

The Economic History of the M&MTB

How trams survived in Melbourne

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Celebrating 100 years of electric trams in Melbourne.

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Melbourne & Metropolitan Tramways Board

- Created by Victorian State Government.
 - Melbourne & Metropolitan Tramways Board Act (1919).
 - Operated from 1919 to 1983, when it was absorbed by the Metropolitan Transit Authority.
 - Managed by five chairmen during its existence.
 - Guided Melbourne's tramway system through difficult times, particularly the 1950s and 1960s, when many cities across the world were abandoning trams for buses and private motorcars.
- Much has been written on the Melbourne tramway system, mainly for the tram enthusiast, but the economic history of the M&MTB has not been a focus of previous study.
- The rationale for the survival of Melbourne's tramway system cannot be understood without reference to the economic imperatives that governed it.

Background

- Melbourne's cable tram system was a Public Private Partnership.
 - Melbourne Tramway Trust built cable tram infrastructure – owned by a number of local municipalities.
 - Melbourne Tramway & Omnibus Company leased the system from the Trust, supplied rolling stock and car depots, and operated it.
 - Lease expired 30 June 1916.
- By 1910 MTOC was returning 20% on capital to shareholders.
- State Government wanted to seize cable tram profits.
- Two Royal Commissions in 1911 examined ways of terminating lease early, but the original contract was iron clad and could not be broken unless MTOC failed to maintain sinking fund.
- Municipal tramway trusts were proliferating, with no central planning or control of Melbourne tramway systems.

Melbourne Tramways Board

- Interim board took over cable trams from MTT and MTOC from 1 July 1916.
 - Tramways Board Act 1915 (2818).
 - Role was to operate cable tram system until more permanent arrangements could be made.
 - No new initiatives were to be undertaken, so capital expenditure was restricted to necessary works to keep system running.
- A dispute between the MTB and MTOC existed over lease windup costs.
 - MTB laid claim for £368,000 against MTOC.
 - MTOC made counter claim against MTB over asset transfers for £469,218.
 - No funds distribution could be made until claims were settled.
 - Counter claim arbitrated to £335,000, but not accepted by MTB or MTOC and went to Privy Council where it was settled for same amount on 16 April 1919.
 - Original claim settled for £115,000.
- MTOC was wound up on 30 June 1919.

Financial Skullduggery

- State Government had to roll over a £4m loan in London financial markets.
 - Could not get favourable terms unless £1m repaid.
 - Used Melbourne & Metropolitan Loan Redemption Fund Act to seize £766,230 of projected MTB surplus.
 - Only £100,000 of MTB projected surplus passed to M&MTB
 - Actual surplus was short £60,870 so M&MTB had to make this up to Consolidated Revenue out of first year's operations.
- Opposition in Parliament to monopoly operated tramway was overcome by forcing M&MTB to pay annually Consolidated Revenue (expected to be £62,500 per annum) to fund half of following bodies:
 - Liquor Licensing Board
 - Fire Brigades Board
 - Infectious Diseases Hospital
- Municipalities objected to underhanded seizure of their money.
 - Told by Hon. Arthur Robinson MLC if they didn't submit, there would be direct charges for the same amount against them.
 - Bought off by Government writing off amounts seized by Loan Redemption Fund against council debentures due in 1936.
- Government also transferred £230,807 of M&MTB first year revenue to Consolidated Revenue, and £30,000 was transferred to municipalities the same year.

Constituents of M&MTB

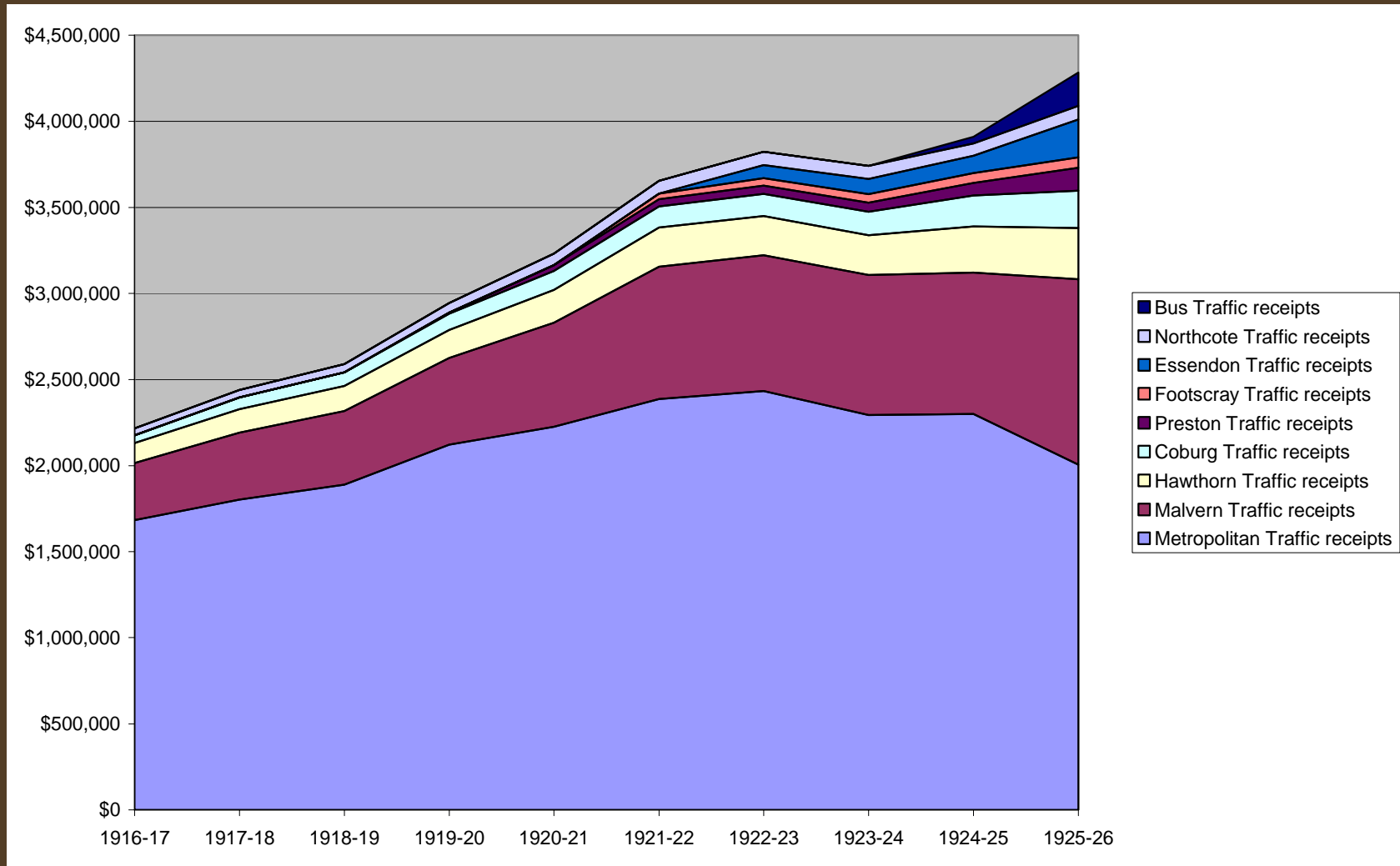
	Traction	Capital Value	Acquisition Date
Melbourne Tramways Board	Cable	£2,170,933	1 November 1919
Prahran & Malvern Tramways Trust	Electric	£851,988	2 February 1920
Hawthorn Tramways Trust	Electric	£299,896	2 February 1920
Melbourne, Brunswick & Coburg Tramways Trust	Electric	£187,009	2 February 1920
Fitzroy, Northcote & Preston Tramways Trust	Electric	£129,809	2 February 1920
Footscray Tramways Trust	Electric	£88,747	2 February 1920
Northcote City Council tramway	Cable	£46,169	2 February 1920
North Melbourne Electric Tramways & Lighting Company	Electric	£31,250	1 August 1922

