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Sydney Metro Independent Review

Final Report

NSW GOVERNMENT

PD_000000058

14 September 2023

The Hon. Jo Haylen MP

Minister for Transport

Parliament House
Macquarie Street
SYDNEY NSW 2000

Dear Minister,

In accordance with the Sydney Metro Independent Review Terms of Reference, we submit the Review Panel's Final Report to you. **Please note that this Final Report was prepared for the purpose of providing independent advice to the NSW Cabinet and contains extensive assessments and recommendations which are both commercially sensitive/relating to live procurement activities, and which relate to potential future policy options for the NSW Government.**

This Final Report sits alongside and complements our Interim Report of 23 June 2023, and seeks to address the remaining Terms of Reference of the Review, as well as providing Government with a basis for confidence that several outstanding matters and recommendations from the Interim Report are being appropriately actioned.

The Government's request that we complete our Final Report by mid-September 2023, rather than by the end of the year, to enable Cabinet consideration of the timing and delivery of Sydney Metro West, has meant we have condensed our examination of several matters. Accordingly, we have documented our point-in-time views on these matters, noting that in some cases more work will still be required by Sydney Metro and other NSW Government Agencies.

We have focused our work for this Final Report on three key areas:

- Providing a point-in-time assurance review of the Forecast Final Cost for the Sydney Metro capital portfolio, the operational readiness of City-section, and other delivery issues;
- The Sydney Metro West project, in terms of its overall basis for investment and progress to date, and the extent to which further opportunities may be available (on a value-for-money basis) to further support with NSW Government priorities; and
- Our views on the future organisational structure and governance of Sydney Metro to meet the NSW Government's objectives, and the prioritisation of the necessary future investment in the Metro network.

As we outlined in our Interim Report, the Sydney Metro capital portfolio is facing serious external volatilities relating to cost escalation and market delivery capacity, which have changed since investment decisions were made by the previous NSW Government (including the COVID pandemic disruption, supply chain pressures leading to material cost escalation, a generally heated infrastructure market between 2016 and 2022, and an increasing construction-sector pivot into energy-related projects). Our view is that there is a limited degree to which Sydney Metro can further absorb these changed macroeconomic conditions via internal value engineering. Accordingly, maintaining the investment commitments in place, and adopting the most appropriate procurement model and choice of delivery partners for Sydney Metro

West are critical decisions in the next few months. The Review Panel does not believe these general pressures will be unique across Government to Sydney Metro, and that there is a role for NSW Treasury and/or Infrastructure NSW moving forward to be responsible for centrally assessing and regularly reporting on the specific impacts of changed macroeconomic & market conditions affecting major in-flight infrastructure investments. [**Recommendation 1**]

Regarding Sydney Metro West ('the Project') in particular, the Panel makes the following observations:

- The Review Panel considers that, at a minimum, the Project (as currently scoped and designed) should proceed. The communities in the corridor, investors, and Government Agencies who have planned precinct, transport, and housing investments based on the Project proceeding are very strong in their advice to the Review that the Project should continue the current alignment and with the stations as currently planned. The Project remains a critical investment for the future of Greater Sydney, both from a transport network-benefit and land use-change perspective.
    - The Project should not be framed simply as moving people between the respective CBDs in around 20 minutes - it is about connecting people in Western Sydney with a fast, reliable, walk-up transport system which is well integrated with a range of attractive, economically-productive precincts. Improved network resilience and faster connection times from elsewhere in Greater Sydney into Parramatta and Sydney CBD (such as via interchange connections with T9 Northern at North Strathfield) as well as connecting people to major economic activity at stations along the alignment are also urgent target outcomes; [**Recommendations 3 and 4**]
    - The Project will create nine key precincts for Sydney, which will enable a large expansion of housing supply, and new employment and liveability opportunities. These new precincts will deliver significant housing and city-shaping investments, with catalytic land use change triggered by the public transport intervention (especially at The Bays, and Sydney Olympic Park). It is essential to maximise the enormous existing opportunities at these 9-station precincts on the current alignment;
- The Project has been impacted by multiple changes (such as termination at Hunter Street, and the addition of Pyrmont), year-specific funding constraints, market volatility, COVID-related disruption, and general investment uncertainty ever since its initial Business Case in 2018. This has created a progressively more complex budgetary and delivery context. These cumulative impacts have placed major pressures on on-budget/on-time delivery, as there is only a finite amount of change the Project can absorb without impact. The NSW Government should consider releasing some overall arbitrary time constraints put in place by the previous NSW Government to allow more efficient re-sequencing of works, with a degree of flexibility to be able to adapt to any further major macroeconomic shifts in infrastructure delivery. Should the non-contracted elements of the Project (Stations, Linewide, Trains & Systems, Operations & Maintenance) not be in the market by early 2024 as originally planned, there will be extensive time and cost pressures on overall delivery. The Government should confirm its expectations that the Project targets operations by 2032, but that this should not be a 'deliver the Project at any cost' constraint; [**Recommendation 3**]

- Historical Government positions on non-release of overall budget information have resulted in significant confusion regarding public expectations of value-for-money of major investments. While there are legitimate commercial caveats regarding release of detailed cost estimates, Government and the community would likely be well-served by better explanations of the agreed budgets, investment parameters, and how each investment complements Government's broader social, environmental, and economic strategies and plans;

- Sydney Metro is planning and delivering world-class transport projects - with world-class specifications, and end-to-end customer accessibility excellence based on long-term capacity forecasts beyond 2056. While there may be opportunities to relax some select requirements of Sydney Metro West to potentially improve affordability, this should be considered on both an immediate value-for-money and more holistic outcomes basis. Several stakeholders have commented that the specifications of Sydney Metro, given its current scale within the market, have had a sector-wide outcome of 'raising the bar' (especially regarding sustainability, and health & safety). Relaxations to these standards may be possible (and fiscally desirable), provided that Government is alert to both direct and indirect consequences. Extensive Value Engineering has already occurred for Sydney Metro West as a means of self-managing increasing cost and escalation pressures, with further work still underway. One of the key remaining opportunities will be testing whether the assumption of designing for 2056 patronage levels remains appropriate and affordable, including in relation to future costs associated with subsequent retrofitting/expanding;

- In our view, Sydney Metro are likely at a leading standard of Government experience and capability regarding megaproject delivery. This is not to suggest or indicate that all challenges will remain within-tolerances or that no further risks to the Sydney Metro West project will eventuate, but that this is a highly capable Agency with a robust internal environment of Board governance, transparency, knowledge sharing, continuous improvement, and an Executive with significant expertise in project integration - with regular engagements with national and international peer organisations;

- Within that context, procurement of remaining packages remains a multifaceted task, with the most viable potential delivery models each having their own complexities. Other than value-for-money, we believe the core questions for any megaproject with a multi-package scope of works should be: '*Who is best placed to manage the integration risk for package, technical, and commercial interfaces, and what incentive/disincentive regime(s) would best support this accountability?*' Answering this question requires a robust discussion on necessary levels of overall contractual flexibility, and the market's maturity and recent evidence of demonstrable collaboration from involved parties. The size and complexity of GOA4 rail projects generally leads towards either (a) a greater aggregation of packages under a single, empowered Special Purpose Vehicle (SPV) (either a PPP, or an Alliance, or the proposed Partnership - depending on a range of complex factors), or (b) towards a more disaggregated approach where the Client (in this case, Sydney Metro or a contracted delivery partner) retains sole accountability for integration. In summary, we find that: [**Recommendations 6 and 7**]

    - A strict fixed-price/lump-sum "traditional" delivery model is not suited to the high level of integration required of a GOA4 railway, would likely result in an *unnecessarily* high level of contractual integration responsibility being retained solely by Sydney Metro, and would be very unlikely to sufficiently drive collaborative behaviour on a contractor-to-contractor basis;

- The size of the total remaining scope of works is too large (from a balance sheet perspective) to procure via a single competed Public-Private Partnership (PPP). Sydney Metro Western Sydney Airport is a key example of leading practice for PPP but is likely at the upper limit of manageable and contestable value. Even for a partial PPP of the 'moving railway' (i.e., Linewide, Trains & Systems, Operations & Maintenance, and station systems) which would sit at the upper limit of a viable PPP, we do not believe there is a credible way to effectively incentivise the PPP to manage integration risk with the nine separate stations that would fall outside of the PPP given the magnitude of shared interfaces – the 'moving railway' would likely not be effectively on-risk until all stations were completed;
- An Alliance model would be extremely challenging at this scale and unprecedented at this stage of design and delivery. We note that interface management between separate Alliance entities (such as in the Victorian Suburban Rail Loop project) that are highly reliant upon each other to deliver an operating railway is extremely challenging, particularly when the Client Agency (Sydney Metro) would be accountable for all direct costs in a no-blame contractual model through to completion; and
- That the Partnership model proposed by Sydney Metro is an innovative and considered approach to known challenges regarding multi-package interface management, demonstrably builds on lessons learned, and has had a generally positive reception from most investors and constructors (notwithstanding its novelty). The Review considers the model sound and sensible, but not without potentially significant implementation challenges. In adopting the model, it would require a different approach regarding financial decision approval-rights than is currently the norm in the General Government Sector.
- Based on Sydney Metro West's financial value, its complexity, and in light of current market conditions, we believe that the Partnership represents the most viable "aggregated model" approach. A disaggregated model (with formalised collaboration regimes and Interface Deeds inclusive of an incentive framework between contractors) represents the best alternative option of a Client-retained integration risk approach. We recommend the NSW Government evaluate these two options considering comparative value-for-money and overall risk appetite. We note that the current Expressions of Interest process should support either model, and therefore shortlisting of parties should be a priority to maintain market participation in the Project.

- In the context of the magnitude of the investment, we have identified a range of remaining opportunities to further enhance the overall project, which might provide much closer alignment with NSW Government priorities. Each of these opportunities comes at increased cost (some substantially exceeding the current budget envelope) and some with delays to opening, and all should be critically assessed in terms of relative value for money. As informed by both our broader investigations and from inputs via a cross-Governmental working group of Chief Executives/Deputy Secretaries, we have nominated several options for further consideration, including:

- Improved planning controls at existing transport precincts, to maximise potential housing supply options (including potentially via a Transit-Oriented Development State Environmental Planning Policy); **[Recommendations 4, 5, 10 and 12]**
- [Sensitive: Policy] Consideration of a single State development agency responsible for master planning and delivering infill developments in the localities surrounding Sydney Metro stations, and focussed on enlarging precincts around major transport hubs (with Sydney Metro remaining appropriately responsible for planning and delivering the Integrated/Over/Adjacent Station developments at the centre of those enlarged precincts); **[Recommendation 10]**
- Augmenting and improving surface transport connections into Metro stations, including via an expanded bus transport network for surrounding/wider local catchment areas; **[Recommendation 4]** and
- Potential opportunities to safeguard sites for later station insertion, subject to detailed feasibility studies. **[Recommendation 4]**
- Regarding optimised land-use changes, we note that there are a range of value capture processes available to the NSW Government, including the new Transport Project Component (TPC) mechanism within the amended *Environmental Planning and Assessment Act 1979* (NSW). This TPC mechanism - when applied pragmatically - could be an appropriate and efficient means of funding critical enhancement works within enlarged Metro precincts and should be considered for application on Sydney Metro West. **[Recommendation 12]**

- Without jeopardising the overall momentum of the project, a comprehensive Sydney Metro Project update(s) should be put forward for Government consideration, regarding:
  - A consolidated re-baselining of time and cost, including order-of-magnitude sensitivities regarding any shortlisted enhancement opportunities. We note that the current budget parameters assumed tenders commencing in July 2023, and recent delays will inevitably result in prolongation impacts. We also note that the block shift to support re-profiling to the Sydney Metro City & Southwest project generated additional escalation impacts which will also need to be incorporated into a re-baselined time and budget envelope;
  - The shortlisting of Expressions of Interest parties for live procurement (acknowledging the delivery model is not yet finalised but that either model can leverage existing efforts); and
  - A comparative delivery model analysis between the Partnership and a formal collaborative regime-based disaggregated model (targeting a final decision by early 2024, to release tenders by Q2-2024).

Regarding our Interim Report, we note that positive progress continues to be achieved between Sydney Metro, its City-section Operator (Metro Trains Sydney), the Regulator (the Office of the National Rail Safety Regulator), and emergency services organisations (including Fire & Rescue NSW), regarding a high-quality safety case for City-section operations in 2024. This concerted, collaborative process must be sustained over the next 24 months, especially regarding the agreed approach to the at-grade operations of an automated railway between Sydenham and Bankstown, in the shared corridor. High-speed dynamic testing, including in autonomous operation modes, is now underway on the City section.

We believe there remains an essential need to continue efforts to clarify and streamline accountabilities and governance expectations with TfNSW, and with other NSW Government Agencies such as DPE, NSW Treasury, and Infrastructure NSW, to best ensure decision-making rights align with accountabilities for outcomes, and to avoid the risk of overlapping/contradictory governance and assurance arrangements. We suggest there are significant opportunities for the NSW Government to leverage both the skills and oversight functions of the Sydney Metro Board much more effectively. **[Recommendations 8 and 9]**

The Review Panel considers that the Sydney Metro Board and senior team have the capability, depth, and resourcefulness to deliver the overall infrastructure program to a very high quality and with all the necessary governance and probity safeguards that the NSW Government and community would expect. However, we are concerned that the organisation is under increasing stress – market volatility and contractual pressures, alongside an aggressively competitive labour market, with multiple directed changes to scopes of work, have added continual pressures on the senior team. The Review Panel have sought to target our work in a way which best provides certainty on key options/outstanding decisions.

Finally, despite having invested significantly in uplifting infrastructure market capability in New South Wales (especially for Metro-based projects) over the past decade, we note that there does not appear to be a specific and actionable longer-term pipeline in place beyond current projects. The NSW Government should aim to provide certainty on future extensions as a priority before potential sector-wide demobilisation begins around 2026. Having regard to the increased investments in energy-based projects, FY2025-2026 is considered to represent a critical turning point for maintaining construction-sector capabilities in transport infrastructure. Within this context, we have conducted a strategic review of further investment opportunities and potential timings/phasing and offer a preliminary view on options for Government's consideration – in short, we recommend a clear forward pipeline of staged Metro projects be developed and progressed within a financially sustainable long-term envelope. There are multiple additional considerations relevant in this regard to Sydney Metro's overall workforce management strategy and retention of skills and experience. **[Recommendations 13 and 14]**

Finally, we thank you for the opportunity to work on this Review. We trust that the analysis assists the Government in its deliberations and in the shaping of the Sydney Metro projects to achieve the best possible outcome from these critical investments.

The Review Panel thank all Government, industry, and community representatives and stakeholders for their active and constructive contributions over the past several months. We very much appreciated the support of the Sydney Metro Chairman and Board, the Chief Executive Peter Regan, the Sydney Metro Executive, and wider team – Sydney Metro has a high-performing workforce clearly dedicated to the successful delivery of these megaprojects.

In particular, we would like to thank our outstanding Review Secretariat who have provided exceptional analytical and secretariat support for our work. Their skills, guidance, and assistance have been of the highest quality, and their good humour and patience has enabled the Review Panel to meet its tight deadlines and complex analysis requirements.

Yours sincerely,

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Mr Mike Mrdak AO **Ms Amanda Yeates**

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Comparative features of Sydney Metro projects

The following table summarises key features of the different Sydney Metro projects side-by-side, including with Crossrail from the United Kingdom, for comparative reference.

	Northwest	City & Southwest	West	Western Sydney Airport	London's Elizabeth Line (Crossrail)
Form	15km of new tunnels 8km of at-grade / viaduct 13km of ECRL conversion	15.5km of tunnels 14.5km of at-grade Bankstown-line conversion	25km of tunnels	12km of tunnels 10.6km of at-grade / viaduct	21km of tunnels 97km of at-grade
Initial service capacity	15 trains per hour 17,300 people per hour each direction		15 trains per hour 21,000 people per hour per direction	12 trains per hour 7,800 people per hour each direction	12-24 trains/hr 18,000-36,000 people per hour each direction
Ultimate system capacity	30 trains per hour 46,000 people per hour each direction		30 trains per hour 45,000 people per hour each direction	30 trains per hour 25,000 people per hour each direction	
Train / Rolling Stock	6-carriage sets with future expansion to 8-carriages		6-carriage sets with future expansion to 7-carriages	3-carriage sets with future expansion to 4-carriages	9-carriage sets with future expansion to 11-carriage sets
Stations	8-new stations 5-refurbished Epping/ Chatswood-line stations	6-new underground stations 2-interchange stations 10-refurbished Bankstown-line stations	9-new underground stations	2-new underground stations 4-new stations at-grade / viaduct	41-stations [10-new stations, of which: 8-underground stations, 2-stations at-grade]
Property & Dev'ment		5-Integrated Station Developments 2-Adjacent Station Developments	4-Integrated Station Developments 2-Over Station Developments 3-Adjacent Station Developments	3-Adjacent Station Developments	3-Over Station Developments 2-Adjacent Station Developments
Average spacing between Stations	2.8km	2.2km (City) 1.4km (Southwest)	2.7km	3.8km	2.9km
Depth of under ground stations	25m	17-31m	18-35m	15-22m	14-34m
Averaged cost-per-km	~$200m/km *Noting 13km ECRL was existing	~$1.2b/km (City) ~$130m/km (Southwest)	~$1b/km	$490m/km *Noting significantly lower property acq costs	$AUD1.7b/km

Table 1 - Summary comparison between Sydney Metro projects (incl London's Crossrail)

Glossary

Brownfield	Relating to types of land or sites, where development/re-use may be complicated by the presence of previous/existing structures, contamination, or thoroughfares
FBC	Final Business Case
FFC	Forecast Final Cost
CA	The Transport for NSW and Sydney Metro Collaboration Agreement
CE	Chief Executive
CO&O	Customer, Operations & Outcomes Division, within Sydney Metro
CST	Customer Strategy & Technology Division, within TfNSW
C&SW	The Sydney Metro City & Southwest megaproject, from Chatswood to Sydenham ("City section") and Sydenham to Bankstown ("Southwest")
DPE	Department of Planning & Environment
FRNSW	Fire & Rescue NSW
GS	Greater Sydney Division, within TfNSW
iNSW	Infrastructure NSW
ISD	Integrated Station Development - where the building is built at the same time as the station, often using shared service facilities
MTS	Metro Trains Sydney, the Operator for Metro North West Line (to be expanded into City, and Southwest, sections)
ONRSR	Office of the National Rail Safety Regulator
P&C	People & Culture Division, within TfNSW (note, there is also a P&C team within Sydney Metro)
PPP	Public Private Partnership
QRA	Quantitative Risk Assessment, a probabilistic risk modelling approach used widely in infrastructure cost planning
SSTOM	A major WSA contract package - Stations, Systems, Trains, Operations & Maintenance. SSTOM was procured as a Public Private Partnership in December 2022
TAA	The *Transport Administration Act 1988*
TAHE	The Transport Asset Holding Entity
TBM	Tunnel Boring Machine
TfNSW	Transport for NSW
ToR	Term of Reference
TSOM	A C&SW major contract package - Trains, Systems, Operations & Maintenance. TSOM was procured as an augmentation to the existing Northwest Public Private Partnership
West	The Sydney Metro West megaproject, from Westmead to Sydney CBD
WSA	The Sydney Metro Western Sydney Airport megaproject, from St Marys to the Bradfield Aerotropolis

1. Background

Context

On 13 April 2023, the Minister for Transport (The Hon. Jo Haylen MP) announced an Independent Review of Sydney Metro, a NSW Government Agency.

Sydney Metro is a transformative program of investment, enabling extensive opportunities for transport, amenity, and land use benefits. Sydney Metro is tasked with the responsibility to:

- Deliver world-class infrastructure projects safely, on time, and on budget;
- Deliver safe and reliable Metro passenger services, fully and seamlessly integrated with both the broader Public Transport network and with their local communities; and
- Deliver attractive and integrated Places which enhance their local Precincts and enable broader land use improvement and urban renewal.

As such, the Independent Review would examine the efficiency and value-for-money, delivery models, governance, and Benefits Realisation approach of Sydney Metro, as well as the nature of its collaboration with Transport for NSW (TfNSW), Sydney Trains, the Department of Planning & Environment (DPE), and NSW Treasury (among other NSW Government organisations).

Approach to final phase

Ms Amanda Yeates and Mr Mike Mrdak AO undertook the first phase of the Independent Review between April and June 2023, focused on the most pressing matters with the potential to impact the 2023-2024 NSW State Budget. The Interim Report was delivered to the NSW Minister for Transport on 23 June 2023.

The second and final phase of the Independent Review focused predominantly on other matters, including:

- Continued review and assessment of program schedules and costs-to-complete (ToR 1);
- Progressive delivery of the City & Southwest project, with specific regard to:
    - Implementation of Interim Report recommendations;
    - The safety case associated with Operational Readiness for City-section opening (ToR 2.1, 4, 5);
- Taking account of current delivery progress, the overall scope, budget, program, and target benefits of Sydney Metro West (ToR 3.1), as well as:
    - Opportunities for further enhancements and opportunities to maximise benefits consistent with NSW Government priorities (ToR 6);
    - Procurement options for remaining/un-let packages of work, in the context of macroeconomic factors (ToR 3.2);
- Overall perspectives on the efficacy and efficiency of Sydney Metro governance (ToR4), including with respect to:

- o Legislative settings within the *Transport Administration Act 1988* (NSW);
- o The external assurance environment;
- o Workforce management; and

- Potential future investment opportunities for Government consideration, and associated considerations (ToR 4.1, 6.2).

During the final phase, the Panel conducted an extensive set of interviews with senior leadership across Sydney Metro, TfNSW, DPE, Infrastructure NSW (iNSW), Landcom, Fire & Rescue NSW, and the NSW Treasury during June to September 2023. The Panel also met in roundtable format with Local Government Area representatives across parts of the Metro network, and several peak industry and interest bodies.

The Panel undertook site visits to The Bays to inspect the scale, complexity, and ambition of works being planned and delivered first-hand, as well as to the Operations Control Centre in Tallawong.

The Review Panel engaged independent experts to provide more detailed and technical analysis of macroeconomic supply chain models (L.E.K) and of the Sydney Metro West procurement financial models (Mr Peter Hicks).

The Review Panel also maintained regular contact with the Chairs of the Sydney Trains (Walsh) Review, Strategic Infrastructure (Kanofski) Review, and Bus Industry (Lee) Taskforce.

In order to meet revised Government consideration timeframes, the Final Report timetable was bought forward to mid-September 2023.

