

RTSA NSW CHAPTER NEWSLETTER

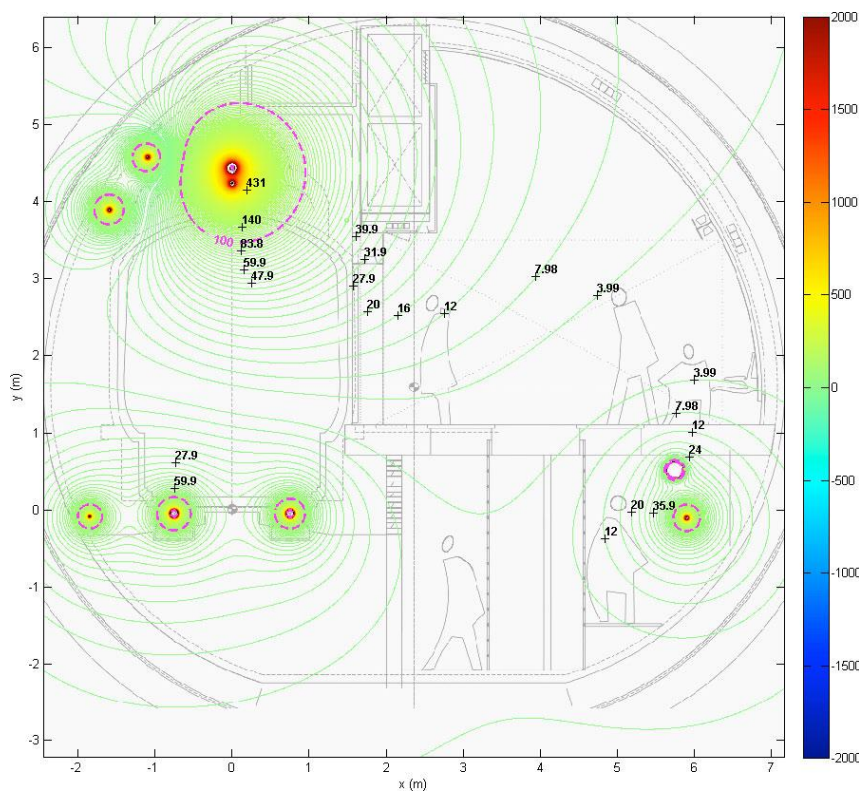
FEBRUARY 2012 EDITION



NEXT MEETING – TUESDAY 7th FEBRUARY 2012

MIXING DC & AC RAILWAY SYSTEMS IN AN URBAN ENVIRONMENT – AN ENGINEER'S POINT OF VIEW

Dr Stephen Goh and Mr Ralph Moulang, URS



Steve and Ralph will discuss and describe how an AC system can be introduced alongside an existing DC system by way of a case study based upon their work on London's Crossrail electrification scheme.

The speakers will give a brief history of Crossrail's electrification proposals and developments, from the original 750V DC option, to a variety of 25kV systems. .

They will describe the pros and cons of each proposed scheme and finally how the 25-0-25 kV Autotransformer (AT) scheme evolved into the final design scheme, supported by the use of modelling and simulation tools (TRAIN, Matlab/Simpower, etc). They will discuss the choice of rigid overhead conductor; explain some of the challenges of mixing AC and DC systems and compliance checking against the emerging (2012) standard for Electromagnetic Field (EMF).

RTSA TECHNICAL PRESENTATION

VENUE:

Bradfield Room,
Central Station
Meeting Rooms, -
next to Lost Property,
opposite Platform 2

DATE:

Tue 7th February 2012

TIME:

11.30 for 12.00

**LIGHT REFRESHMENTS
SPONSORED BY URS,
WILL BE PROVIDED**

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

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

PO Box 6038, Kingston ACT 2604

Tel: 02 6270 6530 Fax: 02 6273 2358

Email: nsw-chair@rtsa.com.au

www.rtsa.com.au



ENGINEERS
AUSTRALIA
RTSA



RTSA NSW CHAPTER NEWSLETTER

FEBRUARY 2012 EDITION



WELCOME TO 2012

Welcome to the first edition of the NSW RTSA Newsletter for 2012. Hopefully everyone had a happy and enjoyable holiday period preparatory to facing up to whatever the coming months may bring.

You may have noticed that this Newsletter is dated February, despite it still being January (at least at the time of writing). This is a small change so that the date of the Newsletter aligns to the month of the next meeting. Speaking of meetings we wish to thank URS, for both providing speakers and for provision of the pre meeting light refreshments at our coming meeting. A very generous gesture.

In this issue you will find the usual items – the last meeting write up from last year, a guest editorial (for a change), a letter and a feature item on a rather unusual operation in England. There is also updated information about the coming STORE to the Hunter Valley – the invitation to register for this event will be sent out in the near future in a separate despatch.