- New tramlines over £20,000 had to be approved by Parliamentary Standing Committee on Railways before passing of Act and receiving assent of Governor-in-Council.
- Conversion of exiting cable tram routes to electric traction was authorized by original act.
- Excluded from power generation.
- Surpluses were to be distributed to municipalities.
- Required to maintain sinking fund of 4% of capital value as provision for depreciation.
- Fare increases required Ministerial approval.
- Hawthorn and Northcote tramways required infrastructure remediation expenditure of £107,000 to maintain operation.
- Incompetent management resulted in Footscray Tramways Trust's total failure to negotiate power agreement with Victorian Railways, leaving capital invested in a non-performing asset.
- Acquisition of NMETL power generation assets by State Electricity Commission in 1922 required transfer of £31,250 to Consolidate Revenue for NMETL tramway assets.
- Borrowings were guaranteed by Victorian State Government.
- Victorian Railways tramways not included in M&MTB (St Kilda-Brighton Beach & Sandringham-Black Rock)

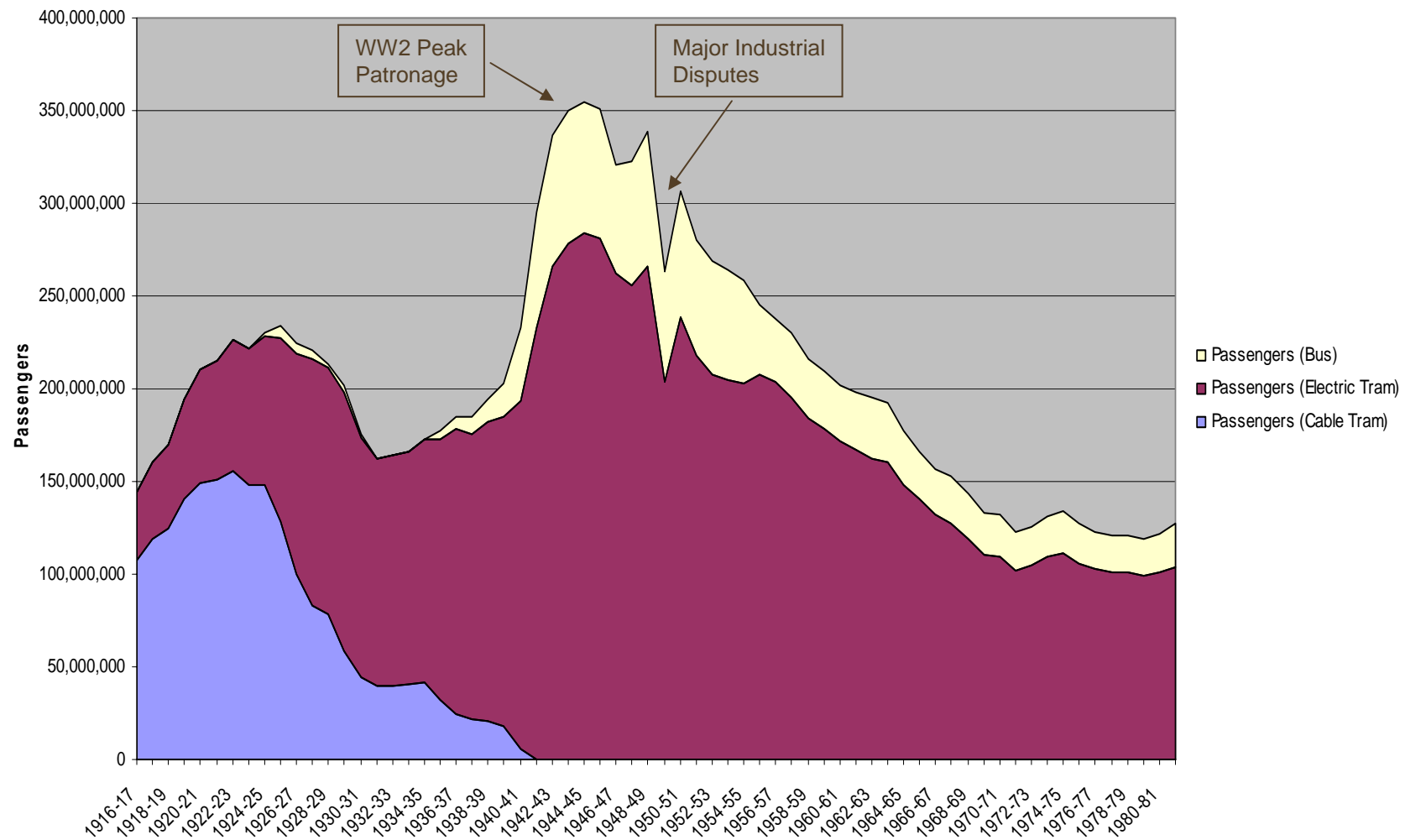
Why convert cable trams?

