



The Times

April 2010

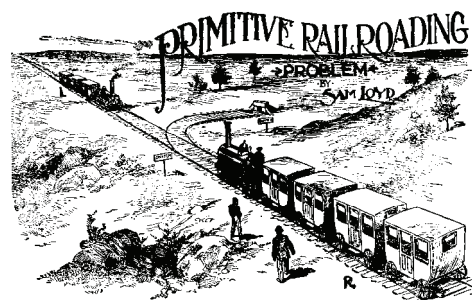
A journal of transport timetable history and analysis

Field of Dreams

Build it and they will come?



Can these guys solve this problem?



Find the simplest method by which the trains can pass.

IN THIS specimen of primitive railroading we have an engine and four cars meeting an engine with three cars. The problem is to ascertain the most expeditious way of passing the two trains by means of the side-track, which is only large enough to hold one engine or one car at a time.

No ropes, poles or flying switches are to be used, and it is understood that a car cannot be connected to the front of an engine. How many times is it necessary to back or reverse the directions of the engines to accomplish the feat, each reversal of an engine being counted as a move in the solution?

**Inside: Building a time table on hope
Secret Minute Revealed!**

**RRP \$2.95
Incl. GST**

The Times

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On the front cover

It's a Cornfield Meet. or three of them at once it seems. The 1919 *Black Sox*, ARTC's stylized locomotives from its Working Timetables (now called *Master Train Plans*) and Sam Lloyd's famous puzzle of trains meeting on the prairie emerge from the corn, ready to tackle the challenges. *Field of Dreams* was a 1989 movie starring Kevin Costner, in which a man's dreams of living up to his father's hopes and of his love of baseball resulted in the conjuring up of a fantastic team of long-dead ball players, to play on a pitch built on his corn crop. As you will see from the article in this issue, the imagery of the movie seemed apposite for ARTC's yearning to re-create the rail traffic of the past— although I was somewhat peeved to discover part-way through the writing that *Infrastructure Australia* had been struck by the same notion. You may remember the final scene of the movie with a chain of headlights of cars on prairie roads, choked with traffic heading for the big game. ARTC is looking down the track for the approaching headlights of a great wave of trains, but so far they are yet to appear among the cornfields.

Times Present... Times Past...Times Here.... Times There. In our magazine this month is a timetable story which originally appeared the *New York Times*. This is not the first time this has happened— about 10 years ago the NYT did a story on NAOTC member Carl Loucks, which we also reproduced. This month's story was obviously based on a comparison of Public with Employee timetables, so perhaps its author Michael Appleton is a closet timetable collector. Clearly some of his readers are. Like the first story, this one came to me via John Wilkins, editor of *The First Edition*, the U.S. equivalent of our *Table Talk* and published by the National Association of Timetable Collectors. Long may this association **continue**.

But is AATTC's **Times** as influential as the **New York Times**? Well, of course it is. Readers may recall an article of a year or so ago on the dominance of coal in the rail industry world-wide— a dominance which was usually only tacitly acknowledged. So it was gratifying to find that the US magazine *Trains* has taken up the theme in its latest issue, devoting nearly the entire issue to it. Now where did they get *that* idea, I wonder?

Contributors Geoff Lambert, Michael Appleton, John Wilkins, Avril Foley
The Times welcomes articles and letters. Send paper manuscripts or word-processor files on disk or via e-mail to the editor at the address below. Illustrations should be submitted as clean sharp photocopies on white paper or scanned GIF or TIF format images with at least 300 dpi resolution on disk or via e-mail.

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Field of Dreams

A critical look at ARTC's bold attempt to expand its timetable by **GEOFF LAMBERT** The complete article, with 7 Appendices, totaling some 90 pages will be available later through AATTC's Distribution Service.

Introduction

ISIA, NIA, HVIA,- They sound vaguely like some sort of dread diseases, to be avoided by wearing Personal Protective Equipment. But, no.... they are *Alliances*- consortia of the Australian Rail Track Corporation (ARTC) with a number of private enterprise firms (our page 14). The consortia are building the infrastructure so that ARTC can sell timetables that the customers want to buy. ARTC wishes to see its sales of timetable paths increase 7-fold on the Sydney Melbourne Corridor and is planning to allow it to happen.

In 2008, questions about the value of the massive spending on infrastructure which these plans involved began to circulate. In particular, people began to ask whether the new infrastructure on the Sydney-Melbourne line was being used, whether it had had any affect on the way in which trains were operated, whether running times and reliability had improved and whether more customers had been attracted to rail- in short, whether all this money had had any effect on the timetable. A short article about these issues appeared in *Table Talk* in April 2009 and I ventured the suggestion in it that the short answer to these questions was "no"—or at least "not yet". This expanded article looks closely at this conundrum. The story starts in 1999 and is still wending its way towards a finale in 2018—or perhaps 2024. It has been re-jigged several times already.


ARTC sees its charter in the terms shown in the box above. I could not have put it better. To achieve item 5 of its charter, it has to make items 1 to 4 work properly.

ARTC is a Federal Government owned company and it differs from Government Corporations (such as RailCorp) in that it cannot receive subsidies from Government to prop up its operating losses. It must make a profit in the long term, although it can (and it does) receive the occasional capital injection. In essence, ARTC is a timetable manufacturer; it wholesales its timetables to the train operating companies, who retail them to the freight forwarders and/or the ultimate customers. To make this sales chain work, ARTC timetables have to be attractive at each of these levels.

To fund its infrastructure program, ARTC can borrow money in the market place, dip

ARTC's Charter

Australian Rail Track Corporation Ltd (ARTC) is a company under the Corporations Act whose shares are owned by the Commonwealth and overseen by the Minister for Transport and Regional Services and Minister for Finance and Administration on behalf of the Commonwealth. Responsible for negotiating new access to the interstate national track between Brisbane and Perth, ARTC commenced operations in July 1998 with the following charter:



- * Improve performance and efficiency of interstate rail infrastructure (1)
- * Increase capacity utilisation (2)
- * Listen, understand and respond to the market (3)
- * Operate on sound commercial principles (4)
- * Provide our shareholders with a sustainable return on capital invested (5)

(from the ARTC website)

into its accumulated profit or receive grants from the Federal Government. It must get a return on its equity (difference between Assets and Liabilities) so it can return a profit to its shareholder (currently Wayne Swan). In NSW at least, the State Government, through IPART, has set ARTC's required return on equity for its Hunter Valley coal network at 8%. ARTC admits that it cannot yet achieve a positive return on investment on its corridors from Brisbane to Adelaide until it addresses points 1 to 3 of its Charter.

ARTC was a company created as a result of the Commonwealth and mainland State Governments' *Inter-Government Agreement* in 1997 for the establishment of a 'one-stop shop' for rail operators seeking access to the interstate standard gauge rail network between Brisbane and Perth. ARTC commenced operations on 1 July 1998, when it inherited the "below rail" component of the old Australian National Railways (ANR). ANR had already been readied for privatisation and to accommodate the open access requirements of competition policy and partially as a forerunner to privatisation, a separate business unit known as AN Track Access was set up within ANR to administer access to the interstate track under AN control. With the commencement of operation ARTC also assumed a lease management of the Victorian interstate standard gauge. After several years of negotiation, ARTC took control of the main freight lines in NSW through another lease arrangement.

For the purposes of infrastructure investment, ARTC has split its network into three *Markets*: (1) *East-West*, or the routes from the eastern states to South Australia and Western Australia.; (2) *Hunter Valley* and; (3) *North-South*, or the Brisbane-

Melbourne route. *East-West* and *North-South* share some corridors or *track segments*. The road transport markets are often divided this way also.

This article examines how ARTC is addressing points 1 to 3 of its charter and whether it is likely to succeed in meeting the goal articulated in Point 5. It focuses on the Sydney-Melbourne corridor of the North South market, with particular emphasis on the Junee-Melbourne track segment. This is the biggest market with the lowest rail share and is therefore where the greatest change needs to occur and where the infrastructure investment program should produce a dramatic change in the timetable. The article draws upon a wide range of material, mostly from the web, although much of this material is buried in sites where only Google can find them. This material will be available in a future *"Timetables on CD"* in our Distribution List.

The motivation

At a *National Rail Summit* in September 1997, the *Australian Transport Council* (ATC—a Council of Commonwealth, State and NZ Transport Ministers) had agreed upon the need for (1) a *one-stop-shop* for access to the interstate rail network and (2) for a set of infrastructure targets to be achieved by 2002 (see box, page 4). ARTC was formed a year later as a direct result of the ATC's request for the one-stop-shop.

The Commonwealth Government had already been involved in a decade-long rail reform program resulting in vertical separation of railways, a nationwide train operating body (National Rail Corporation), the privatization of some train operators and the introduction of Open Access. This program and its affects upon timetabling

ATC Targets

- less than 2% of track subject to temporary speed restrictions;
- at axle loads up to 21 tonnes, a maximum speed of 115kph and an average speed of 80 kph; at axle loads between 21 and 25 tonnes a maximum speed of 80kph and average speed of 60kph; and train lengths of 1800m on the east-west corridor and 1500m on the north-south corridor.

In the longer term the system should deliver:

- at axle loads up to 21 tonnes, a maximum speed of 125 kph and an average speed of 100kph; and at axle loads between 21 and 25 ton-

were described in articles in *The Times* in 2005. By 1999, the reform program had spawned several enquiries, including “*Tracking Australia*” (the Neville Report), “*Revitalising Rail*” (the Smorgon Report, 1999) and *Progress in Rail Reform* (Productivity Commission, 2000).

