

Mr Griffin's City Railway: a Short-Lived Wonder

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Canberra's City Railway is a rather sorry tale, shaped by professional animosities, wartime austerity, poor understanding of the physical environment, and changing times. This mirrored the waxing and waning fortunes of the Federal Capital, and of its design and designer, during the 1910s and 1920s, struggling on until the 1950s.

This article serves as a prelude to the centenary (in 2020) of the 'short-lived wonder' – a makeshift version of the ambitious railway.

'Mr Griffin's Railway'

In May 1912 the entry prepared by Walter Burley Griffin and Marion Mahony Griffin took the prize in the Federal Capital design competition. At the heart of the visionary design was a string of three formal central lake basins on the Molonglo floodplain, flanked by two informal lakes (West Lake and East Lake).

The enormous East Lake would cover all of the Mill Flat (now Dairy Flat) area, and areas north of modern Fyshwick. It was separated from East Basin by a long 'weir bridge', which marked the Causeway Axis in the Griffin plan, connecting East Lake Circle (today's Hume Circle) and what is now Russell. The embankment was to be about 6 000ft long, rising 30ft above the central lake level and 10ft above East Lake level. Water would be released by use of siphons, sluices or ducts 'underneath, and entirely invisible'. It was intended to be both aesthetic and functional, the latter by protecting the central lake basins from silting up.¹

The Causeway embankment across the Molonglo-Jerrabomberra floodplain would carry a pedestrian promenade, two roadways, and a double railway line at the summit. The central lake was sited at 1825ft (above sea level), East Lake at 1845ft, the roadway at 1850ft, and the railway at 1855ft. In 1917 Griffin wrote: 'Coming in from the south, the traveller passes over a mile of causeway, between the water areas, so that the whole of the city is spread out with its vast foreground of waters and parks.'²

A railway on the Causeway Axis, passing into (and through) the city was fundamental to the Griffin Plan, evident in its earliest forms, in the design competition entry 1911–12, and as published internationally in July 1912.³

The Griffins moved to Australia following Walter's appointment in October 1913 as the Federal Capital Director of Design and Construction. When Walter had visited the capital in the previous August he found that the authorities had pre-empted the design process by building the 5.3 mile Federal Territory Railway from Queanbeyan to Canberra, terminating at the Powerhouse. Griffin regarded this as 'the preliminary railway line' and the Powerhouse as 'a decided disfigurement of the plan and of the city'. This reflected a tense relationship that would continue for the whole of his period of service in the capital. Work had begun on the railway in March 1913, the same month in which the city was officially named Canberra. The line was completed in April and the first train arrived in May 1914, just as the Griffins landed in Australia.⁴

The legislation establishing the Seat of Government in 1909 envisaged construction of an additional rail link between the capital and the 'Great Southern Railway' (the Sydney-Melbourne line), and the NSW Government was committed to meeting the costs of construction from the Territory to near Yass. Griffin was enthusiastic that the link be built

Source: *Engineering News*, vol. 68, No. 1, 4 July 1913

Various potential routes within the city had been mooted in early thinking about the site, all of which had to give way to the Griffin plan. A functional railway requires a gentle gradient (no steep sections) and gentle curves (no tight radii). The central Canberra landscape posed some challenges in negotiating hills or spurs and the broad floodplain of the rather fickle Molonglo River. Additionally, the city plan placed roads across the line, requiring expensive 'cut-and-fill' excavation and bridges if level crossings were to be avoided.

