

Brisbane Metro?



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Introduction

Wake up, Brisbane! Wake up, Brisbane City Councillors! The Emperor of City Hall is exhibiting clear signs of incipient nakedness. His Brisbane Metro project is in disarray, its overly-hyped capability is being trumpeted ever more discordantly, but ever less credibly. Since its launch in April 2017, all that the project has delivered is painting one lane of Victoria Bridge green. But the potential of the project to do lasting damage to Brisbane, aesthetically, physically, financially and reputationally, is unabated.

In May 2019, Council's document "Adelaide Street – A Vision for Brisbane's Transit Boulevard" described Adelaide Street as Brisbane's premier transit street and intended tree-lined boulevard. Wholly incompatible with this vision, an act of civic bastardry is about to be perpetrated. To make way for Brisbane Metro, a tunnel and its portal are about to be inserted into Adelaide Street, between North Quay and George Street (see Front Cover & Figure 1) – the first tunnel portal to be permitted in a CBD street. Those seeking to enter the street from its river end will be confronted by a concrete jungle surrounding a hideous orifice that appears to lead into a foreboding underworld – see the Front Cover. In the words of Joni Mitchell, "You don't know what you've got till it's gone."

The State Government holds planning authority over Brisbane Metro. Why does it allow Council to do irreparable damage to Adelaide Street, and to requisition North Quay, between Ann Street and Victoria Bridge? Council's failure to involve the State Government in meaningful planning of the project's original centrepiece, an underground busway station to service the Cultural Centre, led, in June 2020, to plans for the station being "parked" by the Lord Mayor until at least 2033 – a major managerial fiasco, writing off the costs of three years' planning. Such an inter-governmental stand-off demonstrates that cooperation between these two levels of government is seriously deficient.

Finding a solution to chronic peak-hour congestion at the Cultural Centre busway station is Brisbane Metro's reason for being, but the cause of the problem was misdiagnosed from the start. Based largely on careful observation, widening carriageways and providing more and better-organised busway platforms are the necessary and sufficient conditions for solving the congestion problem. Unwieldy oversize Metro buses (aka Metro vehicles) will exacerbate it. It may be too late to abort delivery of the prototype Metro bus, but the contract for 59 more of them should be cancelled forthwith.

In May 2017, Brisbane Metro's Business Case specified \$944M as the project's capital cost. When plans for an underground station were shelved, it was agreed that the existing surface-level station would be redeveloped. (This option must have been considered, and rejected, in 2017.) Although surface-level construction is manifestly less expensive than underground construction, the capital cost of the project was raised in October 2020 by exactly \$300M to \$1,244M, a 32% increase. That this unsubstantiated guesstimate was accepted reflects Council's laissez faire attitude towards the project's unbridled financial management.

Why has Brisbane Metro failed to attract any funding from the private sector? Does Brisbane Metro represent good value for at least a \$1,244M investment of public money? Comparison with the \$1,300M parallel runway project at Brisbane Airport, all funded privately, suggests not. Considering its pathetic implementation history over four and a half years, its planning inconsistency and ineptitude, and the seemingly unconstrained cost of the project, a strong case exists for winding it up and cancelling all Metro-related contracts.

The next section outlines an alternative congestion-eliminating strategy to Brisbane Metro. It suggests a simpler, more manageable, readily achievable, less expensive, less disruptive and much less damaging solution to chronic peak-hour congestion at the Cultural Centre busway station.

An Alternative to Brisbane Metro

1. Defer and relocate construction of the proposed Adelaide Street tunnel

In 2019, a Council publication described Adelaide Street as “the city centre’s most important transit Street”, adding that, in keeping with its civic significance, “the long-term aim must be to refine and simplify [sic] its streetscape.” However, Council’s Brisbane Metro plan requires a two-lane busway tunnel and its portal to be inserted into the river end of Adelaide Street, degrading a prime block of Brisbane’s premier street and splitting it in two, lengthwise, in perpetuity (see Front Cover). Until now, no tunnel portal has been allowed to sully any street in central Brisbane.

The likely imperative for a new tunnel is concern that Metro buses and their drivers may experience major difficulty in negotiating a sharp right-angle bend near the deepest point in the access tunnel to the Queen Street busway station. Additionally, so that Metro buses may move freely between Victoria Bridge and the proposed Adelaide Street tunnel, general traffic will be excluded, permanently, from North Quay, between Ann Street and Victoria Bridge (see Figure 1). This will force vehicular traffic to find alternative routes, leading inevitably to increased congestion in the CBD.