The general, consensus of these reports was that a large part of the “rail problem” lay with a lack of *Intermodal* traffic, a lack which was driven by a lack of competitiveness in the transport marketplace. This in turn arose because the network infrastructure could not provide the service which the market demanded at a competitive price. There was, however, not a great deal of agreement between these reports on the best way forward.

The Sydney-Melbourne corridor transport market

Teasing out figures like these is not so easy. Governments everywhere have often legislated to ensure that good transport statistics are available to them to help them in planning national policies. In the days of Government-owned and vertically-integrated rail systems, acquiring this data was relatively easy. It is harder now, with privatised and vertically-separated rail transport. Governments also change their minds about what they want. For instance,

the Australian Bureau of Transport Research and Economics, the main source of such data, changed its database from an *Interstate* basis to an *Intercapital* basis a few years ago. For rail freight, these are usually one and the same, but this is not so for road freight.

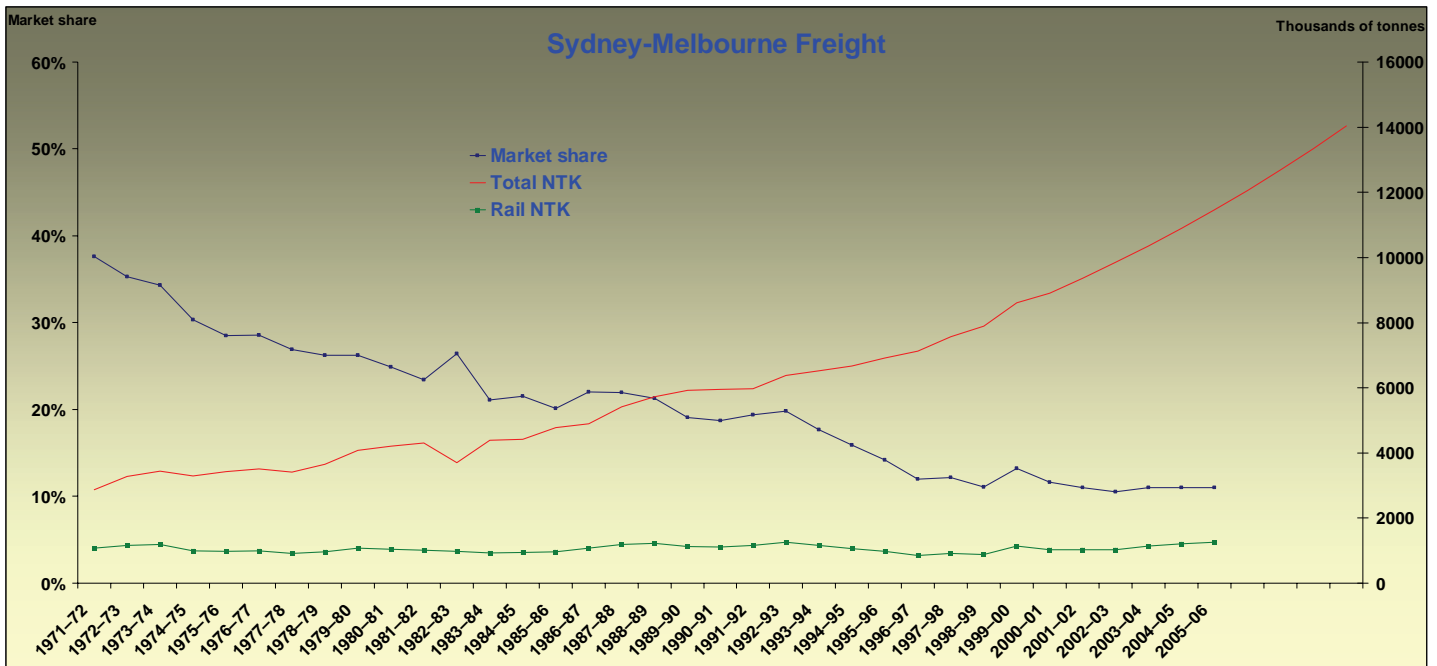
The Incredible Shrinking Timetables

A century before the notion of transport “markets” emerged, the Sydney-Melbourne market was easily the largest and it remains so to this day. In 2005-2006, about 44 million tonnes per year moved over the 950 km NSW-Vic corridor, about 19 million tonnes of it being Sydney-Melbourne traffic. The market has been growing at a steady 5-6% for decades, usually at about 1.3-1.4 times the growth rate in Gross Domestic Product (see graph below). Rail carried about 3.5 million tonnes over its Sydney-Melbourne track, but only 0.8 million tonnes was strictly “Intermodal” traffic between these two cities. This was a considerable fall from a few years previously (2000) when the principal commodities carried by rail were “Manufactured Goods” (1 million tonnes, 50%), Steel (0.75 million tonnes, 38%), and “Intrastate” (0.25 million tonnes, 12%). “Intermodal” and “Manufactured Goods” are probably fairly equivalent. Rail

had cornered the market for heavy stuff (grains, coal, steel and minerals) and these products moved on a “door-to-door” basis. Rail’s share of manufactured goods has been declining for years and dropped from 38% in 1972 to 11% of the current 8.6 million tonnes market. In the days of private sidings, manufactured goods also moved door-to-door on rail, but nowadays, when they move by rail, they move as *Intermodal* traffic. On the Sydney-Melbourne corridor this mostly means truck-train-truck. A little “intermodal” traffic involves sea transport as one of the modes, but very little of this is interstate traffic. Necessarily then, intermodal traffic moves in *containers* and a good part of the rail rolling stock fleet is composed of *container flat* wagons of various types.

Traffic through Albury had leapt following the opening of the Victorian north east standard gauge (NESG) line in 1962. This growth continued through the 1960s and reached a peak in 1969, just before the opening of the Broken Hill to Port Pirie standard gauge route. Pages from the relevant 1969 VR and NSWGR WTTs are shown on pages 5 and 6.

As trains grew longer and heavier and the tonnage carried stagnated, the number of trains on the line began to drop. By 1998,



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	7 1/4	Sunshine	8 53	9 13	9 43	10 43
	10	(S.G. Loop) dep.	...	9 0	9 20	9 50	10 50
	14	McIntyre	9 6	9 26	9 56	10 56
Via Ess.	13 3/4	(S.G. Loop) dep.	...	9 12	9 32	10 2	11 3
	20 3/4	Somerton	-232A	-232
	21 1/4	(S.G. Loop) dep.	...	9 28	9 47	10 18	11 20
	29 3/4	Donnybrook
	36 1/4	(S.G. Loop) dep.	...	9 44	10 2	10 34	11 37
	46	Wallan	-460A	-232	-232	...-232B
	62 1/2	(S.G. Loop) dep.	...	10 3	10 20	10 53	11 59
	85 1/4	Broadford	-232B	-232B	A.M. Tue. to Sat.
	105 3/4	(S.G. Loop) dep.	...	10 24	10 40	11 14	12 26-460
	121 3/4	SEYMOUR	10 46	11 2-460	-460	12 51-8112
	135 3/4	(S.G. Loop) dep.	11 10	11 38	1 20-430
	144 1/2	Longwood... (S.G. Loop) dep.	...	11 21	-430	A.M. Tu. to Sat. 12 13-8112	1 55-432
	169	Violet Town (S.G. Loop) dep.	...	11 33	11 41	A.M. Sun. 12 13-8112	2 30-8012
	185 1/2	Benalla (S.G. Loop) dep.	...	Mon. 11 33	A.M. Tu. to Sat. 12 13-8112	A.M. Sun. 12 20-430	2 30-8012
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Albury to Goulburn—continued