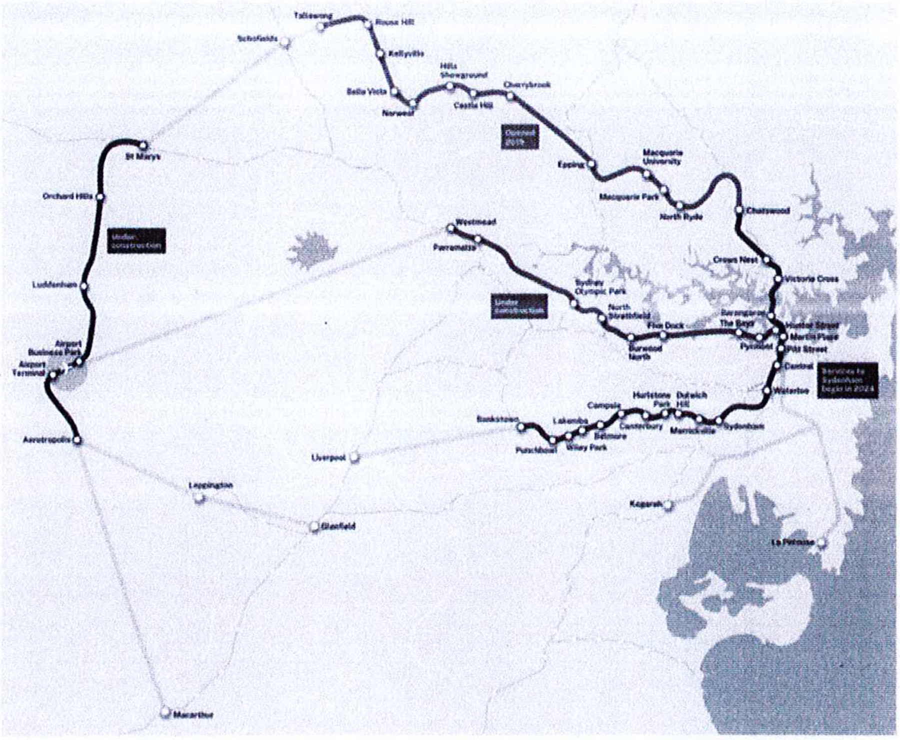


Figure 1 - Sydney Metro network, and potential extension options

2. Overall Updates

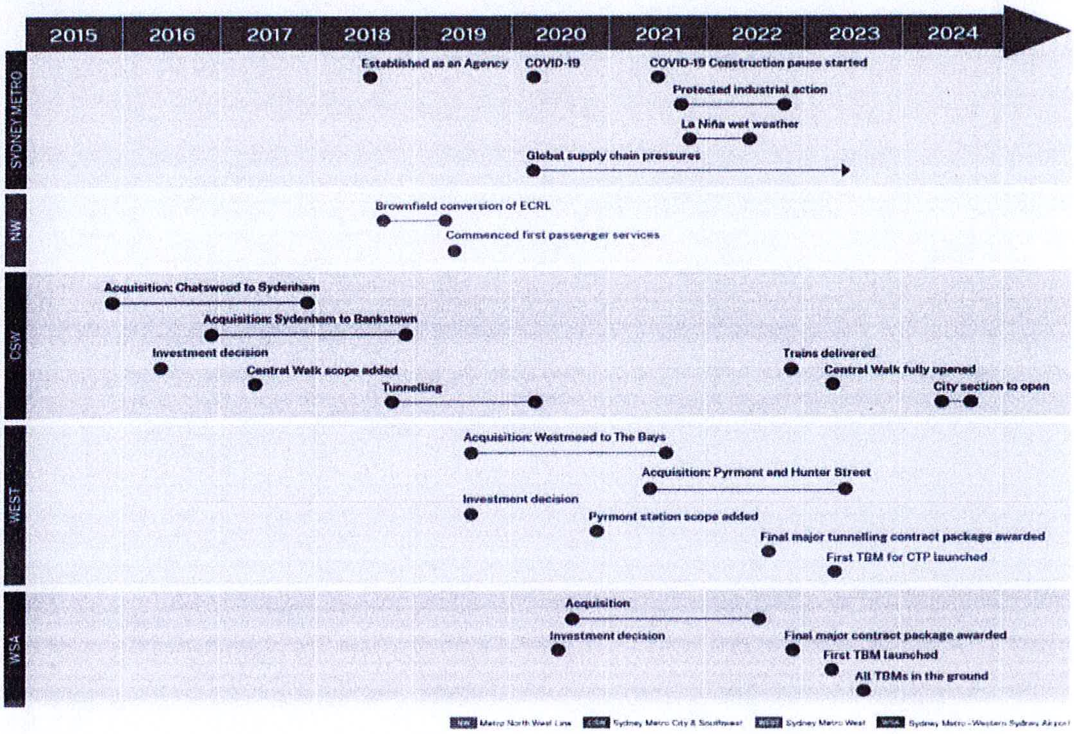


Figure 2 - Summary timeline of key Sydney Metro milestones since 2015

Current Infrastructure Market capital projects' outlook

The infrastructure investment market in Australia is approaching an all-time high expenditure peak, and despite several recent major project deferrals, there is an ongoing and significant demand for materials and labour. Under current infrastructure pipeline estimates, this demand is unlikely to substantially abate until FY2026-2027. While Rail infrastructure currently represents most of the infrastructure capital investment in NSW and Victoria, Energy continues to dominate at a national level.

L.E.K. Consulting was engaged to assist the Review Panel to:

- Validate Sydney Metro's methodology for generating their escalation indices, and subsequent processes used to develop the Forecast Final Costs (FFC) and cost escalation estimates underpinning capital forecasting and expenditure;
- Validate the potential cost impacts of delaying the procurement of Sydney Metro West by around 6-months to accommodate the revised funding requirement for C&SW; and
- To assist in modelling the optimal timeframe for procurement of Sydney Metro West, and also future Metro projects.

L.E.K. analysis of a variety of current pipeline documents suggests that - of the large Australian infrastructure projects in delivery this decade - the Victorian Suburban Rail Loop (SRL) is expected to provide the most direct competition for Sydney Metro, with several competing specialist rail packages, noting that:

- The block-shifted procurement timings of Sydney Metro West packages (with the 6-month delay) is still earlier than the procurement for SRL-East, except for their Linewide works;
- There remains uncertainty whether SRL-East will continue as currently planned, due to budget pressures in Victoria; and
- That there are several very large energy projects in planning, and that there is a risk that resource demand dramatically increases as several Governments push to meet 2030 renewable energy targets.

Based on L.E.K. analysis of Sydney Metro's escalation models, the Review Panel understands that the general methodology, calculation, and application of escalation indices by Sydney Metro is considered reasonable and is appropriately based on more detailed elements of scope rather than a pure pro-rata application of a single index figure.

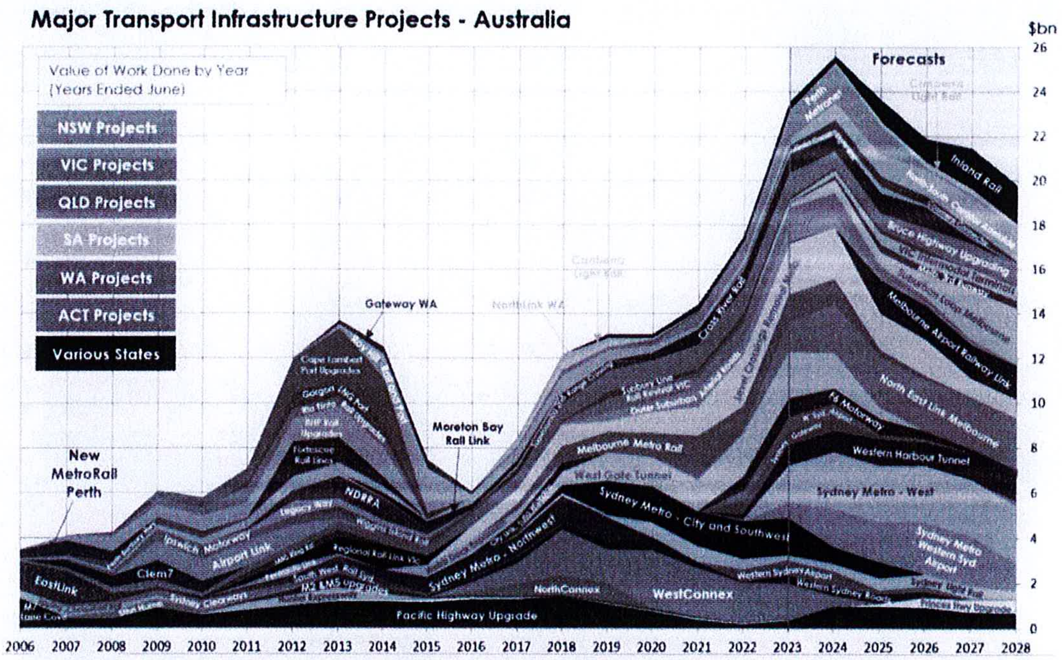


Figure 3 - Infrastructure Pipeline (courtesy Macromonitor analysis, July 2023[1])

1. That the NSW Treasury, in consultation with Infrastructure NSW and the Construction Leadership Group, should establish a process and accountability for developing and regularly updating a common suite of sector-specific infrastructure escalation models, to promote consistency and

[1] Note, Macromonitor produce this report and analysis based purely on publicly available budget information from Government documents. It does not necessarily reflect internal data/forecasts, and where completion dates are not publicly specified, various assumptions are made in Macromonitor's work regarding forward profiling.

currency of financial assumptions across all Infrastructure Agencies and enable centralised reporting of market volatility impacts (as aligned to NSW Treasury's own macroeconomic forecasts) to Government. Note that this would have the benefit over externally generated escalation models of having more realistic/credible expenditure demand inputs which are not otherwise publicly available.

Sydney Metro City & Southwest

Forecast Final Cost

The Review Panel notes that the corrections in end-July relate to the Government approval to re-baseline the project consistent with the revised delivery strategy for the Southwest conversion. More extensive commentary is included in Sections 3 and 4 to this Report.

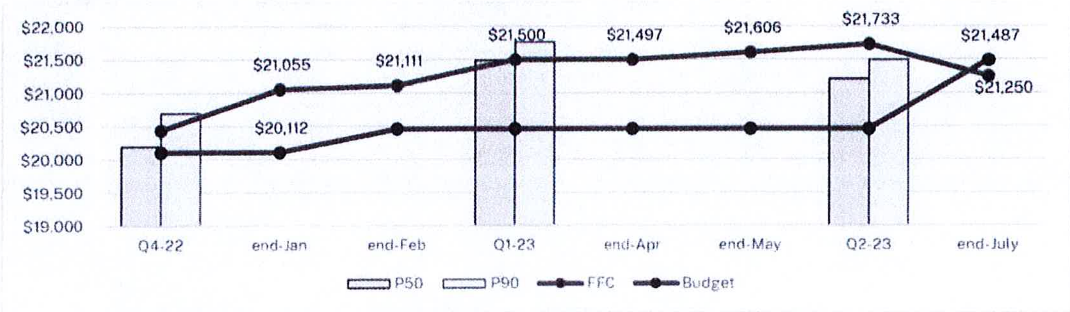


Table 2 - City & Southwest FFC

Key Financial Risks, at end-August 2023

Key risks for the Project at end-August are:

- Station completion and testing fails to meet target date, impacting systems testing and acceptance programs which potentially triggers Delay penalties/requires acceleration payments;
- Ongoing uncertainty regarding latent asset condition along the Southwest corridor - the scale and implications of which will only be known once final Conversion commences in mid-2024; and
- Resolution of outstanding commercial matters in a timely and value-for-money outcome.

Sydney Metro West

Sydney Metro West has faced a range of challenges in recent months. More extensive commentary and Review Panel findings are included in Section 5 to this Report.

Forecast Final Cost

The Review Panel notes that the uptick in FFC estimate at end-July relates largely to a combination of:

- Update to reflect the additional $364m of delay costs associated with the 6-month block shift to enable reprofiling of funding (to support City & Southwest). This $364m is a point-in-time estimate of delay impacts which may further change as overall programs are updated and will require consideration of funding sources/whether it is appropriate and feasible to 'absorb' within the existing funding envelope.

Tender release delay beyond end-2023 would likely result in immediate further deterioration to this estimate;

- Update to reflect the proposed-but-not-yet-approved costs associated with *optional* precinct development enabling works. These works include a range of incremental station changes (including basement deepening and strengthening) at Pyrmont, Burwood North, and Parramatta, which are expected to enable a more significant potential development return (known as 'Scope B' works, circa $229m). These works are considered necessary to achieve the maximised precinct outcomes and revenues within the overarching Property & Place Strategy for Sydney Metro but are not yet committed and are subject to a future Government approval. This approval would be required before end-2023 for the works to be appropriately scheduled and incorporated into tender scope documentation.

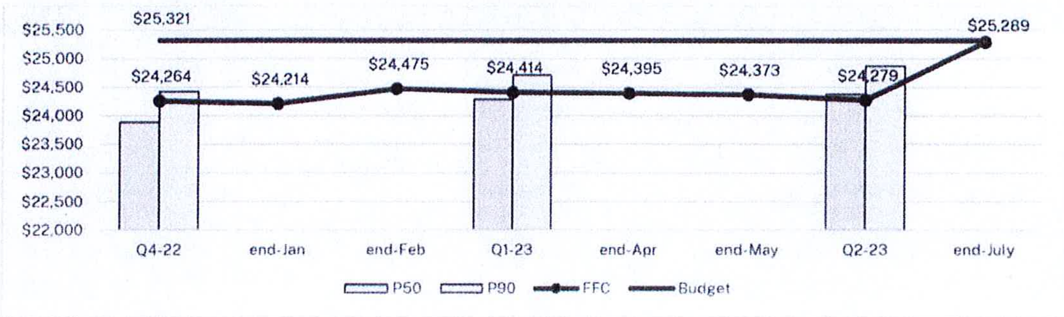


Table 3 - West FFC

Key Financial Risks, at end-August 2023

Key risks for the Project at end-August are:

- Overall program change and uncertainty - driven in part by the 6-month block shift of funding, which may need to be further adjusted depending on the outcome of strategic opportunity/enhancement decisions and resolution of the delivery model for outstanding packages of work. Further delays/time extensions will inevitably result in prolongation and escalation cost increases to the project, with the agency's ability to offset in entirety decreasing as a consequence; and

- Escalation and market volatility remain at relatively high levels. Expert advice indicates that this is changing rapidly and unevenly, and the establishment of a credible escalation model is proving challenging (especially if large-scale infrastructure projects, such as in Victoria, are deferred or cancelled affecting major supply chain assumptions). This has the potential to generate significant potential cost pressures well outside the assumptions/parameters developed as part of the original Investment Decision - it is difficult to credibly quantify at this time.

    - Note, the Review Panel engaged L.E.K. Consulting as independent expert advisors to review the escalation models in use by Sydney Metro, with respect to completeness and robustness. The Review Panel was advised that the general application of indices is considered reasonable and is based on more detailed elements of scope rather than a pure pro-rata application of a single index figure.

Sydney Metro Western Sydney Airport

Sydney Metro Western Sydney Airport has continued a very positive delivery effort in recent months. More extensive commentary is included in Section 6 to this Report.

Forecast Final Cost

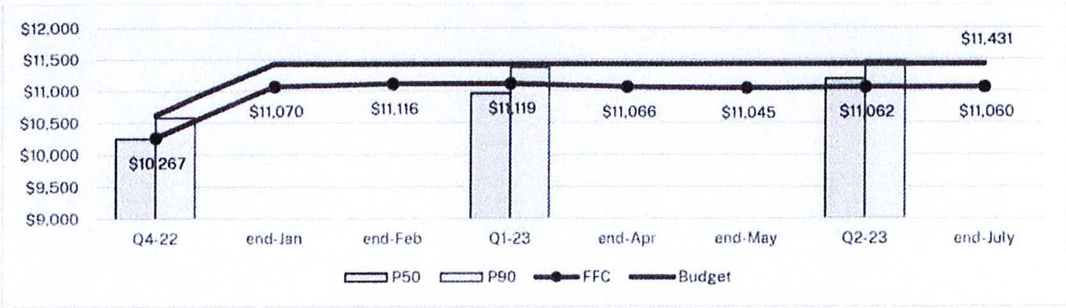


Table 4 - Western Sydney Airport FFC

Key Financial Risks, at end-August 2023

Key risks for the Project at end-August are:

- Progress of the Stations Boxes & Tunnelling (SBT) contractor, especially with respect to the inclusion of shortened spacings between cross-passages and some delays being experienced in the northern portions of their work, which may trigger Delay penalties and/or require acceleration payments;
- Timely and sustainable mobilisation of the Stations, Systems, Trains, Operations & Maintenance (SSTOM) PPP counterparty, given the magnitude of design and delivery works needing to be completed in a short timeframe - and associated impacts to overall timeframes; and
- Challenges regarding design approvals/interface management with the Western Sydney International (Nancy-Bird Walton) Airport authorities on Commonwealth lands, which may result in delayed approvals and/or re-design requirements.

North West Metro Line operations

Operations on the North West Metro Line commenced in May 2019. During August 2023, the Review Panel note the following operational performance:

- 'Delivered Services' achieved 99.79% (i.e., 9510 services in the month);
- 'Headway within tolerance' achieved 99.51% (with Sydney Trains achieving 86.2% punctuality performance);
- 'Journey time within tolerance' achieved 98.42% (i.e., an average Tallawong-to-Chatswood journey time of 36m08s);
- 125 service disruption incidents, of which only two resulted in delays of more than 6-minutes total;

- One of these two resulted in a delay of 35-minutes. This was in relation to a new C&SW train being used on the Northwest line, but which had not yet achieved its 5000km performance completion, and which experienced a train door failure at Macquarie Park;

- A 97% maintenance compliance rate; and
- Total patronage of 2.18 million (up 14% from July 2023 - an average 82,000 trips per weekday and 40,000 trips per weekend day).

Overall, the Review Panel is satisfied that the governance and accountability arrangements of the Board and completeness/timeliness/quality of management reporting is appropriate for these risks - especially with the added transparency of regular reporting on both capex and operational performance to the NSW Minister for Transport. The Review Panel note three critical and recurrent categories of major defects on the North West Metro Line - while being managed, they have the potential to impact/carry across to City-section opening. There appear to be tangible defect remediation plans in place, with monthly monitoring by the Sydney Metro Board. These critical categories relate to:

- Excessive wear of the Overhead Wire (OHW) and Pantograph;
- Intermittent failures of the Passenger Announcement, CCTV, and Information System (PACIS), which works effectively for pre-recorded announcements but is failing to achieve required performance for live announcements; and
- Excessive train vibrations associated with wheel-to-rail interactions.

The Review Panel notes, with respect to City-section Operational Readiness in the context of North West Metro Line's initial service period that - due to compressed testing and commissioning timeframes in 2018/2019 - the first 6-months of operations included a notably high level of service disruption. Among other important lessons learned from Northwest, the Review Panel particularly note the criticality of:

- Avoiding compressing the minimum 12-week Trial Running period. This is a critical testing and commissioning phase during which asset reliability challenges are identified, systems interfaces proven, and customer service staff can improve familiarity and practice management of incidents in a controlled environment;
  - [Commercially sensitive] Note, both Sydney Metro's current testing & commissioning program and its commercial discussions with the OTS2 PPP counterparty have made clear that this is a non-negotiable component;
- While customer service staff were trained on systems offsite prior, practicing incident response via drills and exercises on the Trial Running railway is essential to building their confidence and experience, which ultimately supports a better and safer customer experience in operations proper. 66 additional front-line staff were required for the first 18-months to stabilise operational performance and help efficiently finalise customer service procedures and practices. Specialist technicians need to be available and appropriately located along the alignment to rapidly respond to any service disruption matters;
  - [Commercially sensitive] Note, Sydney Metro has recently approved the advanced recruitment of front-line Customer Journey Coordinators (CJC-T) and Station Team Leaders, to

enable onboard training well in advance of opening – this will result in a 'Staff per Shift' of approximately 52 *additional* MTS resources – subject to further negotiations;

- Sydney Metro and Metro Trains Sydney (the Operator within the OTS2 PPP) have also prepared multiple plans for derogated services based off recent incident examples, and designed multiple joint training exercises over the coming several months; and

- At the time of Northwest's opening, customer information systems were limited, and service disruptions were not effectively managed. Improved implementation of real-time information, clear communications via onboard PA systems, and communications interfaces into various Rail Operations Centres/Traffic Management Centres needs to be prioritised.

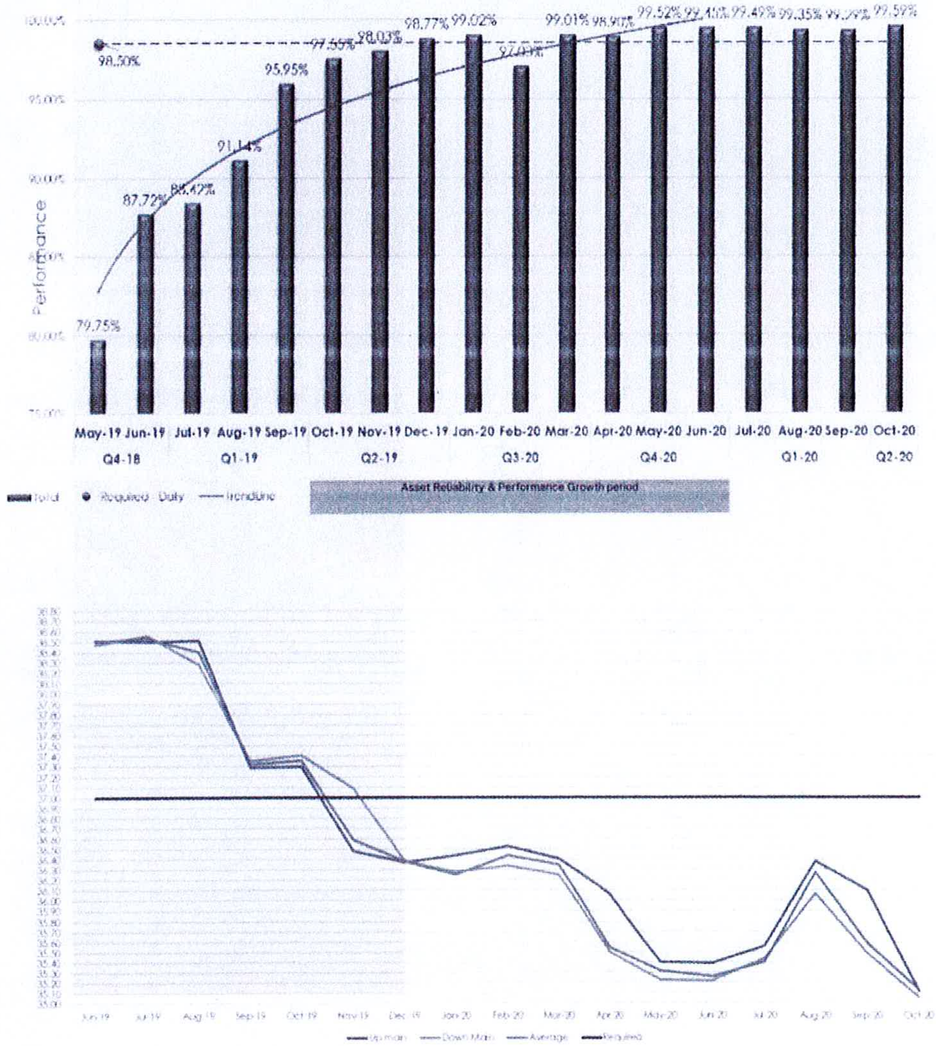


Figure 4 - North West Metro Line's reliability & performance growth in initial operations

3. Update on City-section Operational Readiness

Status, at end-August 2023

The City & Southwest project has continued its path of recovery during July and August 2023. The following critical milestones have been recently achieved:

- Commencement of high-speed dynamic testing on 7 August 2023;
- Completion of the final System Acceptance Test for Central Station (in this case, for cyber-security);
- Commencement of preliminary System Integrated Acceptance Testing (SIAT) at Central Station (in readiness for wider SIAT across other sites);
- Ongoing secondment of a full-time Fire & Rescue NSW officer into Sydney Metro, to assist with issues resolution and coordination; and
- Commencement of testing and commissioning for Tunnel Fire Detection systems, and Tunnel Ventilation Systems (TVS) at all sites.