Members are always welcome to offer contributions to the Newsletter – articles (up to 2 pp), interesting or newsworthy pictures, letters (no more than ½ pp) and so on. It is, all said and done, primarily a means of communication between members.

Members will be aware that RTSA ran a Study Trip to Asia to look at High Speed Rail developments in Korea, Taiwan and Japan during 2011. Reports from that STORE are now up on the RTSA web site – they make very interesting reading and are a valuable data source for those of you who are active in the HSR area. The web site is at www.rtsa.com.au

A few days ago I was passing UGL's (formerly Goninan's) back yard and espied three new locomotives peering out over the fence – one each for CFCLA, Centennial Coal and Genesee and Wyoming Australia; all in very different colour schemes but essentially the same beast under the paint. These 4365 hp AC traction locomotives (and the Downer Rail equivalents) are state of the art stuff, capable of outperforming older technology locomotives by quite a margin. In a way this little vignette is symbolic of the rail industry in 2012 – in some respects we are going very well, but in other less visible areas there are serious institutional and commercial problems that are potentially life threatening to sectors of the industry. We hope to keep you abreast of what is going on, and what you can do to help, during 2012.

RTSA NATIONAL AWARDS – NOMINATIONS NOW OPEN

RTSA runs a number of national awards to recognise excellence in the rail industry. Nominations are now open (until 24th Feb next) for:-

- RTSA Individual Award
- RTSA Railway Project Award

- RTSA Young Railway Engineer Award

For details of the awards and how to enter you should go to the RTSA web site (www.rtsa.com.au) and look under 'Awards'

RTSA NSW CHAPTER NEWSLETTER

FEBRUARY 2012 EDITION



These are prestigious awards. It is well worthwhile entering. Most active participants in the industry will periodically come across something or someone of particular note. Why not take it to the

next level and enter for one of the RTSA awards. You have around 4 weeks (at the time of writing) to enter.

GUEST POINT OF VIEW – ANDREW HONAN

It has been six years since the NSW Chapter of RTSA organised NSW Branch Line STORE (March 2006) and just on five years since the RTSA / Charles Sturt University Future Frameworks for Regional Rail at Wagga Wagga (Feb 2007). How time flies!

Yet there are still concerns about the NSW branch lines in our regional communities as can be seen by the number of enquires at both the state and federal level. The latest inquiry underway at the moment is by the NSW Independent Pricing and Regulatory Authority (IPART).

It is easy to be critical of IPART and dismiss this inquiry as another attempt by economic rationalists with their econometric modelling on price elasticities trying to determine optimum market based pricing in a fundamentally non-market environment. Indeed, it would be hard pressed to see a less market orientated approach to life, as would exist in the rural and regional communities of NSW. IPART however should not be criticised as it is NSW Government agency doing what its government mandate dictates and doing a good job at it. This inquiry, with a new state government, should be seen as an opportunity to communicate the benefits of rail and thereby going some way to meet the aspirations of local regional communities.

Fundamentally rail is not living up to the potential it has to offer the grain industry or for regional communities. A wider approach is required - one

that has as its centre government leadership in facilitating new approaches to grain logistics. There are multiple constraints in the logistics chain; whether it is silo loading / unloading constraints, track layout constraints, axle load limits, regulations or capital and operating costs. A grain industry planning and co-ordination group, such as the WA Grain Industry Group model, would be a good start for NSW. Unlike the Hunter Valley Coal Chain this group should be heavily supported and led by the NSW Government with wide industry involvement. It should undertake applied and on-going research into the grains industry logistics, so as to provide a better understanding of the technical efficiencies in rail and road transport, the regulatory burden of rail accreditation, the risk profiles of road and rail transport on a corridor basis, and as a way to engage regional stakeholders and state government on the grain transport task. This group should feed directly into government policy on grain transport and be a mechanism for the capital provisioning by both industry and government on infrastructure and rolling stock. This would provide the opportunity for a new paradigm for NSW grain transport.

The initiative by the five councils of Harden, Young, Cowra, Blayney and Weddin to try and reopen the Demondrille - Cowra - Blayney line clearly demonstrates preparedness on regional communities to engage with the State Government.

RTSA NSW CHAPTER NEWSLETTER

FEBRUARY 2012 EDITION



We are all too aware of where the current, business-as-usual approach will take us - more branch lines closures, more grain on roads and more overall social costs. This is not because of a planned approach, but more because of the institutionalising of existing practices.

A key issue is the different approaches to risk in rail, compared to that of road. This difference can have the unintended consequence of diverting grain traffic from rail to road. Rail requires an 'ex-ante' test of 'as low as reasonably practicable' with the onus of proof placed on the rail operator whereas road requires simply an obligation to have a driver's license, registration of vehicle (designed to Australia Design Rules) and an 'ex-post' assessment of insurance. The different risk profiles and the changes in level of risks cannot be compared across modes. Intuitively, bulk grain transport is inherently safer on segregated rail corridors, than on the public road system.

