

The Bellcord



W7 1015 in service on Chapel St, Prahran bound for Victoria St, North Richmond (29 May 2005). It has just crossed the Caulfield railway line bridge indicated by the slight rise in the road. W class trams continued to operate some of these services until 2013. The Jam Factory shopping centre can be seen in the background Photo: John Wayman

Bridging the Yarra: the Origins of the Church St tramway

From its early years, Melbourne expanded on both sides of the Yarra River. Calls to upgrade or build new bridges across this watercourse were frequent, but the high cost was often an impediment.

Sometimes the location of tram routes was determined by the site of suitable bridges. The Church Street tramway was one such route.

Tale of two cities

The cities of Richmond and Prahran are located either side of the Yarra River and were first linked in

1857 by segments of a larger iron girder bridge transported from England.

From the 1870s Richmond underwent industrialisation and residential intensification. Its population grew from 17,000 in the 1870s to 43,000 in the early 1920s.

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The original Church St Bridge looking north (c1914).

Photo: State Library Victoria

Cable tram services opened along Bridge Rd and Victoria St in 1885 and 1886. By the turn of the twentieth century Richmond had become a poor suburb, dominated by factories, workers' cottages and slum housing.

Prahran's population grew from around 20,000 in the early 1880s to over 50,000 in the 1920s. It was a mixture of grand houses on large allotments in the suburb of South Yarra and workers' cottages in the suburb of Prahran. Cable tram services opened in Chapel St and Toorak Rd in 1888 and 1889.

The Prahran Council wanted to provide easy access for shoppers from Richmond and Collingwood. In 1911 it proposed a meeting of interested municipalities to discuss the construction of an electric tramway over the Yarra River. It would start at Toorak Rd (the northern end of the Chapel St cable tramway) and run along Chapel St, Church St, Swan St and Hoddle St to Clifton Hill. An extension northwards along Church St to Victoria St, North Richmond was also proposed. (Twelve years later, these proposals were depicted in the Melbourne and Metropolitan Tramways Board map opposite.)

Other councils and local traders showed mixed interest. St Kilda wanted the tramway to pass by its town hall; Collingwood wanted the most direct route to St Kilda via Hoddle St and Punt Rd; and local traders in Prahran and Richmond were concerned with the potential loss of customers to other shopping strips.

However the poorly maintained Church St Bridge was not strong enough for heavy vehicles including

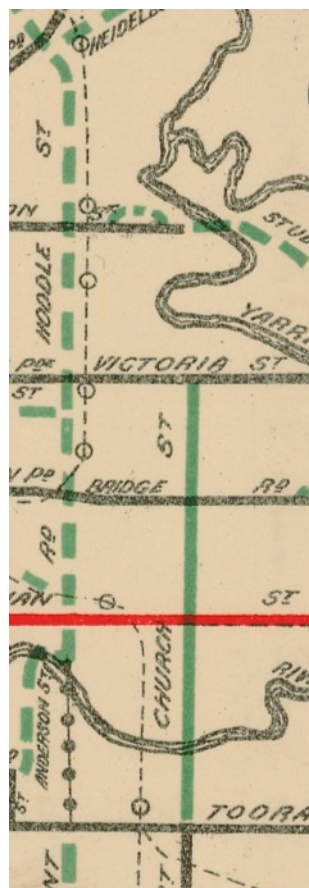
trams. To force the issue, in December 1914 Prahran Council closed the bridge with barricades, but it was reopened only days later after the closure sign was surreptitiously removed and thrown into the river. Urgent repairs by the Public Works Department soon permitted access by vehicles – but not trams.

Municipal plans

Prahran Council commissioned a report by consulting engineers McCarty, Underwood and Co. In March 1917, they recommended a double track tramway of 3.9 miles and a new bridge across the Yarra River. Electric power would come from the Melbourne Electric Supply Company's power station in Green St, Richmond. The cost of the tramway in each municipality would be: Prahran £41,623; Richmond £65,820; Collingwood £65,924.