- Cable tram infrastructure was worn out after 35 years of intensive operation.
- Renewal was more capital intensive than replacement by electric traction.
- Cable trams made inefficient use of road space.
 - Standard cable tram set crush load was 54 in 38 linear feet of roadway.
 - Standard W class crush load was 150 in 48 linear feet of roadway.
 - Electric tramcars were 220% more efficient in road usage.
- Cable tram engine houses had reached the limit of power capacity, despite the installation of auxiliary drive, so that additional peak hour services could not be added.
- Cable tram infrastructure maintenance was staff intensive.
- Electric tramcars gave in an increase in peak passenger carrying capacity with commensurate reduction in staff requirements.
- Replacement of cable tram with electric tramcars was just more cost effective from both a capital and an operational perspective.

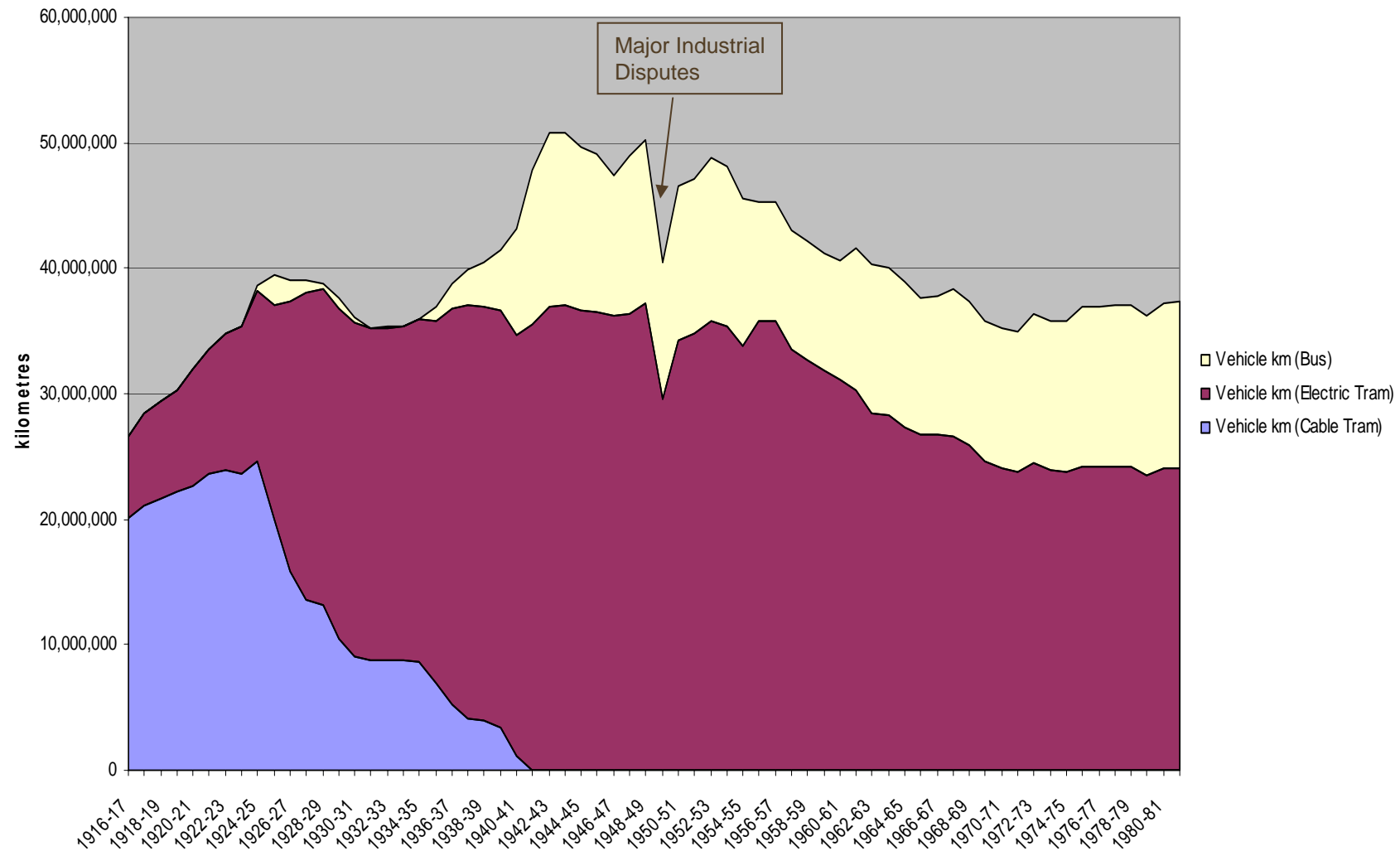
Traffic Receipts: 1916-17 to 1925-26



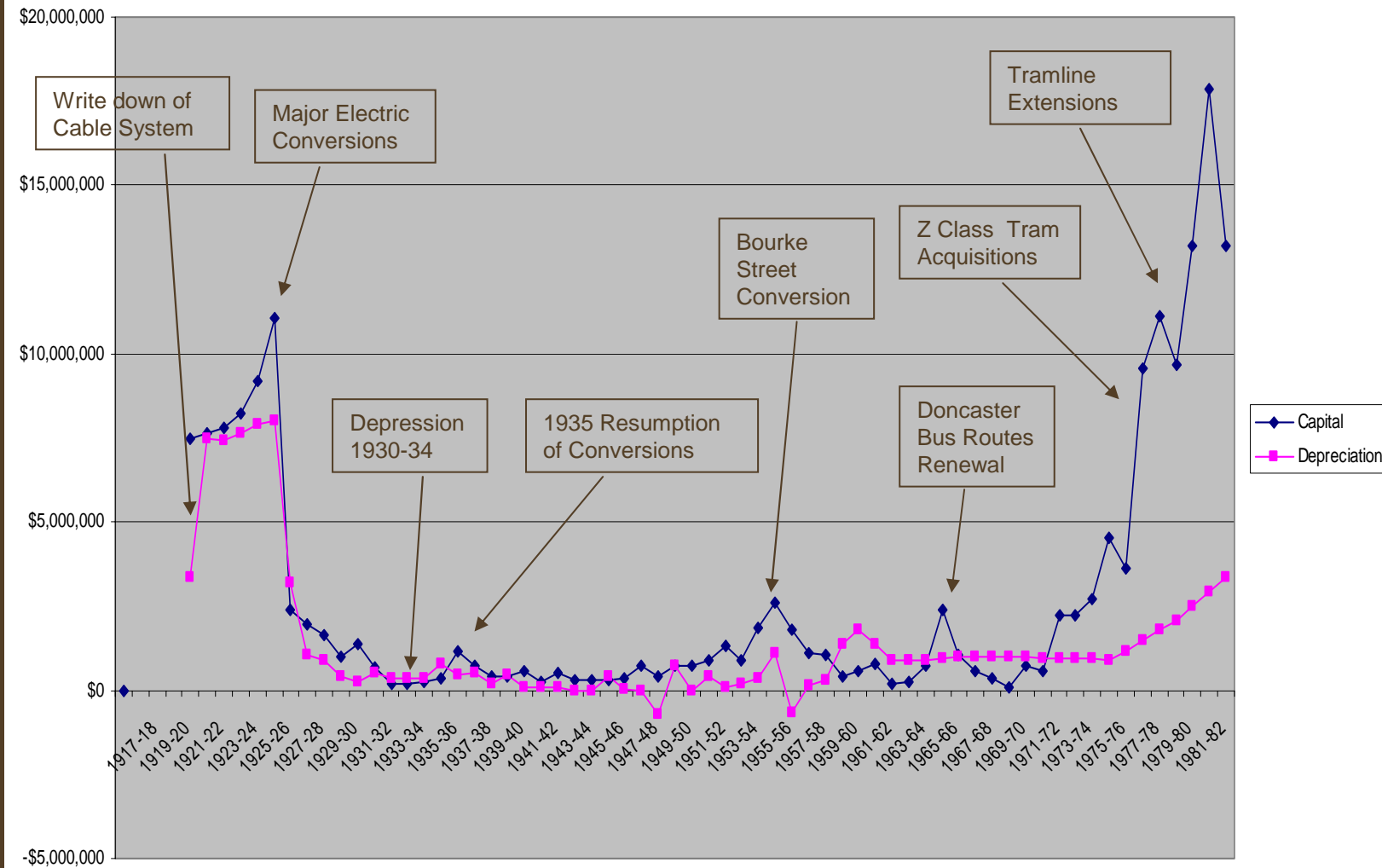
Annual Patronage 1916-17 to 1981-82



Vehicle kilometres 1916-17 to 1981-82



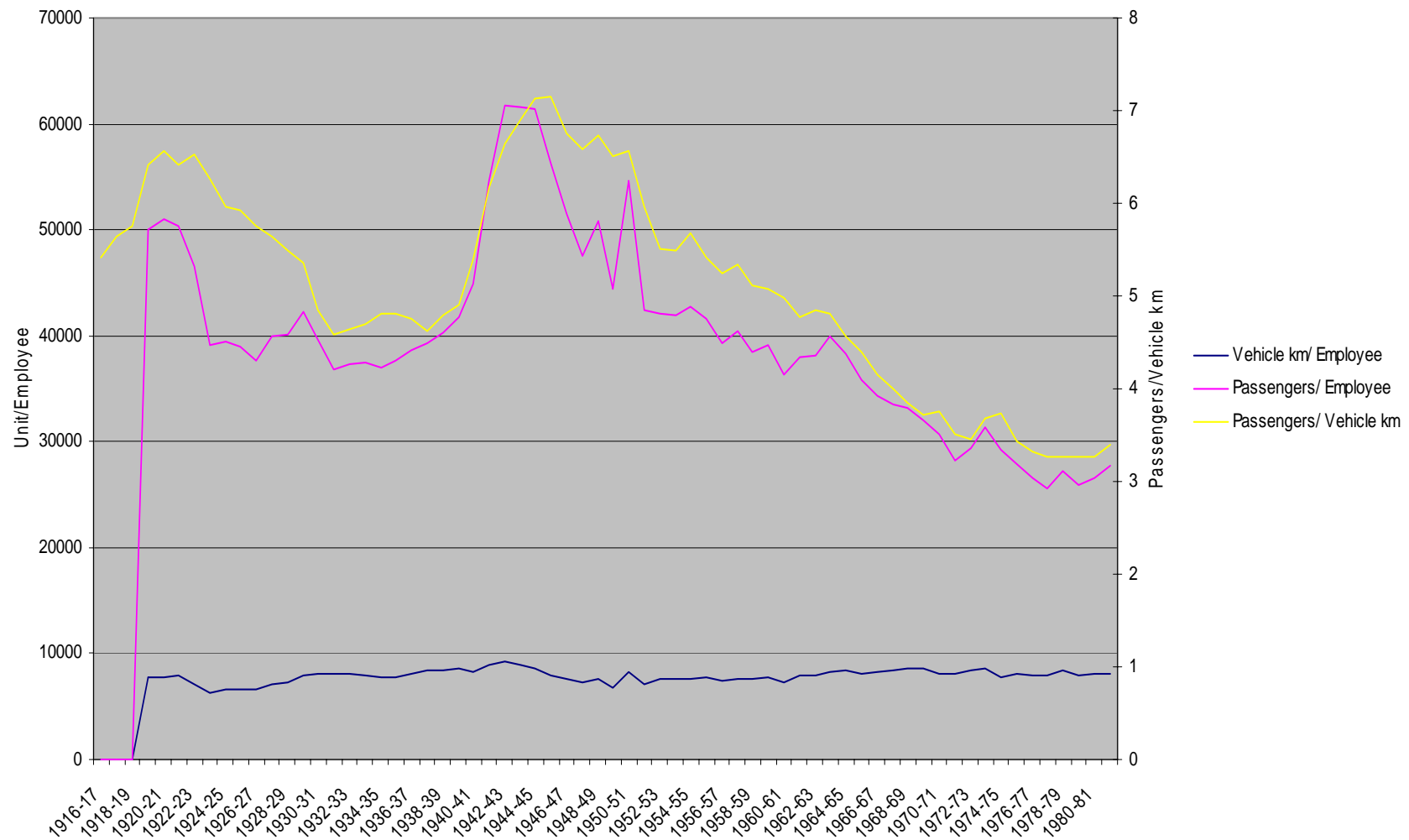
Capex & Depreciation 1919-20 to 1982-82



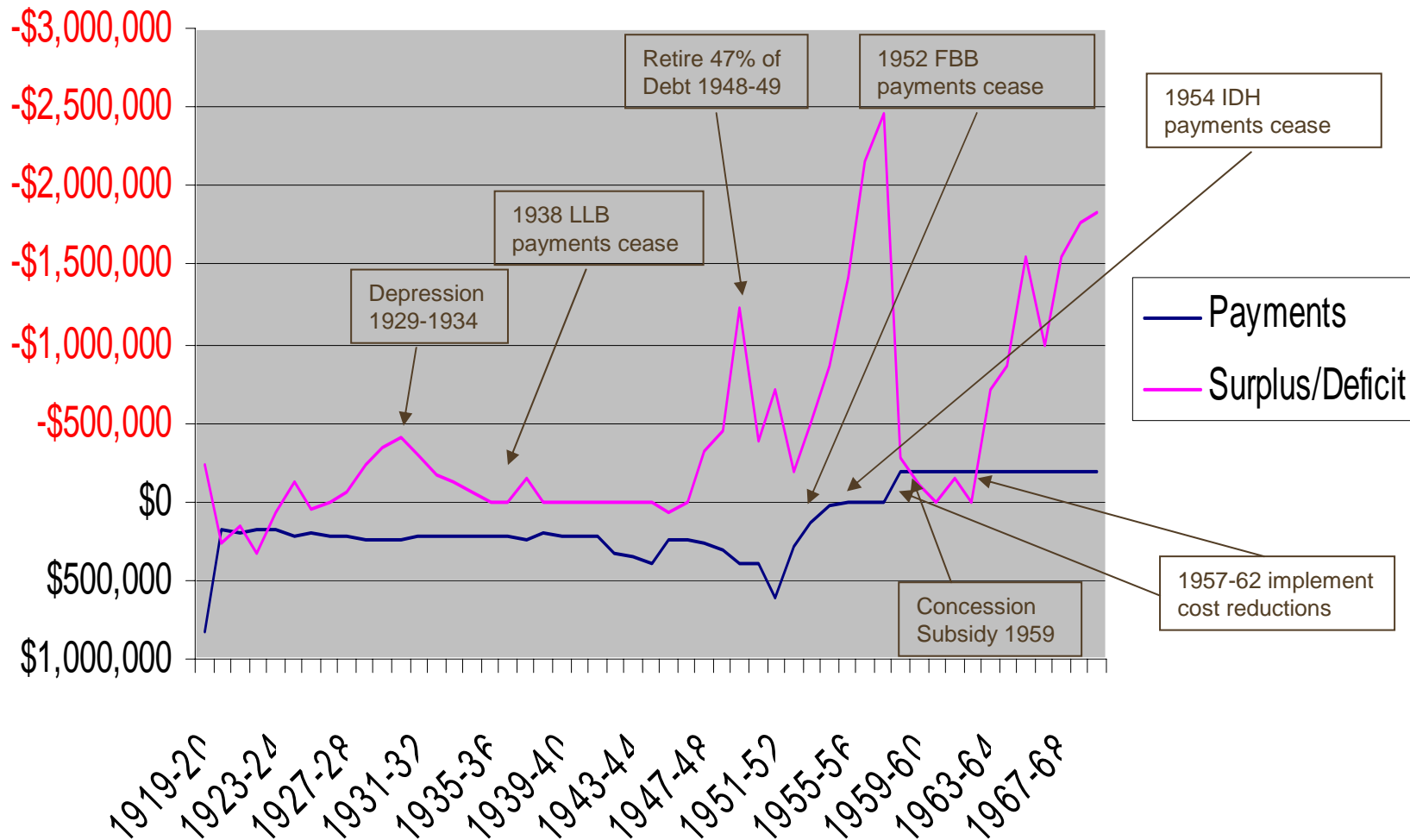
Productivity & Profitability Measures

- Approximately 65% of M&MTB expenditure was payments to staff.
- Fundamental product of street tramway is vehicle kilometres.
- Financial return based on passengers carried.
- Key productivity measures:
 - Passengers per vehicle km (profitability).
 - Passengers per employee (profitability).
 - Employees per vehicle km (productivity).
- Basic story on productivity:
 - No fundamental change in productivity throughout history of M&MTB.
 - Declining return on expenditure from 1940's due to fall in passengers carried per vehicle kilometre.
 - Inevitable trend towards technical insolvency and government subsidies.