If articulated buses were to replace Metro buses (see 3, below), Adelaide Street would be spared the aesthetic affront of an intrusive tunnel and its unsightly portal. Both Adelaide Street and North Quay would remain as they are now. An estimated 30 months of construction-related disruption of vehicular and pedestrian traffic would be avoided (see Figure 2). Between North Quay and George Street, the visual amenity of Adelaide Street would not be debased immutably. Buses would continue to travel between Victoria Bridge and the underground King George Square busway station via the Queen Street busway station’s access tunnel, as they do now.

At some point, bus traffic through the Queen Street station’s access tunnel will approach saturation. Anticipating this, a new tunnel should be constructed, not in Adelaide Street but adjacent to the portal of the inconspicuous Queen Street station’s access tunnel, the new tunnel’s portal occupying a lightly-used strip of Reddacliff Place (see Figures 1, 3a & 3b). During construction, the associated disruption and visual degradation in the vicinity of the new tunnel would be relatively minor, and the only permanent impact would be the loss of a strip of Reddacliff Place some 20m wide.

The length of new portal would match that of the existing access tunnel’s portal, and the required bend in the new tunnel would be gradual. Relocating the tunnel to Redcliff Place would involve about 120m more tunnelling than the Adelaide Street tunnel would have required, but costs arising from an awkward intersection with an existing Albert Street tunnel would not be incurred. Why blight the river end of Adelaide Street in an act of civic vandalism (see Front Cover), and why exclude general traffic permanently from North Quay, when an intuitively obvious, technically feasible and environmentally sensitive alternative is available?

An Alternative to Brisbane Metro

2. Redesign and reconstruct the Cultural Centre busway station

Reintegrate the 'green lane' on Victoria Bridge as a necessary component of a two-way four-lane busway – a two-way three-lane busway defies reason, promoting inefficiency and confusion. To accommodate cyclists if other options are deemed to be too remote, widen one or both of the existing pathways on the flanks of Victoria Bridge.

Implement the following proposals (see Figure 4). **Note:** The width of the busway station was estimated to be 36m, but recent advice indicates that this underestimates the actual width by about 4m. This doesn't affect the integrity of this concept, and may permit the widening of platforms, carriageways and/or adjacent footpaths.

For implementation as soon as possible (see Figure 4)

1. Install two inner platforms each 120m long between two outer platforms each 80m long, all platforms being linked by lifts and stairs to the existing pedestrian bridge that connects QPAC to the Queensland Museum.
2. Separate inner platforms from each other by 12m, and from an outer platform by 6m (max bus width 2.5m).
3. Subdivide platforms superficially into zones 40m long [2 x 19m (max bus length) + 2m].
4. Fit glass screens and gates to the carriageway edge of each platform, gates to open only when a bus docks.
5. Remove all physical barriers between carriageways.
6. Require departing passengers to 'touch on' with a GoCard before accessing the relevant platform.
7. Require arriving passengers to 'touch off' with a GoCard before exiting the busway station.
8. Relocate bus stops for local services to Melbourne St between Hope St and Merivale St, and require local service buses to transit the busway station without making a stop.

Outcomes: Total platform length is increased from 155m to 400m. Each docked bus has at least 3.5m clearance on the driver's side, preventing 'log jams'. Buses being repositioned to another location can transit the station readily. Each outer platform has two zones, each inner platform has three zones. A driver approaching the station will be advised by radio at which zone to dock. This information is announced promptly and is displayed on multiple screens.

For later consideration

9. Link busway station platforms to both tunnels that connect QPAC to the QM and QAG underground car parks.
10. Construct a new pedestrian bridge, connecting QPAC to QAG, and link it to platform level by lifts and stairs.
11. At the intersection of Melbourne St and Grey St, construct four pedestrian bridges, two across Grey St and two across Melbourne St, all with lifts and stairs to ground level, with adjacent bridges being linked at bridge level.
12. Improve visual amenity around the busway station.

An Alternative to Brisbane Metro

3. Cancel the order for 59 Metro buses

Belatedly, the Lord Mayor has acknowledged that 'Metro vehicles' are, in fact, buses, albeit buses disguised as light-rail trains. They are rebranded here as Metro buses. Figure 5, unashamedly a bus, is a typical bi-articulated vehicle built by HESS, the Swiss manufacturer-to-be of Metro buses. Figures 6 and 7 are computer-generated images of a Metro bus. Operationally, its 'streamlined front is aerodynamically ineffectual at operational speeds (and is offset by its drag-inducing rear end). Maintenance-inhibiting cowls conceal its wheels, inviting near-side damage from station platforms. The visual appearance [sic] of a Metro bus is the project's principal marketing artifice.