We have a 'public sector comparator' in financial business cases when comparing a PPP project execution to that executed by the public sector. This public sector comparator is designed to protect the public interest (in financial terms).

A risk comparator should also be developed that compares the risk profile of grain haulage on each regional rail corridor that enables a better understanding of the changing risk profile of grain haulage for regional communities. This would also protect the public interest in terms of personal and property damage.

As a volunteer organisation the NSW Chapter of the RTSA has been active in promoting rail solutions for the NSW grain logistics. The NSW Chapter thought it important to organise the **Study Tour – Branch Lines of NSW** in March 2006 for its members to see first-hand how the branch lines

operate and to understand the challenges facing the grain logistics industry. A report was produced with input from each of the tour delegates.

Subsequent to this study tour and as a direct result of the interest generated by the tour the RTSA organised (in collaboration with Charles Sturt University) the **Future Frameworks for Regional Rail Symposium**, in February of 2007 in the regional city of Wagga Wagga.

The speakers and topics included: Ed Zsombor, Canadian Short Line Experience; Paul Neville MP, Regional rail, roads and ports; Assoc Prof Ian Gray, Regionalism, railways and local government; Prof Allan Curtis, Regional Governance lessons; John Hearsch, Victoria's regional rail, past present and future; John Goodall, W.A. integrated grain industry; Kenn Clacher, Cooperative approaches to rail in Hunter Valley Coal; and Mick Maartensz, View of an emerging Australian niche operator.

The symposium was a great success and a number of speakers gave their experience of the regulatory and cost barriers that operate in the NSW branch lines.

So six years on, it is hard to see much change on the ground. There are some local initiatives in some councils but an integrated approach across the regions is not happening.

Rail practitioners know and understand that rail can offer a brighter future for regional communities.

Rail practitioners and grain logisticians have the skills, and regional communities have the resourcefulness to make it happen. The IPART enquiry is to be welcomed and hopefully will lead to a stronger role within the NSW Government to facilitate better outcomes for regional rail.

RTSA NSW CHAPTER NEWSLETTER

FEBRUARY 2012 EDITION



AND NOW FOR SOMETHING COMPLETELY DIFFERENT

Contributed by Basil Hancock:

A recent visit to the UK provided a brief opportunity to have a look at a train which is somewhat different from most current mainstream thinking, but which provides an interesting use of alternative technology to cater for the lighter end of the passenger market.

The Stourbridge Town Shuttle

The 20-seat Class 139 Parry People Mover (PPM) entered passenger service in May 2009 on the Stourbridge Junction to Stourbridge Town branch in the West Midlands. This branch is only 1.3 km long and is claimed to be shortest remaining passenger branch in Europe. A previous service operated by single or two-car diesel multiple units to connect with trains on the Birmingham-Worcester line has been replaced by a high-frequency shuttle service operating every ten minutes in each direction, providing a total of just over two hundred single trips a day with a journey time of around two minutes.

Patronage is reported to have increased, and in mid-morning on a grey November Monday the dozen or so trips seen had patronage ranging from a handful of passengers to full standing loads. Reliability of the operation has been reported to be over 99%.

The service is operated by one of two cars, the spare car residing in a small maintenance shed beyond the end of the bay platform at Stourbridge Junction. The operation is actually performed by a company called Pre-Metro Operations Limited who operate the PPMs on behalf of Parry for the line's

franchised Train Operating Company, London Midland.

A Bit of History

The concept of the Parry People Mover began some twenty years ago when JPM Parry & Associates began work on an innovative flywheel-powered Ultra Light Rail transport system using small four-wheel double-ended railcars. The project was aimed at small, cheap vehicles able to operate on much lighter track and infrastructure than conventional trains or trams in order to open up the market for low cost, low volume installations.



Class 139 PPM arrives at Stourbridge Jn – Nov 2011

The first experimental vehicle began trials in 1993, and various prototypes were built over the following few years and operated on a specially built test track. Earlier versions were aimed at the Light Rail market, with low floors and ground level boarding, mainly on street, but some later versions have been designed for high platform operations on

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

PO Box 6038, Kingston ACT 2604

Tel: 02 6270 6530 Fax: 02 6273 2358

Email: nsw-chair@rtsa.com.au

www.rtsa.com.au



ENGINEERS
AUSTRALIA
RTSA



RTSA NSW CHAPTER NEWSLETTER

FEBRUARY 2012 EDITION



conventional railways. Most vehicles have modern styling but versions with heritage tramcar outlines have also been built.

After a number of demonstrations around the UK, the first regular passenger operation was a shuttle service operated between 1998 and 2001 on a harbourside line in Bristol, and this was followed by a series of increasingly sophisticated railcars operating on trial on various heritage railways.