UP	418	446	450	6	416a	103	492	8	6
WEEK-DAYS	Fruit Express	Fruit Express	Goods	Rail Motor	Fruit Express	Stock	Goods	Albury Mail	Temora Mail
	* C 5.15 p.m.	* p.m.	* p.m.	SE† p.m.	* Sat. p.m.	* E p.m.	* p.m.	W W F Sat. p.m.	* C p.m.
Albury†††	...	...	1 10	3 52	...	...	...	5 25	...
Bittamogah*	...	...	...	4 22	...	...	...	...	...
Table Top†††	...	...	1 33	4 31	...	...	...	5 45	...
Gerogery†††	...	...	1 50	4 47	...	...	...	5 59	...
Culcairn†††	...	...	2 11	5 6	...	...	...	6 15	...
Henty†††	...	...	3 22	5 23	...	...	...	6 27	...
Yerong Creek†††	...	...	3 39	5 40	...	...	...	6 32	...
The Rock†††	...	...	4 13	5 47	...	...	...	6 41	...
Uranquinty†††	...	...	4 33	6 11	...	...	...	6 56	...
Kapooka†††	...	...	4 50	6 20	...	...	...	7 15	...
Wagga Wagga†††	...	...	5 29	6 29	...	...	...	7 30	...
Bomen†††	...	...	6 00	6 40	...	...	...	7 42	...
Shepherd's**	...	...	7 30	7 0	...	...	...	7 50	...
Harefield†††	...	...	7 44	7 10	...	...	...	8 5	...
Junee	...	...	8 40	7 11	...	...	...	8 15	...
Martina**	...	...	9 3	7 31	...	...	...	8 34	...
Ilabo	...	...	...	7 48	...	...	...	8 49	...
Bethunga	...	...	...	...	...	...	...	...	...
Frampton**	...	...	...	...	...	...	...	...	...
Cootamundra	8 45	8 36	...	...	9 50	...	7 50	...	10 40
Coota. West §§	...	...	...	...	...	9 45	...	...	...
Jindalee*	...	...	...	...	...	...	...	...	...
Morrison's Hill*	9 13	8 52	...	...	10 4	10 23	10 51	...	11 2
Wallendbeen	...	...	...	...	...	...	...	...	...
Nubba**	...	...	...	...	...	...	...	...	...
Demondrille	9 23	9 6	...	...	10 19	10 49	11 17	...	11 15
Murrumburrah	...	9 14	...	...	10 27	11 28	...	...	11 22
Harden	9 35	9 29	...	...	10 46	12 36	...	...	11 23
Cunalingar**	...	...	...	...	...	...	...	...	...
Rocky Ponds*	...	...	...	...	...	...	...	...	...
Galong	...	...	...	...	...	11 39	1 16	...	11 43
Binalong	10 12	10 3	...	...	11 22	1 58	1 34	...	11 54
Ilalong Creek*	...	...	...	...	...	...	...	...	...
Goondah*	...	...	...	...	...	...	...	...	...
Bowning	10 42	10 29	...	...	11 50	2 0	2 17	...	12 17
Yass Jct.	10 54	10 39	...	...	12 0	2 16	2 34	...	12 28
Coolalie**	11 20	11 1	...	...	12 26	2 56	3 31	...	12 29
Jerrawa	...	...	...	...	...	...	...	...	12 51
Oolong**	...	...	...	...	...	...	...	...	...
Gunning	11 40	11 17	...	...	12 44	3 28	4 2	...	1 7
Fish River	Sun.	11 23	...	...	...	3 42	...	...	1 14
Cullerin**	...	...	...	...	...	...	...	...	...
Breadalbane	12 15	11 48	...	...	1 19	4 39	5 48	...	1 30
Yarra	12 26	...	...	...	...	4 56	6 6	...	...
Joppa Jct.	...	...	...	...	...	...	...	...	1 50
Goulburn Up Yd.	12 37	12 16	...	...	...	...	...	...	...
Goulburn	12 47	12 16	...	...	1 38	5 11	6 21	...	1 55
			...	...	1 48	6 10	...	...	2 0

§§ On branch line. ¶¶ For conditions see page 243.

§ No. 6 Rail Motor stops at Mileages 385.76, 390.00, 399.57 to pick up school children and at 398.20, 397.45, 395.25, 393.73, 389.40 on Mondays to Fridays to set down school children. No. 6 Rail Motor also stops at mileage 348.50 on Fridays to set down school children.

When No. 4a runs, Dist. Supt, Goulburn, to arrange suitable altered table for No. 492.

† When No. 65a runs No. 6 will arrive Gerogery at 4.46 p.m., cross No. 65a, depart 5.8 p.m., Culcairn 5.26-5.27, Henty 5.45-6.1, Yerong Creek 6.18-6.19, The Rock 6.37-6.38, Uranquinty 6.55-6.56, Kapooka 7.05, Wagga Wagga 7.16-7.24, Bomen 7.34-7.35, Harefield 7.55-7.56, Junee arrive 8.12 p.m.

When No. 450 runs on Saturdays, District Superintendent, Junee, to arrange suitable altered table between The Rock and Wagga Wagga.

§§§ When No. 65a runs No. 8 will depart Albury at 5.22 p.m. and run 7 mins. later than tabled to Henty arrive 6.39 p.m., thence as tabled.

Afternoon trains heading north out of Albury in May 1968. There are 3 in about 4 hours. Today, in this 4 hour period there are none.

the number of daily trains on the North East Standard Gauge had dropped to 22 and there were 38 crosses on the single line each day. The average travel time for Express Freight trains was 4 hours 27 minutes. A graphical timetable for the busiest day-Wednesday appears in the upper chart on page 7.

In 2000, the fastest train on the Sydney-Melbourne route was -SM5, a Pacific National 1500 metre Superfreighter. This left Chullora at 1840 and, running to what the NSW Rail Access Corporation called an "A1" schedule, arrived at Dynon at 0830 the next morning. Of the total transit time of 13 hours 50 minutes, about an hour was spent stationary in loops crossing other trains. It is not possible to be more accurate than this because working timetables for the Victorian Standard gauge were not available to outsiders at that time. It would appear that this lone train formed the basis of all the subsequent analysis that led to billion dollar infrastructure upgrade for the Melbourne-Sydney line.

In the January 2010 WTT, the equivalent numbers are 20 trains, 28 crosses and 4 hours 2 minutes (page 7, lower).

The "Border Railway" is not a busy one—not even on a Wednesday. It is nowhere near capacity and there are huge gaps where new trains could fit—note the 7-hour gap at Albury where no regular train moves. In the middle of this period, 8 am, there is currently not a train to be found

Corridor	# trains per week
Brisbane-Adelaide	8
Brisbane-Melbourne	37
Newcastle-Whyalla	11
Sydney-Adelaide	4
Sydney-Brisbane	1
Sydney-Melbourne	0
Sydney-Perth	19
Wollongong-Brisbane	10
Wollongong-Whyalla	3
Wollongong-Perth	3
Total	96

anywhere between Galong and Tottenham. This contrasts vividly with the situation on the Moss Vale section of the "Short South" where 100 trains per day thread the tracks.

The situation in the October 2008 RailCorp WTT for trains that arrived, departed or ran through Sydney or Wollongong each week was as shown in the Table above. These numbers are taken from RailCorp's train numbering database. They represent trains which, at that time, really did run—spare and unused paths were excluded. Note that the Sydney-Adelaide trains are passenger trains (Indian Pacific). Most of the Wollongong (i.e. Port Kembla) trains

are steel trains and most (even those destined to run to the South) do so via Sydney rather than Summit Tank. Given that the Sydney-Melbourne transport corridor is supposed to be the busiest in Australia, the fact that there are no timetabled trains on it is an as-yet-unexplained puzzle. Possibly it is due to consolidation of this traffic into the Brisbane-Melbourne trains. In the 2009 October 2009 timetable (there is no database for 2009) there appears to be now 1 "point-to-point" Melbourne-Sydney train per week.

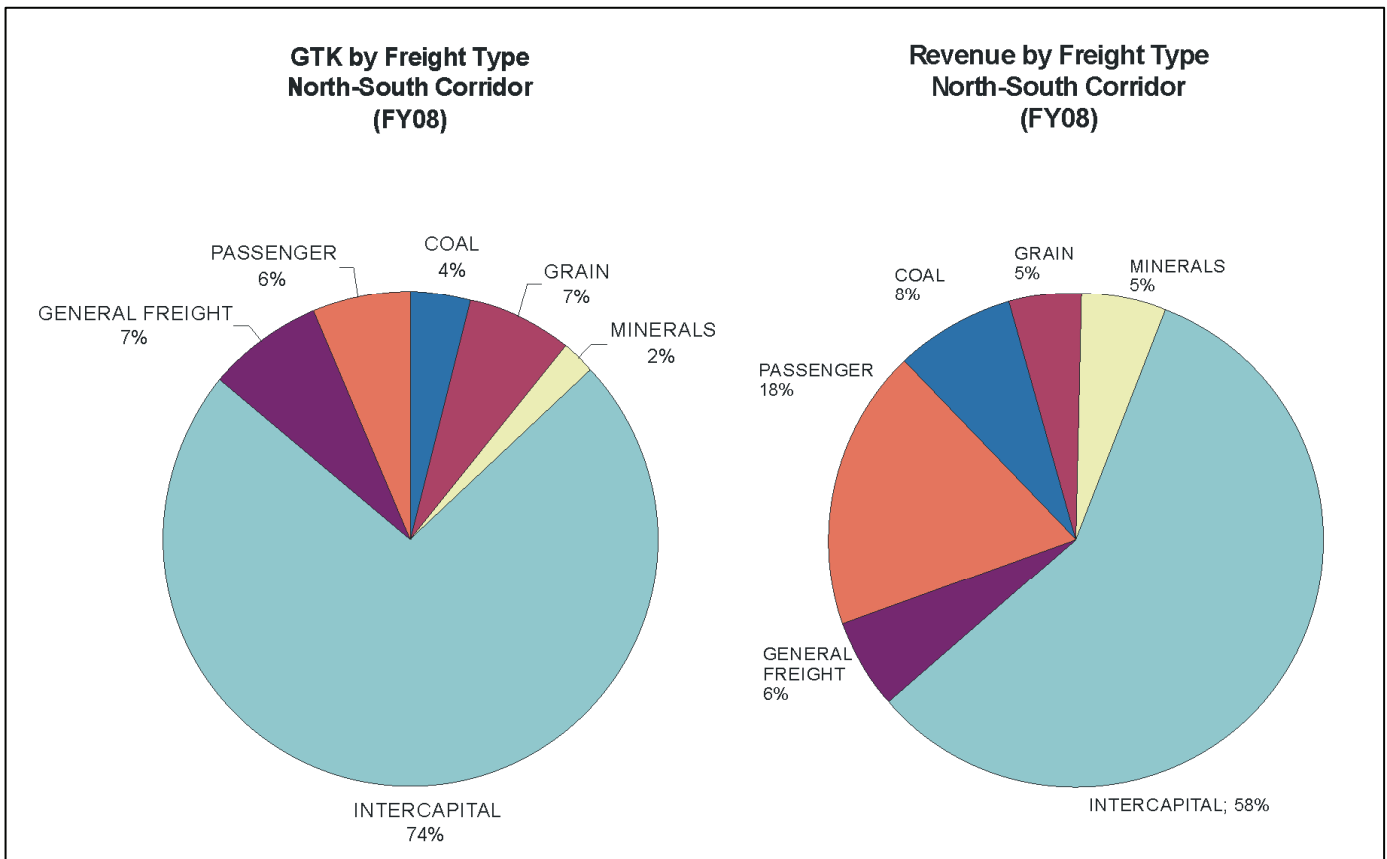
In its 2008 submission to Infrastructure Australia, ARTC estimated that the *capacity* of the Sydney-Melbourne line at that time would be 10 Superfreighter train pairs per week- or 2 each way per weekday.