[Commercially sensitive] The Review Panel commend Sydney Metro on continuing to progress a comprehensive commercial resolution pathway with the TSOM contractor, with the major Commercial Resolution 1 (CR1) Settlement Deed executed in late July 2023. The magnitude and importance of this commercial resolution should not be underestimated - it represents a very significant and positive step forward in terms of clearing a series of historical delay matters and demonstrates a much-improved commitment by the TSOM Contractor to the planned 2024 opening of City-section. This sets a positive, higher-confidence pathway for the resolution of remaining Phase 1/City-section elements and establishes a more productive governance framework for the future negotiations which will be necessary for Phase 2/Southwest-section.

Regarding Operational Readiness, the Review Panel concur with Sydney Metro's assessment regarding notable risks to successful opening, but also that these risks are well-identified and have tangible, credible management plans being executed. Trial Running remains forecast to commence around February 2024 period (although there are still risks), which would enable a 12-week period to still occur while maintaining a First Passenger Service start date by mid-2024. The compression of the 12-week period on Northwest was a major contributor to the operational reliability concerns in the first year of operations.

Key remaining risks facing City-section Operational Readiness include:

- Physical asset completion, in time for System Integration Acceptance Testing (SIAT);
- Installation, activation, and integration of the Central Control System delivered by Metro with follow on commissioning by Transport for NSW of customer information and Electronic Ticketing System (ETS); and
- Timely agreement of the Emergency Response Plan for the City-section with FRNSW.

The criticality of asset readiness cascades into multiple other risks – completion enables finalisation of asset information, and that information's conversion into practical readiness (e.g.: training courses, maintenance plans, incident procedures).

TfNSW will need to further prioritise the delivery and integration of real-time customer information.

[Commercially sensitive] The Review Panel note that there are a range of relevant commercial implications associated with City-section operational readiness, of which the Government should be aware in the context of approving any soft start scenarios:

- **Before First Passenger Services**, the Operator is required to pass several Safety Case approvals, as well as a System Performance Test and a Capacity Performance Test - successfully meeting these tests is the trigger for cl19.1 of the Deed;
- **After First Passenger Services**, the Operator is required to pass a Final Performance Test, which includes (among other matters), a full 14-day period operating at full timetable and meeting requisite headway and journey time criteria. Only on achieving a continuous 14-day Final Performance Test does the Contractor reach 'Completion' (under cl19.4 of the Deed) and is therefore entitled to commencement of service payments, debt paydowns, and releases to equity.

Pre-Commissioning Readiness

What 'Day 1 passenger services' are likely to look like at the precincts

The commencement of First Passenger Services does not necessarily mean the end of construction. The Review Panel note, and wish to emphasise, that the above/around station components of the various developments are highly likely to continue beyond commencement of services. For example:

- **Crows Nest**: The construction of the Over Station Development will continue for some time, with access only likely to be granted to the constructors from October 2024. There may be constrained footpaths in the vicinity of the station entrances with hoardings at ground level;
- **Victoria Cross**: There are likely to be several vacant retail stores at ground level/concourse level on Day 1, with fit outs still occurring. It is expected that all tenancies should be leased by early 2025;
- **Pitt Street**: Over Station Developments are likely to be completed by end-2024, with some hoardings still in place at ground level. Bike path lanes may not be instated, and there may be interim wayfinding in place while OSD construction completes;
- **Waterloo**: The Southern Precinct and Cope Street Plaza will be completed and opened 12-16 months post-Day 1, which may also therefore result in some access limitations on Cope Street/reduced footpath widths due to hoardings at ground level; and
- **Bankstown**: Once the Southwest opens, there will continue to be construction works at Bankstown Station (including some further temporary shutdowns west of Bankstown station) to install crossovers and re-instate extended platforms for Sydney Trains. Non-critical precinct works around Bankstown are expected to be completed within around 12-months of Southwest opening.

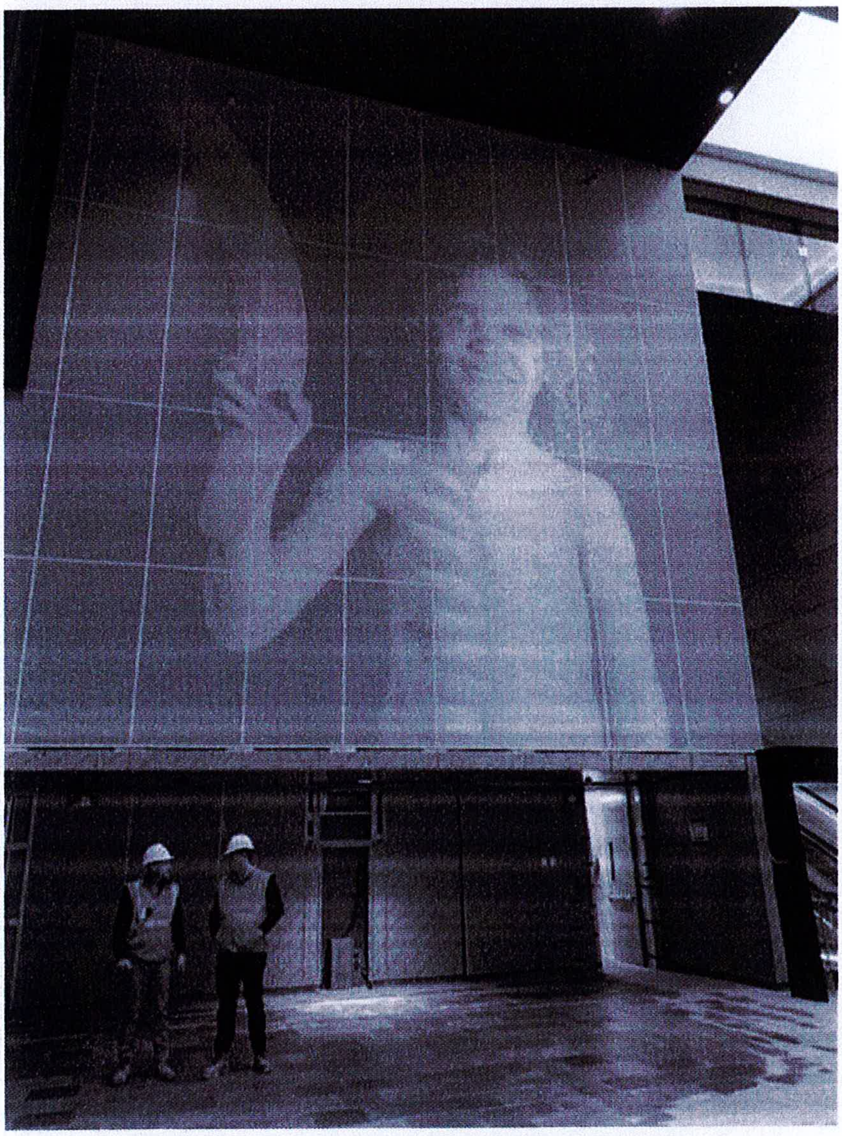


Figure 5 - Public Art at Waterloo station (1 September 2023)

Status of outstanding matters arising from the Interim Report

We note that regular briefings to the NSW Minister for Transport on operational readiness have now commenced and are established at an appropriate cadence and level of detail.

Emergency Services and incident management update

The Review Panel met on additional occasions with senior representatives from FRNSW regarding their input to the Interim Report.

While there remains significant effort to finalise the safety case for City-section opening, and to improve the effectiveness of relationships more generally, the Review Panel note that there has been a materially improved relationship between Sydney Metro, its operator, and FRNSW since early 2023, including via:

- A Superintendent-level secondee fully embedded into Sydney Metro City & Southwest, from end-June 2023;
- A formalised Memorandum of Understanding, signed late July 2023;
- Regular joint Executive workshops, including with the Office of the National Rail Safety Regulator; and
- A comprehensive series of joint exercises planned between July 2023 and First Passenger Services.

4. Update on Southwest conversion

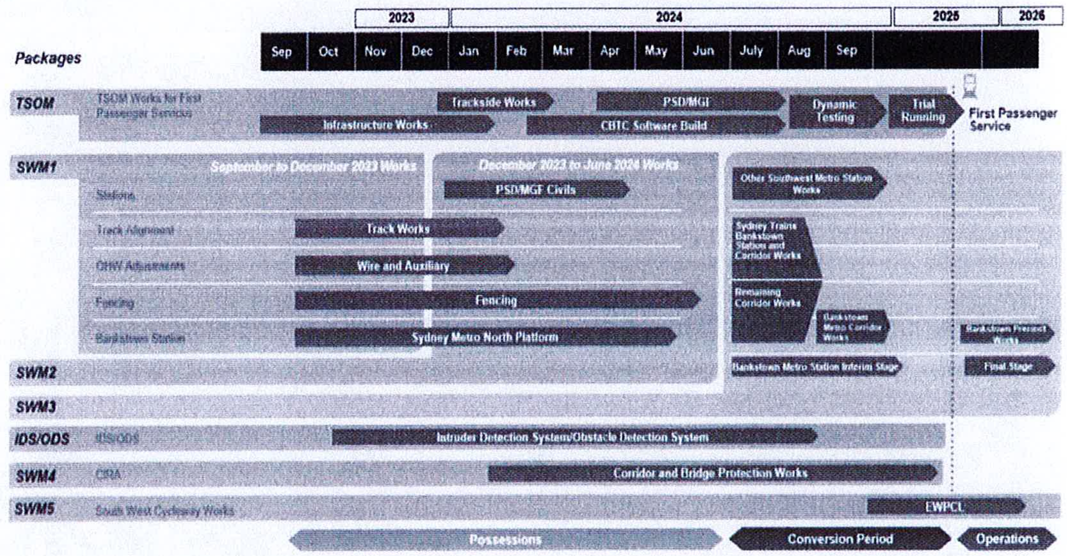


Figure 6 - Scope packaging and timing for Southwest conversion, at end-August 2023

Status, at end-August 2023

The City & Southwest project has continued its path of recovery during July and August 2023. The following critical milestones have been recently achieved:

- Further delivery progress of segregation fencing along the Southwest corridor;
- Agreement with Sydney Trains and TfNSW to construct a 4-car interim platform at Bankstown, which would allow Sydney Trains to operate a shuttle service between Bankstown and Lidcombe during the extended Southwest conversion in 2024/2025 and therefore take significant pressure off the temporary transport solution;
- Refinement and commencement of procurement for the Southwest conversion scope of works, following the Government's announcement in August 2023 (see Section 4 of this Report for further detail); and
- Release of tenders for the temporary transport solution for the extended Southwest conversion, with significant scope to adapt to known bus-sector challenges and latent community transport needs.

[Commercially sensitive] Since its Interim Report, the Review Panel notes that Southwest works have commenced procurement and currently remain within package-level budget envelopes, with no current indications of likely exceedances.

Readiness for the Temporary Transport Plan

The Review Panel has been provided a briefing by TfNSW on the positive progress of the Temporary Transport Plan since the Interim Report was finalised. There remain several key challenges associated with optimal, value-for-money solutions:

- Management of up to 60,000 passengers per day who are displaced because of the extended Southwest conversion;
- Prioritising journey times and reliability in the context of ongoing (albeit slightly easing) bus driver shortages;
- Limiting extra congestion on local roads;
- Engagement with the Culturally and Linguistically Diverse (CALD) communities along the affected alignment; and
- Providing the maximum number of accessible services in the context of bus shortages/re-purposing of bus vehicles.

At end-August 2023, the Review Panel noted the following status of the TTP's procurement:

- That some infrastructure enabling works were now underway at Sefton Junction and Lidcombe Stations, to support the planned 2024 timetable changes and ensure safe and reliable passenger and freight services can be maintained (delivered as part of the More Trains, More Services program);
- The Requests for Tender had been released on 4 August - following Government confirmation of proceeding with the Southwest conversion in late July - with a planned closing date of 18 September; and
- That 15 companies had attended the Industry Briefing event on 15 August, with at least three subsequently attending interactive tender workshops in late August.

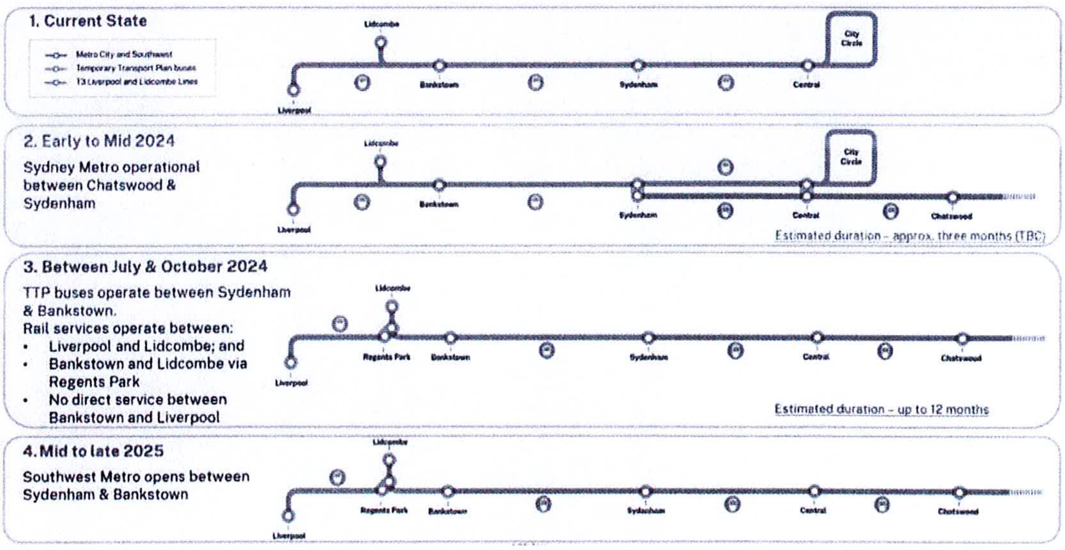


Figure 7 - Planned, phased changes to the T3 Bankstown line

The Review was provided with detailed briefings on the status of the planning for the Temporary Transport Plan (TTP 2024) and is comfortable with the proposed actions planned. The proposed TTP should, subject to overcoming the issues of bus service availability, provide appropriately enhanced service outcomes for the Southwest community affected by the rail works program, including through:

- A simple three route bus plan linking Sydenham and Bankstown with both express and all-stops services;
- A whole of network rail plan adjustment, with a link to the city for those west of Bankstown via a Bankstown-Lidcombe shuttle connection; and
- Applying improved contingency planning, unique bus identity, active network management to improve services access and much improved community communications on the services and options.

Safety Case as related to the Southwest conversion

The Review Panel have received several briefings from Sydney Metro and emergency services organisations regarding the safety case for at-grade Grade of Automation 4 (GOA4 – being fully driverless train operations).

The Review Panel note that Sydney Metro is collaboratively pursuing a host of appropriate and layered hazard controls, including:

- Provision of an obstacle detection system in high-risk areas (that is, around bridges and in the sections of the Bankstown corridor shared with the Australian Rail Track Corporation), with automated responses to Sydney Metro signalling and train control systems;
- Corridor-length fencing (between 2.4m to 3.0m in height) and CCTV monitoring;
- Provision of a corridor intrusion detection system in high-risk areas; and
- Errant vehicle mitigation on bridges, as well as ‘throw screens’ in pedestrian sections to avoid obstacles being thrown onto the tracks.

5. Sydney Metro West ('the Project')

Basis for Investment

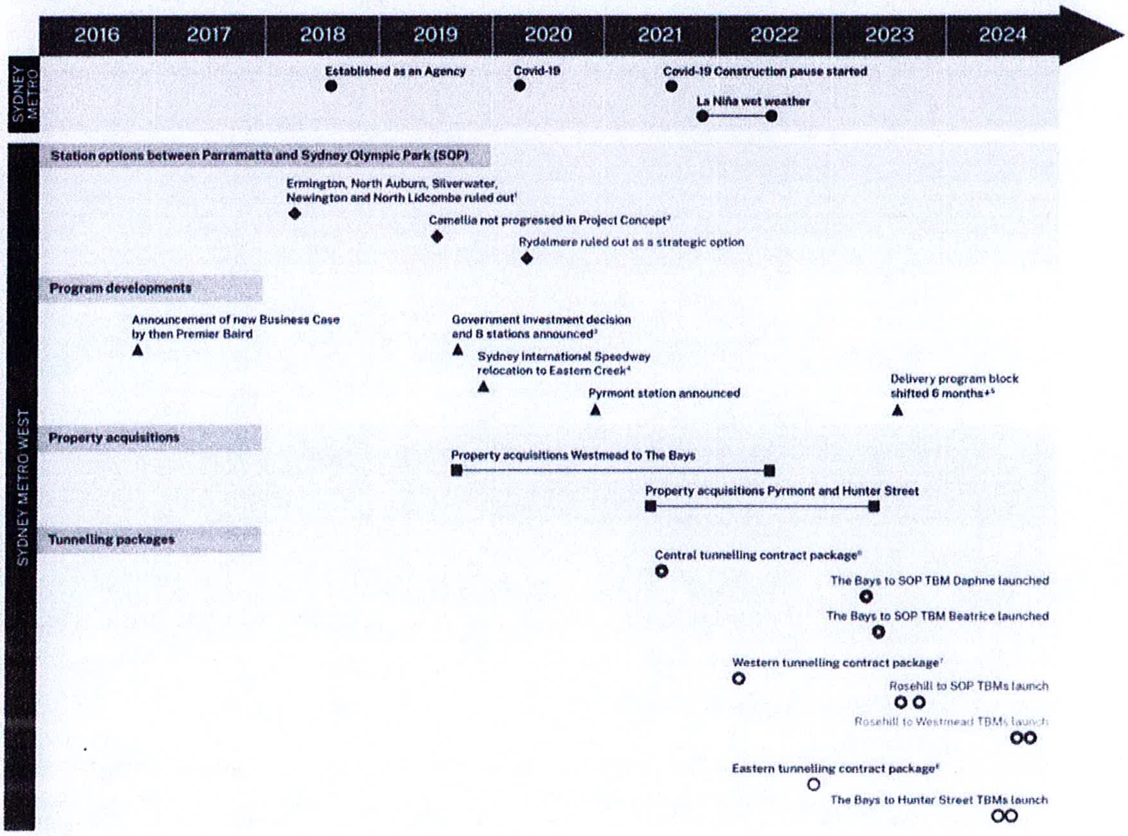
The development of the Final Business Case included a detailed assessment of a broad range of options, including alternative and deferral options, station options, technical, operational, delivery, funding, and finance options.

The basis for investment in 2016-2019 included:

- **Land use change:**
  - Demographics forecasts at the time estimated that over 780,000 people would be residing within a 30-minute travel proximity of the Sydney and Parramatta CBDs by 2036 - that there was further genuine capacity for additional capacity but that it was limited by inability to re-zone based on limited transport access; and
  - That the 77ha of total land at The Bays precinct was unlikely to have its potential fully realised without a mass transit intervention.
- **Transport integration and travel times:**
  - Demographic forecasts at the time estimated that over 50% of population growth, and over 70% of jobs growth, would occur in the Westmead to Sydney CBD corridor by 2036. On these projections, four major rail lines and eleven bus routes would therefore be over-capacity;
  - That 'around 20 minutes' between Parramatta and Sydney CBDs would provide a fast-enough alternative to express heavy rail services on the T1 Western line to encourage a mode shift (noting that over half of all trips along this corridor at the time were by private motor vehicles), and thereby improve longevity and resilience of the wider public transport network; and
  - That Sydney Olympic Park was currently limited in its potential as a major event/lifestyle precinct due to lack of effective public transport connections to residential areas.

Key project development decisions during this period were endorsed through an Interagency Steering Committee, with senior representation from central government (Department of Premier and Cabinet, and NSW Treasury), the Planning cluster (Greater Sydney Commission, and Department of Planning and Environment), and the Transport cluster (Transport for NSW (TfNSW) and Sydney Metro), to ensure an integrated approach to investment development. Infrastructure NSW was invited as an observer to the committee.

Investment timeline



[1] Rydalmere/Camellia, Burwood North/Five Dock/Kings Bay and Pyrmont shortlisted for further investigation
[2] Scoping Report for Westmead to The Bays and Sydney CBD
[3] Westmead, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock, The Bays and Sydney CBD confirmed, Hunter Street confirmed as Sydney CBD location in May 2021
[4] To support Sydney Metro West delivery
[5] Due to funding re-profiling to cashflow City & Southwest
[6] Awarded for SOP to The Bays
[7] Awarded for SOP to Westmead
[8] Awarded for The Bays to Sydney CBD

Figure 8 - Sydney Metro West, summary timeline of key investment milestones

- **In November 2016,** the then-NSW Government announced a Business Case for Sydney Metro West would be prepared, including a direct connection between the CBDs of Parramatta and Sydney, and stations serving Sydney Olympic Park and The Bays precinct.

- **In February 2017,** a Strategic Business Case for Sydney Metro West was completed, which concluded that a metro product south of the Parramatta River was preferred to meet Sydney Metro West's integrated land use and transport objectives.

