Submission No 328

INQUIRY INTO PLANNING PROCESS IN NEWCASTLE AND THE BROADER HUNTER REGION

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Submission to Parliamentary Inquiry on Newcastle Planning Process

24th October 2014

Introduction

Scope

This submission addresses item 2(e) of the terms of reference of the Legislative Council's "Inquiry on the planning process in Newcastle and the broader Hunter region". This applies to "the decision to terminate the Newcastle rail line at Wickham and any proposal to construct light rail including along Hunter and Scott Streets". Relevance to item 2(f) ("any related matters") is not excluded.

The content of this submission includes no hard evidence of corrupt conduct (noting that the terms of reference of this inquiry do not mandate it). However the author believes that the content may illustrate conduct that is irregular in the context of established parliamentary and departmental practice, whether in the form of government initiatives or unsolicited proposals, perhaps to the point that the parliament has been misled, or that the requirement for an act of parliament to close the line would be circumvented improperly. It may constitute circumstantial or corroborative evidence of corruption, or, at the very least, might help to justify a thorough audit of the decision-making processes associated with items 2(e) and 2(f).

Summary

This submission focuses on analysis of inconsistencies in the government's decision-making process. These are describe under the following topics:

- A review of past rail truncation studies to demonstrate that none of them support light rail as a substitute for a truncated heavy rail passenger service on the Newcastle heavy rail line.
- A review of past rail truncation studies to demonstrate that some locations are completely inappropriate as passenger termini for a truncated Newcastle heavy rail line.
- A review of overseas light rail installations of route length less than 9 km, to demonstrate that these installations do not constitute an appropriate business case model for Newcastle light rail, as some government publications suggest.

Light rail for Newcastle

The Hazzard back-flip

On 18th May 2013, the then Planning Minister, Brad Hazzard, in a radio interview, described light rail as not economically viable or sustainable because there were too few residents and businesses within the CBD to sustain it. On 18th June 2013, a government press release foreshadowing the state budget quoted the minister's statement that "Newcastle's heart will be rejuvenated through the stimulus of a new light rail package. It has the potential to be the catalyst for addressing Newcastle's transport needs and to provide the basis of further light rail extensions in the future." The Maitland Mercury (11th July 2013) asked the minister to explain the contradiction, and was referred to the transport minister, who endorsed light rail for its regular high capacity public transport role and easier integration with road and pedestrian traffic.

It was left to a Transport for NSW spokesman to offer to Mercury readers the first attempt to justify light rail in terms of transport economics, citing previous information including "the [unnamed] report by AECOM, and the Newcastle Transport Management and Accessibility Plan" as the source of "extensive details on customer needs and transport" showing how light rail could be used. There are three volumes of the TMAP report, all by AECOM, dating from October 2010, none of which mention light rail except as an option considered and left well alone in past studies, but which deal in considerable detail with road transport and pedestrian traffic demand, particularly demand management. It is unclear what other report AECOM might have written to provide additional data that would apply to light rail; the preliminary design for the Wickham terminus certainly has no such agenda. If such a document does actually exist, it might be a valuable source of information for the Inquiry. If someone in TfNSW has extrapolated the road traffic data in TMAP to apply it to a light rail solution, then that is a significant piece of work that would deserve its own write-up, and such a document would be of interest.

MLA Sonia Hornery (Wallsend) was quoted by the Mercury as stating that the government had failed the taxpayer by not completing a feasibility study, and had thrown out all previous reports and started from scratch. The previous reports make their case against light rail most emphatically, and any recommendation that contradicts them should be supported by strong and comprehensive evidence that the system will not lose huge amounts of money.

Travers Morgan study report, 1990

The light rail link proposed was to run from Woodville Junction to Wickham along the existing rail reservation, then to the vicinity of Newcastle station on road, a total distance of about 5km. This was costed as being the most expensive truncation option by a margin of $11M relative to a bus service from the same heavy rail terminus, although the choice of terminus also contributed to the problem. More relevant for light rail was chapter 4 of section B, seven pages of reasons not to install light rail. These can be summarised as follows:

- The cost savings from construction of a line to the less demanding standards of light rail are not relevant when there is a heavy rail line already in place.
- Vehicles constructed to light rail standards would probably not be accredited for operation in mixed traffic on a heavy rail line.

- A small isolated light rail system would be artificial. (Specific reasons for this judgement are not provided, but it seems logical to suggest that the revenue stream from a small-scale enterprise would be swamped by the overheads).
- Analysts agreed that light rail could influence the location of development in an area where developers wish to build, but could not stimulate development artificially.
- Many overseas light rail systems had failed to live up to optimistic patronage forecasts and construction cost estimates.
- A study of recent successful light rail installations in small cities showed that they enjoyed an advantage of at least four times the number of passenger journeys and ten times the population density relative to the Newcastle suburban rail system.