In place of alluring Metro buses, augment Council's bus fleet by adding, incrementally, to its existing stock of articulated buses. Ten of these vehicles recently began to service the Blue CityGlider route, with eight more due to enter service later this year. Different models of this type of vehicle have operated successfully in Brisbane since 1988. They access Council bus depots routinely for stabling, maintenance and repairs. The most recent model has seats for 56 passengers. Built and fitted out by Volgren at Eagle Farm, they have created local employment opportunities. However, the Metro bus contract with HESS has called into question Council's longstanding policy of purchasing buses from Volgren.

Currently, four battery-powered buses are being trialled in central Brisbane. It is suggested that a battery-powered or hydrogen-powered articulated bus should be acquired and trialled locally. If battery-powered, charging facilities re-purposed from the Brisbane Metro project could perhaps be utilised. Reportedly, trials of hydrogen-powered buses are underway in Australia. Taking account of information gleaned from these proposed trials, all future acquisitions by Council of articulated buses should be either battery powered or hydrogen-powered.

A Metro bus will be 6.4m longer than an 18m articulated bus. Such vehicles are untried in Australia, hence the imperative for a prototype Metro bus to be delivered, to demonstrate its compatibility with Brisbane's busways, before 59 more are built, paid for and imported. Until a new route with a new tunnel becomes operational (this is unlikely before 2024), all buses travelling between Victoria Bridge and King George Square underground busway station will have to use the Queen Street busway station's access tunnel. As noted earlier, this tunnel includes a right-angle bend which may challenge the driver of a Metro bus. Articulated buses negotiate this bend routinely, but carefully!

The manoeuvrability of a Metro bus when docking at or departing from a busy busway platform is questionable, as is its capability to be reversed out of a dangerous situation. Were it certain that a Metro bus driver could cope successfully with these and similar operational requirements, a prototype Metro bus would be redundant. Despite the Lord Mayor's assertion to Council (in May 2020) that Brisbane Metro should invest in the latest technology, the suggestion that Metro buses should be fitted out with a semi-autonomous driving capability was rejected.

Introduction of a radically-different type of vehicle generates diseconomies of scale. Denied access to Brisbane streets (and hence to all seven of Council's bus depots) because of their 24.4m length, Metro buses require a new depot to be built and fitted out, for their exclusive use. A site for this depot has been purchased close to the Eight Mile Plains busway station – at the most southerly point of intended Metro bus operations (see Figure 8). Imported from Switzerland, Metro buses will be expensive (around \$3M each), but their construction will generate no local jobs.

They are designed to accommodate 150 passengers (170 in 'event mode'), but their seating capacity is still not listed by Council as a 'key feature'. Why not? It is believed that there may be as few as 62 passenger seats in a Metro bus. If correct, a full Metro bus in event mode could be carrying 100 standing passengers. Evidently, passenger comfort and safety are not the foremost considerations in Metro bus design.

Compared to Metro buses, articulated buses are significantly more flexible operationally. With around 70 in service, they offer substantial economies of scale. Their seating capacity is comparable to that anticipated for Metro buses. Diesel-powered, they cost around \$0.9M. Battery-powered, their cost is unlikely to exceed \$1.5M. Reportedly, hydrogen-powered buses are being trialled in Australia currently. The purchase of 59 battery-powered Metro buses makes no sense, operationally or economically.

A Critique of Brisbane Metro

Brisbane Metro's purpose is to overcome peak-hour congestion at the Cultural Centre busway station. Close observation (and discussion with a former Council bus driver) suggest strongly that the principal cause of congestion is the narrowness of the station's carriageways. A secondary cause of congestion is that the station's two long platforms are manifestly unfit for purpose and are wholly unmanaged. By focusing on increasing the passenger-carrying capacity of buses, Brisbane Metro has misdiagnosed the problem.

Four and a half years into a six-year project, 2017-2023 (Brisbane Metro's 2018 plan reduces the duration of the project to five years – see Figure 2), the only visible signs of its implementation are Victoria Bridge has been closed to general traffic, its downstream carriageway has been taken out of service and painted green, and nine houses near Eight Mile Plains (see Figure 8) have been purchased and demolished.