Rail Traffic mix

In the 2007-2008 financial year, three-quarters of the Melbourne-Sydney traffic (in gross tonne kilometres or GTK) and 58% of its revenue was in what ARTC calls "Intermodal" and a great deal of this is "intermodal" or truck-train-truck. This is the market which ARTC is hoping to cultivate. Bulk, steel and minerals are already captive- expansion (over and above the natural market growth) can only come from Intermodal.

Intermodal Market Growth

While rail once dominated the Melbourne-Sydney general freight market, its share of



	Transport Transnit						Market share after completion	# of trains per day	Yearly tonnage (million)	Nett benefit \$million
	Target Year	Cost \$ million	cost per tonne	time hours	Reliability	Availability				
Base Case	-	-	\$48	13.5	55%	50%	11%	1		
Actual 2009	-	-						0	1	
BAH 2001	2009	\$294		10.5	80%	75%	20%			\$246
ARTC 2002	2010	\$872		10.5	80%	75%	20%		5	
ARTC 2005	2010			10.7			14%	6		6%
ARTC 2007	2015	\$1,296		10.5	75%	75%	15%	4	3.2	
ARTC 2008	2024	\$720					60%	20		N/A

this market has essentially vanished. Fifty years ago it had nearly all of it. Remember the days of the Flexi van Expresses? In 1971, the first year or which reliable records of this type are available, rail still had about one-third of the market, much of it carried in such trains. Now the share is down to about 10%, although the absolute tonne-kilometres hauled by rail have been fairly static. As the following discussion will show, 10 years of trying to reverse this downward slide have halted it, but definitely not reversed it. Much hand-wringing has gone on over this long seemingly inevitable decline and despite good cases being made that rail transport has a greater Nett benefit to society, few positive steps were ever taken to set things "right".

The Commonwealth was not entirely satisfied with rail's low share of the market and it also perceived that there had been almost no progress towards achievement of the ATC targets. It requested that ARTC undertake an *audit* of the market and its network, with a view to clarifying the matter.

ARTC contracted out this task to a number of consultants, including Booz Allen Hamilton, who did most of the work. BAH presented its findings early in 2001. Most of

the audit report and its appendices are still available on the ARTC website at <http://www.artc.com.au/Content.aspx?p=31>, but not always in the form originally submitted. Some parts appear to be never have been released, in particular (and importantly for us) the capacity analyses. A full list of reports with links to those remaining on the web can be found in the annotated bibliography (Appendix 7).

BAH's charter was:

- *-Determine to what extent the ATC targets had been achieved
- * Determine what would be needed for rail to increase its share in each corridor
- * Establish a framework which would enable engineering consultants to provide infrastructure plans
- * Conduct a financial and economic evaluation of these possible infrastructure plans
- * Establish a business case for investment in these infrastructure plans
- * Examine the possibility for financing the projects by private investors

The BAH audit was the first of several similar investigations over the next 8 years. At the time of the 2001 Audit,

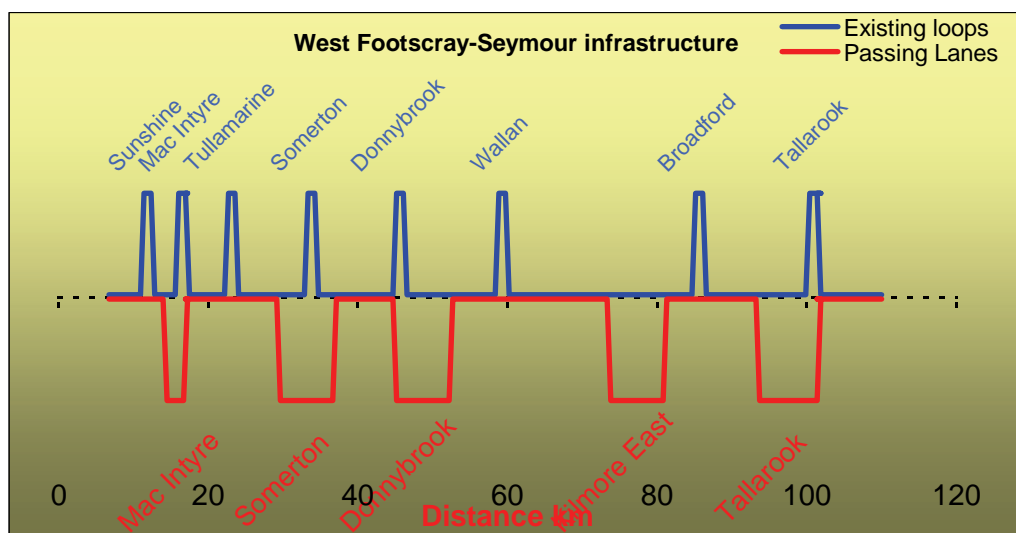
ARTC was neither the track owner nor the lessee of the North-South corridor. Nevertheless, ARTC developed an investment plan in 2002, as part of its proposal to the NSW Government to lease these tracks. Only plans for the Melbourne—Albury segment could be implemented immediately; plans for the NSW tracks could not be implemented until ARTC was able to lease them. This happened in mid-2004, after much agonizing. At this time at least some of the BAH audit recommendations were in place for the East-West corridor and a small amount of work had been done on the Melbourne-Albury route.

Subsequent to the take-over, a number of "strategies", "Investment Outlines" and analyses were developed. All of these analyses seem to have drawn upon the methods of BAH. Only the numbers have changed. These analyses are described in detail in Appendix 1. Some pertinent details are summarised in the table above and a comparative graph of the traffic projections is appears on page 12.

Crafting the product

In essence ARTC used its consultants' reports to build a better timetable. This

	Time for longest section		Add safeworking time		# of paths per day		Reduce to Finagle's Factor 65%		Reduce by					
	DOWN	UP	3		DOWN	UP	DOWN	UP	12% Maintenance loss		15% Surge capacity		9% Cancellations	
			UP&DOWN ---->						DOWN	UP	DOWN	UP	DOWN	UP
Limits ---->	27	28			24	23	16	15	14	13	12	11	11	10
Junee-Albury	13	15	16	18	45	40	29	26	26	23	22	19	20	18
Albury - Seymour	27	28	30	31	24	23	16	15	14	13	12	11	11	10
Seymour - West Footscray	18	17	21	20	34	36	22	23	20	21	17	18	15	16



	<u>Sectional Distances</u>		<u>Loop lengths</u>	
	Existing	New	Existing	New
Total Distance	103.3	103.3		
Total single line	96.0	72.3		
Total "double line"			7.3	30.9
Section length variability	16%	16%		
# of sections or loops	9	6	8	5
Loops as % of total	7%	30%		
% reduction of single track		25%		

would obviously benefit its existing customers, but its main purpose was to attract lots of new customers, particularly from the competing road transport operators. Although it never said so explicitly or simply, the final timetable product it sought was to have the following characteristics on all corridors, but particularly on the overnight corridors

- Later departure times
- Earlier arrival times
- Better on-time running
- Lower charges to shippers

The improvements in departure and arrival times came mostly from increasing the average speed of trains by improving the track. Reliability was to be improved by track upgrades which would reduce the impact of unforeseen delays and allow a better recovery from them. Among other means this was to be achieved partly by providing increased crossing and passing facilities on the track. The latter upgrades would also provide a significant decrease in running times by reducing the waiting times at crossing loops, although the latter does not appear to have been modelled in great detail. Lower charges to shippers and customers were supposed to derive from decreased costs of train operation- some of which ARTC hoped would be passed on from the Train Operators to the customers.

Although the Melbourne-Sydney line was running well below capacity at the time, it was planned that the above changes would significantly increase capacity and that the new traffic which would be attracted would find plenty of train paths in the timetable for it.

How this was to be achieved is described in considerable detail in the supplementary appendices. A summary table appears at the bottom of our page 13.

Grand plans: A look at the Footscray-Junee infrastructure upgrade

On the Melbourne Albury line, the WTT shows a threadbare 12 train paths per day, compared with the 39 per day at the peak of the line just before the Broken Hill to Port Pirie line opened in 1970.

ARTC publishes Indicative Section Run-

ning Times for its "National" network, but not for its NSW leased lines, for which the only running times available are those from the NSW RIC TOC manual of 2004. If we apply the methods described in the Appendices of this article to the Junee - West Footscray corridor, we find that the present theoretical capacity (based on the section time for the limiting section of Alumatta-Chiltern) is 47 trains per day, the "practical capacity" is 31 per day and the number of trains which ARTC would feed into its timetable simulation program is 21 per day. These numbers are shown in the table near the bottom of page 9, in which I have divided the Junee-West Footscray track into 3 segments, the reasons for which will become apparent:

But the Seymour - Albury section will no longer be single line and, in this situation, the limiting section between Junee and West Footscray is Wallan-Broadford for which the corresponding numbers are: **Theory:70; Practical: 45 and Simulation start point: 31** paths per day.