Newcastle Chamber of Commerce Proposal, 1995

The Transport Management and Accessibility Plan Second Report (AECOM) summarised the NSW Department of Transport review of this proposal as follows:

In August 1995, Newcastle Chamber of Commerce publically launched 'Transit to a better city' in which the key proposal was to replace heavy rail operations east of Woodville Junction with light rail services, and to extend such a service westward towards Newcastle University.
…
Conclusions from the report were that the proposal had some initial appeal as an alternative public transport mode however the main conclusion from the assessment work and consultations undertaken with relevant local organisations was that the proposal was impractical and unlikely to achieve many of the outcomes expected by the Chamber of Commerce. The proposal was not supported for the following reasons:

- *The proposal was predicated on SRA-owned land being made available at little or no cost and then redeveloped to yield over $31 million.*
- *Capital construction costs were significantly under estimated and some major capital costs (the interchange at Woodville Junction) had not been estimated accurately.*
- *Significant costs such as land costs, access charges, services relocation, landscaping etc had been omitted.*
- *Vehicle numbers and costs had been understated.*
- *The proposed operating patterns were optimistic and difficult to achieve.*
- *The projected savings on train and bus operations, rolling stock/vehicles and staff could not be verified.*
- *There would have been additional costs involved for CityRail and Newcastle buses in adjusting their services which had not been taken into account by the proposal.*
- *The introduction of LRT would have required rail and bus passengers to interchange to travel into Newcastle city centre, potentially disadvantaging public transport users yet further to relative to private car travel.*
- *The proposal assumed highly optimistic patronage levels*

The verdict on this proposal would seem to validate most of the caveats raised by the Travers Morgan study, and also add a few others.

Hunter Business Chamber Proposal, 2007

This at least avoided repetition of the same old mistakes, though it managed to devise several highly innovative new miscalculations that no subsequent proposal has dared to repeat, a unique distinction. The light rail service required conversion of Hunter railcars to tram-train units so

that the Newcastle – Hamilton line could be operated under light rail conditions. Electric heavy rail services would be diverted to a new terminus at Warabrook.

The suggestion of Warabrook as the terminus for double-deck electric intercity services from the Central Coast line is the ultimate example of the kind of misguided logic that should be greeted with a tolerant smile in a brainstorming session, and quietly disposed of as soon as decently possible thereafter. Fortunately, evaluation of the HBC proposal was administered through a Railcorp tender, with the bulk of the work conditional on satisfactory completion of a rigorous feasibility study, which proved impossible. The following technical difficulties were identified:

- Hunter railcars were not designed for prolonged low-speed operation, and would suffer engine overheating if so driven.
- Even at low speed, the mass and rigidity of the railcars posed an unacceptable collision hazard to road vehicles.
- Warabrook station is hemmed in between Newcastle university (Callaghan campus), a housing estate, and a wetland through which is threaded the busiest rail freight junction in Australia (it connects both ends of the north – south trunk line with the Kooragang Island coal loader). Any terminus would need to avoid causing delays to export coal trains and other freight. Two extra full length platforms would be required, at considerable expense and difficulty of construction.
- Warabrook station is served by narrow twisting roads not designed for bus access; the nearest bus stop is about a half kilometre walk distant. It is therefore a most unnatural choice as an interchange site, and Waratah station, also hemmed in, would require an even more expensive conversion to fulfil that function, requiring a full length island platform instead of the current half-length side platforms, and an upgrade to premium status.
- Electrification of the line from Woodville Junction to Warabrook would be hugely expensive because the overhead structures are too low for double-deck electric trains, and the layout of tracks in this area severely limits options (the coal lines pass under the main lines at the Maud Street overbridge, with important junction crossovers at each end of the grade-separated trackage).
- The Maitland services would not have sufficient capacity for Newcastle passengers transferring to/from Central Coast services, so additional services would need to run between Warabrook and Newcastle, increasing the operating cost for the line substantially.

These considerations are not directly relevant to the current government's proposal for the Newcastle line, but illustrate the dangers if control over railway engineering and economics is taken out of the hands of properly qualified experts. In assigning absolute control of the decision-making process to the Planning Department rather than the Transport Department, the current government leaves itself vulnerable to error and vacillation.