A month after the project's launch in April 2017, Brisbane Metro's hastily-devised Business Case was released. With unrealistic precision, the project's capital cost was stated to be \$944M. In March 2018, the then Lord Mayor announced that Council (code for ratepayers) would contribute \$630M. Contrasting sharply with Brisbane Airport's \$1,300M parallel runway project which was funded 100% from private sources, Brisbane Metro has attracted no support from the private sector. Why not?

To meet the funding shortfall of \$314M, a case for Federal Government support was made to the Infrastructure Australia Board. On the Board's recommendation, the Federal Government allocated \$300M from Australian taxpayers to Brisbane Metro in 2018. The ex-Lord Mayor then declared that "Brisbane Metro is now fully funded" – a much-repeated but grossly misleading statement, implying that Council has \$644M 'in the bank' plus \$300M from Canberra, ready to pay for Brisbane Metro.

Wisely, payments to Brisbane City Council from the Federal Government's \$300M are to be made only "at agreed key project milestones." In view of the project's woeful implementation history, it may be assumed that the bulk of \$300M is still in Canberra. Because no prudential or sinking fund has been established, current and future ratepayers will be paying for Brisbane Metro for years.

In February 2018, Infrastructure Australia's report on Brisbane Metro confirmed that the State Government holds planning authority over the project. The report stresses that State Government support is "critical to the project proceeding". Events show that this timely caution was ignored. In similar vein, the project's 2018 plan urges its proponents to "encourage creative thinking and engage [with] project stakeholders to convert identified problems into innovative solutions". From personal experience, it is evident that this laudable exhortation also has been ignored.

Initially, the centrepiece of the project was a new underground busway station to service the Cultural Centre. However, after three years of seemingly-unilateral planning by Council, the State Government refused to approve Council's proposal. It seems that, in particular, the station's location was unacceptable to the State Government. Such a fundamental matter should have been resolved in 2017. Was this debacle due to contempt for the State Government, or to managerial ineptitude?

After months of fruitless haggling, the Lord Mayor advised Council in June 2020 that he had "parked" the underground station proposal until at least 2033. The State Government and Council had agreed, instead, to redevelop the existing Cultural Centre station. Despite writing off the cost of three years' planning, the Lord Mayor declared that he was "so delighted" with what was, in fact, a humiliating outcome. Redevelopment of the Cultural Centre busway station must have been considered in early 2017 (along with, reportedly, 20 other proposals), but was then rejected in favour of Brisbane Metro.

The cost of constructing a new underground busway station must be substantially greater than the cost of reconstructing an existing surface-level station of similar capacity. However, the anticipated decrease in the cost of the project was not forthcoming. On the contrary, in late October 2020, it emerged that the capital cost of Brisbane Metro had risen to \$1,244M.

Subtracting \$944M from this figure reveals that the increase is exactly \$300M. Together with the absence of any justification for a 32% (or any) cost increase, such a precise figure confirms the suspicion that \$300M is merely an unsophisticated guesstimate. Planning for the redevelopment of the existing station is predicted to continue until April 2022. Why so lengthy a process?

Meanwhile, another planning U-turn is rumoured. It appears that the moribund plan for an underground station may be resuscitated. Clutching at any reputation-saving straw, perhaps a rationale for a second planning back-flip may be confected from Brisbane's hosting the 2032 Olympics?

Were this to happen, ratepayers would face another cost increase on top of the still-unexplained \$300M hike last October, and more delays in implementing the project would be inevitable. The initial plan for Brisbane Metro predicts that construction of an underground busway station will take two and a half years (see Figure 2).

Does Brisbane Metro offer good value for the investment of at least \$1,244M of public money? (This figure would rise substantially if an underground station were to be constructed.) Comparison with Brisbane Airport's recent parallel runway project prompts an unconditional response of NO!

For a private sector investment of \$1,300M, Brisbane Airport's eight-year geotechnically-challenging project repurposed what was largely swamp land into an international-standard runway with its associated taxiways, almost doubling the airport's operational area. With meticulous planning and careful management of a large and multi-skilled workforce, this project of national and international significance was completed on time and within budget.

In addition to its inconsistency and ineptitude, another feature of Brisbane Metro's planning is its secrecy. Needing to search through voluminous Council minutes for 'unfiltered' information all but guarantees the suppression of anything that might cast doubt on the project's management, or on its efficacy. Detailed updates on the Cross River Rail project are circulated at least weekly.