- **In March 2018,** the NSW Government expanded the Sydney Metro West scope to include a station at Westmead and a station to provide for transfer with the T1 Northern Line at either North Strathfield or Concord West. It also announced that options for intermediate stations were being considered; and that options for future extensions to the west beyond Westmead and to the south-east beyond Zetland would be safeguarded.

- **In June 2018**, the NSW Government announced a $3 billion funding commitment to Sydney Metro West to support completion of project development and commencement of land acquisition, early works and tunnelling, subject to an approved Final Business Case.
- **In September 2018**, the Final Business Case was completed. A publicly available summary of the Final Business Case was prepared by Infrastructure NSW in July 2020. The viability of a potential strategic station at Pyrmont continued to be investigated.
- **In 2019**, statutory planning under the *Environmental Planning and Assessment Act 1979* commenced with the announcement of the Project Concept. Stations were confirmed at Westmead, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock, The Bays and Sydney CBD.
- **In March 2021**, Sydney Metro West received its first major planning approval for the Project Concept between Westmead and the Sydney CBD and station excavation and tunnelling between Westmead and The Bays. In September 2022, Sydney Metro West received its second major planning approval for station excavation and tunnelling between The Bays and Sydney CBD.
- **In July 2021**, the Central tunnelling contract package (Sydney Olympic Park to The Bays) was awarded.
- A third planning application was submitted to DPE in 2022 for rail infrastructure, stations, precincts, and operations between Westmead and the Sydney CBD and was approved in 2023.

Delivery status, at end-August 2023

The Review Panel note the following key achievements and overall progress, as at end-August 2023:

- Two Tunnel Boring Machines ("Daphne," and "Beatrice" - west-bound, launched from The Bays) have tunnelled over 2,000m collectively, with excavation of one cross-over cavern completed at Burwood North;
- A third TBM ("Betty," - east-bound, launched from Rosehill) was launched as planned on 28 August 2023, with a fourth TBM to commence in September 2023;
- Over 31,000 precast segments have been produced for the Tunnel Boring Machines (circa 1,400/week);
- Linewide and Stations designs materially progressed, with draft Specifications prepared ready for Tender release;
- Investigations and preliminary options analysis regarding potential enhancements; and
- Further refinements regarding the potential Delivery Models for remaining scopes of work.

As a result of funding re-profiling to support City & Southwest, the delivery schedule has been block-shifted at least 6-months later - in aggregate, this is likely to result in a shift to the realistic opening date into late 2031 (depending on consequential impacts of the block shift to tender release dates). Delays in finalisation of the Delivery Model (which is necessary to enable finalisation of Tender documentation, based on the specific commercial terms) are likely to generate further delays which cannot be absorbed within the existing time envelope. The 'by-2030' target opening date is a critical current time constraint for the Project – relaxation/removal of this time constraint may offer significant opportunity to mitigate risk, albeit with potential compounding escalation impacts of slower delivery.

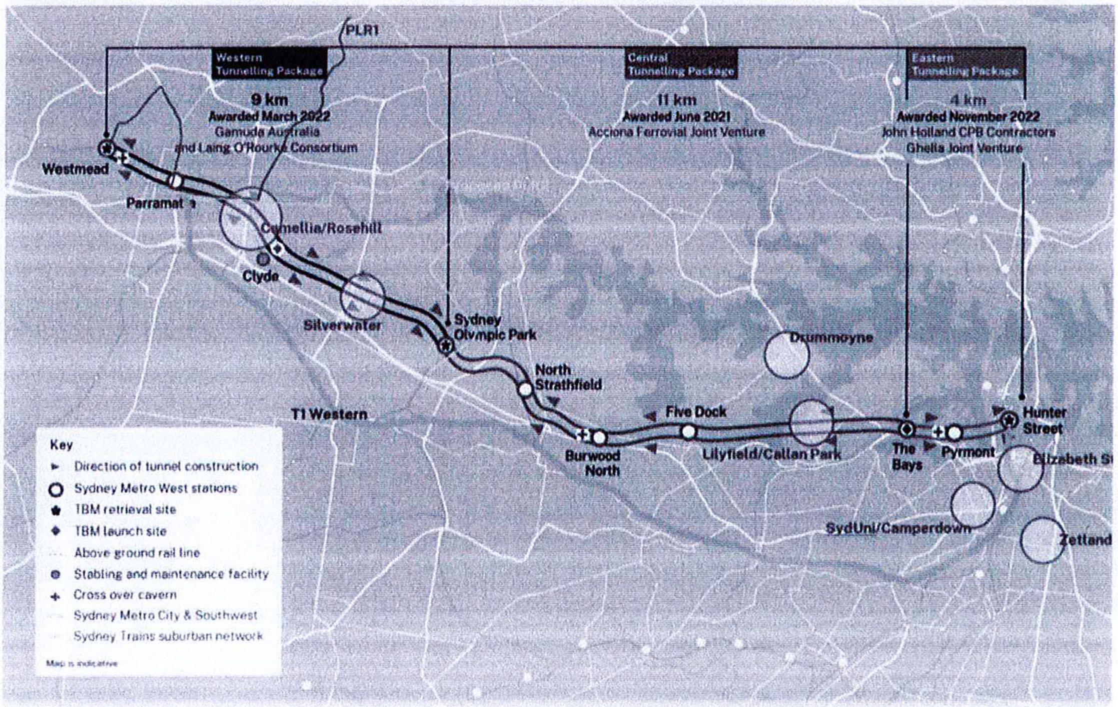


Figure 9 - Sydney Metro West, incl related public transport lines and strategic station location options

Enhancement options explored through the Independent Review

Throughout the course of the Independent Review, six key categories of enhancements/improvements were explored:

1. Further changes/enhancements to land use timings and intentions of existing precincts;

2. Further changes to the overall corridor, with enhanced surface transport (i.e., bus and vehicle) connections into existing precincts;

3. Exploring the addition of new stations, either in time for planned Day 1, and/or safeguarded for later installation;

4. Eastern and Western extensions; and

5. Various combinations of the above.

Additionally, Sydney Metro is continuing optimisation of existing design, scope, and delivery program of the Project through systematic review, to provide key performance/quality at the lowest reasonable cost to meet the existing agreed budget envelope. This is an iterative process throughout design known as 'Value Engineering.'

Value Engineering of base scope[2]

As the Sydney Metro West Concept-level Design was completed in early 2022, Sydney Metro commenced a targeted 'Value Engineering' process designed to address areas of emerging cost pressure from this initial design effort and identify any areas where Requirements and Specifications may have been interpreted/applied in a costly manner.

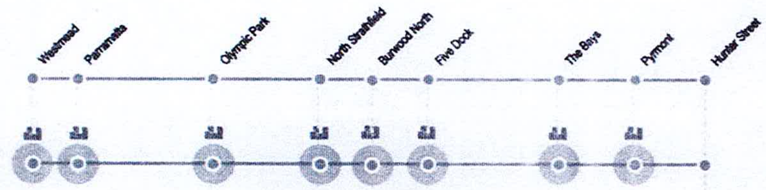
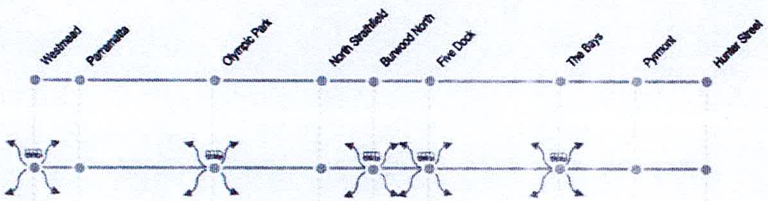
Across Stations packages, over $767m of savings have been achieved against the forecast cost position of August 2022. Unfortunately, this has coincided with overall financial updates reflective of new escalation indices (among other cost pressures) which appear to have mostly negated these savings. The Review Panel nevertheless note that there has been a concerted effort by the Sydney Metro West team to systematically review and rationalise scope and design, and challenge/re-validate Requirements and Specifications.

At end-August 2023, Sydney Metro West was continuing to review and interrogate over 150 additional Value Engineering opportunities across all remaining packages of work.

The Review Panel note (anecdotal) commentary from interviewed stakeholders suggesting that some common Specifications between TfNSW and Sydney Metro, including for Over Head Wiring, are sufficiently bespoke that only "a single factory" can currently provide the equipment. This was not able to be validated during the Review, although raises sufficient concern that a strategic supply chain review of selected key materials/equipment should be considered, as a precaution.

Figure 10 (below) sets out the areas and long-list options considered by the Review, to seek to maximise the value of the public investment being made in Sydney Metro West.

[2] Note, 'Base Scope' parameters here have not yet been adjusted for a block-shifted delivery/around 2031 opening. The schedule/opening dates will need to be reviewed and validated as part of the consolidated report-back in Q4-2023.

1. Increase housing supply around stations		1A: Maximisation of social and economic value within existing sites (including revenues optimisation).
2. Augment transport connections to stations		Redesign and additional investment in transport connections to the Project's nine stations. Options may deliver dedicated infrastructure and services to link to stations and increase patronage, mode share and land use on response: • 2A: Surface transport improvement - enhanced base bus services. • 2B: Surface transport improvement - bus and road infrastructure. • 2C: New transport project or product.
3. Additional stations along current alignment		Providing new additional stations on the current Project alignment, minimising realignment, additional travel time and impact to existing Project progress and approvals. • 3.1A: Callan Park/Lilyfield. • 3.1B: Kings Bay. • 3.1C: Concord South. • 3.1D: Silverwater (multiple). • 3.1E: Rosehill(multiple). • 3.1F: East Parramatta.
4. Additional stations with major alignment changes		Consideration of stations in new strategic locations that require a realignment and change to the project alignment and delivery strategy. Options may service areas often ruling out one or multiple existing Project stations. • 4.2A: Drummoyne • 4.2B: Rydalmere • 4.2C: Camellia • 4.2D: Russel Lea/Lyons Rd • 4.2E: Rozelle • 4.2F: Majors Bay • 4.2G: Melrose Park • 4.2H: Ermington

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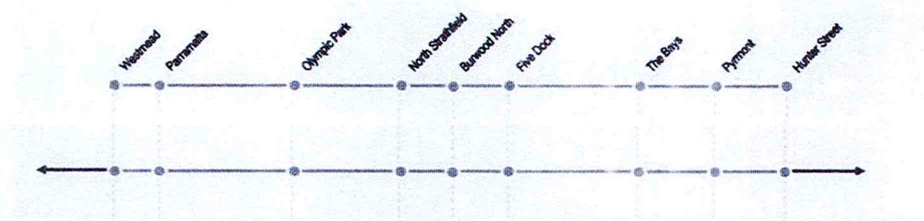
<td>5. Project extensions</td>
<td>
</td>
<td>Extending the Project's alignment, consistent with the Future Transport Strategy, extending beyond the current terminus and providing additional station options.
• 5A: Western extension.
• 5B: Eastern (Zetland) extension.</td>
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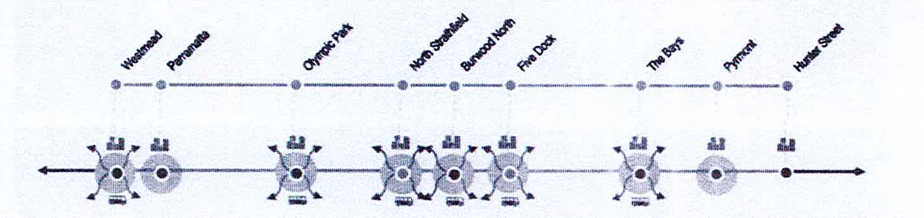
<td>6. Combined opportunities</td>
<td>
</td>
<td>The opportunities detailed may deliver cumulative benefits through combination. Multiple opportunities may be recommended together.</td>
</tr>
</table>

Figure 10 - Enhancement options visualisation

The Review considered the scope for halting the current project and re-aligning the route and design to potentially incorporate alternate routes. Any re-alignment of the tunnels at this stage to enable new northern/southern stations (to serve alternative catchments and precincts) would carry exceptionally high cost, delays, risk, and lead to significant community uncertainty:

- $5.75b of tunnelling work is already contracted across three tunnelling packages and underway in key sections, and over $4b of property acquisitions has been completed for some 400 properties with sites under construction;
- A re-design process including an incremental business case, statutory planning approvals, property acquisition and planning approvals would take at least 3 years at significant costs; and
- A re-design process would materially result in significant contract cancellation/variation costs, property costs and escalation costs to the project.

The Review Panel's assessment is that the better course of action would be to maximise the investment outcomes from the existing approved route and alignment.

Base scope with changes to land use intentions/timing

The broader strategic land use planning policy and accountabilities for increasing housing densities in the corridor fall within the remit of the DPE, and Local Governments. Since the announcement of Sydney Metro West, a range of strategic land use work has been undertaken by NSW and local governments to optimise development, and Sydney Metro has actively participated in these planning processes. Precincts are at varying levels of planning maturity, ranging from endorsed planning controls to the early stages of master planning to understand development capacity.

More recently, DPE's Transport Oriented Development (TOD) Program has reviewed strategic alignment and dwelling potential at all electrified Sydney Trains, Sydney Metro, and InterCity stations across the six-cities region. This work has identified preliminary dwelling capacity estimates for all Sydney Metro West station precincts based on a standard set of assumptions of residential uplift (*if* these sites were included in a future TOD SEPP scheme - Sydney Metro West precincts are not currently included on the initial priority list):

- 5:1 within a 400m catchment; and
- 2:1 within a 400m to 800m catchment.

DPE preliminary estimate	Westmead	Parramatta	SOP	North Strathfield	Burwood Nth	Five Dock	The Bays	Pyrmont	Hunter Street
Potential dwelling uplift (up to @5:1) *	+8,500	+12,000 to 14,000	+10,000 to 13,000	+13,000	+12,500	+15,000	+3,500	+4,000	Nil

Table 5 - Potential additional dwelling uplift under changed zoning

In short, this analysis suggests a total dwelling uplift potential estimated at ~78,500-83,500 (being a net additional of 25,000-30,000 dwellings over existing planning strategies), based on generic uplift assumptions (FSR 5:1 to 400m, 2:1 @ 400-800m) for all station locations – noting that these numbers are only preliminary and require place based environmental assessment by DPE and local governments.

The Employment Lands Development Monitor (ELDM – produced by DPE) indicates that across the 'Six Cities' region of NSW there is circa 45,000ha of zoned employment land as of January 2022 (of which, 20,000ha are undeveloped). Within the boundaries of Greater Sydney, there was circa 18,000ha of zoned employment land with almost 7,000ha undeveloped.

We point out the above, in the context of emphasising the need to maximise use of existing station precincts as a first resort, rather than necessarily seeking to add additional precincts which will also be under-developed.

Accordingly, we believe that the existing precincts should be enlarged (in terms of the master-planning boundaries of integrated land use change centred on a Metro station), especially where existing (cross-Agency) Government landholdings can be consolidated and re-zoned quickly.

The Bays provides the most immediate opportunity for better leadership and co-ordination of land use development to achieve the Governments renewal and activated lands objectives. This will require completing planning work by NSW Ports and TfNSW, consolidation of State landholdings and a co-ordinated planning and land release approach with the clear aim of increasing housing uplift and density beyond the immediate Sydney Metro land boundaries. We understand that the broader Bays masterplan is not currently fully funded.

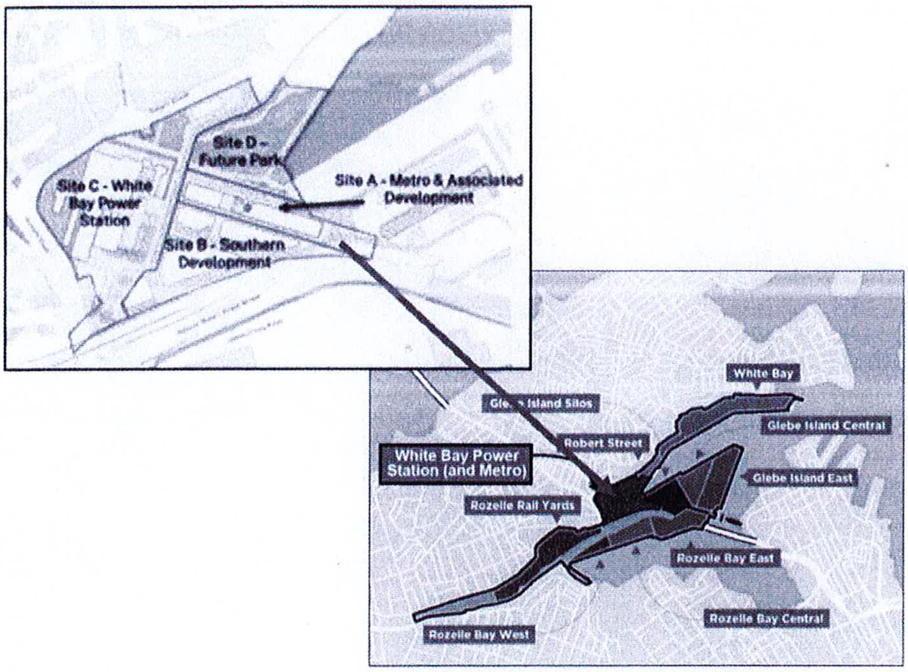


Figure 11 - The Bays West precinct (10 sub-precincts over 77ha)

Base scope with enhanced surface transport connections

Enhanced public transport connections to Sydney Metro West stations would support both an integrated public transport network and extend the housing uplift potential around stations and adjacent public transport corridors. There is a significant and currently unfunded opportunity to enhance bus-based public transport connections to stations. This opportunity is most prevalent in three major zones:

- **Canada Bay catchment.** Augmenting bus service and reliability for Canada Bay peninsula communities to Five Dock, Burwood North, and North Strathfield metro stations - enhanced services and uplift opportunities along six bus corridors.
- **Olympic riverside catchment.** New bus service connections to Dundas Valley and Parramatta Riverside communities to Olympic Park Station (dependent on the delivery of the new Gateway Bridge) and priming the catchment for Parramatta Light Rail Stage 2 - enhanced services and housing uplift opportunities along two bus corridors.
- **Cumberland catchment.** New bus service connections by connecting the Liverpool to Parramatta Transitway to Westmead Station - priming the catchment and building a future extension corridor by bringing Merrylands and Greystanes closer to rail - enhanced services along two bus corridors.

This opportunity may be in the indicative/order-of-magnitude estimate of $200m for capital infrastructure around 2027, and circa $25m operating expenses from opening in 2030.

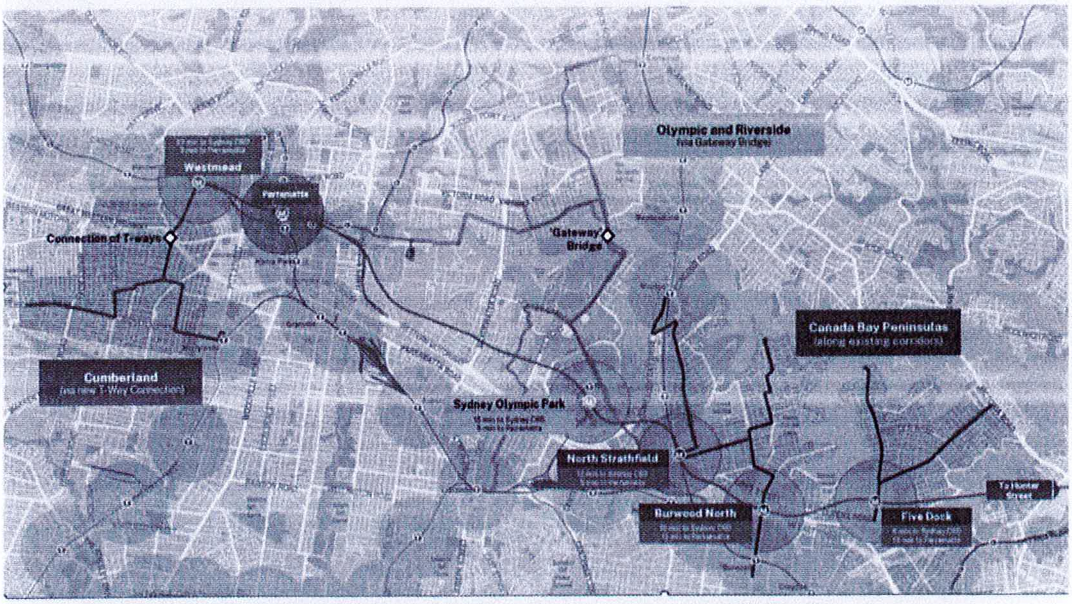


Figure 12 - Potential Station catchment expansions unlocked by new bus network connections

2. **That Transport for NSW** should provide advice to the Minister for Transport regarding the status of the Parramatta Road Corridor Urban Transformation Strategy as well as any more current opportunities to improve integrated Bus and Active Transport interventions and road access connections in the Homebush to Parramatta region.

Base scope with additional stations

Based on a series of workshops with the Sydney Metro team, and as informed by discussions with the Deputy Secretary/Chief Executive Working Group on this matter, the Review Panel believes there are credible (albeit complex and costly) opportunities to add stations at only two viable, value-adding locations on the current alignment which is already well under construction – at Silverwater (Silverwater Central or Silverwater West) and Rosehill (Rosehill Forecourt and Rosehill Crossover).

Both station locations and the surrounding catchments have significant limitations in providing an immediate or even medium-term uplift opportunity for additional housing or employment precincts, with significant trade-offs for each location. Rosehill would require a much larger planning and rezoning process to be considered for the whole Rosehill/Camellia precinct and would be the most difficult location site to safeguard/build without impacting the current alignment and work program, but Silverwater is likely to be much less desirable for housing developers and investors. Silverwater has substantial challenges with contamination and flooding (Duck River flooding impacts affect circa 40% of the proposed station catchment zone).

Rosehill also has substantial challenges with contamination. Significant construction complexities would likely be encountered to insert a station at Rosehill within the land constraints and within the parameters of the Western Tunnelling Package current design/delivery.

Notwithstanding, stations in this location could also add value to the Project and increase benefits.