Newcastle Transport for Business Development proposal, 2009

This proposal advocated a mixture of existing heavy rail services on the Hunter and Central Coast lines, and tram trains serving Newcastle University and other short haul destinations at higher frequencies. The tram-trains in this proposal were not the discredited Hunter railcar conversion model, but purpose-built units based on the Karlsruhe model, successfully implemented in several locations to run on both heavy and light rail tracks. The key innovation in this proposal (confusingly documented in the executive summary but nowhere else, not even

the section on level crossing safety) was to employ hybrid boom gates at road level crossings, whereby the gates lower to protect heavy rail services (travelling at reduced speed east of Hamilton Junction to reduce level crossing delays), but remain up for tram-trains, which obey road traffic control lights instead, relying on their superior stopping distances.

The reviewing authority for this proposal was intended to be Parsons Brinckerhoff (see below), but it is not clear that they took much notice of it. That is consistent with their recommendation to remove heavy rail from Newcastle station for reasons other than the technical feasibility of reducing level crossing delays.

Parsons Brinckerhoff study, 2009

This study clearly drew on past precedent. Both conventional and tram-train variants of light rail were eliminated from further consideration in the first round of the selection process with the statement that they would not be viable for at least 25 years. Examination of the decision matrix suggests that they had the Hunter railcar conversion model in mind when passing judgement on the tram-train concept.

The terminus location back-flip with slow forward roll

On 14th December 2012, the government's decision to terminate the Newcastle – Hamilton line at Wickham (Stewart Avenue) was announced as final, with no correspondence to be entered into. On 5th February 2013 the Newcastle Herald reported that the government had not really made up its mind, and Broadmeadow could be the terminus according to rumour.

The problem, first identified in the AECOM preliminary design study for the Wickham terminus in 2010, was that level crossings at Beaumont Street and Railway Street would both be closed – to road traffic. Stabling of trains overnight at the platforms was permitted at Newcastle, but not at any newly constructed terminus, and therefore there would be even more empty trains running between the new terminus and the Broadmeadow/Hamilton stabling facilities. Also, safety considerations related to risk of derailment prohibited level crossings in close proximity to point switchblades, but the crossovers at the throat of the new Wickham station layout overlapped with the Railway Street crossing.

Enquiries to the Premier and Transport Minister were passed on to the Planning Minister, who referred them to Hunter Development Corporation CEO Hawes. He stated that final decisions would be made when detailed planning for the Wickham terminus was undertaken, but described such considerations as "operational detail".

Really? If anything stands out clearly from previous studies, it is that the location of the terminus has a critical effect on the capital cost and recurrent operational costs of the rail system. That is not "operational detail", but information fundamental to the evaluation of project feasibility.

On 5th October 2013, the Newcastle Herald revealed that Woodville Junction was again in the mix as a possible terminus site, quoting comments by HBC Chairman Yannis that the site "made economic and planning sense" and was "a great big piece of land that is not being used", with "no need to acquire additional property". The lessons from past studies tell a completely different story.

To a railway engineer's eye, Woodville Junction is a classic example of century-old engineering practice, where small low-powered steam locomotives pull short wheelbase wagons and carriages

around sharp curves (a capability required to minimise the gradient on mountain climbs). In that bygone era, curved platforms did not create huge gaps between passenger platforms and carriage doors, or require excessively labour-intensive supervision of passengers by the standards of the day.
A terminus at Woodville Junction absolutely requires four dead end platforms to accommodate Hunter and Central Coast trains approaching from completely different angles, plus a through platform if country train services are to be catered for at that location. All of this is expensive new construction on a site with serious environmental remediation requirements; it formerly accommodated a locomotive depot.

There is only just enough space to accommodate such a design within the confines of a somewhat enlarged junction triangle, with some compromise for the curved country trains platform, and this leaves very little space for passenger-oriented transport interchange facilities. These would need to be accommodated on a different level, to fit them all in, and to avoid long walks between platforms for passengers on some trains.

Every study that has examined Woodville Junction as a terminus site has come up with a very negative assessment, although it was only at the fourth attempt (Lower Hunter Transport Working Group, 2003) that it was discovered that the third attempt (Sinclair Knight Merz study, 2001) had nominated three sites for the rail platforms, none of which was feasible. It should be noted that Sinclair Knight Merz was forced to consider land acquisition for its northern (Islington Junction) option, even though the rail engineering space requirements had been significantly under-estimated.

On 23rd December 2013, just over a year after the government had announced its decision to terminate the Newcastle line at Wickham, it announced its decision to terminate the Newcastle line at Wickham. On the same day, six months after announcing the decision to replace heavy rail with light rail, the government announced the awarding of a tender to develop a business case and economic studies for the light rail project. It appeared that the government was having to work quite hard in order to stay in the same place.