Dissemination of false or misleading information has characterised the project since its inception, and an economy of truthfulness is ongoing. 'Living in Brisbane' in August 2021 asserts "Two new Metro lines [will get] you around the city and suburbs". These "new lines" are busways, built years ago and still maintained by the State Government (see Figure 8). All stations to be serviced by Brisbane Metro are serviced now by buses. Brisbane Metro won't service any suburb that isn't serviced now – by buses.

In promoting Brisbane Metro, examples of meaningless or unverifiable 'pseudo-data' are commonplace. Thus, Brisbane Metro "will remove 125 buses from the CBD", "will get you home [but not to work?] 50% faster", "will add 11 interchange stations" (all are operational now), "will reduce dwell times at stations to 30 seconds on average", "will create 2,600 jobs during construction".

Since its launch in 2017, fanciful or delusional claims about the project have been legion. It will "increase liveability across the city", "position the city as a world-class destination", "enhance access to global precincts", "unlock Brisbane's busways", "catalyse private sector investment" in Adelaide Street.

The October 2021 edition of 'Living in Brisbane' claims that Brisbane Metro's throttling of a block of Adelaide Street and its commandeering of the busiest part of North Quay will "free up bottlenecks in the city". The converse is the more rational and more probable outcome.

Most delusional of all, the February-March 2020 edition of 'Living in Brisbane' asserts that Brisbane Metro "is set to revolutionise public transport in Australia." The October 2021 edition, cited above, tempers this to "is set to revolutionise public transport in Brisbane". Even that is highly contestable.

Visual deception is another promotional strategy. This includes orienting countless computer-generated images of bespoke Metro buses so that they look like light-rail trains (Figure 7 is but one example). They have 'streamlined' train-like fronts, but blunt drag-inducing rear ends! To heighten the illusion, their rubber-tyred wheels are hidden behind cowls (see Figure 6). These features are aerodynamically irrelevant at operational speeds. The cowls will inhibit maintenance, and damaging near-side encounters with unforgiving busway platforms seem likely. Without doubt, the crucial attribute of a Metro bus is its appearance.

The above examples are typical of statements made in many promotional publications that have been distributed widely, at ratepayers' expense. That proponents of the project have found it necessary to resort to blatant exaggeration, deception and misinformation to 'sell' Brisbane Metro to the citizens of Brisbane should cast serious doubt on the project's fitness for purpose.

From personal and therefore limited interaction with Brisbane residents, Brisbane Metro is perceived to be irrelevant or insignificant or both. "I drive to work", "I'll never use it", "Is it that light rail thing?", "It's fully funded, isn't it?". If the project is allowed to lurch along indefinitely, perhaps in a few years civic indifference may dissipate – but by then it will be too late.

Irreparable damage will have been done to Brisbane's premier street, part of North Quay will have become a little-used backwater, and traffic congestion in the CBD will have increased (COVID notwithstanding). In a few years, a new busway station for the Cultural Centre may still be on the drawing board, only the prototype Metro bus may have been delivered, but already it will have become a local embarrassment and a public transport bad joke, nationally and internationally.