Five months later the same consulting engineers presented a report to Richmond Council on a shorter 1.5 mile tramway along the length of Church St from the Yarra River to Victoria St. They estimated the cost at £32,968 and proposed its construction after the war to save on the high cost of material.

However, no construction resulted from either recommendation.



A segment of the M&MTB's General Scheme Map showing existing and proposed tramways (1923).

GREEN (continuous): the approved electric route along Church St & over the Yarra River;
GREEN (dash): proposed but not approved electric routes including Hoddle St;
RED: existing Swan St electric tramway;
BLACK (continuous): existing cable tramways.

*Map:
 State Library Victoria*

Bridge committee

In July 1919 the Minister of Public Works acknowledged that a new bridge was urgently required. A joint bridge committee of nine Prahran and Richmond councillors was appointed including Richmond Councillor Hector Bell, a long term tramways supporter and a recent appointment to the soon to be inaugurated M&MTB.

By December 1919 the *Church St Bridge Construction Act* was passed, providing a government grant of £3,500 with the balance of £40,000 to £45,000 to be shared among councils and the newly created M&MTB. The proposed split was Richmond 32.5%, Prahran 32.5%, Melbourne 15% and M&MTB 20%. Richmond and Prahran Councils would be the construction and maintenance authorities with provision for the state government to take over, if required.

Bridge construction

The joint bridge committee advertised for designs of a bridge with an estimated cost of £40,000. It insisted upon a substantial, beautiful and permanent structure that would be an investment in the future, against the government push for a frugal project.

An expert committee awarded the prize to Architects Harold Desbrowe Annear and Thomas Ramsden Ashworth for a multiple-ribbed arch reinforced-concrete bridge with classically inspired decorative treatment. It consisted of three spans of about 100 feet each with the central span slightly wider for visual balance. Above each of the piers and abutments were lamp standards, which also supported the overhead tramway power supply.



Church St Bridge looking east (c1945). Note the southbound N class maximum traction tramcar crossing the bridge. A magnified view of this tram can be seen on page 4.

When the bridge was completed in 1924, an abandoned brickworks was located on the south bank. Twenty years later, much vacant land is still evident. Herring Island in the left background was formed in 1928 by cutting a new channel through an old basalt quarry on the north bank. This straightened the river course and reduced frequent flooding.

Photo: Charles Daniel Pratt, State Library Victoria collection (handle.slv.vic.gov.au/10381/20590)

The arches of the northern span were rebuilt in the late 1990s to accommodate road widening for the Monash Freeway.

Construction commenced in September 1921 but the design was altered and the cost increased to £101,727 due to poor soil at the abutments, flood damage and improved design. Commemorative stones were laid on each side of the river by the respective mayors on 2 May 1923. The new bridge was officially opened by the Governor on 8 July 1924 and tram services began the following day.

Tramway approval

The passing of the bridge construction act in 1919 was an important step towards the tramway's construction. While there were many proposed new lines for Melbourne, the Church St electric line was one of the early projects prioritised by the M&MTB.

In early 1922 with the bridge under construction, the Board submitted a proposal to the Parliamentary Standing Committee on Railways as required by legislation. It argued that the existing Richmond-Prahran railway did not provide adequate north south transport for locals and that the new tramway would "relieve [city] congestion by providing a more direct route ... and enable residents ... to more easily reach the seaside at St Kilda." It noted that the only other suitable tram routes were over bridges at Swanston St and Glenferrie Rd which were four miles apart.

At public hearings in Richmond and Prahran, the railway committee was told of the transport needs of the many factory and shop employees and customers along the proposed route. It heard of the difficulties posed to women and the infirmed by the steep hill between Swan St and Bridge Rd, as well as the benefits of



An N class maximum traction tramcar with its distinctive four centre doorways and narrow windows and panels southbound on Church St Bridge (c1945). Extract from photo on page 3. State Library Victoria

direct transport to St Kilda Beach for workers and their families.