Such simplistic approaches turn complicated when the "section" between two crossing loops can be divided into more

than 1 "block", to allow "follow-on" moves. This (naturally!) does not apply to opposing moves, so it makes the calculation of "section times" and capacity harder- one must use the "signal clearing times" and these may vary within a section. Subdividing inter-loop sections facilitates fleeting of trains, but it is not currently taken advantage of in building or simulating timetables.

Passing Lanes

The notion of *Passing Lanes* is the key to ARTC's strategy for improvement of the single-line sections of the Melbourne-Sydney route. Originally 16 of them were planned for Junee-West Footscray (see page 13), but ARTC had a stroke of luck when the Victorian Government agreed to hand over the North East broad gauge track from Seymour to Albury for gauge conversion. Of the original 16 Passing Lanes, 8 are still on the books and a small one of these has received a boost from the Federal Government's Nation Building programme.

What is a Passing Lane? Ultimately ARTC plans to double-track the Junee-Albury single track and, one day, perhaps the Seymour-Tottenham track as well. Passing lanes were a half-way (or mathematically more accurately a one-third way) solution. Financial reality and geography limited the lengths of the passing lanes to 7 km, or about a third of the length recommended in ARTC's 2006 paper. One lane even had to be cut back to 2 km, although this has since been restored to the "full" 7 km with the help of Stimulus Package money. The diagram on page 9 gives an impression of how the project will change the "crossing infrastructure" on the West Footscray -



Seymour section. The present crossing loop regime is shown on the upper half; the new passing lane regime on the lower half.

A tabular form of this data appears in the box at the top of page 10.

Only the eye of faith can readily see that the track with the passing lanes will have fewer crossing delays and better reliability than the line with the loops. The data table shows that the passing lanes occupy 30% of the total corridor, up from 7% on the old line. On the basis of ARTC's reckoning, there should therefore be a 23% reduction in crossing delays. Current crossing delays can be worked out from existing WTTs in graphical or tabular form. AATTC members by now will probably have the graphical and tabular versions of the July 2009 WTT for this line (when, I believe, none of the passing lanes had been commissioned, although most had been constructed). The chart appears to show the Passing Lanes—the location names no longer bear the appellation "Loop"—but the tabular version of the same date still shows them as "Loops". One reason for this and other discrepancies between the graphical and tabular timetables is that the printed tabular timetables are manually transferred from the train planning system (TRIMS) into a partly "automated" Excel spreadsheet. This

method, which dates from the early 1990s and was brought to ARTC from the NSW RailCorp, replaced the system which ARTC previously used (although it was not necessarily automated either).

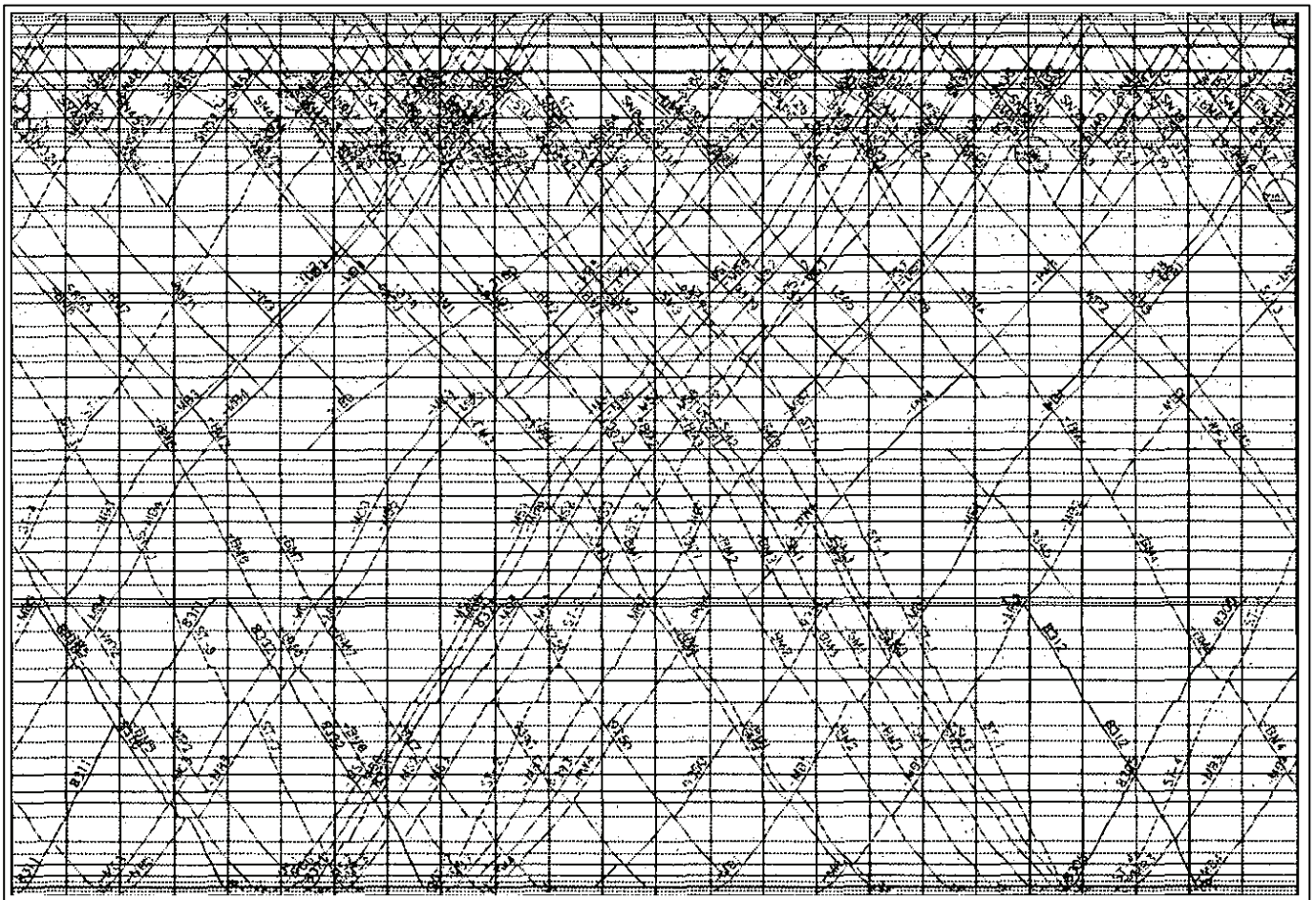
Next, there appears to be at least one Up train missing, leaving Albury at about 1430 and crossing two Down trains at Chiltern and Alumatta. The XPT is hot on its tail and itself seems to wait at Violet Town—perhaps to let the phantom train to get into the next loop at Longwood. The tabular version is not much help because it does not show the phantom train either and, furthermore, shows the XPT (in fact all XPTs) stopping at Longwood Loop. Not only that but it shows different crossing places for some trains.

All in all the existing timetables available to we amateurs are a bit raggedy, with many delays which may not be crossing delays. This is not to mention the often-commented upon truth that the WTT usually bears no resemblance to what one sees if one sits by the track and watches the trains go by. To cap things off, none of the timetabled crossings are in the Seymour – West Footscray corridor which we are examining, although they can sometimes occur as this *Gunzel Gallery* photo at Tal- larook shows (page 10).

Just the same, a rough message here is that there are 11 crossing delays averaging about 20 minutes each and a total of 4 hours delay between them, as shown in the table on the next page. A reduction of 23% on these figures would save about 5 minutes per train and about 1 hour in total (top right figures).

While this exercise has not been completely futile, neither has it been very satisfying. Does the problem lie with us, with ARTC or with the rubbery information? Whatever the difficulties, ARTC reckons it is on to a winner and has presented the graphical timetable below as representative of what the passing lanes project will allow. This chart was prepared before the NE Broad Gauge line fell into ARTC's lap.

Now this *does* look good!—at first sight. The number of train paths seems to have gone up from the current piddling 12 to a more respectable 38 and almost equals what was probably the peak number of paths on this line in the May 1969 timetable (39 per day average—formed by 106 passenger paths and 167 goods paths per week). On the other hand, this is not a timetable that the customers would like; most of the trains depart just after breakfast and are timed to "cross" one another



Crossing delays on Melbourne Albury line, Fridays July 2009- from the tabular and graphical WTTs

	Train	Loop	Arr	Dep	Crossing	Delay	23% reduction
Totals						0400	0304
Averages						0021	0016
Down	XPT	Longwood	0957	1002	Unknown stop	0005	Graphical version of Down Goods3
	Down goods1	Benalla	1335	1403	Up Goods	0028	
	Down goods1	Chiltern	1456	1554	Up XPT	0058	
	Down Goods2	Glenrowan	1538	1553	No apparent reason	0015	
	Down Goods2	Alumatta	1603	1612	Up XPT	0009	
	Down Goods3	Seymour	2051	2124	Pass by XPT	0033	
	Down Goods3	Tallarook	2052	2104	Pass by XPT	0012	
Up	XPT	Longwood	2122	2129	Unknown stop	0007	
	Up Goods1	Chiltern	0024	0039	No apparent reason	0015	
	Up Goods 2	Seymour	1434	1526	Down Goods plus ???	0052	
	XPT	Longwood	1720	1726	Unknown stop	0006	

in the double track sections between Goulburn and Junee.