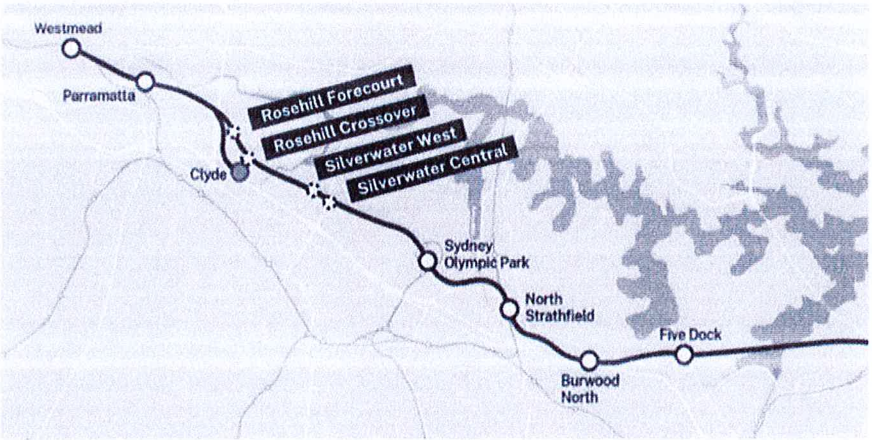


Figure 13 - Most credible additional station location options

In identifying these potential station options, the Review Panel have particularly focused on the following considerations:

- The impact on the current Sydney Metro West approved budget and timetable;
- Opening of a new rail catchment to under-serviced communities;
- Supporting additional housing supply, with compatible land use uplift in in the surrounding precinct; and

- Not too significantly detracting from the planned journey time between Greater Parramatta and Sydney CBD to ensure the Project continues to provide T1 Western Line relief and resilience to Western Sydney.

Within this assessment, there are three general options which were developed by Sydney Metro for our consideration:

- **Do minimum** would deliver essential works only so as to not preclude the delivery of a potential future station. Under this scenario the works would be contained to changes to the tunnel alignment with substratum acquisition as required. This scenario minimises additional costs to the existing Project but increases costs for construction of the future additional station because of extensive disruptions including the requirement for an extended shutdown to the operational service.

- **Safeguard** would involve delivering required scope to allow construction of a future station with minimal disruption to the operating railway. Works would include changes to the tunnel alignment, similar to the 'do minimum' scenario, plus the creation of a station shell with sufficient infrastructure to minimise disruptions to operational service when fitting out the future station and connecting it into the rail network. A safeguarding scenario would be expected to include the station excavation and works at the platform interface.

    - [Commercially sensitive] We note that **safeguarding** for options at Silverwater is in the indicative/order-of-magnitude cost estimate of $575m-$750m ($2023), and that **safeguarding** for options at Rosehill is in the indicative/order-of-magnitude estimate of $1.1b-$1.4b ($2023) - likely across FY2025-2028.

    - Some potentially minor additional costs (around $10m) may need to be incurred immediately to adjust in-delivery TBM activities, to refine the current tunnel depth/curvature, while further feasibility studies are carried out over the next 6-9 months;

    - Statutory planning approvals (both for stratum, and sub-stratum) are key constraints on progressing safeguarding within the current delivery program of the Project.

- **Implement** would deliver the additional station as part of the Project's base scope. This means that the station would be constructed, fitted out, and included in the testing and commissioning of the line. This scenario allows for the benefits of the station to be realised earlier with no customer disruptions, but significantly increases the upfront costs.

    - [Commercially sensitive] We note that **implementing** options at Silverwater is in the indicative/order-of-magnitude cost estimate of $950m-$1.3b ($2023), and that **implementing** options at Rosehill is in the indicative/order-of-magnitude estimate of $1.5-$2.2b ($2023) - likely across FY2025-2030.

Option Description	Range Low ($m)	Range High ($m)	Notes/Comments
Option 1a - Silverwater Central Safeguarding	$ 575	$ 725	Mined Cavern Station 39m depth - 15,963 GFAm2 Property Acquisition Cost - Low Contamination Allowance - Low Package delay costs - Nil
Option 1a - Silverwater Central Full Station Build Day 1	$ 1,000	$ 1,300	
Option 1b - Silverwater West Safeguarding	$ 600	$ 750	Cut & Cover Tanked Station - 15,963 GFAm2 Property Acquisition Cost - High Contamination Allowance - Medium Package delay costs - Nil
Option 1b - Silverwater West Full Station Build Day 1	$ 950	$ 1,250	
Option 2a - Rosehill Crossover Safeguarding	$ 775	$ 925	Cut & Cover Tanked Station - 27,003 GFAm2 Property Acquisition Cost - Nil Contamination Allowance - High Line-wide Package Delay Costs - (12 Months @ $20m)
Option 2a - Rosehill Crossover Safeguarding - Line-wide Package Delay Costs	$ 325	$ 425	
Option 2a Safeguarding - Total	$ 1,100	$ 1,350	
Option 2a - Rosehill Crossover Full Station Build Day 1	$ 1,475	$ 1,775	
Option 2a - Rosehill Crossover Full Station Build Day 1 - Line-wide Package Delay Costs	$ 325	$ 425	
Option 2a Full Station Build Day 1 - Total	$ 1,800	$ 2,200	
Option 2b - Rosehill Forecourt Safeguarding	$ 600	$ 750	Cut & Cover Tanked Station - 15,963 GFAm2 Property Acquisition Cost - High Contamination allowance - Medium Tunnelling Package Delay Costs - (12 Months @ $30m)
Option 2b - Rosehill Forecourt Safeguarding - Tunnelling Package Delay Costs	$ 500	$ 650	
Option 2b Safeguarding - Total	$ 1,100	$ 1,400	
Option 2b - Rosehill Forecourt Full Station Build Day 1	$ 1,000	$ 1,250	
Option 2b - Rosehill Forecourt Full Station Build Day 1 - Tunnelling Package Delay Costs	$ 500	$ 650	
Option 2b Full Station Build Day 1 - Total	$ 1,500	$ 1,900	

General Assumptions/Notes
High Level Order of Magnitude Class 5 Estimate, based on benchmarks from SM-West and presented in CB 2023 dollars.
Station safeguarding is assumed feasible without delaying opening of the line.
Assumed that commissioning an additional station prior to opening has nil impact on the overall delivery program
Additional station design costs - not separately itemised as advised minimal additional cost (i.e. less than $15m)
Allowances included for contamination & flood mitigation are based on high-level assumptions provided
Estimate is based on SMW contract rates where available and also current project estimate rates.

Figure 14 – Order-of-Magnitude cost impact assessment of additional stations (at 6 September 2023)

We also note that the Silverwater Precinct (151.1ha), Camellia/Rosehill Precinct (241.1ha) and Rydalmere Precinct (104.8ha) collectively account for almost 70% of employment lands in the City of Parramatta LGA – they form an important clustering of centrally located employment. With respect to potential additional stations in these general/light industrial precincts, we note that there is already a proposed reduction in employment lands as a result of State-led rezoning in Camellia/Rosehill/Granville, and there is a need to retain some industrial lands – the closest alternative sites are likely in Blacktown/Penrith/Liverpool LGAs (some 20-30km away), which would carry significant direct costs to businesses to move and operate further afield, and to communities who would face more extended local distribution networks.

Based on information currently available, the Review Panel does not currently believe additional stations at Silverwater or Rosehill are likely to represent best value-for-money – although this view is based on rapid, summary-level assessments of cost and constructability which need further refinement.

[Commercially sensitive] The Rosehill location, based on the current landholdings and planning intentions of the Australian Turf Club (ATC), has limited scope for significant increases in new housing above the Place Strategy already developed for Rosehill/Camellia (with its 10,000 dwellings). Remaining housing sites have largely been optimised already without a Metro station. Any consideration of Rosehill would therefore need to consider much larger-scale changes to land use, including potential acquisition and transformation of the ATC site.

We consider the intensification of housing and land development at the existing 9-station locations the most overall appropriate approach, based on the information available to date to the Review. The enhancement of improved land transport support (via light rail and/or bus) connections through the Rosehill/Camelia and Silverwater areas connecting to the Project would be the most cost-effective and transformative way to drive development in these areas based on the planning, zoning and investment attractiveness advice information presently available.

That said, the key is now to ensure that the current works program does not preclude future options for additional stations, should the investment rationale and necessity change in the future. There needs to be a more detailed assessment of the two potentially available station location options on the current project alignment. Further analysis of the design issues, and the investment case for safeguarding the locations for additional stations on the alignment at Rosehill and Silverwater, and a strategy for dealing with existing landowners in the areas needs to be developed prior to any further decisions being taken now.

Acceleration of extensions

Section 9 to this Report deals in more detail with emerging opportunities for wider network extensions.

3. Informed by extensive stakeholder support, **that the NSW Government should commit to** retaining the current 9-station alignment of Sydney Metro West (at a minimum), and:

    a. Target an opening by 2032 (an immediate priority should be preparing a sensible re-baselining of the delivery program according to recently re-profiled funding, timing requirements to finalise delivery models, and optimal risk mitigation of any inadvertent compression of Linewide works); and

    b. Proceed to tender-phase no later than Q2-2024, in order to preserve market participation and delivery momentum.

4. In respect of viable enhancements to the existing Sydney Metro West project, **that Sydney Metro (supported as appropriate by NSW Treasury, the Department of Planning and Environment, and TfNSW)** should:

    a. Prepare a whole-of-precinct land-use analysis for the existing 9-station precincts, incorporating assessments of relevant Government and other major landholdings, current zonings and constraints, a preferred plan for how these (enlarged) precincts could best support a significant increase in housing supply to meet Sydney's medium- and longer-term housing targets, and a succinct end-state vision enabling all Government, industry, and community stakeholders to align investment behind a common master-planning strategy. ;

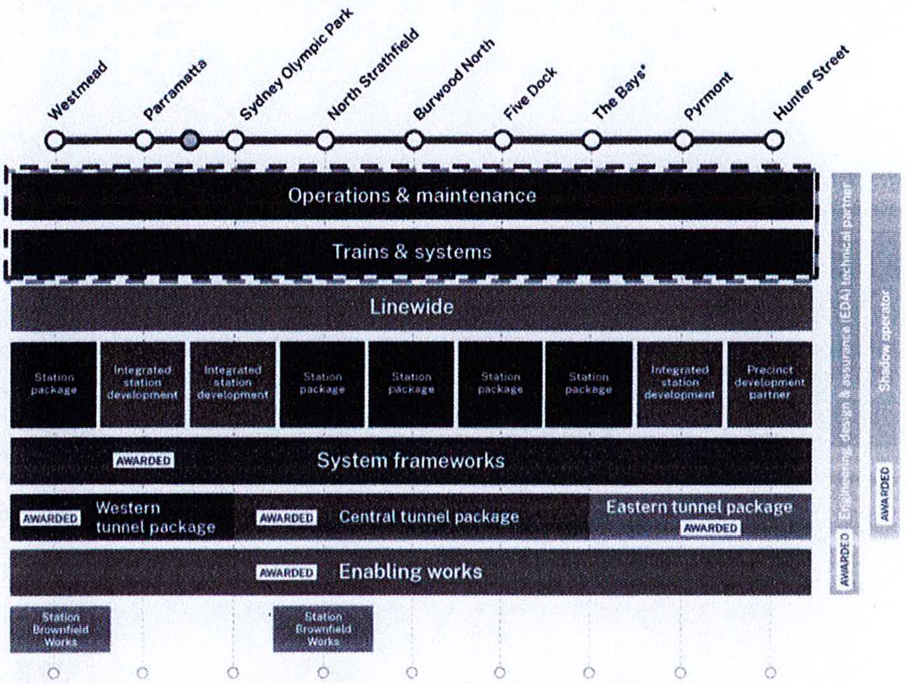
    b. Prepare a business case for improved bus connections (including necessary bus service infrastructure) to broaden the catchments of the existing 9-station precincts, especially in order to drive improved investment attractiveness for new housing and public transport patronage in the wider areas adjacent to the Metro alignment; and

    c. Review the current design and construction plans to ensure Rosehill and Silverwater strategic station option locations are *not precluded* from safeguarding in the immediate term, while rapid business cases are prepared for the safeguarding of these sites (noting the significant complexities of each of these locations). Preliminary advice should be provided on a potential landowner and community engagement approach.

5. **That Sydney Metro** should provide the NSW Government with a consolidated property and placemaking strategy covering *all* existing lines, including any options to further advance the NSW Government's priorities regarding housing supply, and the likely time horizons of developments'

completions. This advice should consider benefits of Sydney Metro potentially retaining longer-term property interests as well as funding options for these enhanced precinct works (including via return of revenues to Sydney Metro, and/or reinvestment of revenues into housing supply).

Delivery model options for the remaining scope of works



Key

- Station package West* (potential for The Bays to be tendered as a separate station or integrated station development)
- Clyde stabling and maintenance facility and Rosehill services facility

Figure 15 - Sydney Metro West scope packaging approach

Context, and lessons learned

The Review Panel acknowledge and appreciate the significant delivery risk which exists due to technical and commercial interfaces between packages, particularly in relation to how and where scope gaps are managed; there have been multiple challenges in this regard realised in Sydney Metro City & Southwest, resulting in contractual distress, disputes, and global claims. In reviewing the procurement options still available for the remaining scope of works, the Review Panel considered Sydney Metro's experience in delivery, opportunities to minimise the number of procurements/packages, minimising/simplifying interfaces, optimising schedule, and contractual abilities to collaborate, and effective management of risk (through both minimisation and risk transfer).

Based on lessons learned from both City & Southwest, and Western Sydney Airport, the following key matters/challenges are considered paramount in determining the most holistically appropriate, value-for-money delivery strategy:

- The nature of megaprojects is having multiple packages of works (due to constructor financial and logistical capacity, and 'technical deliverability') and introduces an inherent risk around efficient integration between these different packages. Wherever possible, a single point of empowered accountability should drive positive integration outcomes (whether that be the Client Agency, or a Special Purpose Vehicle);
    - The Review Panel note, however, that Sydney Metro's experience with Northwest and City & Southwest mean that - corporately - it has some of the greatest experience of any global organisation with respect to interface management, and 'smarter' ways to optimise follow-on works. Sydney Metro, and the NSW Government more broadly, should not underestimate the in-house skills and maturity developed over the past five years;
- As design across the packages progresses and day-to-day delivery challenges emerge, scope evolves and may need to be re-allocated. Contracting approaches need to be flexible enough to facilitate this adjustment on a 'best-for-Project' basis;
- Shared access to highly constrained work sites is a constant issue and needs to be dynamically and collaboratively managed;
- As a corollary to shared access, overall program dates (especially between interfacing contractors) are subject to constant movement, and contracting approaches need to be flexible enough to both facilitate and encourage this schedule optimisation; and
- Extensive market feedback indicates a clear push for more collaborative contracting models which enable more efficient sharing of opportunities and risks.

Due to the commercially complex nature of the several delivery models under consideration, the Review Panel engaged Mr Peter Hicks as an independent advisor, to undertake a more detailed technical analysis of underlying assumptions and financial models relevant to each proposal. His findings have been considered and reflected where appropriate in the below summaries.

Delivery models under consideration

[Commercially sensitive] Regarding potential delivery models available for the remaining scope of works, the Review Panel has considered the following summary points:

- **The lump-sum 'disaggregated' model.** This model is akin to the City & Southwest delivery model approach, albeit incorporating lessons learned regarding more efficient sequencing of procurement and design activities. This model is the more 'traditional' delivery approach, which has been globally recognised as being problematic at mega-scale due to the extensive number of contractual and technical interfaces between packages, requiring Government to act as 'the Integrator' with all associated risk and commercial tensions.
    - It has been suggested to the Review Panel by NSW Treasury that more consideration needs to be given to testing collaboration through the tender process; it is the Review Panel's assumption that this would therefore require some level of 'preferred contractor' status be awarded to some (but not all) parties and that Early Contractor Involvement would be via that exclusive arrangement.

With this assumption, the Review Panel express concern that this approach may remove/dilute competitive tension and may perversely impact pricing/value-for-money outcomes for Government. The response by NSW Treasury was that if these unintended consequences did occur, NSW Government would have the right to go back to a second/third party to recommence negotiations.

- While not disagreeing that it is possible to go back and recommence negotiations with an alternate, the Review Panel believe that - in practice - because of the time/cost/complexity of these discussions, and ongoing public pressure to commence construction, there are almost no examples of where Governments across the country have actually exercised this right, and many examples where Government has been 'wedged' into difficult commercial arrangements driven by a lack of competitive tension.

- **A collaboration regime-based disaggregated model**. A collaboration regime-based model shares similarities with both the disaggregated model and the Partnership model: while the Client Agency remains accountable for managing the interfaces between the several major packages, it has an overarching and formalised collaboration regime which establishes multi-contractor governance for working together with greater transparency, can allow for controlled transfer of scope between parties, and can potentially incentivise contractors where they self-solve interface challenges. This model would likely address shared access requirements (including through 'de-weaponising' time by using an alternative regime to the traditional heavy Liquidated Damages approach, which would better reflect current market feedback) but would require Sydney Metro to remain the single overall integrator.

- **The Public-Private Partnership (PPP) model**. Preliminary PPP analysis has been undertaken, consistent with NSW Treasury guidelines, although it is now slightly dated. Of critical note, the combined scope of remaining works is circa $10b, which has been acknowledged by Sydney Metro, NSW Treasury, and market representatives as being too large a value for debt/equity financing - the "likely absolute upper limit" is considered circa $6-7b (as supported by Review Panel discussions with private financing firms). At this quantum, it is possible to design a PPP technically and commercially for the 'moving railway' components (that is, Linewide, Trains, Systems, Operations, and Maintenance elements), however:

    - Packaging only these elements does not fully relieve Government of significant integrator risk, as nine major stations would be procured, designed, and delivered separately, and need interface management with a very large PPP counterparty; PPP generally work best when the scope is all inclusive. The number and complexity of interfaces would impact the ability to transfer risk/drive collaborative risk allocations. Additionally, core control systems relevant to the 'moving railway' are in each of the stations packages - these cannot be removed from the stations without introducing new design & construction risk, but equally leaving them out of a partial PPP would undoubtedly exacerbate interface complexity with a (rigid) PPP counterparty.

    - At the scale above $6-7b, it is far from certain there would be sufficient debt/equity financiers available for such a contract. Individual contractor balance sheets are generally constrained to $1.5b<$3b at most, where joint and several liability is required. There is a material risk that such an approach would imperil delivery timeframes without certainty of true market competition.

- The Sydney Metro Western Sydney Airport PPP, with its early contractor involvement approach piloted by the Construction Leadership Group, has so-far proven extremely effective in value-for-money procurement and delivery. A key aspect of its success has been the holistic 'wrap' which keeps the moving railway together with all the Stations, to minimise the volume of interfaces with different contractors. It would initially seem logical to follow a similar model for Sydney Metro West, however, the size of the package of the 'moving railway' and the number and value of stations means that there are very few (if any) financier balance sheets with the capacity to carry that risk.

- Adopting a PPP for Sydney Metro West therefore would require breaking out some of the works to reduce its overall size and value. Most logically, this would mean delivering some of the stations within the PPP package, and the remainder via separate procurements. Whilst it may be possible to identify four/five key stations via assessment of scope/difficulty/complexity/size, breaking out some stations for separate delivery would introduce additional and avoidable further integration risk which would be an additional challenge to manage. It would also likely result in a PPP being priced by the market in a way that dilutes the time/cost/quality/efficiency/risk advantages of a PPP.

- **The Alliance model.** Alliance models are much more widely used in Victoria and are major elements of the delivery approach for the Suburban Rail Loop project. Alliancing has often been used as an alternative to more traditional procurement approaches and is designed to maximise collaboration and 'best for Project' outcomes through financially incentivising behaviours. Alliancing, when used on appropriate projects and when designed and managed well, can reduce adversarial behaviours often seen during delivery. For alliances to achieve desired outcomes, the integrated team should be established early, and adequate time must be invested in establishing the alliance framework and - most importantly - the financial incentive model.

  - The Review Panel highlights the following issues in relation to the viability of an alliance for Sydney Metro West:

    - Alliance contracts are often used for projects which are hard to scope, and where end-solutions are not well defined. Successful alliances require the establishment of the integrated team early in the project lifecycle, to maximise the time dedicated to developing the financial incentive model. In the case of the Project, design and detailed planning is already well advanced and significant portions of the tunnelling works are already in delivery. An alliance established at this point in the lifecycle is unlikely to fully realise the benefits of the alliance contracting approach;

    - Alliance contracts are expensive to establish and operate. A key to alliance contracting success is establishing trust between the parties, underpinned by open book principles. While this does give the project Owner the rights to audit Non-Owner Parties (NOP) financials, management of this with multiple NOP (as would be the case for this Project) and across a complex, multi-year/multi-billion-dollar investment would likely prove extremely expensive. This would significantly increase indirect costs, possibly to the point of indirect costs being near to, or even exceeding, direct costs;

  - In alliance contracting, the Project Owner reimburses direct costs incurred by each NOP, including if costs exceed the agreed target amount. In addition, each NOP would normally receive a fee as an agreed lump sum amount. At the current Project stage, and given no alliance discussions have occurred to date, the "cost plus" fee approach that an alliance would adopt would render cost management extremely difficult. Equally, alliance negotiations at this point in the lifecycle would very likely see the industry respond by pricing risk to such a level that it would render the overall Project unaffordable; and

  - In principle, under the 'pain-share/gain-share' arrangement associated with alliances, parties agree to share any cost underrun and bear the cost of overruns. In practice, the pain-share/gain-share' is rarely equally shared, with Government Owners often bearing most of the pain-share risk and with pain-share risk often skewed toward the NOP. For this Project, it is unlikely that an alliance would support pricing of risk that would fall within the current funding envelope.

- **Partnership model.** Sydney Metro's proposed Partnership procurement and delivery approach focuses on the objective of driving a tangible culture of collaboration between contractors (as well as directly with Sydney Metro), and joint decision-making on a 'best for Project' basis. Success for the Project requires behaviours of all parties to work actively and collaboratively together, to support timely delivery, self-management of minor interface/integration issues, and (in doing so) achieve overall value-for-money outcomes.

  - The Partnership model proposes a private Special Purpose Vehicle (SPV) governed by a Project Deed with Government, weighted more towards the 'carrot' (via an equity/financial interest regime with incentivised distribution to the parties on achieving outcomes) and away from the 'stick' approach of Liquidated Damages.

  - NSW Treasury has highlighted potential concerns that the novelty of the proposed approach means it cannot neatly and easily demonstrate value-for-money as required under PPP guidelines. Secondly, that the SPV would require significant Government subsidy, is at arm's length to General Government Sector financial oversight, that contractors may actively 'game' the Risk & Opportunity Fund, and so - regardless of the Deed and financial arrangements - financial risk will always sit with Government. Thirdly, that the interest of each contractor in the Partnership is disproportionate to its interest in any potential claim under a subcontract. Put another way, if a contractor has a claim under a subcontract, the exposure of its interest as a partner in the Partnership to pay the claim is a mere fraction of the claim value (<3%). Finally, that there is an inherent perceived conflict of interest in Sydney Metro acting as Principal (under the Partnership Deed) while also being a financial investor/voting member of the Partnership. The Review Panel has not had an opportunity to test these concerns with Sydney Metro.

  - While the Review Panel's preferred position is that Government should not ordinarily use a novel procurement model on a Project the size and complexity of Sydney Metro West, none of the more traditional approaches lend themselves to as effectively to dealing with the key integration and cost pressure risks under a predominantly aggregated approach.