An unusual feature in a train – a flywheel speed indication

Trial operations commenced on the Stourbridge Town branch in 2005 and regular Sunday passenger services commenced in 2006. In 2009 two specially built cars, classified under the

national system as Class 139, were built and began regular seven day a week operations.

The Parry People Mover

The technology of the PPM is unusual. Essentially it is powered by a flywheel which drives through a reversible hydrostatic transmission to one axle. The flywheel is powered up either by intermittent use of an internal combustion engine (in the case of the Class 139 it is a Ford 2.2 litre LPG engine) or by means of a 70 volt electric motor. In this case electric power is provided at stops, typically in the form of a short length of conductor rail, and the motor operates during 30 second stops, which should be no more than 800 metres apart. Service braking is provided by regeneration through the hydrostatic transmission, which is also used to power up the flywheel. Supplementary emergency disc brakes are also provided. In the case of the Class 139 the flywheel weighs 500 kg and operates in the range 1000-2600 rpm.

The Future

To date all PPMs have been short four-wheel vehicles. Parry recognise that the Class 139 is too small for many rail operations, and indeed the additional traffic generated on the Stourbridge Town shuttle is proving to be a headache for the current cars. As a result larger designs have been proposed, both in the form of two single-cab 139 clones coupled back top back and more recently a larger 17.5 metre bogie vehicle, which may appear in due course. This is closer to a conventional single railcar, but is promoted as much lighter and cheaper to run.

The company has been pursuing opportunities for lightweight railcars and Ultra Light Rail around the UK and overseas for many years, although to date

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

PO Box 6038, Kingston ACT 2604

Tel: 02 6270 6530 Fax: 02 6273 2358

Email: nsw-chair@rtsa.com.au

www.rtsa.com.au



ENGINEERS
AUSTRALIA
RTSA



RTSA NSW CHAPTER NEWSLETTER

FEBRUARY 2012 EDITION



the Stourbridge operation is the only regular passenger operation.

Further information, including details of the traction equipment, photos of the chassis, details of the

various models offered, and the markets at which they are aimed can be found on the Parry People Movers website at <http://www.parrypeplemovers.com/>



The single unit Class 139 Parry People Mover as used at Stourbridge.



The proposed 17.5 metre bogie Parry People Mover

COMING EVENTS OF INTEREST

HUNTER VALLEY STUDY TOUR – Fri 23rd March to Sun 25th March

The planned doubling of the Newcastle coal export capacity by 2015, will bring massive changes to the coal chain – mines, rail and port. In order to gain a better understanding of the issues and developments involved, the RTSA NSW Chapter and the PWI Northern Division have arranged a **Study Tour of Railway Engineering** on 23-25 March 2012 so that members can see first hand

the planned enhancements and extensive upgrading currently underway in the Hunter Valley system. Site visits to the new John Holland Control Centre, the ARTC Control Centre, the UGL Rail Loco depot, the NCIG Coal Terminal, track upgrading works and a mine together with other works have been arranged.

The Railway Technical Society of Australasia (RTSA) - NSW Chapter
PO Box 6038, Kingston ACT 2604
Tel: 02 6270 6530 Fax: 02 6273 2358
Email: nsw-chair@rtsa.com.au
www.rtsa.com.au



ENGINEERS
AUSTRALIA
RTSA



RTSA NSW CHAPTER NEWSLETTER

FEBRUARY 2012 EDITION



Presentations are to be made on Friday afternoon at Monte Pio Inn and an optional Rail Motor trip to Gulgong via the Ulan coal line has been organized.

The STORE will commence on Friday morning with a bus collecting delegates from Monte Pio Inn (Telarah), picking up people from the train arriving 1010 at Hamilton Rail and proceeding to the new John Holland Control Centre for an inspection and guided tour.

After lunch at Monte Pio, Alec MacKenzie, ARTC Executive General Manager, Hunter Valley will outline the current and future projects to be undertaken in the Hunter Valley to increase the rail and port capacity. A number of other papers will also be presented covering exciting new mines and rail projects and this will be followed by the conference dinner.

On Saturday, a bus tour with inspections of the new NCIG loader, the UGL Rail Loco Facility, the ARTC Control Centre, triple track upgrading and the integration of the new Hunter Freeway works underway, a mine loader together with other facilities are being arranged.

A fully catered 2 car diesel train trip up the Hunter Valley to Ulan and Gulgong has been arranged for Sunday with lunch at Gulgong. This will allow delegates to see first hand the massive construction works underway all along the corridor and experience the bidirectional signaling and train running with the huge number of coal trains that traverse the valley daily.

Tour packages for Friday only, Friday and Saturday only with or without accommodation, will be available together with the optional train trip. An attractive package with all visits, accommodation and the train trip will also be available.

The STORE promises to give delegates a good understanding and update of the Hunter Valley activities together with a great weekend of networking with fellow members and associates.

The Expression of Interest and registration details will be released in early February.

