTURE MEETINGS AND EVENTS FOR 2011

Date and time	Activity	Location
Wednesday 5 October 2011 11.30 for 12.00	The Alternative Railway – What happens when there are possessions and shutdowns Nigel Parker - RailCorp	477 Pitt St – ground floor South Tower
Wednesday 2 November 2011 11.30 for 12.00	Waratah Train Signal Compatibility Dave Nolan - RailCorp	477 Pitt St – ground floor South Tower
Wednesday 7 December 2011 11.30 for 12.00	Heritage Topic Speaker from TrainWorks Thirlmere	To Be Advised

Note: From February 2012 regular members meetings will be on the first TUESDAY of each month.

Ideas for meeting topics to the Secretary in the first Instance please.

CONTACT AND SOCIETY DETAILS

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contributes towards CPD requirements. Each RTSA technical meeting generally has a value of 1 CPD point.

Engineers Australia members are reminded that attendance at RTSA technical meetings and events

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