Hiccups on the track

The path to true love never run smoothly. In ARTC's case, this is quite literally true... a little while ago trains were breaking in two on its newly re-laid Melbourne-Seymour track because of mud-holes and there are fears the rest of the North East standard gauge may be similarly afflicted. Uncommissioned facing points over which XPT trains speed at 130 kph are secured with an old dog-spike driven into a rotten wooden sleeper and signal equipment for the new tracks has lain rusting in open wooden crates for over a year. The speed at which the gauge of this line was converted was astonishing (see schedule on page 14—although the GWR did its gauge conversion in a single day). But is it a case of *Never mind the Quality- feel the Width?* Passenger trains are still six months away for this line. Several passing lanes lay uncommissioned until a month ago and one in NSW is still in this situation. Those that have been commissioned are not being regularly used to expedite the timetable.

Introduction of the new timetable seems to receded just as fast as the calendar turns over. The Southern Sydney Freight Line (the biggest time saver) has been indefinitely suspended without a rail being laid. On the Brisbane Corridor, the newly-completed corridor has failed to attract traffic- of Brisbane-Sydney Intermodal trains there is only one per week. There have been improvements in travel times here but mainly for steel trains- which ARTC already holds captive. The new Intermodal travel times fall way short of even BAH's lower targets. South of Brisbane, ARTC is now to be saddled with dual gauge and competing passenger traffic on its freight lines- the very thing it has been striving to rid itself of in Sydney. On the North-South corridor, steel and intermodal traffic in the last quarter of 2008-2009 was down 30% on the year before, bringing it to an annual rate of just over 9 billion GTK- a record low.

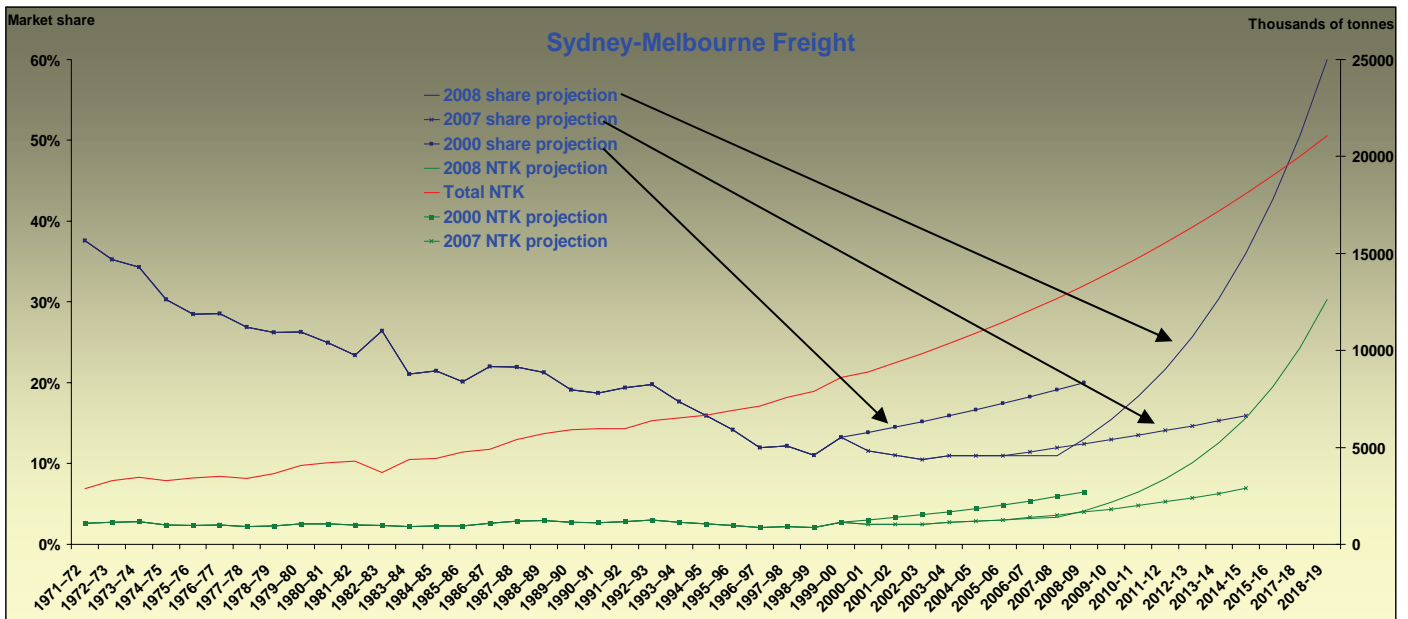
On top of it all, ARTC has been slugged with a tax bill of \$360 million- effectively soaking up two-thirds of its Nation Building grant. In the last two years ARTC has

suffered an impairment loss (write-down of intangible assets) of over half a billion dollars. These are not good looks

Build it and they will come?

One would not like to give the impression that ARTC has a reverse Midas touch and that all of its projects turn to lead. In the Hunter Valley everything it touches turns to gold and the greater part of the infrastructure expenditure is now taking place there. Every few weeks new infrastructure is commissioned; every few months, a new mine opens; traffic surges ever upwards. The money rolls in. **But there is a difference.** In the Hunter Valley, the coal industry has its hands on the levers... it only has to ask ARTC for new infrastructure and ARTC will comply. On the North-South corridor, it is a different matter- here there is a free market and ARTC is trying without apparent success to corner it.

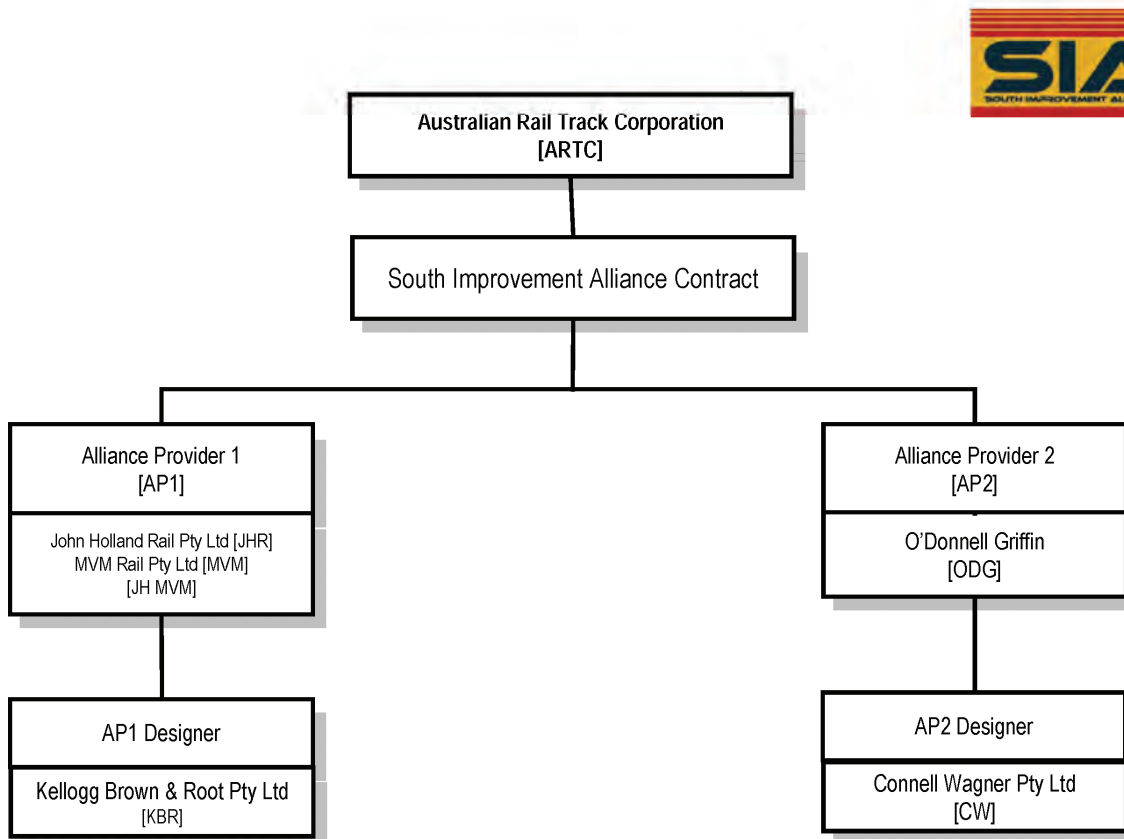
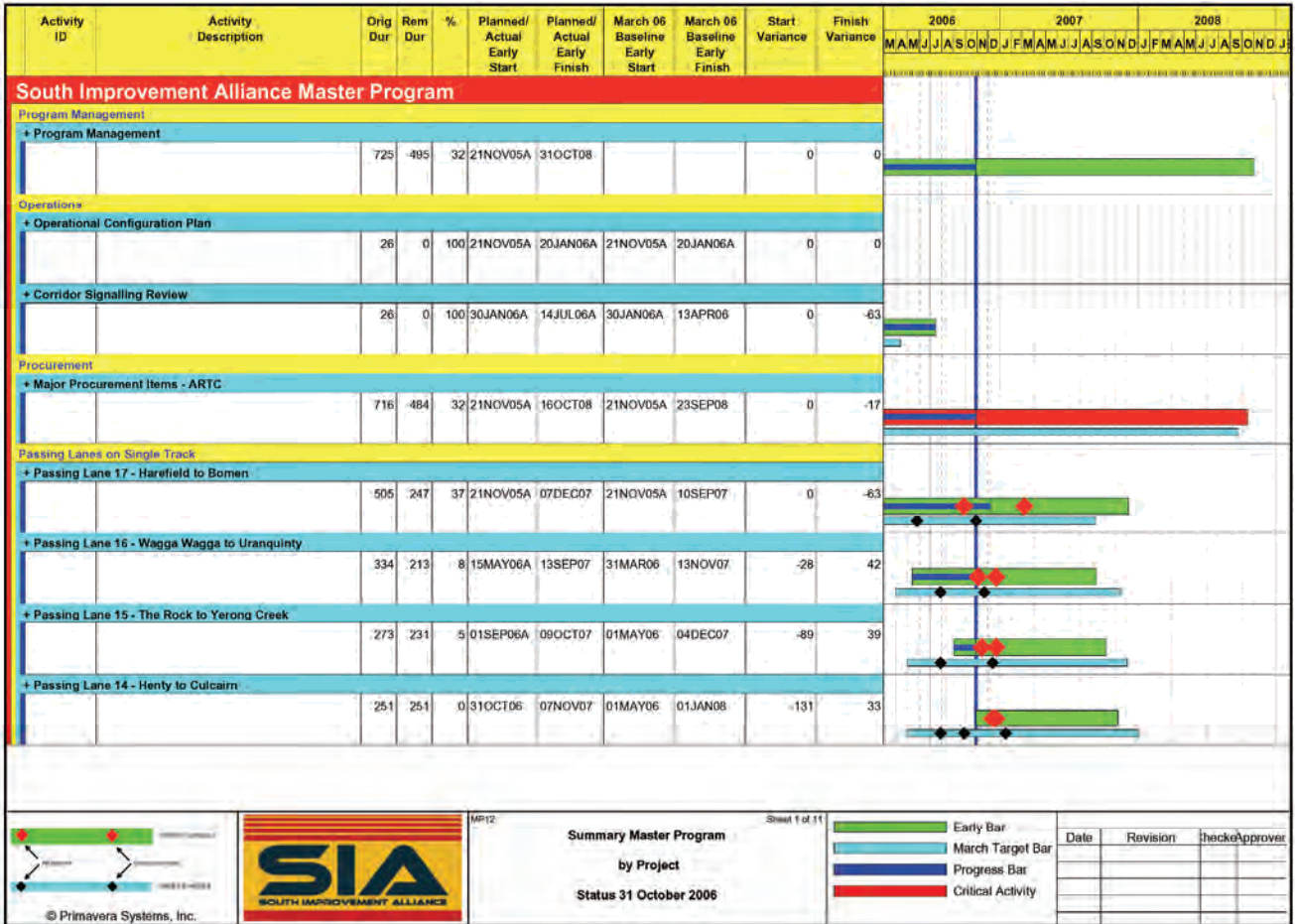
In the movie *Field of Dreams*, the targets of the "*Build it and they will come*" philosophy were notably ornery- they nearly *didn't* come. ARTC faces the same problem.