LETTERS TO THE EDITOR

Geoff Smith writes:

Following the recent public announcement of work to be done for the NSFL, my local paper "The Central Coast Advocate" ran a front page story that would make any casual observers assume that the problems, or most of them, would be solved on completion of the currently planned work.

While there is no doubt that the announced projects will improve the situation most of us "armchair experts" know that until there is a third track from Hawkesbury River to Cowan any improvements to service reliability and quality on the Northern line out of Sydney will be marginal.

A project that needs to be prioritised and that can be undertaken progressively is the introduction of



RTSA NSW CHAPTER NEWSLETTER

FEBRUARY 2012 EDITION



bi-directional working and high speed power operated crossovers between Hornsby and Cowan and Hawkesbury River and at least Gosford. Bi directional running has considerable capacity to improve service reliability and particularly to get out of difficulties with minimal delay.

A project that was announced was the construction of up and down relief roads in the vicinity of Ourimbah. Most delays are caused by southbound freights mixing with the increasing density of passenger trains south of Wyong and Gosford. A much more flexible solution would be the construction of centre (third) road loops at Woy Woy and Ourimbah. These loops would allow the refuting of north or south bound trains, or both at the same time using the centre road for through trains.

The Ourimbah loop could be located where the planned up and down loops are proposed. There is

room in this area for a loop well in excess of 2000 metres.

The Woy Woy loop would be constructed between the Woy Woy Tunnel and the Rawson St. level crossing. There is room at this location for a loop at least 2000 metres long.

A final note in the "Advocate" article said "on completion of the work **up to** 200,000 truck movements a year **could** be removed from the roads". Sir Humphrey is obviously alive and well and working for the NSW Government.

Are these the same people who by the combination of Government action and inaction have put 200,000 truck movements hauling highly flammable liquid fuels year on the road - traffic that until a few years ago was on rail?

NOVEMBER JOINT MEMBERS MEETING – REPORTER: MALCOLM CLUETT

Introducing Bus Rapid Transit or Light Rail into Existing Road Infrastructure. RTSA NSW Meeting – Mon 14th November 2011

There were two speakers at this meeting, both from USA and representing the company URS Infrastructure.

Donald Yuratovic is a Senior Transport Project Manager based in New York city. He has 40 years of experience in the public transport field.

Donald spoke about two projects – the 34th St Transitway in New York City and the Euclid Corridor (also known as the Healthline) in Cleveland, Ohio. Both are bus rapid transit systems, something which has not yet arrived in Australia.

Whenever US Federal Funds are used for transport, the planner is obliged to look at all possible modes of transport. Some of these are not so familiar to Australians (ie, Automated Guideways, Bus Rapid Transit). Donald showed us pictures of all of these modes in the US.

RTSA NSW CHAPTER NEWSLETTER

FEBRUARY 2012 EDITION



The following are the characteristics of Bus Rapid Transit:

- Bus Only, Exclusive right-of-way
- High-frequency all-day service
- Bus priority and preferential treatments over general traffic
- Branding
- Off-board fare collection
- Level boarding
- Intelligent transportation systems (ITS) such as passenger information
- High Quality, prominent bus stations.

Bus Rapid Transport fulfils a similar role to Light Railways but are cheaper to build.

Donald showed us a few scenes of San Antonio, Texas. Here, there were layouts of street intersections with kerb side bus stops, and also with Median bus stops. In this city, there is a separate platform for each direction, and buses load from doors in the normal (for North America) Right Hand side.

When buses travel in the centre median, there are advantages for traffic flow in signalised intersections, though the passengers are obliged to wait in the centre of the road. In San Antonio the bus stops were on the departure side of intersections.

If the median bus stations are configured like a railway island platform, then the vehicles require doors on the driver's side too. (LHS in America, or RHS if similar vehicles were to operate in Australia). This is a common feature on Australian trams, but for a different reason – they are double-ended.

Donald then turned to a much larger project he was involved with. This was the 34th St Transitway in

New York City. This corridor has the highest pedestrian volumes in the US, and includes a large number of high-profile locations such as shopping, tourist, medical and transport interchanges. It terminates in a ferry terminal at each end, and is roughly 4km long from the Hudson River to the East River.

Motor traffic was altered so that it was one way from 5th and 6th Avenue in each outward direction. This permitted a widened footpath and the transitway corridor. There are three general traffic lanes remaining, but only two lanes opposite bus stops to accommodate the platform. Some high-quality images and aerial views were presented.

The block between 5th and 6th Avenue was pedestrianised, and the bus lanes have a transition so that they are on the Northern side East of 5th Ave and on the Southern side West of 6th Ave.

Donald then moved on to describe an even bigger system in Cleveland – Ohio. This is the **Healthline Bus Rapid Transit** system, also known as the Euclid Corridor Transportation Project. Cleveland also has three Light Rail lines and of course numerous conventional bus routes.