Overall assessment

Given the accelerated completion timeframe for this Review, and the focus of the Final Report on Sydney Metro West alignment and enhancement options, the Review Panel has not had sufficient bandwidth to consider the full range of procurement models available at an appropriate depth of detail to make a well-informed and definitive recommendation.

We have observed that both the NSW Treasury and Infrastructure NSW raised concerns about the Sydney Metro-proposed Partnership, and that both Agencies have advised that at this point in time, they would not support the model as proposed.

We have further observed between Sydney Metro, NSW Treasury, and Infrastructure NSW that there does not appear to be consistent agreement on either the core principles against which alternate models should be compared (such as levels of collaboration, or degrees of risk transfer), or on 'threshold issues' which should be considered non-negotiable.

[Commercially sensitive] After discussions with Sydney Metro, Infrastructure NSW, NSW Treasury, and supported by independent advice on the novel procurement approach of the Partnership, the Review Panel cannot, at this time, support progressing with the proposed Partnership model - the NSW Government needs to first receive aligned advice on necessary risk and collaboration parameters as agreed between its key Agencies (effectively, comparative evaluation criteria based on an agreed problem statement), and then review comparative analyses against those parameters. If the Project proceeding is supported by the NSW Government, then a delivery model <u>must</u> be settled on. The Review Panel therefore recommends that Sydney Metro work with the Department of the Premier, NSW Treasury, and Infrastructure NSW to agree on core principles, including acceptable/target risk transfer, collaboration parameters, and value-for-money thresholds (noting the impacts of successive changes since Investment and of contemporary escalation pressures) - and compare the Partnership and collaboration regime-based disaggregated models against this framework. The Review Panel believe that the selection of an appropriate delivery model for the Project is urgently critical. Given the high-risk/high-importance of finalising this decision, the Review Team recommend that the discussions between key Agencies to settle on agreed principles should be held at the Agency Secretary/Chief Executive level, and that this Executive forum provides definitive instruction to working-level officers.

The Review Panel reinforces the observation that Sydney Metro is an organisation with significant practical experience in interface management and integration, and that this should not be underestimated in settling on a final procurement model.

6. **That the NSW Government** should note that there are not inherently 'right' or 'wrong' delivery models, and that each proposed approach must be tailored according to size and complexity of works, market capacity, risk transfer/collaboration parameters, and client maturity. Delivery models should therefore be principally considered in terms of comparative strengths and include sufficient flexibility to adapt to emergent market conditions. Preparation and evaluation of delivery models should have active regard to potential biases, including from within Government agencies.

d. **That the Secretary of the Premier's Department, Secretary of the NSW Treasury, Chief Executive of Sydney Metro, and Chief Executive of Infrastructure NSW** urgently finalise mutually agreed procurement, risk, and collaboration principles (as an agreed model evaluation framework), and 'threshold' non-negotiables, for Sydney Metro West's delivery model.

7. Following agreement of (6a), **that Sydney Metro, with more active participation by both the NSW Treasury and Infrastructure NSW**, should comparatively test the Partnership model and the collaboration regime-based disaggregated model against this framework and provide a recommendation to the NSW Treasurer and NSW Minister for Transport by the end of 2023. This comparative analysis should have regard to:

a. The re-baselined Project budget, and the potential for further Project enhancements;

b. Lessons learned from City & Southwest and other global comparator projects, with respect to interface management;

c. Agreed, high-level overall risk transfer/collaboration parameters;

d. Time to contract award under each delivery model, and any implications for impacts to overall opening dates;

e. Maturity of Sydney Metro as a Client Delivery Agency (with respect to both interface management, and collaborative contracting), and financial decision-making rights necessary to be reserved to Government; and

f. Overall and comparative value-for-money, including expected operations-phase costs.

6. Sydney Metro Western Sydney Airport

This is a 23km project, equally co-funded by the Commonwealth Government, connecting St Marys and the new Bradfield Aerotropolis, including six new stations and significant precinct and utilities works, and is planned to open by mid-2027.

This Metro project was designed specifically to service the new Airport and not the broader Western Sydney region, and not (initially) form part of the connected Metro rail network. In the absence of further Metro and station connections, it will be a very limited addition to Sydney's public transport system, and will not drive significant new housing, investment, or more equitable transport access across Western Sydney.

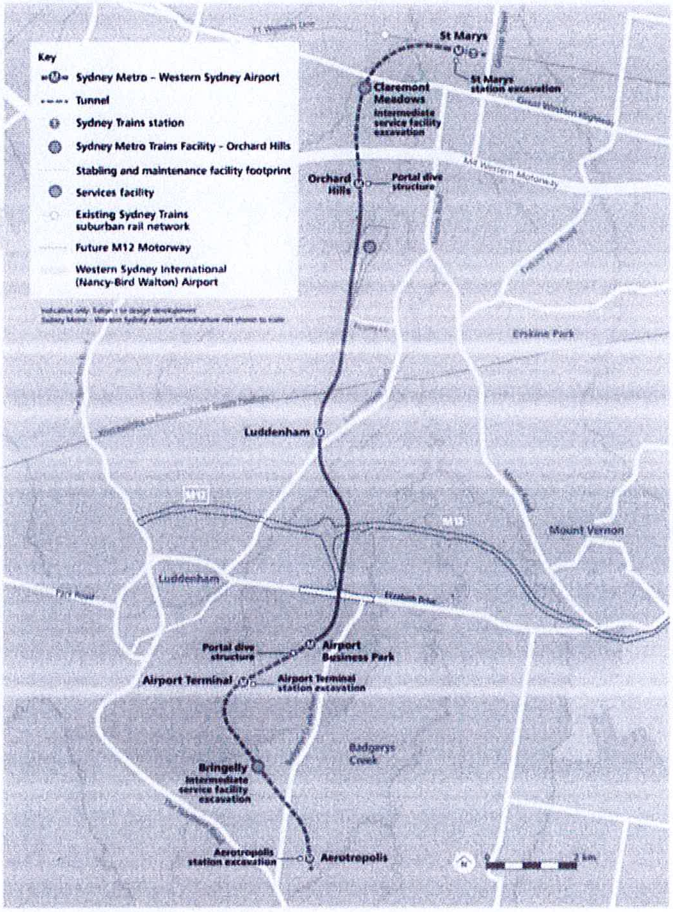


Figure 16 - Sydney Metro Western Sydney Airport alignment

Delivery status, at end-August 2023

All four Tunnel Boring Machines are currently underway for Western Sydney Airport (Catherine & Beatrice as northern TBM, and Eileen & Peggy as southern TBM), with around 2,500m tunnelled in total. Progress in some sections of the tunnelling works, including station excavations, are behind program, but are not currently forecast to imperil overall schedule milestones. Tunnelling is due to mostly complete by end-2024 for site handover to the SSTOM PPP counterparty, with some northern sites potentially completing in early-2025.

The first viaduct segments have been received on site, with the first viaduct spans (in vicinity of the Luddenham Station site) erected and tensioned. Surface and civil alignment works are due to complete by early-2025, for site handover to the SSTOM PPP counterparty.

Major design by the SSTOM PPP counterparty is continuing, although there are concerns about lack of progress relative to the planned forecast - the Review Panel note multiple interventions currently underway to scrutinise and improve the approach to design. Efficient mobilisation to site immediately on handover is a live risk at present - by January 2024, Sydney Metro expect the PPP counterparty to be responsible for 14 of the 30 handover portions, meaning commencement of works simultaneously across all six Stations and the Stabling/Maintenance Facility within the next six months.

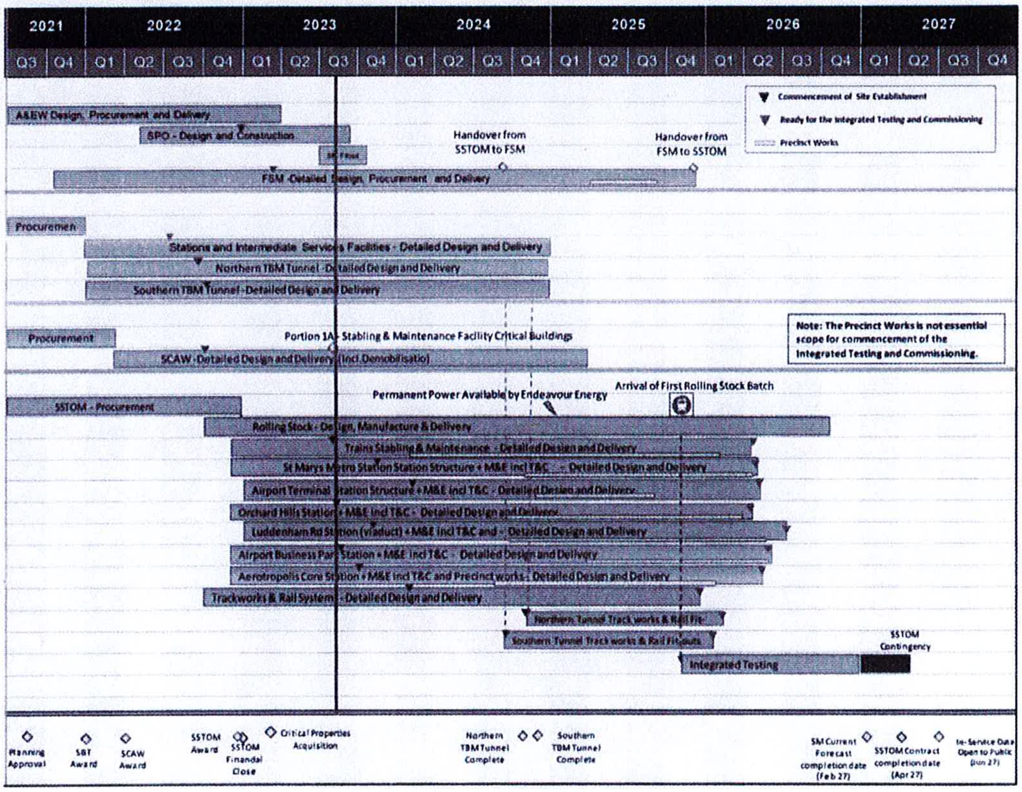


Figure 17 - Western Sydney Airport high-level summary program

Construction Industry Leadership Forum (CILF) case study – Early Contractor Involvement

The CILF is a collaboration between the Australian Constructors Association (ACA) and the NSW and Victorian governments. Its purpose is to improve the effectiveness and value of the procurement and delivery of government infrastructure. It aims to drive early collaboration and improved risk identification and allocation.

A pilot CILF program was undertaken by Sydney Metro and the ACA on the Sydney Metro - Western Sydney Airport (SM-WSA) Station Boxes and Tunnelling (SBT) package with significant benefits to both Sydney Metro and industry stakeholders. Three interactive forums were conducted at different stages of the SBT procurement process: prior to the EOI release; after the EOI shortlisting; prior to the RFT release.

Outcomes and benefits

Feedback received from WSA market participants in CILF forums provided clarity for government and industry around risks. Sydney Metro responded by revisiting its risk position and adjusting via addenda that were better aligned to market risk appetite. Sydney Metro adjusted the SBT risk profile in respect to contamination and took on the risk of unexploded ordnance (UXOs) and 'unknown unknowns' in relation to artefacts. This enabled the tenderers' and Sydney Metro's risk profiles to be more closely aligned at a much earlier stage in the tender process.

Time was invested in relationships at the beginning, fostering a culture of cooperation and shared responsibility. Participants in the CILF forums provided feedback that the process was the first step in building a good relationship with Sydney Metro, and that it also helped with knowledge transfer and providing a forum or sounding out ideas.

Risk conversations were bought up-front. For key commercial risk areas, they were dealt with early in the tender process. The contractor did not take on any unnecessary burden when securing a project. The contractor and Sydney Metro's risk profiles were more closely aligned at a much earlier stage in the tender process.

The SBT contract close date was maintained, supporting overall project program. Commercial close was reached 2 weeks before contract close. There were minimal contract departures.

Sydney Metro has been open to contractor innovation and there is a low claims environment.

By actively involving industry stakeholders in risk identification and allocation, the initiative has contributed to enhancing industry appetite, capacity, and capability to deliver projects effectively.

Enhancement options explored through the Independent Review

The Review Panel note a critical challenge that the Project was not designed to maximise housing/outer urban development support in the short- or medium-terms. Its deliberate focus (as agreed with the Commonwealth as co-funders) was to provide rail access to the airport as the first stage of a much longer-term plan to extend both north and south (to Macarthur). This means that in the short- to medium-term, and until these north and south extensions are completed, the Sydney Metro Western Sydney Airport project will be a largely 'stranded' public transport service only connecting passengers from St Marys to the new Airport. The implications are that this investment will not service Western Sydney's long-term needs without additional Metro and heavy rail connections.

The Sydney Metro Western Sydney Airport investment has not, in our view, been planned with a sufficiently holistic focus on the housing and economic development opportunities in the corridor between St Marys and Bradfield. This is highlighted by the fact that previous decisions taken by both the Commonwealth and NSW State Governments on station locations and project design have not provided easy flexibility for future stations in the corridor.

Given time constraints for the second phase of the Independent Review, the Review Panel only reviewed one option to infill an additional station to the existing six-station project for Western Sydney Airport. The Review Panel did not find that there was likely to be any value-for-money benefit associated with an additional infill station <u>at this time</u> (which would most likely be between Orchard Hills and Luddenham - at Patons Lane), as there was insufficient land use change available in the near-term, nor customer demand to justify the circa $1.2b total incremental cost of adding a station given the current advanced stage of delivery.

[Commercially sensitive] However, there is a pre-existing contract option available for Sydney Metro to continue tunnelling south of the Bradfield Station to a new 'Bradfield South' location, which could both expand the catchment area for the overall project and avoid redundant works in the new town centre at Bradfield associated with recommencing construction - there are likely considerable efficiencies in using an existing contractor to deliver these works while underway, rather than re-mobilising in the future to deliver a very limited scope of works (with all the disruption that may entail).

This extension would have a very indicative/order-of-magnitude cost of circa $2.3b ($2023 - not nominal). The Review Panel supports this short extension as a priority action, before progressing the critically necessary northern extension link to Schofields.

7. Corporate governance, oversight, and assurance

Organisational governance

In the Interim Report, the Review Panel noted that effective corporate performance of Sydney Metro was highly dependent on receiving timely, coordinated, and consistent input, support, and approvals from TfNSW. In our view, these dependencies on TfNSW approvals for many basic corporate functions are not consistent with the accountabilities or expectations of a decision-making Board which is otherwise solely responsible for such significant state investments.

We remain of the view that further changes to retained vs delegated employment functions should be progressed, to best align accountabilities for outcomes with effective decision-making rights. In particular, the following matters need specific consideration:

- The Employment Delegations and Board/Chief Executive authority to remunerate staff at Sydney Metro – particularly to negotiate individual contracts with key staff and appoint Transport Specialists. This will be very critical in the next two years if the procurement model for Sydney Metro West requires the organisation to principally manage interface complexity via individual talent rather than being able to also deal with these through preferred commercial/contractual structures, and where Sydney Metro is actively competing for senior delivery talent with unconstrained private sector companies; and
- The responsiveness and accountability for staffing decisions including recruitment, retention in critical delivery phases, and termination.

Regarding the Sydney Metro Board, we also remain of the view that the current skills, diversity, and capabilities of Directors is appropriate for this stage of the overall Portfolio (with the already-noted opportunity to further bolster its capability in the commercial management of (multiple) contracted rail Operators and Maintainers.

We also note that the 'centre of gravity' of the Agency will begin to rapidly shift over the coming 24mths as the heavy procurement phases complete and City and Southwest lines come into operation. The Sydney Metro Board should provide early advice to the NSW Minister for Transport on the need to evolve its composition and make appropriate initial recommendations on potential new Directors. We are of the view that progressively more experience in major place management/development, customer service/experience, and asset management will be required in the coming years. This observation is equally relevant for the medium-term evolution of the top-line Executive leadership structure.

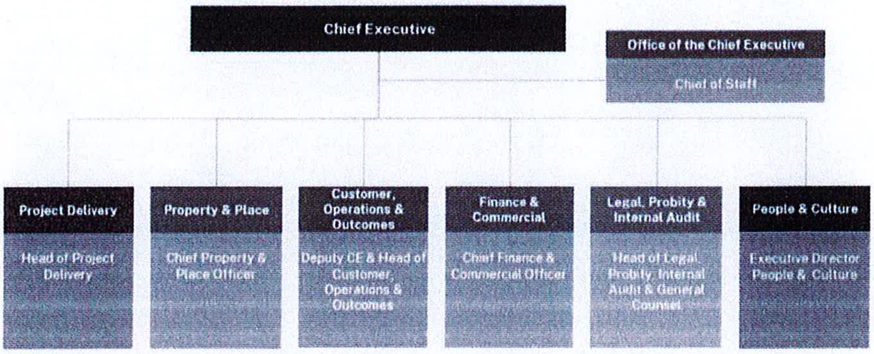


Figure 18 - Sydney Metro organisational structure, at end-August 2023

We concur with the Sydney Metro senior executive team that, with a complex and multi-project delivery program, there will inevitably be a need for a blended workforce involving specialists and consultants to supplement Government staffing.

Note, regarding the higher relative proportion of senior service to Award – Sydney Metro does not have 'frontline' staffing responsibilities, and accesses 'back of house' functions (such as payroll, IT, and recruitment) from TfNSW via a Corporate Services Agreement.

8. **That the Secretary of the Department of Transport** should review the *Employment and Industrial Relations Delegations of Authority* with respect to functions of (and delegations to) the Sydney Metro Board and Chief Executive, in the context of best aligning accountability for total workforce management, and providing for appropriate decision-rights and the requisite authority to implement employment controls.

Reflections on external assurance

Throughout this review, the Review Panel have engaged with iNSW on a number of occasions – both the Government leadership and independent review teams. The Infrastructure Investor Assurance Framework (IIAF) in New South Wales is considered a valuable, extraordinarily thorough process which likely leads most other jurisdictions.

However, regarding the independent review teams and their reports, the Review Panel have concerns regarding both the need for reviewer diversity and their potential overreach. Reflecting on lessons learned from Crossrail's delays and budget challenges, their former Chief Executive (Mark Wild OBE) has regularly spoken about the lack of both experiential- and thought-diversity among his many assurance teams. He noted that predominantly engaging the same small pool of retired British construction executives with highly similar backgrounds but from now-outdated governance/regulatory environments, did not inject sufficient diversity of opinion to Crossrail's reviews to identify looming risks or to act as constructively as necessary. As a result, Mark Wild has publicly noted that, in his experience, megaproject assurance can often devolve into a highly adversarial *"Gotcha!"* or *"I would have done that differently"* interrogation of project teams.

As observed in our Interim Report, Sydney Metro is subject to an extraordinary level of assurance reviews, with 'Deep Dives' self-initiated by iNSW (however, with all costs borne by Sydney Metro). Our concern is that Sydney Metro City & Southwest appears to have around eight formal reviews now proposed in the next four months, many with different review team members (principally due to sheer volume of effort - it would be a full-time role for a reviewer to participate in every requested review). This presents a critical risk for the project team, as it is the senior leadership who are regularly called to present to different review teams - who each need to be bought up to speed individually and who each request to speak personally to senior leaders. In a delivery period where the Project Director and their senior leadership team should be laser-focussed, we have concerns that they may instead be spending 20% of their time solely participating in a variety of review interviews. Furthermore, recent review reports appear to be generating substantial numbers of (effectively binding) Recommendations - with an increasing risk that these Recommendations are mutually inconsistent/incompatible at a Portfolio-level.

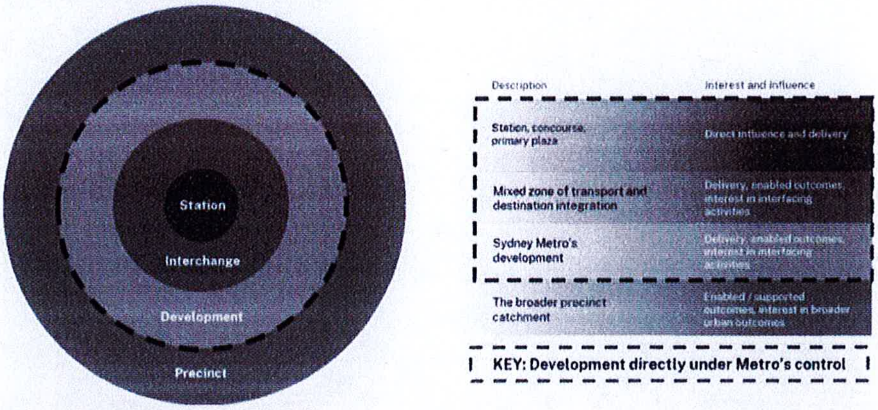
Unlike other NSW Government (infrastructure delivery) Agencies, Sydney Metro has a decision-making Board of Directors who are responsible to the Minister for Transport for an effective 3 Lines of Defence assurance framework within the Agency. The nature of this Board is a key differentiator to many other Agencies (and High Profile-High Risk projects), and the Government does not currently seem to be leveraging maximum benefit from this expertise.

We understand the need for appropriate and proportional assurance of major investments but have serious concerns regarding potential review team overreach and lack of both experiential- and thought-diversity, as well as frequency of the same reviewers being used. There is a material risk that the overlapping assurance reviews and subsequent Recommendations become a type of 'shadow management' function giving directions to Sydney Metro, which undermines clear accountability of the Sydney Metro Board and senior leadership for decision-making.

9. [Sensitive: Policy] **That the NSW Government, through the Secretary of the Premiers Department and Secretary of the NSW Treasury,** review the policy settings and practical implementation of its Independent Investor Assurance Framework, with particular regard to the requirements on diversity/experience/frequency of reviewers on High Profile-High Risk projects, and the risk of introducing a 'shadow management' role for Independent Review teams which could replicate/displace clear Agency-level accountability (especially in light of expectations of, and delegations to, the Sydney Metro Board).

8. Placemaking and precinct optimisation

Sydney Metro has a comprehensive and actionable plan for delivering attractive precincts in the locality of its stations. We note that the *Transport Administration Act 1988* (NSW) provides for potentially significant development powers for Sydney Metro (under cl38C and cl38D), notwithstanding the Agency has not yet used its wider locality powers. The NSW Government should consider the extent to which Sydney Metro may be able to efficiently lead wider development in select precincts while broader Planning reforms are enacted.