CORRIDOR - MELBOURNE TO SYDNEY

Scenarios 1&2 - Objectives			Optimal Least Cost	Time	Cost per minute
Project #	Scenario	Project Description			
5.23	S1	Reduction in operating delays	0	9	\$0
5.1	S1	Infrastructure upgrade Dynon to Albury (completed by ARTC) - 002 Appendix C	Completed	20	Completed
5.2	S1	Increase line speed Dyson to Broadford - 002 Appendix C	Completed	5	Completed
5.3A	S1	Increase speed in curves ARTC (super increase) - 002 Appendix C	Completed	4	Completed
5.33	S1	Change to Cant Standard (Atbuty-Chullora)	\$200,000	25	\$8,000
5.27	S1	Restriction of the time out in passing loops in NSW	\$120,000	2.6	\$46,154
5.4	S1	Reposition speed boards Chullora to Albuty -002 Appendix C	\$560,000	11	\$50,909
5.3B	S1	Wodonga Realignment Works	\$540,000	3	\$180,000
5.28	S1	Simultaneous Entry	\$980,000	3.9	\$251,282
5.5	S1	Remove permanent speed restriction Chullora to Atbuty - 002 Appendix C	\$2,000,000	7	\$285,714
5.15	S1	Increase Curve Speeds Albury to Chullora	\$4,000,000	10	\$400,000
5.8A(i)	S1	Crossing loop extensions (Dynon to Junee) Yeronga Creek loop (NSW) -004	Completed		Completed
5.8A(ii)	S1	Crossing loop extensions (Dynon to Junee) Gerogery loop (NSW) - 004	Completed		Completed
5.8A(iii)	S1	Crossing loop extensions (Dynon to Junee) Chiltern loop (VIC) -004	Completed		Completed
5.8A(iv)	S1	Crossing loop extensions (Dynon to Junee) Glenrowan loop (VIC) -004	Completed		Completed
5.8A(v)	S1	Crossing loop extensions (Dynon to Junee) Somerton (VIC) 004	Completed		Completed
5.8A(vi)	S1	Crossing loop extensions (Dynon to Junee) Violet Town loop (VIC) - 004	Completed		Completed
5.8A(vii)	S1	Crossing loop extensions (Dynon to Junee) Waltan loop (VIC) - 004	Completed		Completed
5.8A(viii)	S1	Crossing loop extension in Victoria Longwood loop - 004	Completed		Completed
5.8B(i)	S1	Crossing loop extensions (Dynon to Junee) Junee loop (NSW) - 004			\$2,360,000
5.8B(ii)	S1	Crossing loop extensions (Dynon to Junee) Wagga loop (NSW) - 004			\$1,430,000
5.8B(iii)	S1	Crossing loop extensions (Dynon to Junee) Albuty loop (Signaling points work only) (VIC) -004			\$400,000
5.8B(iv)	S1	Crossing loop extensions (Dynon to Junee) McIntyre loop (VIC) -004			\$750,000
5.8B(v)	S1	Crossing loop extensions (Dynon to Junee) Seymour loop (VIC) -004			\$750,000
	S1	SUB TOTAL for remaining NSW and VIC loop extensions*	\$5,690,000	11	\$517,273
5.12A	S1	Murrumbidgee River Bridge Upgrade	\$1,200,000	2	\$600,000
5.16	S1	Signal sighting distance Albury to Macarthur	\$3,000,000	3	\$1,000,000
5.6	S1	Upgrade sighting work for Sefton Park Junction - 002 Appendix C	\$4,000,000	4	\$1,000,000
5.7	S1	increase speed through loops Albury to Junee (25 to 50 kph entry speed) - 002 Appendix C	\$3,000,000	3	\$1,000,000
5.13	S1	Replace block telegraph signaling Medway - Exeter -002 Appendix C	\$3,500,000	3	\$1,166,667
5.14	S1	Replace block telegraph signaling Harden - Wallenbeen -002 Appendix C	\$3,500,000	3	\$1,166,667
5.29	S1	Entry/Exit speeds of passing loop turnouts (Melbourne - Junee) (80km/h)	\$9,600,000	7	\$1,371,429
5.10	S1	Additional refuges Junee to Macarthur (replaced by 2 sets of 2 Xovers at strategic locations)	\$5,600,000	3	\$1,866,667
5.9B(i)	S1	Additional crossing loop in Victoria (new 1500m loop) Barnawatha loop -004			\$1,400,000
5.9B(ii)	S1	Additional crossing loop in Victoria (new 1500m loop) Spanghurst loop -004			\$1,400,000
5.9B(iii)	S1	Additional crossing loop in Victoria (new 1500m loop) Avenel loop -004			\$1,400,000
5.9B(iv)	S1	Additional crossing loop in Victoria (new 1500m loop) Kilmore East loop -004			\$1,400,000
	S1	SUB TOTAL [5 [4???] additional crossing loops]*	\$5,600,000	3	\$1,866,667
5.24	S1	Increase speed through loops Dynon to Albury	\$4,000,000	2	\$2,000,000
5.17	S2	Deviations less than \$5m per minute	\$72,700,000	21	\$3,461,905
5.19	S2	Grade easing Kilmore438.0-440.2	\$3,500,000	1.5	\$2,333,333
5.11A	S1	Sydney freight priority project (Stage 1)	\$146,000,000	39	\$3,743,590
5.11B	S2	Sydney freight priority project (Stage 2)	\$80,000,000	0	
5.12B	S1	Murrumbidgee Bridge replacement (lift speed to 100)	\$16,000,000	4	\$4,000,000
5.18	S2	Realignments for less than \$5m per min	\$93,200,000	18	\$5,177,778
5.22	S2	Hoare Deviation	\$300,000,000	46	\$6,521,739
5.25	S2	Seymour-Albury Gauge conversion	\$50,000,000	2	\$25,000,000
5.26	S2	Duplication Seymour-Dynon	\$60,000,000	2	\$30,000,000
5.30	S2	Efficient passing of XPT			
5.31	S2	Rolling Stock modifications			
5.14	S1	Southern Control optimization project including bi-directional signaling	\$30,000,000	2	\$15,000,000
TOTAL	S1	Time saved includes loops already completed	\$249,090,000	189.5	\$1,314,459
TOTAL	S2		\$908,490,000	280	\$3,244,607
TOTAL	S0		\$325,000,000		



The Secret New York Minute: Trains Late by Design

MICHAEL APPLETON for *The New York Times*. Thanks to JOHN WILKINS

Commuters who think they have caught their trains in the nick of time actually had a minute's grace to get aboard. The delayed departures from Manhattan have long been a railroading secret.