This is a much longer application than the 34th St system in NYC at 15km. It allowed a reduction in travel time from the previous bus route which operated in general traffic conditions. The end to end time was reduced from 40 to 28 minutes.

Streets in the Cleveland CBD are not as wide as San Antonio. Bus stations are on the departure side of intersections, in the median.

There are some island platform loading areas, also in the median, which could be on either the approach or the departure side of the nearest

RTSA NSW CHAPTER NEWSLETTER

FEBRUARY 2012 EDITION



intersection. For these locations, buses have two doors on the drivers side (LHS in North America), as well as three doors on the conventional RHS.

Rumble strips to delineate bus lanes from general traffic are not formed by sticking lumps on the road (as in Australia) but by gouging a series of depressions in the road surface with a saw.

Buses use a guide wheel to position themselves at a close and consistent distance from the raised platform at bus stops. (compare with the O-Bahn in Adelaide, which has no guiding kerb at the bus stations.) The newest vehicles have hybrid diesel + electric propulsion, and all vehicles use low-sulphur diesel fuel. The hybrid buses have lower fuel consumption, but at the penalty of higher initial cost. Don presented facts and figures of the various vehicles in the fleet.

Bus Priority Traffic Signals are provided. The indications looked the same as the tramway signals in Melbourne (ie, an angled illuminated white bar on a black background).

Bendy buses are used, as they are more manoeuvrable in the tight city streets. The interior resembles a LRV, but a bit more cramped, with more high-mounted seats over wheel arches.

Fancy paving, architect designed bus stations and high quality streetscaping are important features of the Healthline route. There are also seasonal plantings, which give customers a sense of the changing seasons. A percentage of the funding was used for public art and sculpture along the route (1% of total costs must be spent on art if Federal Funding is involved). Some of this art was conventional and some quirky.

Each bus stop has a slightly elevated platform, and the buses themselves have retractable ramps for

wheelchair access. Four wheelchair spaces are provided on each vehicle. (There are two major medical facilities on the route, hence the name Healthline and the provision of such a large number of wheelchair spaces.) When wheelchairs are not being carried, there are tip-up seats.

Customers purchase and validate tickets off-board.

Bollards are provided at the approach side of the island platforms, to prevent a wayward vehicle crashing into the bus station. One problem which Cleveland has is heavy snowfalls and ice, which can make roads more hazardous. Some of Donald's pictures were taken in winter conditions.

Real-time bus departure and waiting-time information is provided (driven by GPS). There was American Indian (Cuyahoga) imagery on some of the street furniture. A local bank sponsors some of the bus stations. Branding is an important part of the Bus Rapid Transit concept.

On time running ranks at 94%, and 92% of the customers regard the service as reliable. Ridership is increasing.

Of particular importance is the fact that the Euclid Corridor transport upgrade has made that part of the city more attractive to investors. It has brought \$4.3B (USD) into the city. This was reported on the front page of the local newspaper – the **Sunday Plain Dealer**.

Donald's presentation was full of attractive pictures of downtown Cleveland, during daytime and night time conditions and all seasons.

Omar Jaff is a Transportation Planning Engineer, URS, based in Portland Oregon. Omar has been working in the field for 20 years. Omar began his

RTSA NSW CHAPTER NEWSLETTER

FEBRUARY 2012 EDITION



presentation by outlining where Portland Oregon is, and some statistics to demonstrate the size of this city.

Portland had a very large tram system in the past. Portland was quite famous in spearheading the re-introduction of light rail in the USA in the early 1980s. For the previous 20 years, street rail transport was very much out of favour in North America. Since that time, Portland's Light Rail system has expanded rapidly

The writer had thought that the American terms Streetcar and Light Rail were interchangeable, but Light Rail really describes an interurban service with lines 15 to 30 km long. Stations are at 1.6km spacing approximately, and capacity is 200 to 400 pax per train. Speeds are up to 100 km/h when operating on the right-of-way outside of the CBD.

Streetcars, on the other hand, operate a local service on lines 3 to 8 km long. Stations are more closely spaced. Capacity is 110 pax per car. Top speed is 60 km/h.

Portland also has another sub-mode of rail vehicle, termed a Rapid Streetcar, which is a hybrid of the above two modes.

Of course, there are buses in the transport system too, and an aerial cable way.

The latest generation of articulated streetcars are derived from Prague, but double-ended. The peak ridership on the streetcar is at the lunch hour.

Planners in Portland are currently investigating a new CBD circulator, which would somewhat resemble the planned Central – Circular Quay circulator in Sydney.

Omar provided lots of attractive photos of LRVs and streetcars in downtown and suburban settings. He provided impressive statistics to show how ridership is increasing on each of the lines. Like Cleveland, there are upgrades in street furnishings, and adoption of higher-density living on the urban corridors.