Comparison between Newcastle and overseas light rail

On 8th March 2014, page 6 of the Newcastle Light Rail Fact Book V19 on the TfNSW website stated that there existed "successful examples of light rail of a similar length for example in Seattle, Washington, which is 2.1 km". This appears to be the first published hint that any agency of the current government had even considered such a question, despite the pointed comparisons in the Travers Morgan analysis, although property developer Keith Stronach, apparently unconnected with the government, had provided an interview to the Newcastle Herald on 15th November 2011, in which he expressed enthusiasm for the government's policy and drew some curious parallels between light rail in Newcastle and three recently visited overseas cities.

This author, wishing to see if the principles set out by Travers Morgan almost a quarter of a century ago are still valid, has performed a simple desk checking exercise to compare some basic statistics for Newcastle with those of other cities. The sample consists of twelve other cities with particularly short route length (less than 9 km), and the three cities cited in the Stronach interview. The raw statistics (taken largely from Wikipedia) are tabulated below. Colour shading reflects the proposition that high population and high population density are good news, as is a long tradition of light rail use (reflected in the opening date), and short service intervals. High

route length is an indicator of a thriving network, although most examples here depend on other positives.

Geographic Statistics											Light Rail Characteristics				
Local Government Area					Surrounding Area					Country	Network name	Opened	Route length	Service interval	
Name	Population	Area	Density	Year	Name	Population	Area	Density	Year					Min	Max
Newcastle	158,553	186.87	848.47	2013	Greater Newcastle	556,044	4,050.27	137.29	2013	Australia	Newcastle Light Rail		3.0	0:10	0:10
Gmunden	13,035	63.49	204.99	2013	Gmunden (district)	99,640	1,482.60	69.55	2001	Austria	Gmunden Strassenbahn	1894	3.3	0:07	0:39
Sassari	125,467	546.06	229.76	2012	Sassari (province)	322,326	4,282.00	75.27	2001	Italy	Metrosassari	2006	4.3	0:10	0:27
Soller	14,150	42.80	330.61	2012	Majorca	869,067	3,640.11	238.75	2010	Spain	Tramvia de Soller	1913	4.9	0:25	1:50
Strausberg	25,594	67.86	377.16	2012	Maerckisch-Oderland	186,925	2,127.70	87.85	2012	Germany	Strausberger Eisenbahn	1921	5.8	0:20	0:40
Velez	74,190	157.80	470.15	2010	La Axarquia	202,325	1,025.00	197.39	2009	Spain	Velez-Malaga Tram	2006	4.7	0:20	0:40
Volchansk	10,010	20.00	500.50	2010	Sverdlovsk Oblast	4,297,347	194,300.00	22.06	2010	Russia	Volchansk Tram	1951	8.0	1:00	7:00
Trondheim (Urban)	235,730	342.30	688.66	2013	Trondheim (metro)	267,132	7,295.00	36.62	2013	Norway	Grakallbanen	1924	8.8	0:15	0:30
Woltersdorf	7,812	9.12	856.58	2012	Oder-Spree	177,047	2,242.00	78.97	2012	Germany	Woltersdorf Tramway	1913	5.6	0:20	0:56
Liepaja	85,345	60.40	1,413.00	2009	Kurzeme	301,621	13,596.00	22.18	2009	Latvia	Liepajas Tramvajs	1899	6.9	0:07	0:20
Tacoma	198,397	128.77	1,540.71	2010	Pierce County	819,743	1,669.00	491.36	2010	USA	Tacoma Link	2003	2.6	0:12	0:24
Seattle	634,535	369.20	1,718.68	2012	King County	2,044,449	5,478.00	373.21	2013	USA	Seattle Streetcar	2007	3.1	0:10	0:30
Cagliari	149,576	85.45	1,750.45	2011	Cagliari (province)	555,310	4,570.00	121.51	2001	Italy	Metrocagliari	2008	6.3	0:10	0:20
Reims	188,078	46.90	4,010.19	2008	Marne	565,229	8,162.00	69.25	2013	France	Tramway de Reims	2011	11.0	0:04	0:10
Vienna	1,765,649	414.65	4,258.17	2013	Vienna (state)	1,765,649	414.65	4,258.17	2013	Austria	Wiener Strassenbahn	1897	180.0	0:07	0:17
Bilbao	167,890	40.65	8,050.18	2013	Biscay	1,152,658	2,217.00	519.92	2009	Spain	Euskotren Tranbia	2002	12.0	0:10	0:15

Not shown in the statistics are some other beneficial factors. Tourism is a positive for several of the lower population density installations. Gmunden lies in the Salzkammergut region, in which the opening panoramic scenes for "Sound of Music" were filmed. Strausberg and Woltersdorf are lake resorts with light rail connections to the Berlin S-Bahn (metro). Soller is well coordinated with tourist rail services on Majorca.