The standing committee dismissed the projected loss of revenue to the railways and recommended in favour of the tramway. The Richmond to Prahran Tramway Construction Act (1922) was passed in December of that year.

Tramway construction

The construction and opening of the electric tramway along the full length of Church St and Chapel St was undertaken in stages over three years.



Princes Bridge terminus with W2 392 (left) awaiting departure to Wattle Park and W2 387 (right) arriving for the service to Prahran (1935). Photo: Trams Down Under collection

Construction from Victoria St, North Richmond to Toorak Rd, South Yarra commenced in late 1923. It included an intersection with the Bridge Rd cable track and the relocation of the cable track north of Toorak Rd that allowed Prahran and Toorak cable sets access to their depot at that corner.

Completion of the first stage was delayed by bridge construction difficulties and a wait for points shipped from England for the installation of double curves at the southwest corner of Church St and Swan St. This special work required the reclamation of footpath and 220 square feet of floor space from the double storey building at that corner. Costs were shared between M&MTB and Richmond Council.

When the new bridge was officially opened on 8 July 1924, an electric tram service from Toorak Rd via Chapel St, Church St, then Swan St to Princes Bridge commenced. Trams from Hawthorn Depot operated the service at 10 minute intervals.

Although the tramway north of Swan St had been completed, council road improvements delayed its opening. On 20 October 1924, an additional electric tram service began from Toorak Rd to Victoria St, North Richmond also at 10 minute intervals.

Cable conversion

It was a further two years before the Chapel St cable trams were replaced by electric trams. While traders were anxious about lengthy disruption to business, they soon praised the speedy conversion by Timms Construction who had been awarded the £113,653 contract.



Cable tram set in Chapel St at Malvern Rd bound for Johnston St Bridge, Collingwood (c1925). Photo: State Library Victoria



Q class 173 in front of the Prahran Town Hall – the first electric tram after the conversion. (1926)

Photo: Ron Scholten collection

The cable line closed on 28 August 1926 and on 31 October electric trams from Princes Bridge and North Richmond were extended southward to Windsor Station. Bridge-strengthening works over the railway at this point delayed the use of the new track south to Brighton Rd. On 19 December 1926, electric tram services began to the Brighton Rd terminus and from 1928 services from North Richmond provided a through-service to St Kilda Beach at night and on weekends via the curves installed at the northwest corner of Carlisle St.

The original Brighton Rd to Victoria St route continues to operate today bearing the same route number 78 that was allocated in 1934. However, in 1986 services to Princes Bridge were discontinued and services to St Kilda Beach reduced from 1987.

Alan Scott

Assistant museum archivist

References:

- City of Prahran Annual Report 1919-20*
- Report of Parliamentary Standing Committee on Railways on proposed Church and Chapel Streets electric tramway 1922*
- The History of Prahran, John Butler Cooper*
- Trove (numerous newspapers)*

Designing Tramway Rosters

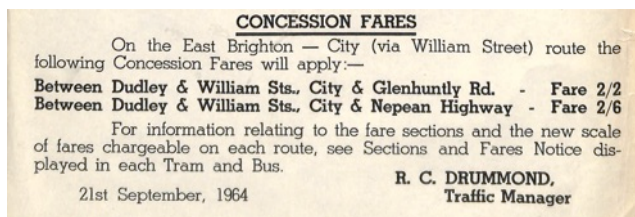
Timetables and rosters are fundamental to the provision of public transport. But the staff who design these are not in the public eye and the methods they use are unknown to most. Long time M&MTB roster clerk, Barry George, explains some of this work.

I began my employment with the Melbourne and Metropolitan Tramways Board (M&MTB) as a conductor and driver for three years at Glenhuntly Depot. Newly qualified drivers were designated 'marmalades' and rostered to fill shifts as either drivers or conductors. I was often on standby during this time and chose to assist the Depot Starter as he altered shifts and allocated trams. I came to understand and enjoy the system of rostering.