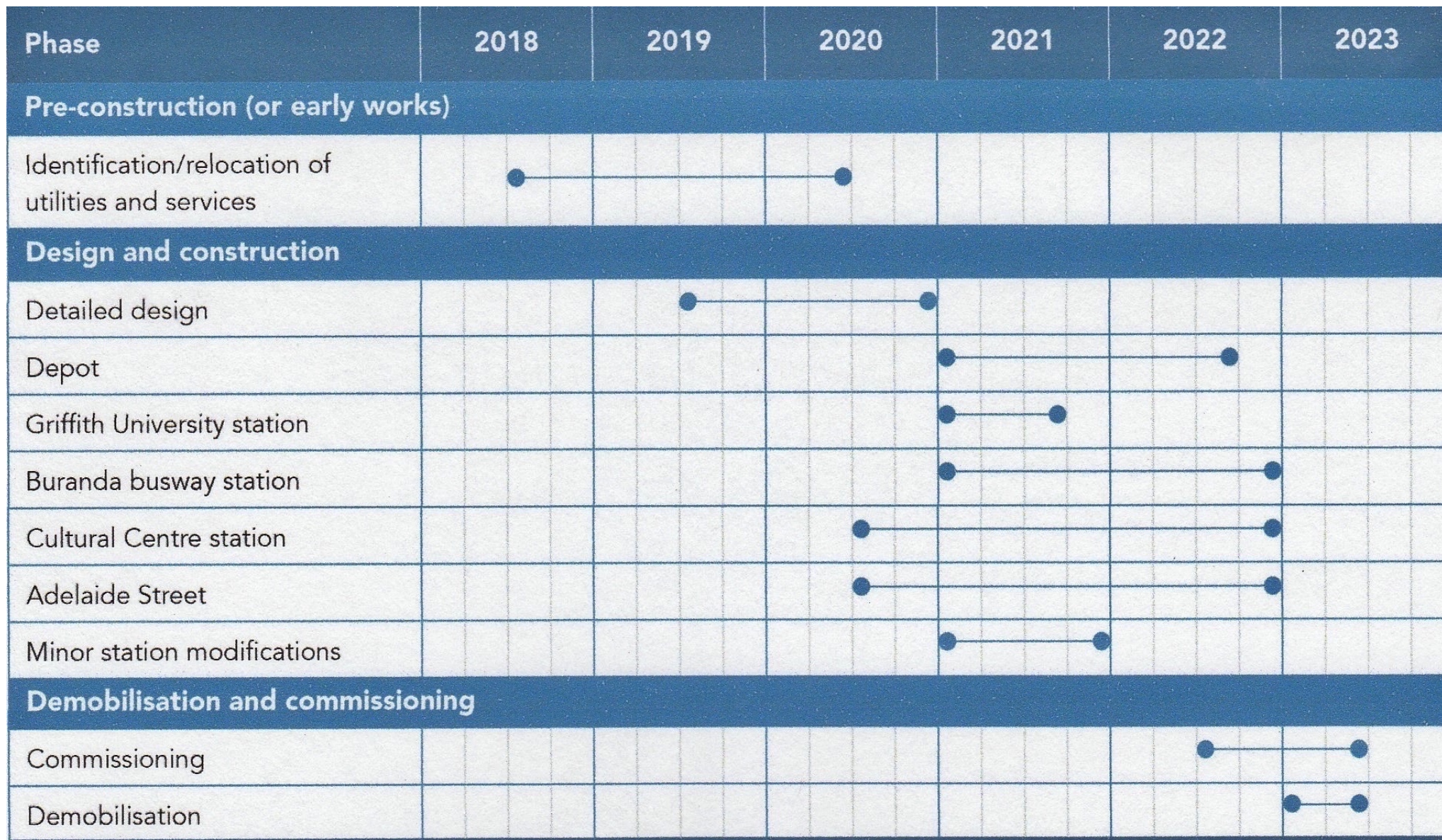
In a few years, a new or more perceptive Federal Government may have cancelled further support for the project. Then ratepayers alone will be saddled with repaying loans taken out by Council to pay contractors millions of dollars for Metro-related work. In the lead-up to the 2032 Olympics, local government voters may punish City Councillors who contributed to a civic disaster. And because the State Government held planning authority over the Brisbane Metro project, voters in Brisbane electorates may register their anger through the ballot box at the next State election.

The recent \$90,000M submarine contretemps confirms that governmental contracts can be broken. The contract with HESS is subject to satisfactory performance by the prototype Metro bus in Brisbane. Regardless, it may be contended truthfully that cancelling the contract for the remaining 59 is in the best interest of Brisbane ratepayers. Regarding the Adelaide Street tunnel contract, some destruction but no construction has started, so compensation should relate largely to planning and preparation. Compensation for cancelling the contract to build the Metro bus depot should relate largely to planning and demolition, and the site will be a marketable asset. The flash-charger contract may need only some modification. Altogether, the total of such financial penalties is likely to be a lot less than \$1,244M.

The case for winding up the Brisbane Metro project is compelling.



Fig.1 Plan of Victoria Br & Reddycliff Pl



Estimated construction timeframes (subject to funding and government approvals).