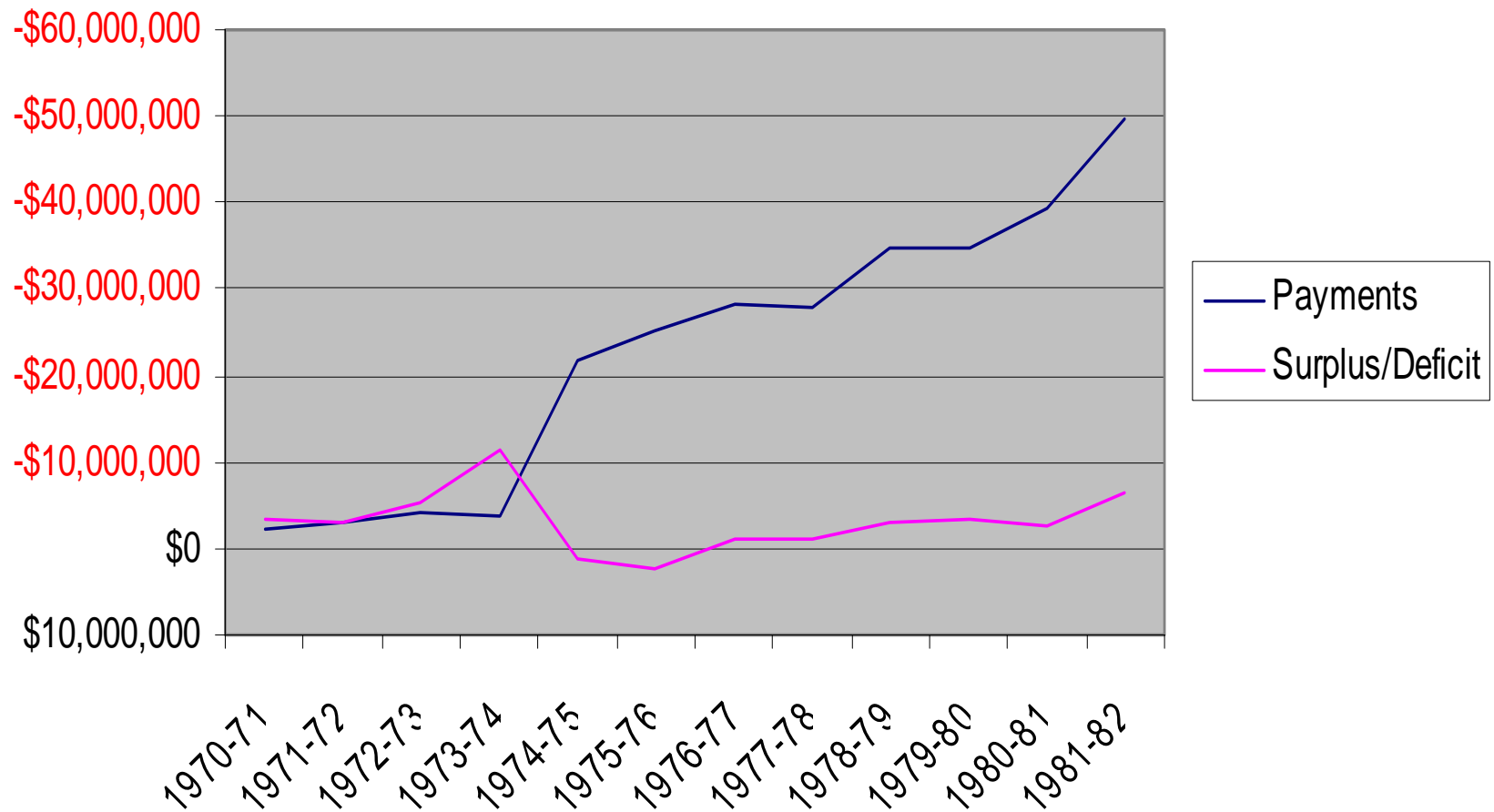
Productivity/Profitability 1919-20 to 1981-82



Payments to Consolidated Revenue & Surplus/Deficits from 1919-20 to 1969-70



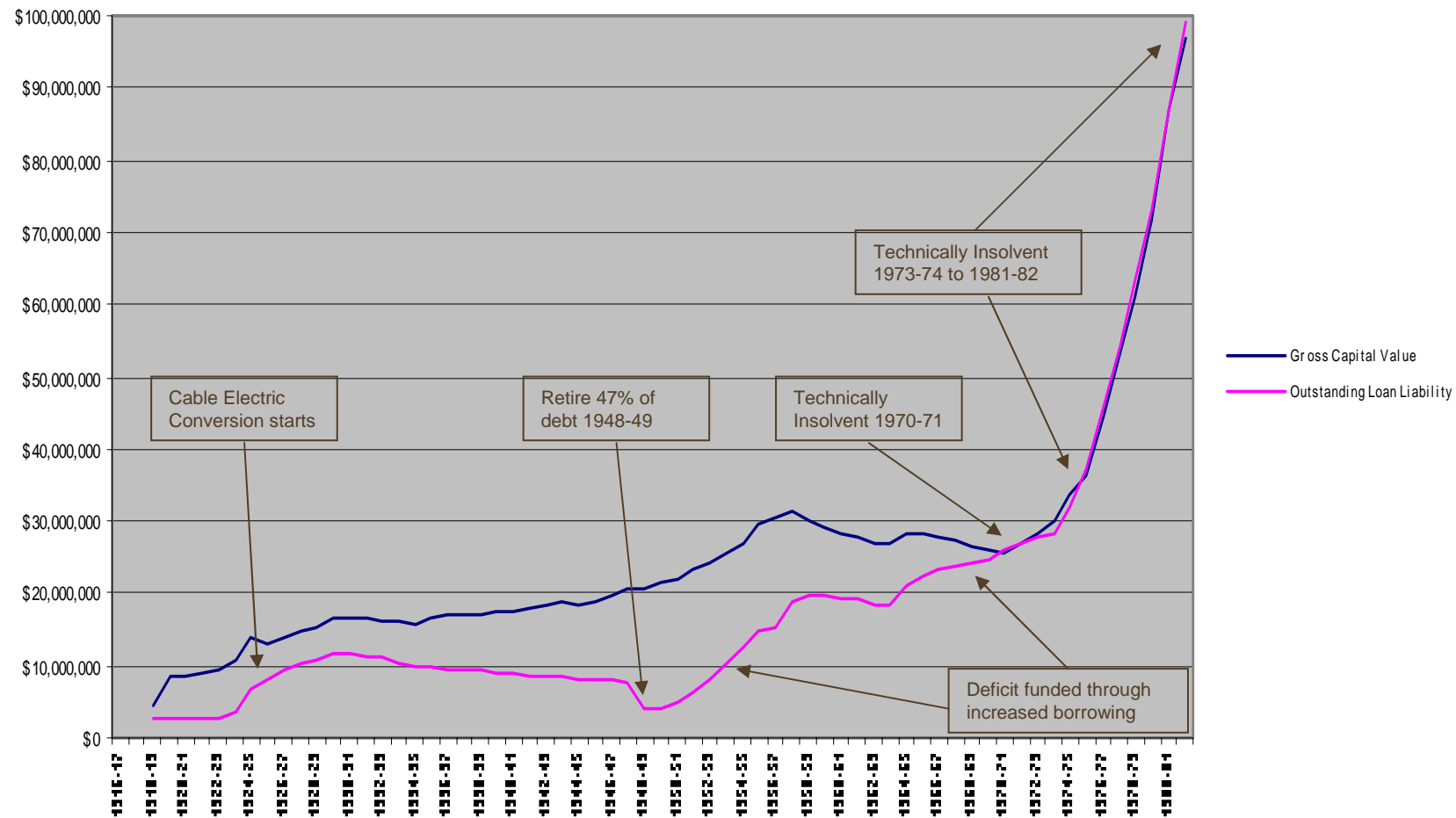
Payments to Consolidated Revenue & Surplus/Deficits from 1970-71 to 1981-82