Roster office

A position became available in the roster office at head office and I made the transfer. Our work was managed by Traffic Manager R C 'Bob' Drummond, who was an expert in timetable and roster design.

Bob Drummond's name was known by many in the 1960s and 1970s. It appeared at the bottom of numerous public notices inside every tram and bus and on depot noticeboards. Staff were on their best behaviour when he boarded their trams and buses.



Concession fares notice authorised by R. C. Drummond and displayed in trams. (1964)

Image: Melbourne Tram Museum collection

I found him to be a boss who expected high standards of his staff and shared his considerable skills with them in a generous manner. I recall one episode when I encountered a difficulty with a schedule that I was unable to solve. Bob took the schedule home with him that night and returned the next day with it completely rewritten and the problem solved.

In the 1970s, 19 personnel were employed in the roster office. The office was divided into junior



M&MTB head office, 616 Little Collins St.

Photo: M&MTB annual report

clerks, charter clerks, assistant roster clerks and roster clerks. Everyone who worked in the roster office went through these grades. When a person became a roster clerk (which took me six years), each of us specialised in the routes of one or two depots. We designed and redesigned schedules as time required. Many variables had to be considered, such as predicted passenger numbers, frequency of trips, road congestion, maximum staff work hours and meal breaks. To check appropriate running times, we sometimes travelled to prominent locations and performed time checks ourselves.

The art of rostering

Bob Drummond wrote a detailed paper on what he titled, 'The Art of Rostering in the tram and bus industry'. He included the following principles:

"To operate a timetable successfully, the following should be strictly observed:

1. Vehicles should depart from the terminus and endeavour to keep to schedule for the entire trip.
2. Headways should be arranged to give an even flow of vehicles at regular intervals.
3. Timetables should be arranged on the basis of a memory schedule, eg. on the hour and every 12 minutes."

Designing the 'block'

In the roster office during the 1970s and 1980s, we used very large sheets of paper and hand wrote an entire day's timetable for a route on this one page. When completed it was known as a 'block'. The accompanying image shows a small segment of a block for the Sunday services between North Balwyn and the City operated by Kew Depot.

The term 'run' means all the trips that can be operated by the same tram. Run numbers 1, 2, 3, etc were written down the left side; the suburban terminus departure times were written across the page in blue with the city terminus departure times immediately below.

Next came the more complex task of organising the staff rosters (tables) to operate each trip, taking into account meal breaks and maximum working hours. We initially used pencil to write these to allow for alterations. So in this example, the red horizontal lines and blue numbers above them were originally in pencil and indicated the table numbers that would work this part of the run.

The times written in red indicated when trams ran in or out of the depot, or crew relief times. The times in circles indicated standby or available times. Other notations were also added for particular conditions.

After the first pencil draft, the rosters were compared and rearranged to balance time allocations, minimise overtime and maximise the use of available staff. The roster clerk was constantly juggling numbers and checking his calculations. When satisfactory, the pencil figures were written in ink.

Multiple copies

In the days before photocopiers, a large spirit duplicator was used for making multiple copies. It was a drawn out process. The completed block was

Sunday

North Balwyn — Spencer St

1. 634 74 643
 12:50 1:09 2:49 4:29 5:07
 1:54 3:34 5:14 6:29 6:34

2. 82 66 70
 8:07 8:52 10:22 11:52 12:29 3:04 4:49 6:17
 NO ← 8:30 9:30 11:09 12:39 2:14 3:54 5:34 6:35
 RIVST SPEN
 Z

3. 12 1226 112 70 62 110 56
 9:3 9:22 10:52 12:22 14:9 3 29 5 9 6 3 7 7 3 7 8 3 7 9 3 7 10 11 4 4 12 27
 Conn with tram ex 10 9 11 3 9 1 6 2 3 4 4 14 5 5 4 7 14 8 14 9 12 10 12 11 2 3 12 5 12 4 5
 E Bus at Richmond 12:08 2:58 4:38
 (East Side) due at 10:27 a.m
 9:16

Segment of a 'block' for Sunday services between North Balwyn and the City.