There was one interesting situation in which buses and streetcars run in the same direction. On one block the streetcars have the kerb-side lane, and on the next they swap positions with the buses so that the buses can have the kerb side lane.

Portland has pioneered cost-effective ways of building light rail infrastructure. The system is not over-designed and it is not gold-plated. Unlike Melbourne, they use grooved tramway rail with a resilient boot set in mass concrete. There is some mixed running (where LRVs mingle with general road traffic). At one location the tracks pass right through a University and underneath a building.

There is considerable community involvement and community input in the construction of new tramways.

Development areas for higher density housing include an old railway yard. Developers are encouraged to building higher density residential accommodation with lesser provision of parking. Some people are now living without a car. There is an increase in bicycle usage. Omar showed some photos from a developer prospectus, with a prominent picture of the Streetcar on the cover.

Questions and Answers

Q Is noise a problem from the streetcars in Portland ?

RTSA NSW CHAPTER NEWSLETTER

FEBRUARY 2012 EDITION



There is some wheel squeal. This is controlled by very small lubricators (smaller than railroad units).

Ground borne vibration noise is also a problem. It is controlled to an extent by resilient boots around the rails in the concrete track formation. There are also some geo-technical solutions to reduce noise.

Some line-side houses have been provided with double-glazing and air-con to reduce exposure to noise from vehicles.

Q LR stops seem to be sometimes on the departure side of intersections, and sometimes on the approach side. Melbourne approach is to have it on the approach side of intersections. Which is the best ?

A Lots of factors to consider here. In the North American context, Departure Side allows better traffic flow for general traffic making left turns (= right turns here). LVRs are less likely to be held up with a red signal.

Q (Regarding Portland) Why are there so many modes of transport in a fairly small city ? Residents of Sydney are reluctant to change modes (ie, train to bus)

A Planning for this starts with the transport modelling. Transport providers attempt to make mode changing easier, with less waiting for connections. There is also an education programme on how to best use the transport network.

Long waits can be avoided by running vehicles at a higher frequency, especially at the more important stops.

Q Heavy rail was built as a single mode. Do you see any functional difference between the various rail modes ?

A One of the reasons for the different modes is that they were built at different times. The challenge is how to integrate them. Uncertainly over waiting times at interchanges is a big disincentive to use public transport.

In Australia, the term Light Railway corresponds to the US streetcar. In the US, Light Railway is a different concept.

Meeting environmental regulations can inflate costs for public transport infrastructure. There is an incentive to build it now, rather than later, because it is inevitable that construction costs will escalate in the future.

Q Challenges with funding grants, Benefit to Cost Ratio, etc

A Federal funding comes with conditions attached. Transportation system user benefits must be considered, and certain indicators must be met . Example – the Euclid corridor in Cleveland.

An example of an initiative to benefit the community is to replace underground utilities, like gas lines, while the street paving is lifted for new light rail track construction.

Otherwise, funding can come from other sources without such strings attached.

Q Transit Priority and the need to keep road traffic moving for the greater good.

A There are different schools of thought. The traffic engineer will think that the car is King, and the transit engineer thinks that the LRV or the Bus is king.

RTSA NSW CHAPTER NEWSLETTER

FEBRUARY 2012 EDITION



Agencies need to sit down and work out the best solution for the majority. This should also be a solution that everyone accepts.

In transport planning, public transport is now in the ascendancy. Building more traffic lanes to ease congestion, which just fill up in a few years, is futile, and just making the congestion problem worse.

Q Who owns the street cars in Portland – a State organisation or the private sector ?

A The LRVs in Portland are generally owned and operated by Government agencies. Some of the maintenance work, and the new construction work, is done by contractors. There are a number of different agencies involved, and the transport system crosses boundaries of local government. The Portland Streetcar system has a separate ownership structure.

Q What is the fare recovery rate?

A The system does not cover its operating costs, in common with public transport systems around the

world. This is seen as a means of encouraging the public to use public transport, since the public transport culture was killed off by the automobile for a few decades in North America. Portland went for a few decades without LRVs. Having cheap fares available encourages and educates people to get into the public transport habit again. There is a fare free zone in the CBD to encourage greater use of public transport.

Q Sydney has narrow streets. How can transit corridors be built in our congested streets ?

A People will have to make choices as to what they want. It is the job of the transport planner to make compromises so that the system is the best available with the space required (not forgetting cycle paths and pedestrian space). San Antonio had wider streets than the other cities considered here (New York, Cleveland and Portland). A 120' right of way gives the transport planner more freedom in designing a system than a 60' right of way.

WHERE AND/OR WHAT IS IT?

In deference to an already long Newsletter a photo will not be included this month. Instead the question is

Where in the Sydney Metro area it is possible to ride on an electrically-powered articulated passenger train? (trams excluded!!)

Last month we showed a NSW survey marker in the road part way down Bondi Road. Two answers were received but since we don't know the answer in this case we can't say if they are right or wrong!!!