Station	Interchange	Development
Station plaza	Kiss-and-ride	Commuter parking
Station retail	Active Transport links	Provisional / enabling utilities connections to development (power, water)
Furnishings	Bike storage	Mixed-use developments
Art works	Enhanced lighting	Parks, open spaces, public amenity

Figure 19 - Zones of development around Sydney Metro stations

[Sensitive: Policy] Based on summary briefings from Sydney Metro legal counsel, we understand that Sydney Metro has both all the development functions and powers of TfNSW, as well as additional powers under Section 38D of the *Transport Administration Act 1988* (NSW). These additional functions include the potential to carry out, finance, manage, or otherwise participate in developments on land *"in the locality of a metro station, depot or stabling yard - being the land shown on a map by an order of the Minister for Planning..."* While these functions would be restricted to either Government land or land acquired by commercial negotiation (that is, no ability to compulsorily acquire in the broader locality), it does provide for significantly enhanced development activities with Ministerial concurrence. We note that this may enable Sydney Metro to take on a more expansive role with respect to urban infill/public amenity works within local communities, which has not been used to date.

As identified in our Interim Report, we remain of the view that a single, well-functioning development Agency should be established to consolidate urban land-change developments across the entire Greater Sydney region - with appropriate authority to acquire lands commercially and compulsorily for the purpose of coordinated development. Such an organisation could then appropriately and consistently partner with Sydney Metro across all Metro precincts (with Sydney Metro remaining appropriately accountable for planning and delivering the Integrated/Over/Adjacent Station Developments on land under its direct control).

10. [Sensitive: Policy] **That the NSW Government, informed by advice from the Department of Planning & Environment and Sydney Metro**, consider reforming the multiple existing Government development organisations into a single development agency properly responsible for urban infill developments across the Greater Sydney region. Such an organisation should:

    a. Be responsible for master planning and driving development outcomes, especially in the wider vicinity of major transport hubs;

    b. Have appropriate powers to acquire lands commercially and compulsorily for the purposes of coordinated development;

    c. Where practicable, consolidate existing Government landholdings to maximise development scale;

    d. Partner with Sydney Metro at Metro precincts, with Sydney Metro remaining responsible for the planning and development of Integrated/Over/Adjacent Station Developments (noting their critical role in both procuring and managing concurrent construction/activation and their potential longer-term reliance on property/retail-based revenues); and

    e. In furtherance of (d), have some shared/common Directors and integrated governance to further align both planning and development efforts.

    f. Sydney Metro may, in the first instance and to build early momentum, take on a wider development role in the locality (being the widest application of its legislative functions for developments within the locality of Metro), while such an organisation was mobilised.

There needs to be a further detailed investigation of the precinct-by-precinct options for value capture against the investment being made in Sydney Metro.

We understand that the amended *Environmental Planning and Assessment Act 1979* (NSW) (EPAA) establishes the framework to levy a Housing and Productivity Contribution (HAP) on developments in designated areas (via an Order from the NSW Minister for Planning & Public Spaces, and NSW Treasurer). In addition, a Transport Project Component (TPC) can also be levied for those areas benefiting from the new/upgraded provision of transport infrastructure, in order to partially recover some costs of transport infrastructure investments which enable re-zoning (and therefore generate land value uplift).

We recognise that the TPC is not necessarily appropriate in all circumstances/localities, and that levying the TPC depends on a degree of land value uplift being realised (ie, not necessarily viable immediately on re-zoning). However, charging the TPC on final delivery of re-zoned developments may be an appropriate approach. Based on information provided by NSW Treasury and DPE, we understand that the TPC being considered would be limited to new developments in defined catchment areas, and that existing landholders would not be captured unless/until they undertook new development.

We believe that there is merit in exploring a by-precinct analysis of the application of a TPC, based on an urban feasibility assessment of 'capacity to pay.' Either via direct revenues, or via leveraged investment against this future revenue stream, Government may be able to recover/offset/fund additional road, transport, and service upgrades.

Sydney Metro has a huge procurement task ahead of it, but in the meantime, the Agency has the capability and imperative to drive precinct optimisation and so should be encouraged to pursue this to the maximum extent of its legislative framework. Consistent with broader Government priorities, this may include alternate property approaches including long-term interests.

It is important to also maximise the development opportunities along the Sydney Trains network arising from broader Public Transport network investment which may change optimal zoning (such as congestion alleviation delivered by Sydney Metro, and improved frequency/reliability delivered by More Trains More Services (MTMS), and any further improvements delivered as a result of the (Walsh) Rail Infrastructure and Systems Review).

11. **That the Department of Planning & Environment** should provide advice to NSW Government regarding potential opportunities for future land-use change which would facilitate meeting State housing targets and improve urban access & amenity for communities in vicinity of T1 Western-line heavy rail stations, in the context of changed demand once Sydney Metro West opens.

12. **That the NSW Treasury and the Department of Planning & Environment, supported by TfNSW and Sydney Metro,** should prepare an actionable proposal for NSW Government consideration regarding the application of the Transport Project Component (TPC) value capture mechanism to Metro station precincts as part of a forward-looking transport investment and funding strategy.

9. Future Investments

Sydney Metro has a current capital investment pipeline to FY2030-2031. On current planning, it will begin to significantly reduce its workforce from FY2026-2027 onwards as Sydney Metro Western Sydney Airport reaches completion, and Sydney Metro West completes procurement and tunnelling and transitions into predominantly civils and signalling works.

The Review Panel has considered how this projected tapering of the Sydney Metro workforce and overall investment profile will sit within the broader NSW and Australian infrastructure pipeline forecast.

The Review Panel has also considered the implications of this widescale demobilisation of the Sydney Metro organisation, and the resultant impacts on Public Sector capability.

Sydney's growth and the role of the Metro network

Sydney is projected to remain one of the fastest growing cities in the OECD. NSW Planning projects Sydney will add another million people by 2041 and will need to add an additional 550,000 more homes by this date to accommodate the projected population growth. We understand from discussions with DPE that this is likely to require at least 30,000 new homes per year to meet the demands of new residents, and changing demographics, above the current projected undersupply of housing and employment lands.

This growth will require public infrastructure. The NSW Productivity Commission report series *Building New Homes* has recently made several key points re the key role of future Metro investment strategies:

- Public transport infrastructure investment needs to be better co-ordinated and timelier, to enable the supply of housing to be boosted;
- The efficiency of infrastructure investment can be improved by prioritising growth through higher density in high demand locations that are already well serviced by infrastructure;
- The 30-minute city commute time objectives which underpin the current Greater Sydney land use planning is dependent on timely transport infrastructure investment which links homes to work and key city precincts;
- The biggest productivity cost facing Sydney is transport congestion and lack of services;
- Minimising road transport congestion and improving travel times is key to Sydney's liveability and productivity. Road congestion is the largest cost of adding extra housing for most areas;
- Road congestion accounts for most of the lost time value of congestion and loss of economic value and accounts for most of the variation in economic cost of building in different locations in Sydney;
- The current transport flows are relatively long owing to the dispersed spatial spread of Sydney and based on an east west peak travel pattern which is inefficient and costly in terms of utilisation of the capacity of the transport system; and
- Increased housing density offers lower costs to the community and larger benefits including best leveraging increased productivity, liveability, and quality of life in the city.

Sydney's heavy rail suburban systems have traditionally been focused on connecting high volume routes which transport people to and from work in the CBD or other employment locations. This commuter focus however does not reflect the fact that most rail and transport journeys in Sydney are suburb-to-suburb and increasingly people are connecting to different work, retail, and commercial and recreational precincts. The Sydney Metro investment on the North West Metro Line has already seen the development of new denser defined precincts. The City & Southwest, and West, projects will continue to create new housing and employment precincts around its station locations.

In the context of these factors the Review has considered an assessment matrix of future investment options for the Sydney Metro system and has set out its views of the priorities.

Macroeconomic context of the future investment pipeline

Between 2010 and 2015, the infrastructure spend in Australia was mainly related to an increased port, road, and railway development in regional economies, related to the resources boom. From 2016, the growth was much more heavily driven by east coast passenger rail and road infrastructure - FY2022-2023 includes an estimated national transport infrastructure spend of around $45b (with an additional $15b spend for energy infrastructure). Globally, metro transport infrastructure is entering a peak period, with a forecast of 300km of new Metro lines to be opened in each of 2024 and 2025 (excluding China and Russia).

General infrastructure market activity, based on current publicly available expenditure information, suggests a likely decreasing demand for resources from FY2025-2026 onwards, and a more substantial decrease from FY2027-2028. Notwithstanding any pressures generated from a wave of new energy projects, a suitable time for major construction commencement of any new project may be in early FY2027-2028 - which would require an investment decision sometime in 2026 (to enable subsequent property acquisitions, design, procurement, and site mobilisation in time for major construction start).

Based on the below input/material competition analysis, some 40% of project costs will be relating to materials and resources common to all infrastructure projects. From a workforce/skills perspective, the Review Panel notes that there will be acute and sustained competition across Public and Private Sectors for the following specific skill sets - which will currently be demobilised in large tranches from Sydney Metro from FY2025-2026 unless further investment is planned:

- Designers and design managers;
- Infrastructure-specialist program and project managers; and
- High Voltage electrical specialists.

Premature demobilisation of these critical skill sets would impair Government's ability to efficiently continue with a future investment program, as it would be easier and more efficient to retain the existing workforce. There are opportunities to 'share' resources among Government agencies on a short-term basis, to balance any temporary shortfalls in budget availability with the need to strategically retain skills.

Resources required for the Metro West project		% of total project cost	Rail			Road		Energy			
% of total major project spend (>$2bn b/n FY23-32, excluding MW)			Metro rail	Heavy rail	Light rail	Motorway (tunnel)	Motorway	T&D*	Hydro	Wind generation	Solar generation
			37.1%	17.0%	1.9%	20.5%	2.9%	3.7%	3.7%	7.6%	5.5%
Materials	Gravels / rocks	1.0%	✓	✓	□	✓	✓	□	✓	□	□
Materials	Steel products	9.5%	✓	✓	✓	□	□	✓	✓	✓	✓
Materials	Reinforcing steel	6.5%	✓	✓	✓	✓	✓	□	✓	✓	□
Materials	Pre-cast concrete	2.5%	✓	✓	✓	✓	✓	□	✓	□	□
Materials	Concrete	4.5%	✓	✓	✓	✓	✓	✓	✓	✓	□
Materials	Plastic pipe	1.0%	✓	✓	✓	✓	✓	✓	✓	✓	✓
Materials	Electrical cabling	5.0%	✓	✓	✓	✓	✓	✓	✓	✓	✓
Equipment	Rolling stock**	11.0%	✓	✓□^	✓□^	×	×	×	×	×	×
Equipment	General Machinery		✓	✓	✓	✓	✓	✓	✓	✓	✓
Equipment	Tunnel Boring Machine		✓	□	×	✓	×	×	□	×	×
Equipment	Rail machinery**		✓	✓	□	×	×	×	×	×	×

Requirement level
None × Low □ High ✓

Capabilities required for a Metro West project			Rail			Road		Energy			
% of total major project spend (>$2bn b/n FY23-32, excluding MW)		% of total project cost	Metro rail	Heavy rail	Light rail	Motorway (tunnel)	Motorway	T&D*	Hydro	Wind generation	Solar generation
			37.1%	17.0%	1.9%	20.5%	2.9%	3.7%	3.7%	7.6%	5.5%
Skills / labour	Design	30%*	✓	✓	✓	✓	✓	✓	✓	✓	✓
Skills / labour	Geotechnical		✓	✓	✓	✓	✓	✓	□	✓	□
Skills / labour	Tunnel excavation		✓	□	×	✓	×	×	×	×	×
Skills / labour	Ventilation systems		✓	□	×	✓	×	×	×	×	×
Skills / labour	High Voltage supply		✓	✓□	□	□	□	✓	✓	✓	✓
Skills / labour	Comms & security		✓	✓	□	✓	□	×	×	×	×
Skills / labour	Signaling & train control		✓	✓	□	×	×	×	×	×	×
Skills / labour	Delivery Management		✓	✓	✓	✓	✓	✓	✓	✓	✓

Figure 20 - Competition for material, equipment, and technical resources (LEK analysis, August 2023)

Emerging priority opportunities

Throughout the first and second phases of the Independent Review, the Review Panel have interrogated various assumptions and opportunities relating to future Metro investment programs. In overall terms, the Review Panel note that Greater Sydney is serviced by multiple East-West connections, including the T1 Western, T2 Inner West, and Sydney Metro West. However, there appears to be a relative lack of public transport support at present for increasing North-South connections all along that East-West spine.

With input from TfNSW, DPE, and Sydney Metro, we have reviewed a variety of opportunities (including potential staging):

SM WSA Extensions	1	St Marys to Schofields
	1a	*St Marys to Marsden Park*
	2	Bradfield to Campbelltown
	2a	*Bradfield to Oran Park*
SM West Extensions	3	Hunter St to La Perouse
	3a	*Hunter St to Zetland / Randwick*
	4	Westmead to Bradfield
	4a	*Westmead to Prairiewood*
SM Northwest / City & Southwest Extensions	5	Tallawong to Schofields
	6	Bankstown to Liverpool
Heavy Rail Extensions	7	Leppington to Bradfield South
	8	Merrylands to Epping

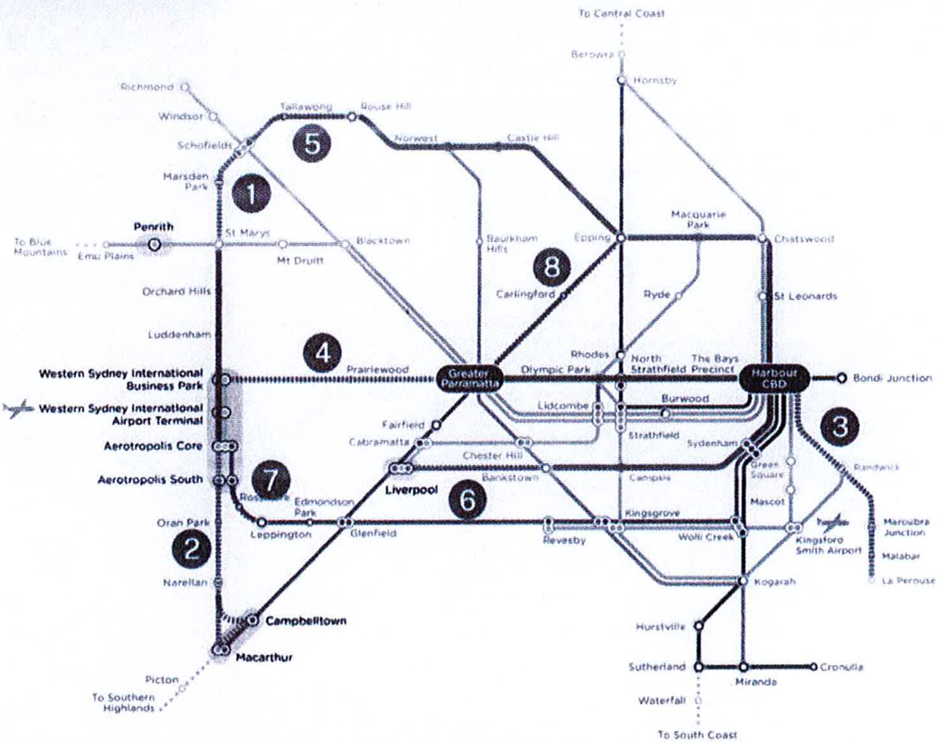


Figure 21 - Future Corridor/Extensions Assessment

In exploring potential extension opportunities, we have had regard to the NSW Government's policy and outcome priorities, as well as a range of extant strategic/long-term planning documents (noting that these are in some cases a few years old and are not explicitly aligned with current Government priorities).

Additionally, based on discussions with the (Kanofski) Strategic Infrastructure Review team, we have established an ideal assumption of a rolling $3-$4b per annum expenditure envelope - to provide for a more fiscally and market capacity-sustainable pipeline. Our overarching assessment criteria included:

- **Housing.** The ability to unlock additional housing supply, and align any new housing with appropriate transport access;
- **Transport Network Resilience.** Providing for an integrated, reliable network which grows in patronage;
- **Economic Benefit.** Creating/improving access to jobs and economic opportunity;
- **Equity.** Improving access for under-serviced/disadvantaged communities;
- **Future Program Benefits.** The ability to enable/complement/build-off other planned investments; and
- **Value for Money.** A rapid assessment of sustainable year-on-year and total investment size.

The strategic merit test based on these criteria enables a differentiation of the various network options for future investment. In our view, corridors in Western Sydney provide the strongest housing, transport, and economic development options.

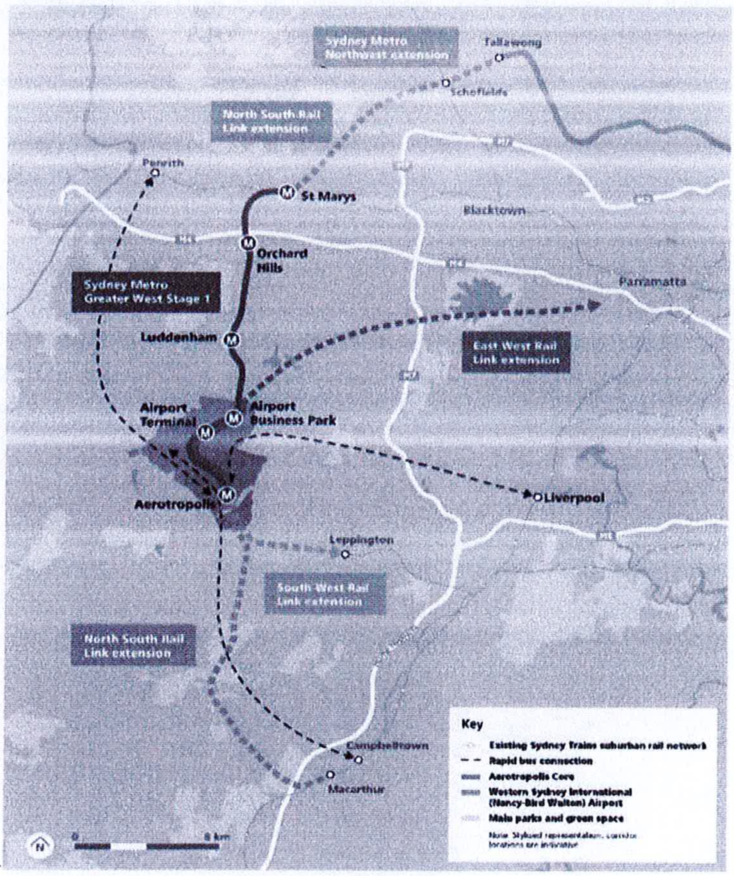


Figure 22 - Potential future network expansion options for Western Sydney Airport

- **A northern extension to Western Sydney Airport:**
  - A northern extension from St Marys through Marsden Park to Schofields (4 stations) could support:
    - Provide significant additional housing development – both greenfield and infill – in a corridor that presently has high social disadvantage and poor transport connectivity;
    - Improved accessibility and social equity for one of the most disadvantaged areas of Australia with stronger and faster connections to major employment precincts;
    - Reduce car dependency and alleviate significant congestion issues in areas such as Marsden Park; and
    - Support integrated land use/urban renewal in areas such as Luxford precinct/Mount Druitt.
  - While there is a protected transport corridor between Marsden Park Industrial Estate and Tallawong, there is no current protection between St Marys and Marsden Park (either for surface or tunnel alignments).
  - A very preliminary, order-of-magnitude cost estimate would be circa $9.6b ($2023 - not nominal).

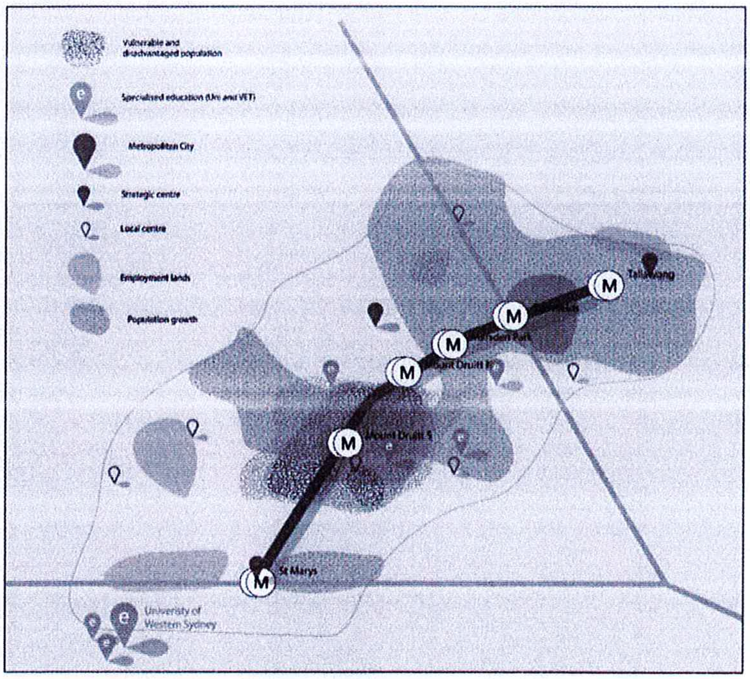


Figure 23 - Potential WSA northern extension corridor

- **A (short) western extension to North West Metro Line:**
  - Given that the North West Metro Line operates under DC power and not AC power (due to historical cost reasons associated with not replacing the existing and well-functioning power supply of the Epping-Chatswood Rail Link on its conversion in 2018/2019), the North West Metro Line would be effectively unable to be fully connected to a northern extension to the Western Sydney Airport - the systems and trains would not be interchangeable.
  - Accordingly, and to expand the customer catchment for the North West Metro Line, a short extension west from Tallawong to interchange with the **T5 Richmond**/T1 Richmond lines at Schofields could be a cost-effective expansion to the network which would deliver wide-ranging network relief. A northern extension of Western Sydney Airport could then have a platform-interchange to connect into North West Metro.
  - A very preliminary cost estimate would be circa $3.2b ($2023 - not nominal).
- **A southern extension to Western Sydney Airport:**
  - A southern extension from Bradfield through Oran Park (3 stations) to Campbelltown/Macarthur (with up to 4 additional stations) could support:
    - Improved accessibility for very high growth areas with limited existing public transport services of any kind; and
    - Dramatically enhance accessibility to the planned major employment opportunities in the Bradfield precinct.
  - While there is a protected transport corridor between Bringelly and Oran Park, there is no current protection further south from Oran Park to Campbelltown or Macarthur.
  - A very preliminary, order-of-magnitude cost estimate of Bradfield South to Oran Park would be circa $5.1b ($2023 - not nominal), with Oran Park to Campbelltown/Macarthur as a second and as-yet uncosted stage.