M&MTB Profit & Loss

- Based on payments to/from Consolidated Revenue (includes disbursements to municipalities and government subsidies) plus annual surplus/deficit.
- No figures available for 1982-83 – annual report never produced.
- M&MTB in profit:
 - 1919-20 to 1928-29
 - 1932-33 to 1946-47
 - 1950-51
 - 1952-53
- Lifetime balance sheet:
 - Losses from 1919-20 to 1969-70 = \$ 14,409,252
 - Losses from 1970-71 to 1981-82 = \$311,592,345
- Total loss from 1919-20 to 1981-82 = \$326,001,597
- Total capital invested 1919-20 to 1981-82 = \$183,803,761
- Gross capital value 1981-82 = \$96,658,947
- Return on capital = 124% loss

Capital Value & Loan Liability 1919-20 to 1981-82

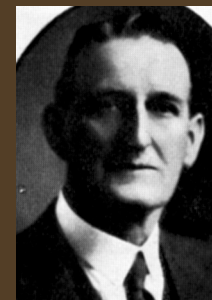


Chairmen: Cameron 1919-35



- Alexander Cameron
 - Former Chairman of Prahran & Malvern Tramways Trust
- Supporter of vertically integrated tramway systems.
 - In-house design & construction of tramcars.
 - Development of Preston Workshops as major tramcar construction and maintenance facility (1923-28).
- Entrepreneurial approach:
 - Upgraded cable tram system to meet increasing traffic demands.
 - New dummy & trailer construction in early 1920's.
 - Constructed Lonsdale Street cable line connection between Elizabeth & Swanston Streets (1924).
 - Connected Northcote & Bourke Street cable lines at Clifton Hill (1925).
 - Upgraded engine houses with auxiliary electric drive.
 - Recycled engines & boilers from closed engine houses.
 - Breakneck expansion of electric network through cable conversion & new construction.
 - Developed 1923 General Scheme as blueprint for Melbourne tramways.
 - Ordered 24 Q class electric tramcars for additional interim capacity (1922-23)
 - Construction of 20 brand new tram extensions/routes (1923-29) & Glenhuntly (1924), Hanna St (1925) & Camberwell (1930) depots.
 - Conversion of 7 cable tram routes (1925-30) and upgrading of Malvern, Essendon and Coburg Depots.
 - Construction of 420 new standard W/W1/W2 & X1 class tramcars (1923-31).
 - Experimented with other tramcar designs with X (1924) and Y (1927) classes.
 - Write-down of entire pre-M&MTB infrastructure (1920-28)
 - Massive increase in borrowings to fund expansion (1924-30)
 - Introduced motor bus services (1925).
- Successfully handled onset of Great Depression (1930) and adverse economic climate.
 - Halted new route construction and cable route conversions.
 - Terminated bus services.
 - Laid off 900 staff and reduced wages & salaries.
 - Continued minimal level of new tramcar construction 1930-35:
 - W3, W4, CW5, X2, Y1 class tramcars using recycled components totaling 36 tramcars.
 - Maintained capability for tramcar design & construction at Preston Workshops.
- A great Chairman who laid the foundation of Melbourne's electric tramway system for the next hundred years.

Chairmen: Bell 1935-49



- Hector H. Bell
 - Board member of M&MTB (1920-1935) and Hawthorn Tramways Trust (1914-1920)
- Experience of Great Depression strongly influenced his priorities.
 - Conservative but innovative financial manager.
 - Introduced Sunday morning & all-night services (1936)
 - Concentrated on reducing indebtedness of M&MTB.
 - Debt consistently reduced during term, and reduced external debt by a massive 47% in 1948-49.
 - Funded cable to electric conversions from income rather than increased borrowings.
 - North Melbourne (1935), Brunswick (1936), South Melbourne (1937)
 - Lightly trafficked cable routes converted to less capital intensive motor bus services.
 - West Melbourne (1935), Rathdowne Street (1936), Port Melbourne (1937), Collingwood (1939)
- Strong supporter of local industry development and vertical integration of M&MTB.
 - Founded Uniform Clothing Factory at Hawthorn Depot (1940)
 - Organised first order for grooved tramway rails from BHP (1943) in company with other systems.
 - Licensed (1938) and imported (1949) PCC tramway technology from USA.
 - Ordered luxury SW6 trams from Preston Workshops (1939)
 - Supported war effort by using Preston Workshops on munitions work at cost.
- Decided that 1940's motor bus technology was capable of successfully dealing with heavy passenger traffic.
 - Bourke Street cable routes converted to bus operation (1940)
 - Unsuccessful decision that delivered inadequate service for 16 years.
 - Decided in 1943 to replace Bourke Street buses with electric trams.
- Presided over a modest expansion of tram network where external funding was available, or to increase operational flexibility.
 - Contributions from municipalities
 - Doncaster Road (1937-38), Hawthorn Road (1937), Keilor Road (1937)
 - Commonwealth Government funded wartime expansions
 - Footscray/Maribyrnong munitions factory extensions (1940-41), Essendon Aerodrome (1943)
 - Operational flexibility
 - Spencer-Clarendon Street (1937), Maribyrnong-Ascot Vale Roads (1942), William-Hanna St connection (1946)
 - Brunswick Depot & Moreland Rd extension (1936)
- A sound and successful chairman – the right man for the job given the economic circumstances.

