Questions on Notice to
Transport & Customer Service Committee Inquiry

Regarding the Sydenham to Bankstown Metro Conversion

For Portfolio Committee No. 6

From Mathew Hounsell - November 2019

Dear Sir/Madam,

Please find below my response to the questions on notice.

Sincerely,
Mathew Hounsell

Question on Notice

The following text is the exchange in which the honourable member asks for evidence-based views on the alternatives considered as described in the Environmental Impact Statement (EIS) i.e. (Metro 2017).

Uncorrected Report on Proceedings
before Portfolio Committee No. 6 – Transport and Customer Service
regarding the Sydenham-Bankstown Line Conversion
- at Macquarie Room, Parliament House, Sydney, on Thursday 2019-11-07 at 09:30

The Hon. NATALIE WARD: Mr Hounsell, thank you for your evidence. You seemed quite evidence-based in your responses and your submission. I want to ask about your views on the other options the Government considered. I think they are all publicly available in the environmental impact statement [EIS]. Can you comment to the Committee about your views on those other options Government considered?

Mr HOUNSELL: I looked at the alternatives outlined in the strategic business case yesterday. I do not remember them off the top of my head from the EIS.

WARD: Can I ask you to take that on notice perhaps, if you would like the opportunity to look at it?

HOUNSELL: If you want me to take it on notice, yes, I can take it on notice.

WARD: I am interested in your comments now, just briefly for the Committee, but I will ask you to take it on notice also and comment on the other options that are in the EIS. However, if you could just give us a quick view?

HOUNSELL: I think it is better if I comment on notice, if you wish to specifically get me to address those options.

WARD: Just given the discussion around this, are there others that jump out at you that you think would be preferable or that you have a comment on?

HOUNSELL: From the strategic business case, I saw that—no, actually, I think it is probably best in addressing the options—from the general perspective of the overall system, I think the investment into the western metro is a higher priority. I have said that. The investment into a north-south line is a higher priority. As for alternatives once it gets to Sydenham, I think there are thousands of options there. It is really a case of deciding which, as the economists and the experts say, is the biggest bang for buck.

WARD: But I am asking you to specifically address those ones that are in the EIS because I am interested in your views—

HOUNSELL: I do not remember off the top of my head. I will take that on notice.

WARD: No, not now, but on notice. That would be very helpful. Thank you.

Response

Thank you for giving me the opportunity to address and assist the inquiry. The EIS referred to in the question above is the "Sydney Metro City & Southwest Sydenham to Bankstown upgrade Environmental Impact Statement". The sections referenced are Volume 1A – Parts A and B – Chapter 5 & 6. Hereafter, this will be referred to as the EIS.

Regrettably, although I was keen to provide the analysis, it is impossible to deliver the requested evidence-based analysis of the alternatives listed in the EIS. There is insufficient information contained within the document on which to base such an analysis. Without further information the analysis would have to rely on too many assumptions to be evidence-based as requested.

However, bellow I have tried to identify key irregularities central to the process of this EIS. This, I hope, will be helpful to your evaluation.

First, I address the metropolitan master plans used in the EIS and their history. Then, I address the analysis of the scenario in which the metro isn't built – the "do-nothing" scenario". Then, I address the rail options analysis, and finally the alternatives rail options listed in the EIS.

In Summary

It appears some incorrect assumptions during the options analysis precluded the analysis of extensions of the Metro from Sydenham to service new areas. Those assumptions prevented the analysis of previously short-listed alternatives discussed in the inquiry; especially the extension of the Metro along Corridor 32 running through Kogarah to Miranda.

The long-planned sextuplication from Sydenham to Erskineville should have been considered as an additional do-minimal alternative in order to ensure a comprehensive analysis.