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As Federal Capital Director of Design and Construction, Griffin had to work with a Departmental Board, which did not agree with many of his ideas, considering them impractical and extravagant, and which sought to undermine his design and his authority. Mr Griffin's railway was one of the earliest and most prominent of their criticisms, citing the route and the expense of the Causeway and excavations required, particularly in the rocky terrain associated with the Market. Griffin later referred to the Board's objection 'that it was impossible to cross the Molonglo River'. His railway proposal was challenged as early as October 1913, and the Minister's intervention was required to confirm selection of his route.⁷

A Royal Commission into Federal Capital Administration heard in 1917 that the City Railway 'had been the chief source of contention between the Departmental Board and Mr. Griffin', and quoted the Director-General of Works (Col. P.T. Owen) as saying that he 'never thought Mr. Griffin's railway a proper proposal, and always said so when asked.' This was no surprise, as Col. Owen expressed the view that Griffin's plans 'involve drifting into huge schemes, and we do not know where they will lead us'.⁸

Against the tide of Departmental Board opposition, Griffin's ambitious plans had barely commenced when the Great War broke out in July 1914. Expenditure on the city had peaked in 1913–14 (£215,669), and then stalled until the War was over (£3,211 in 1917–18, £931 in 1918–19). All works were stopped as the search began for economies and any hopes of a strong start to developing the capital were dashed. By 1919 the Territory population was smaller than it had been in 1913.⁹

Griffin submitted his railway plans to the Public Works Committee in June 1915. After review by the Commonwealth Railways Commissioner, a number of alternative routes were considered. The Committee's report included a diagram showing 'Mr Griffin's Route' and an alternative 'Commonwealth Route'. The report broadly upheld Griffin's chosen route (except for a deviation to avoid

excavations at the Market), to be 5 miles 1 chain long, with 21 overbridges, and an estimated cost of £287,707. However, it concluded that 'there was no reason for the construction of anything but temporary surface lines until the development of the City warrants the construction of the permanent line'.¹⁰

The 'Construction Tramway': a Modest Start

Due to wartime strictures, the decision was taken in 1916 to delay development of ornamental lakes on the Molonglo for some years, and to postpone East Lake indefinitely. Griffin persevered with his Causeway railway route, with modifications, and in October 1916 he gained approval for a temporary, surface line, and construction began but was later suspended.¹¹

As Australia emerged from wartime constraints, in 1920–21 an initial 'construction tramway' or 'light service line' was built to the west of the alignment proposed for the permanent line across the floodplain. In December 1920 Griffin commissioned NSW Government Railways & Tramways to construct the extension from the Powerhouse to Civic Centre (3 ¼ miles), at a total cost of £5,162/8/5.¹²

A timber trestle bridge (20 trestles and 68 piles) carried the tramway across the Molonglo River. This was very conspicuous in the flat floodplain landscape, and it was tangible evidence that the capital was taking shape, despite the persistent retarding effect of the War.¹³

Between the trestle bridge and the (1913) railway station, an earthen embankment about 6ft high was built across the floodplain. This rose to the 1830ft level, some 5ft above the proposed level of the central lake basins. In Griffin's plan the bench occupied by the tramway was to carry a pedestrian path and boulevard around East Basin. The bench could be economically re-purposed once the permanent railway was built on the new, larger Causeway embankment.¹⁴



ABOVE: Sleepers snake towards Civic centre from the northern end of the new trestle bridge c.1920.

Source: ArchivesACT: Duntroon album p. 8



ABOVE: Timber trestle railway bridge over the Molonglo; Mount Pleasant at rear.

Source: NAA:A3560, 230

To avoid building a second bridge, Jerrabomberra Creek was diverted into a newly cut channel, rejoining the Molonglo just upstream of the trestle bridge. The old creek course was filled in under the initial embankment. Its former junction with the Molonglo was intended in Griffin's plan to become part of the foreshore park landscape of East Basin.

To avoid excavations at the Market corner, the tramway alignment arced away from the trestle bridge towards Civic. This followed a road alignment clearly visible in the Griffin plan, suggesting another economical re-purposing at a later date.¹⁵

The temporary nature of the trestle bridge and embankment structures should not distract from the importance to the fledgling city of a tramway across the Molonglo floodplain, to enable city construction to proceed steadily. For example, in June 1921 the Director-General of Works reported that 'a persistent freshet' had been preventing steam traction engines, the usual transport mode for materials, from crossing the river. With little chance of the flow abating, he might not be able to deliver bricks and tiles to construct cottages at Civic Centre, putting workers at risk of being laid off.¹⁶