Fig.2 Predicted construction timelines



Fig.3a ReddACLiff PI from North Quay



Fig.3b Portal to Queen St busway station access tunnel

Proposed Redesign of Cultural Centre Busway Station

Indicative Vertical Cross-section

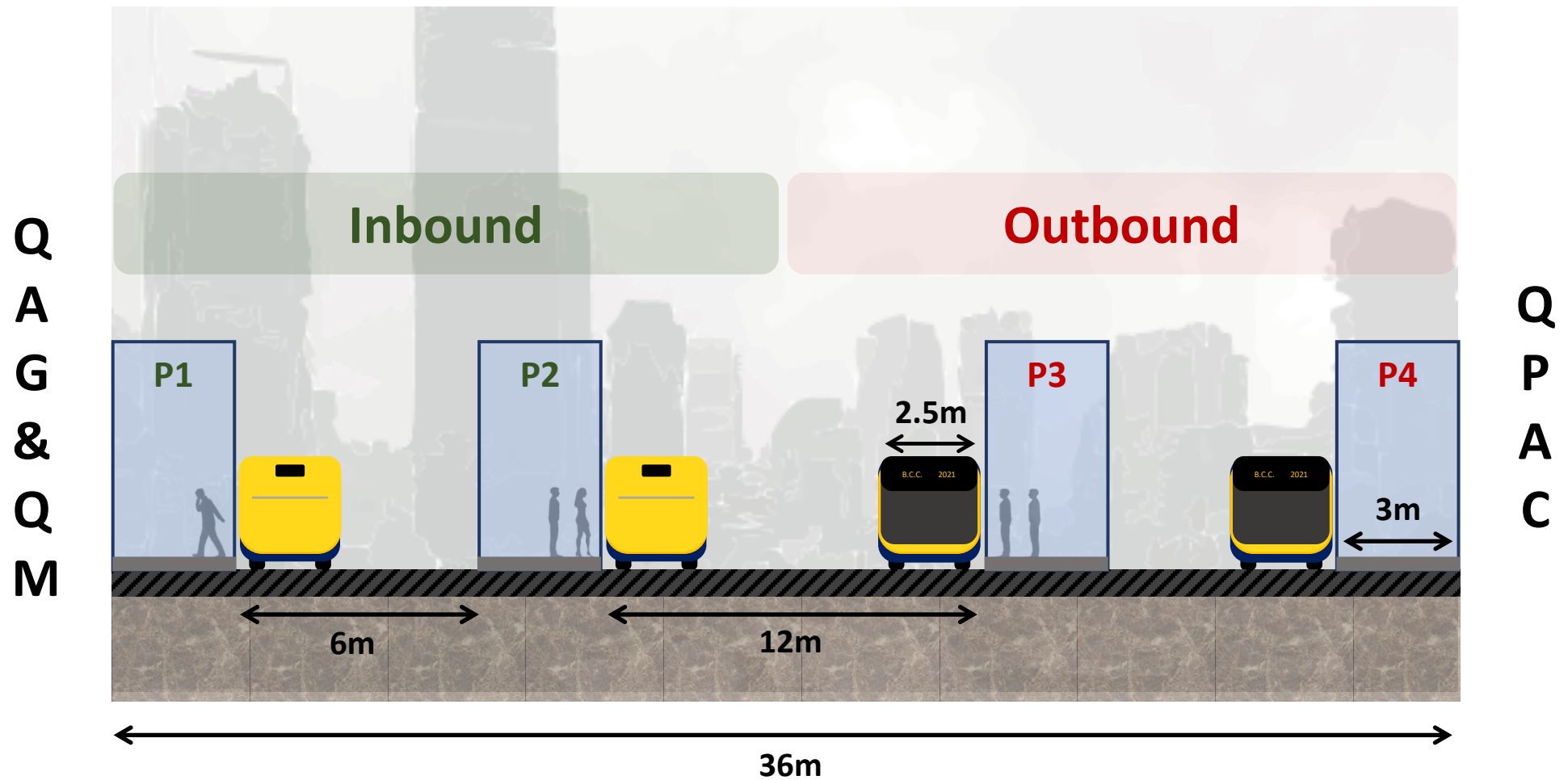


Fig.4 Cultural Centre busway station



Fig.5 HESS bi-articulated bus

Artist's impression only

Approximately 24-25 m in length

Separated
driver
compartment

Passenger
information
displays

Three
passenger
compartments

Bi-articulated
design

Distinctive style
and branding

At least four large
(double) doors

Low floor
design

Capacity for
150 people

Fig.6 Metro bus



Fig.7 Metro bus closeup

Brisbane Metro network

Legend

- Metro 1 line
- Metro 2 line
-  Key interchange
-  Local bus connection
-  Existing train connection
-  Proposed CRR connection

Metro 1 – Eight Mile Plains to Roma Street

Metro 1 will provide a new trunk route from the southern suburbs to the inner city, servicing key destinations like Griffith University and Garden City, and providing opportunities to transfer to other metro, bus or rail services in the CBD to access areas like Fortitude Valley, Bowen Hills and QUT Kelvin Grove.