If the schedule says 5:01, the train leaves when the conductor's watch says 5:02.

What most passengers do not realize is that their minute is already there.

Every commuter train that departs from New York City — about 900 a day — leaves a minute later than scheduled. If the timetable says 8:14, the train will actually leave at 8:15. The 12:48 is really the 12:49.

In other words, if you think you have only a minute to get that train — well, relax. You have two.

The phantom minute, in place for decades and published only in private timetables for employees, is meant as a grace period for stragglers who need the extra time to scramble off the platform and onto the train.

"If everyone knows they get an extra minute, they're going to lollygag," explained Marjorie Anders, a spokeswoman for the [Metro-North Railroad](#). Told of this article, Ms. Anders laughed. "Don't blow our cover!" she said.

Entirely hidden from the riding public, the secret minute is an odd departure from the railroad culture of down-to-the-second accuracy.

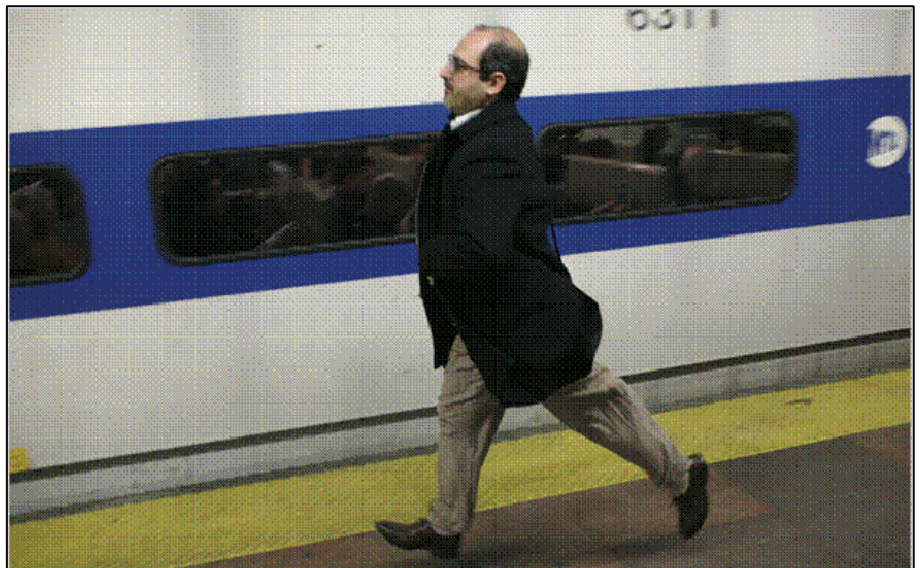
The railroad industry literally helped invent the concept of standard time, and time zones were established in the United States in the 1880s, 35 years before they were written into law.

And most commuters know their train by the precise minute it departs; [John Cheever](#), chronicler of the Grand Central commuter set, titled one memorable short story "The Five-Forty-Eight." (Turns out it was the 5:49.)

The trains quickly make up the minute: at all other stops, the public timetable prevails.

The courtesy minute does not exist at commuter railroads in Chicago, Los Angeles, Philadelphia, or San Francisco.

But in New York, railroad enthusiasts said, the secret minute dates back decades.



"That's been done forever, from my knowledge," said Jack Swanberg, 70, an unofficial historian of Metro-North who once oversaw departures at Grand Central Terminal. "I was the trainmaster starting in 1970, and it was the case then. I'm sure it's been the case since 1870 for all I know."

At Grand Central, no rider should consider the minute a guarantee. Train conductors have the discretion to depart at the publicly posted time, as long as the platform is clear and no customers are rushing down the ramp.

But an unscientific survey of 20 trains leaving at rush hour on a recent weekday evening found that, on average, the trains left about 58 seconds past their listed departure time.

No schedules or signs in the terminal suggest the minute exists. At each train's posted departure time, the schedule billboard announces, "Departed," even as the train idles at the platform, receiving its last cargo of stumbling, out-of-breath passengers.

A worker in the central information booth, asked if a train was leaving a minute late, emphatically shook his head. "If it says 7:14, it leaves at 7:14," he said gravely.

Not exactly.

More than half the trains surveyed this week waited the full minute or longer. The tardiest train waited at the platform for 81 seconds, while one train bound for Connecticut pushed off after just 32 seconds.

Still, the delay allowed at least one passenger, already running late, to buy three beers from a nearby concession stand before jogging down the platform to make it onboard.

"It makes me look like I'm a nice guy," Jason Macaluso, a conductor on Metro-North for 12 years, said with a laugh.

The minute was originally known as "gate time," dating to the days when gates were used to block off the ramps that lead down to the platforms. (The gates are still occasionally used at Grand Central.)

At the publicly posted departure time, the gates would be closed; those who had already made it through would have a minute to climb onto the train.

The practice gradually extended to trains to Long Island and New Jersey that start in Pennsylvania Station and the [Long Island Rail Road's](#) Brooklyn terminal.

Railroad officials seemed somewhat cagey when asked about the minute.

An [Amtrak](#) spokesman admitted that a few of his railroad's trains in major cities wait 60 seconds after the listed time, but he did not specify exactly which trains or which cities.

Riders told of the tacit 60-second reprieve were by turns amazed and grateful.

"I was surprised the train was still there, to tell you the truth," said Christian Riddle, 28, slightly out of breath and looking more than a little relieved, as he leaned into a leather seat on a Brewster-bound local at

A Tiny Difference

Public Schedule

1404	1504	1406	Train
AM	AM	AM	
5 35	5 55	5 59	Departure to New Haven
R5 45	R6 05	R6 09	

Conductor

1404	1504	1406	Departure to New Haven
G 0536	G 0556	G 0600	
R 0545	R 0605	R 0609	

Source: Metro-North Railroad

THE NEW YORK TIMES

Grand Central the other day.

According to the departure board, his train had left at 8:22 p.m., just as the timetable promised.

But Mr. Riddle, a carpenter headed home to Hawthorne, N.Y., ran anyway, hopping into the rear car just as the clock ticked 8:23. Ten more seconds passed before the doors slid shut.

Missing the train would have meant a half-hour wait for Mr. Riddle, who deemed the secret minute policy "pretty cool."

"But I'd still try to get there on time," he added. "You never know."

Readers' Comments

Gives new meaning to The Beatles' song "One After 909"...

So when I sprinted through Grand Central Station on Thursday evening to catch the 6:30 p.m. express to Southeast, and made it in what I believed was under two minutes, I actually was not the potential Olympic gold medalist that I believed myself to be, but rather just another hapless commuter, schlepping to a train? What a disappointment!

A minute gained by the latecomers is a minute lost by the early birds.

Basically, you are destroying a helpful deception in order to make points for yourself as a journalist. SHAME ON YOU!

Now that the word is out, my husband and countless others will be missing more trains. Thanks alot, you just ruined my family's dinner!

First the Pentagon Papers, now this. The Times just shatters our illusions....

It doesn't work if you tell people about it.

Running for a train has become an unwell-

come hobby of mine, as has been missing flights recently.

And it never occurred to you once that the conductors could be fudging their departure time reports to improve their on-time performance? Anyone who's ever sprinted after the back end of a train will tell you that they DON'T all leave a minute late.

Ooooo, one more to idiot proofing the system...aka. lowering the standards to accommodate. Lets keep doing it....it's a great game. See how low we can get and lets all wonder how come nobody is ever on time.

The practice was likely started by the New York Central when The Twentieth Century Limited was shown in the Public Timetable to depart Grand Central at 600PM, but actually, and according to the railroad's Employee Timetable, departed 601PM.

Hey, everyone, don't count on it. If they don't see you [or another person ahead of you] running to the train, it may be gone.

Silly. They trains leave on time it's the schedules that are a minute early!

An interesting (apparently) "only in New York" story but, at the risk of getting too serious, it raises the continuing question of when the media should withhold information from the public. Recently, news of a captive journalist was withheld in order to enhance his chances of survival. I think most would find that reasonable (especially on the part of his employer) but some found grounds for criticism. Train timetables are, of course, much less vital but perhaps the principle is the same?

If the guideline at one end of the spectrum is that releasing the news could put someone's life in jeopardy, perhaps the guideline at the other end of the spectrum should be that disclosing the news will not serve the public interest. Food for thought?

Mussolini would be appalled.

But, by now everybody knows it!! My two cents

We have the opposite problem here. In Philadelphia, you can always bank on the arrival to be 2-5 minutes late.

As a youth I ran from the Chrysler Building to Penn Station to make my train to LI. These days I imagine a running person at rush hour might cause a panic. Times have changed....I actually got to run along the path that the TV show Kojak later had some of its characters run down along Park and 37th, so that was fun to see my life written into a TV show, although I was not running from the law.

well someone can't keep a secret -

But indeed it will be really interesting to see if the publication of this article makes commuters miss more trains because now when they see 6:30 on the timetable they know it is 6:31.

What's next? How about a reprieve on one parking ticket per year like Portland, and dogs on buses like San Francisco? I feel all warm and fuzzy already.

Have mercy on the commuter railroads. Amtrak pads its arrival schedules by as many as 20 minutes to improve on-time performance ratings. So do the airlines.

Can't wait for the article which explains the reversal of the policy by 2 minutes.

They should make that 2 or 3 minutes because of the really super harried. Or like me the cannot get anywhere on time ever group. Why discriminate against us? We need at least five minutes.

So you're saying the NY Minute is actually two minutes? I thought the train was late. What did I know? Nothing.