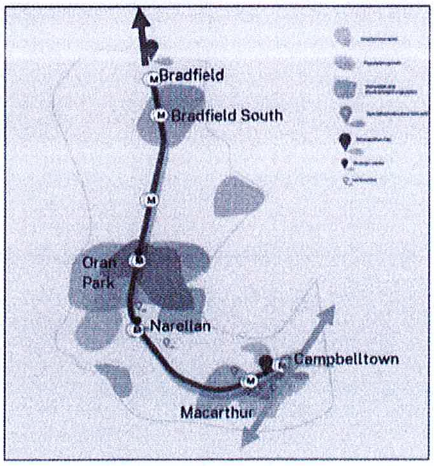


Figure 24 - Potential WSA southern extension corridor

- **An eastern extension to Sydney Metro West:**
  - The Future Transport strategy identifies the extension of the Sydney Metro West project to the east, towards Randwick and La Perouse as the next stage of creating a new transport spine for Sydney, connecting Western Parklands, Central River, and Eastern Harbour Cities.
  - An initial stage to Zetland would likely be around 8km and consist of up to three stations - this would enable a second Sydney CBD station on the West line (thereby alleviating pressures on Hunter Street station as the sole termination station for Sydney CBD), address transport congestion in the Zetland/Green Square locality, as well as enabling further housing development in that precinct.
  - At present, Hunter Street Station is a significant size due to its status as the termination station in the Sydney CBD - adding an additional station would better balance demand across multiple Sydney CBD stations. The turnback has been designed to enable future extensions by minimising risks and maintaining operations on the line while future construction occurred. Turnback opportunities such as Elizabeth Street, Haymarket, and The Domain have been examined but all present constraints and development difficulties (including access, and geotechnical ground conditions) make them less optimal than the current turnback.
  - However, noting that an eastern turnback at Hunter Street station is currently under construction and needs to be in place for the Day 1 operations of Sydney Metro West, it would not be possible to achieve an extension to Zetland concurrent with First Passenger Services at this stage of delivery. The CBD turnback is under construction and would require a direction to stop work to change the alignment and design approach.
  - It would not be possible to utilise the current TBM program from The Bays to Hunter Street for an eastwards extension in the current time constraints, as there would be a significant lead-time required for land acquisition, design, and third-party agreements for a Zetland extension to be included. Additionally, the TBM type in operation for this section of the project is specific to the ground conditions of Pyrmont Bay and is not suited to the longer distances and conditions, and spoil removal requirements, of Zetland.
  - Note that this extension formed part of the original Business Case for West, which was subsequently truncated at Investment Decision. Servicing Zetland would relieve the highly constrained transport needs around Green Square - although there are significant challenges associated with finding suitable station and construction sites. Progressing one-stop further (in/around Randwick) may alleviate these challenges as well as support additional incremental housing.

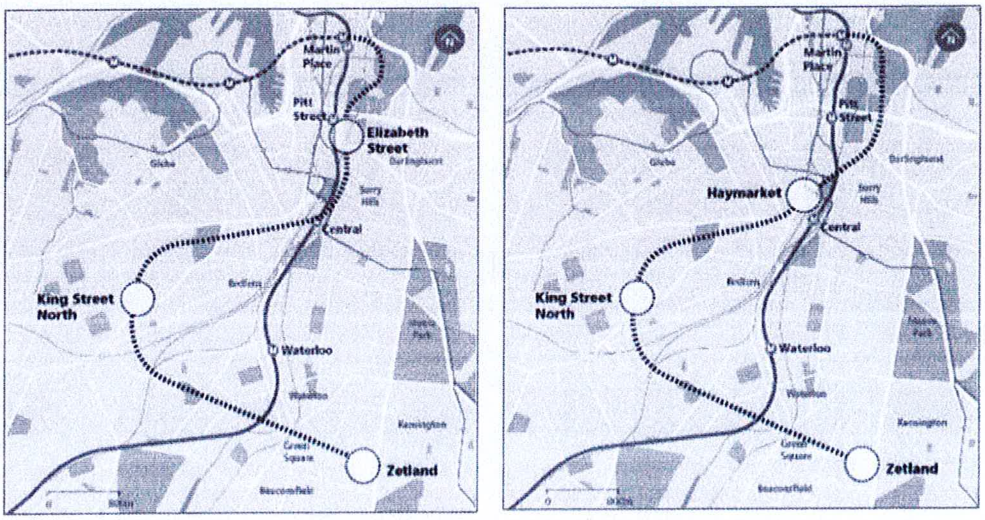


Figure 25 - Potential eastern extension options to Sydney Metro West

- A very preliminary, order-of-magnitude cost estimate of an extension to Zetland would be around $6.9b to $9.3b ($2023 - not nominal) - depending on whether there were one or two intermediate stations. Note, property acquisition costs are a key variable to this estimate.
- We expect that a Business Case could be completed by late 2025, which might enable an opening around 2035 (without disruption to the base Sydney Metro West project).

Potential future investments

In response to our Review and instructions, Sydney Metro has built two indicative investment scenarios for establishing a rolling investment program which is maintains (in our view) a more financially sustainable cost profile of circa $3b-$4b per annum.

- **Scenario 1:** Five projects by mid-2040s, with approximately $3-$4b per annum spend ($2023)

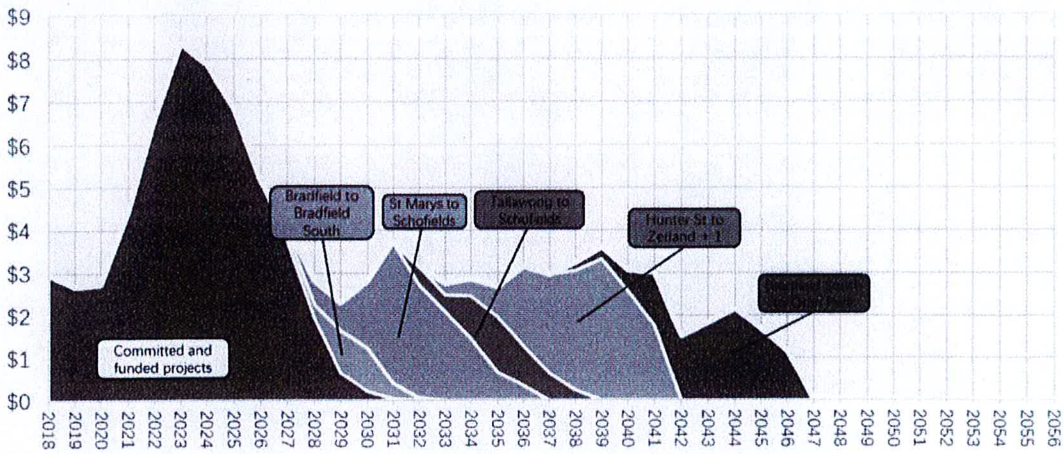


Figure 26 - Potential pipeline (5-projects/~$3b per annum)

Project	Start Date	End Date	Cost ($Real)	Cost (Nominal $b)
Bradfield to Bradfield South	2026	2032	$2.3	$3.0
St Marys to Schofields	2027	2036	$9.6	$13.5
Tallawong to Schofields	2031	2038	$3.2	$5.0
Hunter St - Zetland + 1	2033	2041	$9.3	$16.2
Bradfield South to Oran Park	2038	2046	$5.1	$10.5
TOTAL			**$29.5**	**$48.0**

- **Scenario 2:** <u>Six</u> projects by *late*-2040s (including one Heavy Rail), with approximately $3-$4b per annum spend ($2023).

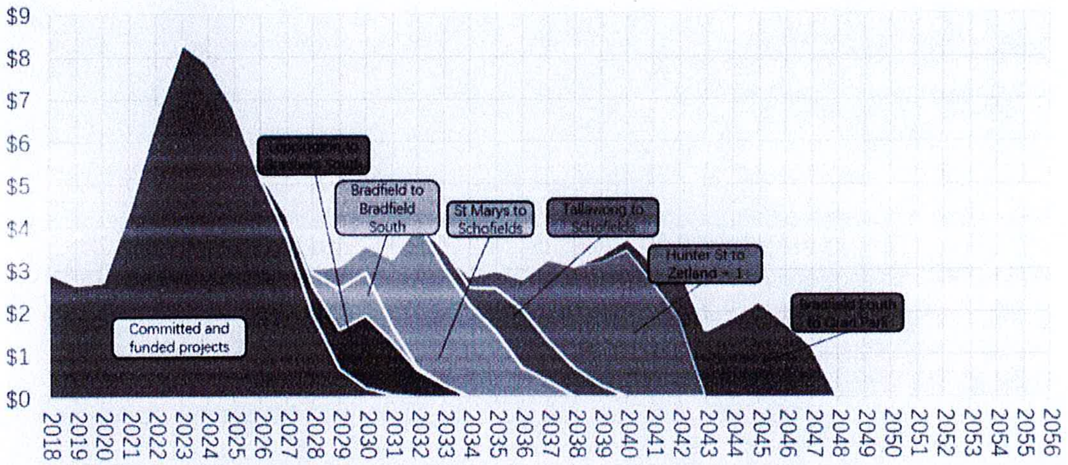


Figure 27 - Potential pipeline (6-projects/~$3b per annum)

Project	Start Date	End Date	Cost (Real $b)	Cost (Nominal $b)
Heavy Rail: Leppington to Bradfield South	2026	2033	$4.6	$6.0
Bradfield to Bradfield South	2026	2032	$2.3	$3.0
St Marys to Schofields	2028	2037	$9.6	$13.9
Tallawong to Schofields	2032	2039	$3.2	$5.1
Hunter St - Zetland + 1	2034	2042	$9.3	$16.7
Bradfield South to Oran Park	2039	2047	$5.1	$10.8
TOTAL			**$34.0**	**$55.6**

13. [Sensitive: Policy] Building on Recommendation (17) of our Interim Report regarding a medium-term infrastructure investment pipeline, **that the NSW Government, as advised by Sydney Metro with support from TfNSW, the Department of Planning and Environment, and NSW Treasury**, should prepare an actionable roadmap as part of a wider infrastructure investment plan for investing in a 25-year/up to $3b-$4b per annum Metro expansion pipeline, which would include the following extensions in relative priority order:

    a. The short and rapid metro extension from Bradfield to a new Bradfield South;
    b. The Heavy Rail expansion from Leppington to Bradfield South;
    c. St Mary's to Schofields metro;
    d. The short metro extension of the North West Metro Line from Tallawong to Schofields;
    e. Hunter Street to Zetland or Randwick metro; and then
    f. Bradfield South to Macarthur (potentially staged via Oran Park).

Corridor reservation matters

The Review Panel notes that almost all extension options currently include sections of unprotected transport corridors, which would potentially increase overall cost and result in significant community frustrations if a decision to deliver a transport project was later made. More detailed planning and consideration of corridor protection should be prioritised where future extensions are considered likely within the medium-term horizon.

14. [Sensitive: Policy] **That Transport for NSW, in consultation with Sydney Metro, the Department of Planning & Environment, and Infrastructure NSW**, should prepare updated policy & investment advice to the NSW Government regarding the status of protected/published/unprotected transport-zoned corridors (especially as relevant to Recommendation 12 of this Report), and associated risks & implications of non-protection for long-term land-use change opportunities.

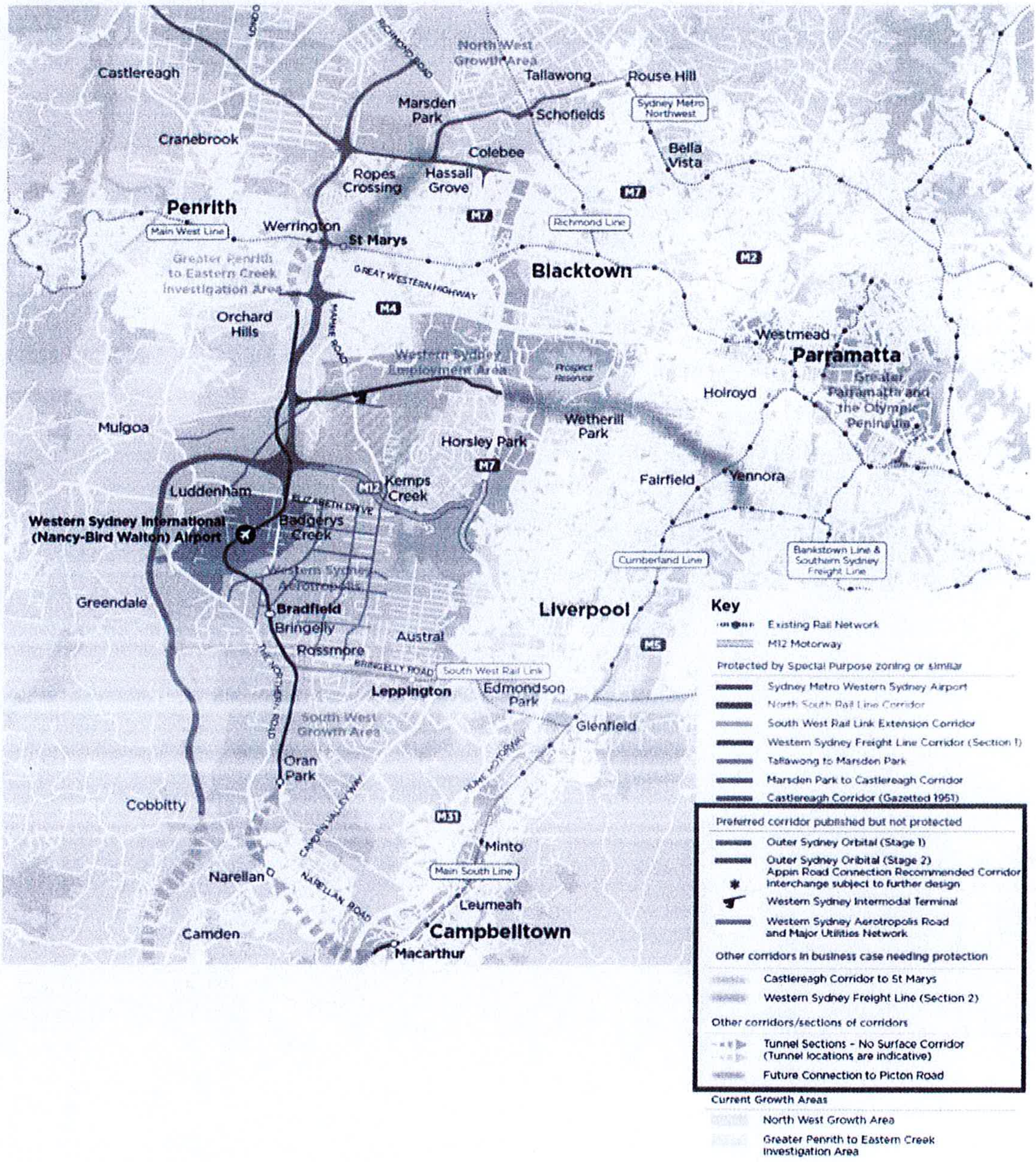


Figure 28 - Transport corridors in Western Sydney

10. Consolidated list of Recommendations

1. **That the NSW Treasury, in consultation with Infrastructure NSW and the Construction Leadership Group**, should establish a process and accountability for developing and regularly updating a common suite of sector-specific infrastructure escalation models, to promote consistency and currency of financial assumptions across all Infrastructure Agencies and enable centralised reporting of market volatility impacts (as aligned to NSW Treasury's own macroeconomic forecasts) to Government. Note that this would have the benefit over externally generated escalation models of having more realistic/credible expenditure demand inputs which are not otherwise publicly available.
2. **That Transport for NSW** should provide advice to the Minister for Transport regarding the status of the Parramatta Road Corridor Urban Transformation Strategy and any further opportunities to improve integrated Bus and Active Transport interventions and road access connections in the Homebush to Parramatta region.
3. Informed by extensive stakeholder support, **that the NSW Government** should commit to retaining the current 9-station alignment of Sydney Metro West (at a minimum), and:
   a. Target an opening by 2032 (an immediate priority should be preparing a sensible re-baselining of the delivery program according to recently re-profiled funding, timing requirements to finalise delivery models, and optimal risk mitigation of any inadvertent compression of Linewide works); and

   b. Proceed to tender-phase no later than Q2-2024, in order to preserve market participation and delivery momentum.
4. In respect of viable enhancements to the existing Sydney Metro West project, **that Sydney Metro (supported as appropriate by NSW Treasury, the Department of Planning & Environment, and TfNSW)** should:
   a. Prepare a whole-of-precinct land-use analysis for the existing 9-station precincts, incorporating assessments of relevant Government and other major landholdings, current zonings and constraints, a preferred plan for how these (enlarged) precincts could best support a significant increase in housing supply to meet Sydney's medium- and longer-term housing targets, and a succinct end-state vision enabling all Government, industry, and community stakeholders to align investment behind a common master-planning strategy. ;

   b. Prepare a business case for improved bus connections (including necessary bus service infrastructure) to broaden the catchments of the existing 9-station precincts, especially in order to drive improved investment attractiveness for new housing and public transport patronage in the wider areas adjacent to the Metro alignment; and

   c. Review the current design and construction plans to ensure Rosehill and Silverwater strategic station option locations are *not precluded* from safeguarding in the immediate term, while rapid business cases are prepared for the <u>safeguarding</u> of these sites (noting the significant complexities of each of these locations). Preliminary advice should be provided on a potential landowner and community engagement approach.
5. **That Sydney Metro** should provide the NSW Government with a consolidated property and placemaking strategy covering *all* existing lines, including any options to further advance the NSW Government's priorities regarding housing supply, and the likely time horizons of developments' completions. This advice should consider benefits of Sydney Metro potentially retaining longer-term property interests as well as funding options for these enhanced precinct works (including via return of revenues to Sydney Metro, and/or reinvestment of revenues into housing supply).
6. **That the NSW Government** should note that there are not inherently 'right' or 'wrong' delivery models, and that each proposed approach must be tailored according to size and complexity of works, market capacity, risk transfer/collaboration parameters, and client maturity. Delivery models should therefore be principally considered in terms of comparative strengths and include sufficient flexibility to adapt to emergent market conditions. Preparation and evaluation of delivery models should have active regard to potential biases, including from within Government agencies.
   a. **That the Secretary of the Premier's Department, Secretary of the NSW Treasury, Chief Executive of Sydney Metro, and Chief Executive of Infrastructure NSW** urgently finalise mutually agreed procurement, risk, and collaboration principles (as an agreed model evaluation framework), and 'threshold' non-negotiables, for Sydney Metro West's delivery model.
7. Following agreement of (6a), **that Sydney Metro, with more active participation by both the NSW Treasury and Infrastructure NSW,** should comparatively test the Partnership model and the collaboration regime-based disaggregated model against this framework and provide a

recommendation to the NSW Treasurer and NSW Minister for Transport by the end of 2023. This comparative analysis should have regard to:

a. The re-baselined Project budget, and the potential for further Project enhancements;

b. Lessons learned from City & Southwest and other global comparator projects, with respect to interface management;

c. Agreed, high-level overall risk transfer/collaboration parameters;

d. Time to contract award under each delivery model, and any implications for impacts to overall opening dates;

e. Maturity of Sydney Metro as a Client Delivery Agency (with respect to both interface management, and collaborative contracting), and financial decision-making rights necessary to be reserved to Government; and

f. Overall and comparative value-for-money, including expected operations-phase costs.

8. **That the Secretary of the Department of Transport** should review the Employment and Industrial Relations Delegations of Authority with respect to functions of (and delegations to) the Sydney Metro Board and Chief Executive, in the context of best aligning accountability for total workforce management and providing for appropriate decision-rights and the requisite authority to implement employment controls.
9. [Sensitive: Policy] **That the NSW Government, through the Secretary of the Premiers Department and Secretary of the NSW Treasury,** review the policy settings and practical implementation of its Independent Investor Assurance Framework, with particular regard to the requirements on diversity/experience/frequency of reviewers on High Profile-High Risk projects, and the risk of introducing a 'shadow management' role for Independent Review teams which could replicate/displace clear Agency-level accountability (especially in light of expectations of, and delegations to, the Sydney Metro Board).
10. [Sensitive: Policy] **That the NSW Government, informed by advice from the Department of Planning & Environment and Sydney Metro,** consider reforming the multiple existing Government development organisations into a single development agency properly responsible for urban infill developments across the Greater Sydney region. Such an organisation should:

a. Be responsible for master planning and driving development outcomes, especially in the wider vicinity of major transport hubs;

b. Have appropriate powers to commercially and compulsorily acquire lands for the purposes of coordinated development;

c. Where practicable, consolidate existing Government landholdings to maximise development scale;

d. Partner with Sydney Metro at Metro precincts, with Sydney Metro remaining responsible for the planning and development of Integrated/Over/Adjacent Station Developments (noting their critical role in both procuring and managing concurrent construction/activation and their potential longer-term reliance on property/retail-based revenues); and

e. In furtherance of (d), have some shared/common Directors and integrated governance to further align both planning and development efforts.

f. Sydney Metro may, in the first instance and to build early momentum, take on a wider development role in the locality (being the widest application of its legislative functions for developments within the locality of Metro), while such an organisation was mobilised.

11. **That the Department of Planning & Environment** should provide advice to NSW Government regarding potential opportunities for future land-use change which would facilitate meeting State housing targets and improve urban access & amenity for communities in vicinity of T1 Western-line heavy rail stations, in the context of changed demand once Sydney Metro West opens.
12. **That the NSW Treasury and the Department of Planning & Environment, supported by TfNSW and Sydney Metro,** should prepare an actionable proposal for NSW Government consideration regarding the application of the Transport Project Component (TPC) value capture mechanism to Metro station precincts as part of a forward-looking transport investment and funding strategy.
13. [Sensitive: Policy] Building on Recommendation (17) of our Interim Report regarding a medium-term infrastructure investment pipeline, **that the NSW Government, as advised by Sydney Metro with support from TfNSW, the Department of Planning and Environment, and NSW Treasury,** should prepare an actionable roadmap as part of a wider infrastructure investment plan for investing in a 25-year/up to \$3b-\$4b per annum Metro expansion pipeline, which would include the following extensions in relative priority order:

a. The short and rapid metro extension from Bradfield to a new Bradfield South;

b. The Heavy Rail expansion from Leppington to Bradfield South;
c. St Mary's to Schofields metro;
d. The short metro extension of the North West Metro Line from Tallawong to Schofields;
e. Hunter Street to Zetland or Randwick metro; and then
f. Bradfield South to Macarthur (potentially staged via Oran Park).

14. [Sensitive: Policy] **That Transport for NSW, in consultation with Sydney Metro, the Department of Planning & Environment, and Infrastructure NSW,** should prepare updated policy & investment advice to the NSW Government regarding the status of protected/published/unprotected transport-zoned corridors (especially as relevant to Recommendation 12 of this Report), and associated risks & implications of non-protection for long-term land-use change opportunities.

[redacted]