The Molonglo and its tributaries repeatedly posed problems for access and there were numerous reminders that engineering specifications may not have been appropriate. For example, heavy rainfall events in 1913 and 1915 showed rail culverts to be inadequate, and washed out ballast, rails

and earthworks on the Queanbeyan-Canberra railway. As part of wartime austerity, it was recommended in mid-1916 that there be no further repairs or improvements to that line 'pending starting of new railway construction', because it was to be relocated for East Lake.¹⁷

The line to Civic Centre was completed by June 1921, and was officially opened for goods traffic later in that year. This followed verification of the size of locomotive that could be used and the speeds that were permitted – not more than 6 mph, and reduced to 4 mph over the Molonglo Bridge and for $\frac{3}{4}$ mile to and from the terminus at Civic Centre.¹⁸

It was also carrying labourers, with a long siding close to the workers camp at Russell Hill, which may also have served the Royal Military College at Duntroon. Another platform and three loop sidings about 800ft long were built in Civic Centre, the site being in modern Garema Place.¹⁹

At the same time, in the second half of 1921, the rail connection to Yass was being actively pursued. Surveyors plotted a line that ran northwards to leave the Territory west of Oak trig, and then down Murrumbateman Creek and the Yass River to Yass.²⁰

Floods ...

In July 1922 Canberra experienced its largest flood in 30 years, at about 1ft below the record 1891 level. Many head of stock were lost, particularly on Mill Flat, and numerous old riverbank willows were swept away.²¹



ABOVE: Railway bridge after the 1922 flood.

Source: NAA:A3560, 228.

At its most destructive point, on 26–27 July, the flood severely damaged the railway embankment and trestle bridge, also cutting water supply to RMC Duntroon, which had been carried on the bridge. Eight of the middle piers were lost completely, and several others were badly damaged at the foundations. The main timbers and decking were swinging unsupported but held together by the rails. The whole of Mill Flat was covered with water, held back by the railway embankment until it breached the bank on the original course of Jerrabomberra Creek. The released floodwaters then inundated the land downstream, including the works facilities at Kingston. The flood badly scoured the bank, leaving a breach about 2 chains wide, and washed out most of the ballast under the railway line, which was swept off the bank for about 5 chains on each side of Jerrabomberra Creek.²²

This was a severe blow to development of the city. In the slowdown during the War, Griffin had held out against strident criticism to ensure that the railway embankment and bridge were built, albeit in their diminished and temporary form. Now they lay broken, with holes punched through the embankment and rails dipping into the river.

Perhaps it was fortunate that Griffin had already left Canberra in January 1921, some 18 months before the flood, thus sparing him this demoralising sight. This was his railway, the route across Mill Flat chosen because of the Causeway Axis, and fundamental in his city design from the earliest versions.

It was repeatedly identified with him, as 'Mr Griffin's railway' or 'Mr Griffin's route' or 'the route he [Griffin] built to the Civic Centre' or 'the temporary bridge put up by Mr Griffin'. And it had a well-attested central place in antagonisms between Griffin and the Departmental Board (and Col. Owen in particular).

The temporary, downscaled version of the railway had provided wartime savings but it was poorly sited and constructed from an engineering point of view. Firstly, Jerrabomberra Creek had been diverted to avoid the need to construct an additional bridge. A sharp right angle turn caused floodwaters to build up against the length of the bank, punching holes and allowing the creek to reclaim its original course. Until it did so, the creek's contribution to the flood was delivered to just upstream of the trestle bridge, adding to pressure on the piles. A later (1924) analysis suggested that the line might have been saved if construction had included 'openings all along the embankment'. A suitable bridge is likely to have been even more effective. The 1922 flood also damaged the southern approach to the original Commonwealth Avenue Bridge (built 1916), which was constructed across the Billabong (a flood channel), and this required replacement with a bridge in 1924.²³