However John Cleverdon may have picked the appropriate era as well as reason for the marker as follows

"I have a 1973 RoA map of Australia. The inset for Sydney shows the proposed line to Bondi Junction extending on and swinging around to the Randwick/Kingsford area. Therefore, would the survey mark have been placed for this proposed-but-never-built line?"

RTSA NSW CHAPTER NEWSLETTER

FEBRUARY 2012 EDITION

John is probably right. If any reader knows otherwise then please let us know.

Contributions, particularly those that are current or of something that has some 'educational' value, are very welcome



NANNY'S COLUMN – LIFE AS IT IS

Christmas Morning – Christmas Warning

All employees planning to dash through the snow in a one horse open sleigh, going over the fields and laughing all the way are advised that a Risk Assessment will be required addressing the safety of an open sleigh for members of the public. This assessment must also consider whether it is appropriate to use only one horse for such a venture, particularly where there are multiple passengers. Please note that permission must also be obtained in writing from landowners before their fields may be entered. To avoid offending those not participating in celebrations, we would request that laughter is moderate only and not loud enough to be considered a noise nuisance.

Benches, stools and orthopaedic chairs are now available for collection by any shepherds planning or required to watch their flocks at night. While provision has also been made for remote monitoring of flocks by CCTV cameras from a centrally heated shepherd observation hut, all users of this facility are reminded that an emergency response plan must be submitted to account for known risks to the flocks. The Angel of the Lord is additionally reminded that, prior to shining his/her glory all around, s/he must confirm that all shepherds are wearing appropriate Personal Protective Equipment to account for the

harmful effects of UVA, UVB and the overwhelming effects of Glory.

Following last year's well publicised case, everyone is advised that Equal Opportunities legislation prohibits any comment with regard to the redness of any part of Mr. R. Reindeer. Further to this, exclusion of Mr R Reindeer from reindeer games will be considered discriminatory and disciplinary action will be taken against those found guilty of this offence.

While it is acknowledged that gift bearing is a common practice in various parts of the world, particularly the Orient, everyone is reminded that the bearing of gifts is subject to Hospitality Guidelines and all gifts must be registered. This applies regardless of the individual, even royal personages. It is particularly noted that direct gifts of currency or gold are specifically precluded, while caution is advised regarding other common gifts such as aromatic resins that may evoke allergic reactions.

Finally, in the recent case of the infant found tucked up in a manger without any crib for a bed, Social Services have been advised and will be arriving shortly.



RTSA NSW CHAPTER NEWSLETTER

FEBRUARY 2012 EDITION



FUTURE MEETINGS AND EVENTS FOR 2012

| Date and time | Activity | Location |
|--|--|---|
| TUESDAY 7 th February | Mixing DC and AC Railway Systems in an Urban Environment. Dr Stephen Goh and Mr Ralph Moulang | Bradfield Room Main Concourse, Central Station |
| TUESDAY 6 th March | Simon Wood, National Chair, RTSA on a New Zealand topic | Bradfield Room Main Concourse, Central Station |
| Friday 23 rd to Sunday 25 th March | Hunter Valley Study Tour (joint program with PWI) | Newcastle and Hunter Valley |
| TUESDAY 3 rd April | TBA | Bradfield Room Main Concourse, Central Station |
| TUESDAY 1 st May | TBA | Bradfield Room Main Concourse, Central Station |
| TUESDAY 5 th June | TBA | Bradfield Room Main Concourse, Central Station |

All first Tuesday Bradfield Room meetings are at 11.30 for a 12.00 presentation except when otherwise advised

Note: 2012 regular members meetings are on the first TUESDAY of each month.

RTSA NSW CHAPTER NEWSLETTER

FEBRUARY 2012 EDITION



CONTACT AND SOCIETY DETAILS

| | | | |
|--------------------------|--------------------------|--------------|--|
| Bill Laidlaw [vacant] | Chair | | nsw-chair@rtsa.com.au |
| Malcolm Cluett | Deputy Chair | | |
| Max Michell | Secretary | | nsw@rtsa.com.au |
| Andrew Mackay | Newsletter Editor | 02 4975 4310 | max412@gmail.com |
| Committee: | Treasurer | | |
| Katharina Gerstmann | Coen Stoltz | Andrew Honan | John Watsford |
| Candice Ng | Pascal Sueess | | |

This Newsletter is published by the NSW Chapter of RTSA. Opinions do not necessarily reflect those of the Institution, Society, Chapter or Editor. Items from this Newsletter may be reproduced provided they are appropriately acknowledged to the RTSA NSW Chapter Newsletter.

The best way to submit contributions is by e-mail to the Editor at max412@gmail.com or alternatively to the address shown in the footer.

Engineers Australia members are reminded that attendance at RTSA technical meetings and events contributes towards CPD requirements. Each RTSA technical meeting generally has a value of 1 CPD point.