Not that it always helps. The Velez tram, in a well-established tourist area, and connecting a fairly dull commercial centre (Velez) with the entertainment facilities of a seaside resort (Torre del Mar), after steadily losing money for six years, ceased operations in 2012. Four of its tramcars are currently leased by Sydney Light Rail, so its failure should not be a secret here. The reason for failure is said to be that the Velez terminus was too far from the CBD, requiring passengers to change to a connecting bus, and direct bus services on competing routes took much of the passenger loading.

While we are looking at the less exciting examples, there is Liepaja, Latvia's major port, where the tram has been running since the power was first switched on. Something of a deteriorating relic is Volchansk, where the line, formerly part of a network reaching to the local commercial centre, connects the two halves of a coal-mining town. This line, with a seven hour gap between the AM and PM peak services, which run hourly, hangs by a thread as road transport becomes more prominent in the snowy taiga forests of the area. Trondheim is also a relic of a more complex system of four lines reaching into the inner CBD; when the CBD was redeveloped, the tram lines were evicted from it and three branches closed, but the remnant of the fourth still reaches from the outer CBD through a built up area to a museum and recreational areas (hiking and skiing).

Other lines of recent origin will only be short on a temporary basis. Sassari, like its larger counterpart, the Sardinian capital Cagliari, has ambition expansion plans, made easier in both cases by the availability of excess capacity for tram-train operation on the local heavy rail system, and rapid urban growth. The Seattle Streetcar line, referenced by the Fact Book, is part of an ambitious scheme for six radiating lines of substantially greater length. Seattle is in the larger, denser population bracket, and already has another light rail system, part of the Sound Transit transport network, built on interurban scale, and intended to stretch for 100km when eventually complete, from Everett to Tacoma. King County, the Seattle LGA, has a higher total population than the five Greater Newcastle LGAs combined, and twice the population density of the Newcastle LGA. These figures do not suggest that the Seattle Streetcar operates under a business plan appropriate for Newcastle.

There is already a short segment of this network connecting downtown Tacoma with the Tacoma Dome transport hub. It has proved very popular, in no small part because travel and car parking at the 2,400 space Tacoma Dome lot have been free for the first ten years of operation. The official reason for this is that Sound Transit does not bother to collect fares if it forecasts that the cost of collection will exceed the revenue gained. Instead, operates a free service until goodwill with prospective passengers has been built up. Pierce County, the Tacoma LGA, has twice the population density of the Newcastle LGA and 30% higher total population, and yet Sound Transit did not think fare collection worth the trouble on a 2.6km line. This suggests that success in establishing a viable light rail system in Newcastle should not be taken for granted.

In relation to the larger cities that Mr Stronach cited as inspirations for Newcastle's light rail, Reims is really the only moderately comparable example, though its parameters look clearly more favourable. Another interesting comparison is the project lifecycle that the Reims system went through, as part of due diligence to validate the business case.

- Several years planning work prior to being put on hold in 1991;
- A new start in 2003 using mostly the route originally proposed;
- Establishment of a public private partnership for design, financing, construction, operation and maintenance in 2006;
- Evaluation and official approval of internal rate of return and traffic forecasts in 2007;
- Commencement of construction in 2008;
- Commencement of operations in 2011.

Make some allowance for the more leisurely pace of life in the Champagne region of France and you still have a much less slapdash approach to project planning than Newcastle light rail, a project with significantly inferior urban parameters. The move to light rail in Reims was prompted by overloading of the bus system. The bus system in Newcastle has often been criticised for under-utilisation, inspiring the suggestion that empty bus seats should be used to take up the passengers forced to change from trains in consequence of heavy rail truncation.

Of all these light rail projects, Newcastle as currently defined is the only one that is required to labour under the additional capital cost of relocating a major heavy rail terminus. The negative cost benefit analysis results for relocation of the CBD terminus are a recurring theme in the many failed rail truncation proposals since the 1950s.

Conclusion

Since Professor Currie's review of the Lower Hunter Transport Working Group and associated consultants' reports was released in 2006, identifying bias, misrepresentation and inaccuracy on a large scale in those documents, one would be entitled to expect that more diligence would be shown to demonstrate that any scheme to truncate the Newcastle line was fair and above board. Instead, the behaviour of governments has become more cryptic and apparently haphazard. The discovery of corrupt conduct on both sides of the NSW parliament, dating back to the early years of the new century, suggests that a more critical approach to the review of decision making processes is needed.

Newcastle City Council Proposal, 1995