Secondly, the piles had been oriented at right angles to the line of the railway (Causeway axis) but obliquely to the course of the river. This presented a series of large surfaces to resist the floodwaters and trap debris. Thirdly, it was later (1924) reported that the piles did not have enough support in the underlying ground. With a relatively shallow layer of gravel on top of the rock 'there was nothing to hold the piles when the flood came'. Additionally, the piles had been 'pounded to a pulp', with pile drivers continuing to hammer them long after the base rock was reached.²⁴

In September 1923 the City Railway and its extension to Yass was referred to the Public Works Committee. The Committee's report (May 1924) concluded that: the railway needed to be routed into the city,

using the existing line as much as possible; permanent railway bridges should be built over the Molonglo and Jerrabomberra Creek at the 1841ft level, requiring a 16ft high embankment over the floodplain; the line in the city and the City Station itself should be sunken in cuttings, with level crossings to be avoided wherever possible; and generous land reservations were required on each side of the line. Deviations were recommended to avoid excavations at the Market corner and to avoid placing the Civic station on a curve. The replacement crossing would comprise steel and concrete bridges, with lattice girders, and with the banks raised 4ft, requiring 18 000 cu yards of material. To form piles for new bridges, cylinders would be sunk on to the base rock and filled with concrete.²⁵

... And Then Again

Although the Committee had approved construction of the permanent railway bridge over the Molonglo, Cabinet postponed this. Another eight months on, in May 1925, an even larger flood set a new record, nearly 5ft higher than the 1891 level, inflicting further severe damage. Engineers reported that on the northern (right hand) bank of the Molonglo about 5 chains of the bank were completely washed away; on the southern (left-hand) side the flood left a gap in the bank more than ½ chain wide, scoured out below original ground surface. The flood had gone well over the bank, depositing big logs and debris 3–4ft deep on top of the bank. Jerrabomberra Creek was now a wide breach, with the creek running in the original channel. The embankment was completely washed out in places, severely eroded on the downstream side, and the original surface was scoured out. At the trestle bridge the force of the flood tore apart the rails. On the north side of the river they had been swept around almost at right angles, and in places the sleepers were 'standing on edge like a fence'. On the south side of the river, the rails had been swept around for 1½ chains, with rails and sleepers washed downstream and turned over, dropping sleepers along the foot of the bank for some distance. A month later, an engineer

reported that 'splendid sleepers and rails' were losing value, embedded in 'the flood silt and rubbish'.²⁶

It came as a relief to some that the 1925 flood had swept the last of the Civic railway bridge wreckage further downstream: '[the flood] has removed an object of ridicule and cutting cynicism from the gaze of anti-Canberra-ians' [sic].²⁷

The 1922 flood had provided a preview of the future Molonglo Lakes Scheme, but the 1925 flood cast real doubt on how well decision-makers actually knew the dynamics of the river and its floodplain. If work had commenced on the permanent bridges they would not have fared well at the recommended 1841ft level. Subsequent plans (1926) responded by increasing the height of crossings over both Jerrabomberra Creek and the Molonglo River from 1841ft to 1849ft. A new (1928) design recommended for the bridges involved steel trusses, with 27 sluices 20ft wide to discharge water from the upper lake.²⁸

Although the railway crossing had been definitively lost, city construction work needed to continue. A new light tramway connection was added as an expedient in 1924–25, crossing the Molonglo on a small timber trestle bridge close to Scotts Crossing. This was an offshoot of the narrow gauge tramway that ran (from 1923) between the Powerhouse, Parliament House and the Brickworks at Yarralumla. From the point of its connection to the standard gauge City railway in Reid, one rail was moved inward (14½ inches) on the existing sleepers. In this way the northern part of Griffin's City Railway continued to serve, delivering 'Canberra Reds' to build the city, until the Brickworks tramway line was removed in 1926–27, ahead of the opening of Parliament House.²⁹

The End of the City Railway

In 1926 the Federal Capital Commission proposed a deviation in the railway route, to site the line to the east of the city at the foot of Mount Ainslie. A 1929 design included steel and concrete bridges over the Molonglo

and Jerrabomberra Creek, of five and three spans respectively, all spans being 200ft. The embankment would carry a lake-edge pathway and a roadway at 1830ft (5ft above the level of the central basins), with the railway on top at 1854½ft, or 9½ft above the level of East Lake.³⁰