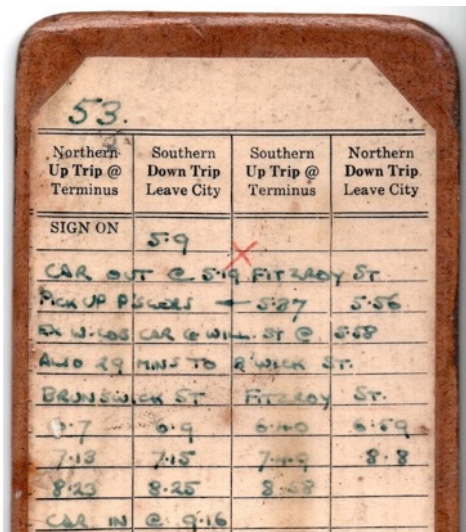
Image: Melbourne Tram Museum collection

handed to a junior clerk to be transcribed onto a wax sheet of the same size. Under the wax sheet was a large sheet of blue carbon paper reversed, so when the clerk transcribed the details a blue back-to-front version appeared on the reverse of the wax sheet.

Because red ink was also required, a smaller sheet of red carbon was placed under the wax sheet and the same process used to highlight the run out/run in cars and the relief times.

The wax sheet was then fixed onto the spirit duplicator and the blue and red ink printed onto a number of new pages. These copies of the block were sent to radio centre, district inspectors, Carlton Control, charters department and the relevant depots. Copies were kept as a roster office reference copy and a file copy and altered as memo alterations took place.

Then came the task of hand writing the individual table cards for the tram and bus crews. Each card carried the details of trips to be performed by that crew written in an abbreviated format. This was a big job and often a number of clerks in the office would assist when a new block was completed. They were then sent to the depot where the depot clerks glued them to strips of masonite approx 20cm x 8cm in size and varnished them.



Part of South Melbourne Depot table card 53 glued to a masonite strip (1960s).

Melbourne Tram Museum collection

Modern technology

As photocopiers and computers were developed, these manual processes were consigned to history. In 1991 the scheduling/rostering package *Hastus*, produced by Canadian company Giro was introduced to the MTA bus division. As it was refined and upgraded, it was then adopted by the tramways and is still used for Melbourne's tram scheduling and rostering.

Many Australian and overseas public transport bodies also use *Hastus*. While the process is now faster, essentially the computers are working the same functions I learnt all those years ago.

I enjoyed my many years in this area of public transport.

Barry George

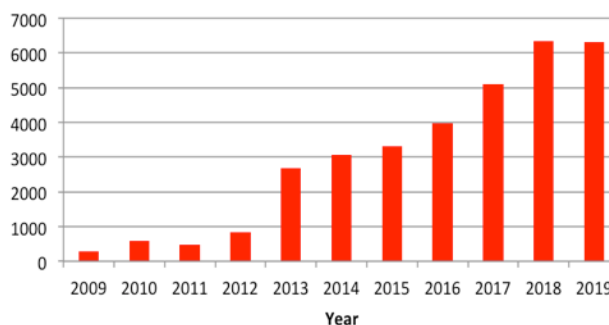


Promotional graphic for Hastus scheduling packages.

Museum News

The graph below illustrates the growth in our visitor numbers between 2009 and 2019. Last year's total was on a par with 2018. The marked increase in 2013 was in part due to the start of our participation in Open House Melbourne.

Annual Museum Visitors



The Melbourne Tram Museum is open on the 2nd and 4th Saturdays of each month 11am–5pm (except the 4th Saturday of December). It is also open on advertised Wednesdays 11 am–3 pm.

Upcoming open days in 2020 are:

- | | | |
|----------------------|-------------|-------------------|
| 28 Mar | 1 Apr (Wed) | 11 April (Easter) |
| 25 April (Anzac Day) | | 6 May (Wed) |
| 9 May | 23 May | 3 June (Wed) |
| 13 June | 27 June | 1 July (Wed) |

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