Metro 2 – RBWH to UQ Lakes

Metro 2 will provide a strong inner city distribution function along the education, knowledge and health corridor, anchored by major trip generators at RBWH and UQ. It will also provide cross-city connectivity between the Boggo Road and PA Hospital precincts, with important destinations at South Brisbane, the CBD and inner north.

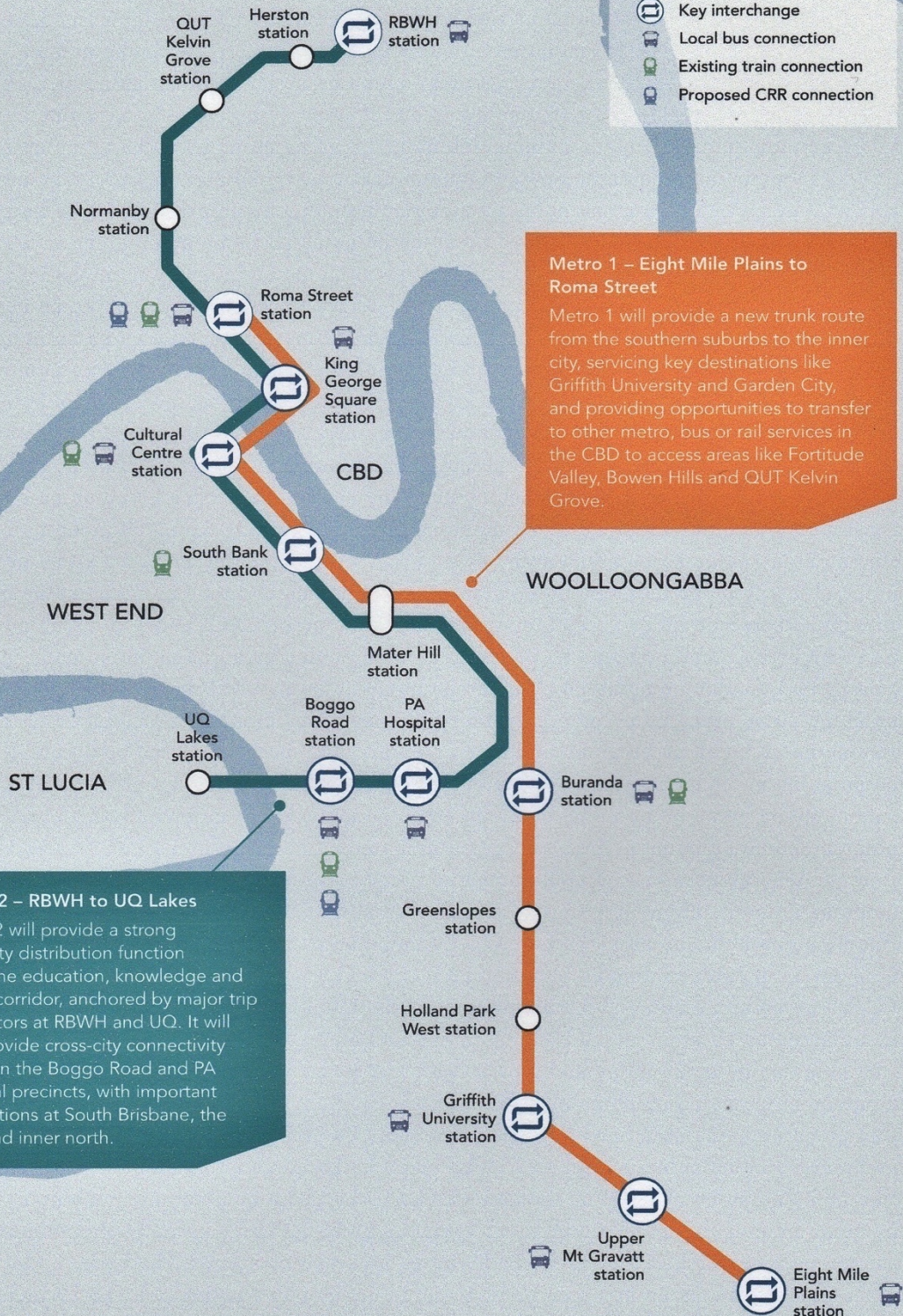


Fig.8 Metro routes