Another 1929 plan sought a definite decision not to build the Causeway embankment and in turn not to construct East Lake. The proposal instead was to avoid crossing the Molonglo and Jerrabomberra Creek by bringing the railway into the city from the northern connection with Yass. This went further to recommend that the City Railway be entirely underground, in a 'tube' system similar to that in Sydney city.³¹

However, all such schemes soon came to a halt. Not long after the opening of Parliament in May 1927, Canberra's development was set back by drastic pruning of the budget for the Federal Capital Commission. Hard on the heels of this local downturn, from October 1929 the Great Depression affected the nation and, in turn, the capital. In 1930 the Government put in place severe economy measures, which included abolishing the Federal Capital

Commission altogether. Planned public service transfers from Melbourne were cancelled, and there were rumours that the Government would abandon the city in the face of a 'crusade of hate' and a strident 'Scrap Canberra' campaign.³²

Against the backdrop of Depression austerity and uncertainty, Canberra again experienced significant flooding in 1931 and 1934, and in May 1934 the Commonwealth Advisory Council concluded that bridges for railway traffic over the floodplain would be too costly and too vulnerable to damage, noting that the Causeway alignment was unsuitable for a bridge due to its oblique angle to the river. This signalled the end of the Causeway Axis and Main Station, and in turn Griffin's Municipal Axis as the 'main street' of the city. The Departmental Board had wanted city development to be centred on the Kingston-Manuka area and favoured a rail alignment that would service that location. Griffin's Causeway Axis alignment had contradicted that intention, and it was now

BELOW: View from Mount Pleasant over the Civic Railway trestle bridge.

Source: Sylvia Curley, *A Long Journey: Duntroon, Mugga Mugga and Three Careers*, (1998)



abandoned.³³

Not having a railway crossing the floodplain may have seemed fortuitous in the face of major flooding in 1945, 1947 and 1948. In 1950 the National Capital Development and Planning Committee decided to delete Griffin's East Lake from the Canberra plan because of the size and expense, loss of productive land, and the earthen embankment and dam on the Causeway, which they did not see as 'a harmonious feature in the landscape'.³⁴

The 1934 and 1950 decisions would have come as no surprise. Just three years after Griffin's departure from Canberra, the May 1924 report of the Public Works Committee contained repeated references to the impracticability and indefinite postponement of East Lake, and predictions that it would never be constructed. The Chair of the Federal Capital Advisory Committee (John Sulman) declared that his Committee did not think that 'the upper lake would ever come' and, in his own 'unbiased opinion', that 'it would be a good thing not to have the East Lake at all'.³⁵

Finally, in February 1950, Federal Cabinet agreed to formalise removal from the city plan of a railway on the northern side of the Molonglo, while leaving open the possibility of a future rail link 'outside the city'. The rail alignment through the city was abandoned and reallocated to other uses.³⁶

Traces of the old line had been disappearing for years, with the points at the Powerhouse siding removed in 1934, the rails lifted and sold off in 1940, and the last bridge, adjacent to the Duntroon Road, removed in 1959, although the platform in Garema Place was still visible in 1948. Some sections of the track were paved over, with rails and a sleeper unearthed by excavations in 1989 next to Cooyong St in Civic. This track section clearly showed adjustment from standard gauge to narrow gauge.³⁷

The City Railway line was never rebuilt, and with it went a rail link to Yass. Although there were various attempts to revive the latter idea, most favoured a route northward along the Majura Valley and east of Gungahlin

before crossing the border and heading to Yass. None of these plans came to fruition, and in February 1972 the Bureau of Transport Economics determined that the link to Yass would not be viable.³⁸