Chairmen: Risson 1949-70



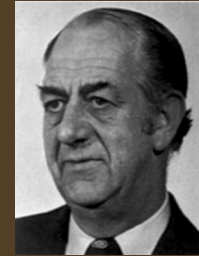
- Major General Sir Robert JR Risson CB, CBE, DSO, OStJ, ED.
 - Recruited from Brisbane (BCC) tramways where he was Deputy General Manager..
 - GOC 3rd Division Australian Army 1953-56
 - CMF member of Military Board 1957-58
- Faced anti-tram Bolte Ministry from 1955.
- Fought off pro-roads lobby – an astute political player.
 - Defeated Country Roads Board in attempt to remove trams from St Kilda Road Junction redevelopment.
 - Pushed through Bourke Street bus to tram conversions in face of opposition from Bolte Ministry, VACC and Country Roads Board (1955-56)
 - Built Latrobe St (1951), Footscray-Maribyrnong connection (1954) tram routes.
- Controlled increasing costs through increasing efficiency:
 - Reducing service frequencies as a result of falling passenger numbers.
 - Closure of redundant facilities/services.
 - Coburg (1952), Thornbury (1955) & Hawthorn Depots (1965).
 - Holden St Shuttle (1957).
 - All night trams (1957).
 - Replacement of Point Ormond (1960) & Footscray (1962) local trams with buses
 - Staff reductions through one-man bus crews.
 - Increasing maintenance intervals for trams and buses.
 - Lobbying State Government to remove payments to Consolidated Revenue and subsidise concession fares.
- Unsuccessful in controlling staff costs due to hostile unions and unfavourable IR legislation.
- Unable to increase fares to match climbing costs due to Ministerial opposition through electoral unpopularity of increases.
- Essentially failed as Chairman due to:
 - Unfavourable industrial relations legislation.
 - IR courts viewing M&MTB as a provider of employment rather than a business.
 - Inability to build effective relationships with union hierarchy due to hierarchical management style.
 - Failure to increase revenue to match increasing costs.
 - Funding deficits with increased borrowings.
 - Failure to develop or select strong successors.
- However, provided strong operational management – a good but flawed Chairman.

Chairmen: Kirby 1970-76



- Francis R. Kirby BEE, FIEAust, AMInstT, MCIT
 - Deputy Chairman (1965-70)
 - Chief Engineer (1960-65)
 - Distribution Engineer (1953-60)
- Surrendered effective control of M&MTB to State Government.
 - All key decisions including acquisition of new trams & buses were made by government.
- Undertook no initiatives to increase revenue or reduce cost/indebtedness, despite hyper-inflation from OPEC oil shocks.
- Relied on increasing level of State Government subsidies and increased borrowings to keep M&MTB viable.
- M&MTB changed from provider of public transport services to provider of wages for employees.
 - Last tram (PCC 1041) constructed at Preston Workshops (1973).
 - New trams (Z class) were built by outside contractors, and fitted out at Preston.
 - First order of off-the-shelf buses (Leyland Nationals) by M&MTB (1975)
 - No commensurate reduction in staffing as a result of outsourcing construction.
- Fortunate that anti-tram Premier Bolte replaced by Hamer in 1972.
 - Key election promise to introduce new trams and buses.
- M&MTB was lucky to survive Kirby's incompetence - clearly the worst Chairman in its history.

Chairmen: Snell 1976-83



- F. Dudley Snell DipEE, MIEAust, MCIT
 - Deputy Chairman 1970-76
 - Chief Engineer 1965-70
- More innovative than predecessor.
 - Pioneered use of leasing for financing acquisition of Volvo B59 & MAN buses.
 - Introduced Day Tripper ticketing to increase patronage via unlimited travel on trams & buses on day of issue, which saw a reversal of declining passenger numbers.
 - Closed Holden Street line used only for car transfers (1976) to reduce costs.
 - Involved M&MTB in ultimately successful bid for Hong Kong's Tuen Mun Light Rail Transit system.
- Unfortunately, did not have an impact on parlous financial situation of M&MTB.
- Oversaw introduction of first tram extensions since 1956, and introduction of follow-on Z3 class trams.
 - East Burwood (1978).
 - East Preston extension to Boldrewood Parade (1983).
- M&MTB was incorporated into Metropolitan Transit Authority along with suburban train system in 1983, losing its independence.
- An unsuccessful Chairman, primarily due to his predecessor's incompetence and the ceding of control to the State Government, together with the poor financial situation of the M&MTB in concert with the external economic environment.

How did Melbourne's trams survive?

- Maintenance of sinking fund as a depreciation provision at 4% of capital value as the result of original legislation.
- Continuing investment in infrastructure as a result of capital available through sinking fund.
- Funding of capital investment through an independent borrowing facility that was State Government guaranteed.
- Strong leadership through 1950's and 1960's from Risson.
- Pro-lifestyle Sir Richard Hamer replacing anti-tram Sir Henry Bolte as Victorian Premier in 1972.
- State Government could just not afford to replace trams with buses:
 - It would have to continue make payments on M&MTB loans (\$99.1m outstanding as at 1981-82)
 - It would have to write off well-maintained tramway infrastructure (\$96.6m as at 1981-82).
 - It would have to borrow additional capital to purchase new replacement buses.
 - Writing off the increasing level of subsidies from 1970-71 would have been too politically embarrassing.
- As a result, the decision to retain Melbourne's tramway system was essentially determined through the original Act and the financial management practices that it imposed on its managers.
- As a comparison, both the Sydney and VR tramway systems:
 - Had no funding provision for depreciation.
 - Had no access to capital through independent borrowing facilities.
 - Had deferred expenditure on essential infrastructure maintenance.
- The Sydney and VR tramways could then essentially be written off without impacting the bottom line of the DGT and VR respectively, and be replaced with less capital intensive bus services.

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