The Modern Traces

The only tangible trace of the City Railway remaining today is one of the two sets of standard gauge rails and sleepers that run under the fence of the railway station and yards at Kingston, perching close to the edge of Cunningham St. The westernmost rails date from 1914 when the Queanbeyan and Canberra rail connection was established, with two short branch lines to the west serving the Stores and the Powerhouse. A third branch curving to the north-east was added to carry the constructional tramway to the embankment and on to Civic. After destruction of the railway bridge in 1922, the third branch was truncated but continued to service the Department of Works depot.³⁹

Beyond these meagre physical traces, some spaces or alignments indicate the route of the construction tramway and the planned City Railway. This is a fortuitous legacy of a Government decision to uphold the Griffin design as the statutory city plan, which was gazetted in November 1925. This preserved the geometry of the design, in essence the 'street map', although what was built in the spaces between those streets was to vary markedly from Griffin's intentions. Although extensive redevelopment of some areas has masked the route, enough spaces remain around these areas to get a sense of its path.⁴⁰

This includes the Causeway Axis, where the permanent railway would have emerged from a cutting at the higher (southern) end. Material excavated for that cutting would provide the fill to form the permanent embankment retaining East Lake and providing a very gentle grade from East Lake Station to Main Station at the Market.

Across the trestle bridge to the other side of the Molonglo, the line landed on a rocky outcrop that is still evident today between the hospice and the lake. The

diversion channel of Jerrabomberra Creek discharged just upstream from the bridge. Its connection to the Molonglo was severed in the 1960s when the eastern end of Lake Burley Griffin was re-sculpted, also removing all traces of the embankment and bridge. After the lake filled, its backwaters flowed into the diversion and flood channels to form perennial wetlands, which favoured a wide variety of waterbirds and other aquatic species. The fateful diversion channel created conditions that in turn led to the setting aside of the Jerrabomberra Wetlands.

To avoid the rocky foothills of Mount Pleasant (and a 1400ft long tunnel and a mile long cutting), the tramway followed low relief ground before rejoining the permanent route beyond the cutting. The alignment is visible as a gap between buildings at Anzac Ave and then as Amaroo St, Reid. The rows of landscape planting on its southern side date from the 1940s, designed to reduce wind and minimise dust.⁴¹

From this point the alignment is lost under buildings until it curves to become City Walk and then Lonsdale St, Braddon, with the site of the platform in Garema Place and the yards towards Elouera St.

Similar parts of the permanent railway alignment to the north, towards Yass, can be discerned in the modern landscape, although fragmented by later development.

One of the more striking alignments to remain is to the south of the railway station. In the Griffin plan this is a gentle arc between Lakebourne and East Lake Stations. When the railway was dropped from the 1925 gazetted City Plan, the easement remained and it was converted into Kootara Cres, Narrabundah.

Conclusion – Worthy as Heritage?

The old alignment of the City Railway/tramway offers a series of places in varied landscapes to assist the telling of stories about the Griffin design, challenges (both administrative and environmental) to its creators and to its ideas and vision, forces that worked against realisation of key elements of that plan, the effect of the railway alignment

on urban form, and continuing evolution of ideas in urban design.

Places we currently rely on to interpret this story tend to be high points at Mount Ainslie and Red Hill lookouts, whereas the railway route operates on the level where people live and move through the city, as is appropriate to a story with 'transport for the early city' as the catalyst.

Directly on the transport theme, perhaps we might develop a 'Rail Trail' as part of 'Canberra Tracks' (appropriately enough), with a narrative guide to unite places and spaces that evoke the original Queanbeyan-Canberra/Powerhouse railway, the lost City Railway/tramway, and iterations of Brickworks tramways that helped to build the city.

Perhaps we could go further to unite those elements and others by registering a route that tells a story, rather than spatially disconnected places, just as World Heritage and National Heritage recognise cultural routes and sequences/systems of sites, some of them separated by oceans.

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ABOVE: Civic railway siding.

Source: Walter Shellshear



ABOVE: Civic rail platform 1939.

Source: ACT Railway Museum

BELOW: Section of track excavated near Cooyong St, Civic in 1989, clearly once standard gauge, narrowed to enable a link with the temporary brickworks tramway.

Source: Bob Hall



ENDNOTES

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