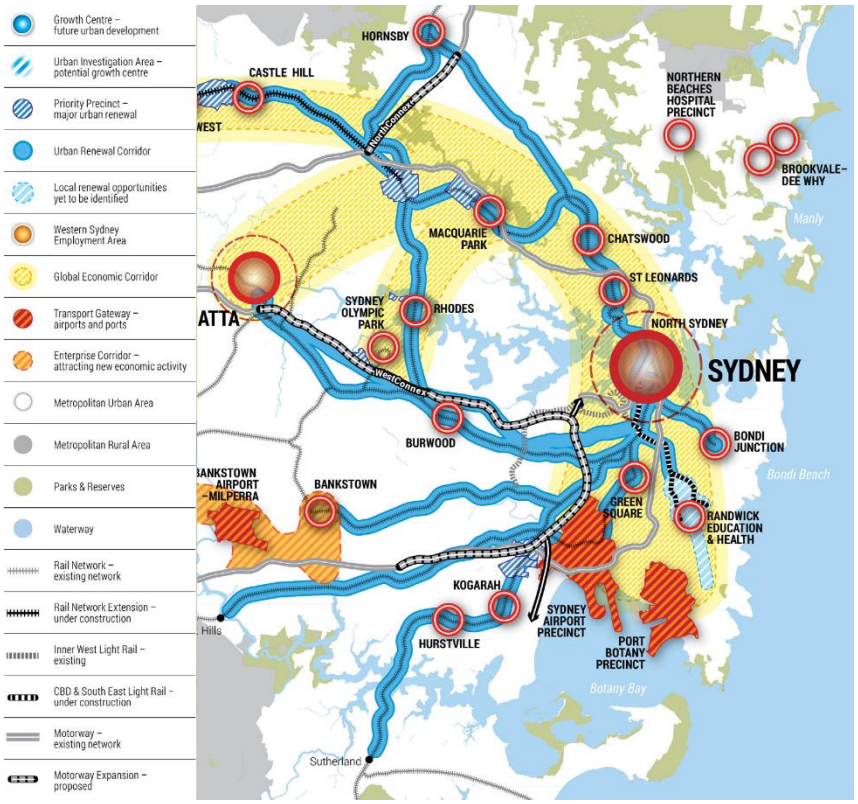
The EIS outlines, briefly, several conversion options that were considered by the Department. If the committee facilitates the access to the documents that were used to undertake this alternative analysis, it would be possible to deliver the requested analysis of the alternatives that were considered in the EIS.

A plan for growing Sydney

The decision to convert the Bankstown line is first publicly documented in the Department's master plan for the railways - "Sydney's Rail Future". The decisions in the master plan were then embedded in the Long-Term Transport Master Plan (LTTMP). The region wide planning and land use document - the Sydney Metropolitan Strategy of 2014, "A plan for growing Sydney" – then references and depends upon the decision in the LTTMP.

Section 5.1 of the EIS lists the 2014 Metropolitan Strategy as a key planning document. The document is referenced as a reason for increased patronage. For example, the Metropolitan Strategy contains '*Action 2.2.2: Undertake Urban Renewal in Transport Corridors*'. The plan '*focuses new housing in centres which have public transport that runs frequently and can carry large numbers of passengers.*' These corridors are outlined in blue Figure 1 below. Note, this strategy is based upon railway plans outlined in the 2012 Long Term Transport Master Plan.

Figure 1: A plan for growing Sydney; (Planning 2014, p 12, Figure 2)



The plan, on implementation, was to significantly increase the population density along the existing rail corridors, the light rail corridor, and along the new North-West Metro corridor.

The plan assumed that the rail corridors, whether served by metro or double-deckers, could support high frequency services and increased population density.

EIS 6.4 The 'do nothing' alternative

All comprehensive assessments consider the various options against a scenario in which no action is taken. The following extract from the EIS (p 6.10-11) is the "do-nothing" scenario.

> *'The 'do nothing' alternative would involve maintaining existing operations along the T3 Bankstown Line and not completing the Sydenham to Bankstown component of Sydney Metro City & Southwest. The 'do nothing' alternative would involve the T3 Bankstown Line continuing to operate as part of the Sydney Trains network, and Sydney Metro operating between Rouse Hill and Sydenham, rather than to Bankstown. Under this alternative, metro trains would need to terminate at Sydenham Station, and turn back (via an above ground turnback facility to the north of Sydenham Station), to provide a return service from Sydenham to Rouse Hill.*
>
> *Implementing the 'do nothing' alternative would have the following issues:*
>
> *• the full transport, city-building, and economic benefits of Sydney Metro City & Southwest (described in Section 5.3), and the benefits of the project would not be realized*
>
> *• it would not adequately respond to the challenges posed by population growth in Sydney (refer to Section 5.1), or enable realisation of the urban renewal opportunities provided by the strategies summarised in Section 5.2*
>
> *• existing rail network issues, constraints, and challenges would remain, including the existing limited network capacity of the Sydney Trains suburban network, crowding on trains and at existing CBD stations, and accessibility issues at stations between Marrickville and Bankstown (described in Section 5.1.1)*
>
> *• it would not address the recognised need for Sydney Metro – as described in Section 5.11*
>
> *•over 5,900 interchanges would need to occur at Sydenham Station, and additional infrastructure works would be required at Sydenham Station to allow metro trains to terminate and turn back2*
>
> *• there would be approximately 27,000 fewer trips on Sydney Metro in the one-hour AM peak, which would impact the effectiveness and viability of Sydney Metro between Sydenham and Rouse Hill.*
>
> *Further information on the need for, and benefits of, the project is provided in Chapter 5. In the context of the analysis undertaken for Sydney's Rail Future and the Transport Master Plan, the 'do nothing' alternative is not considered viable, based on its failure to deliver solutions to the existing and future needs of the rail network.'*

A few exemplar issues with the EIS are described below. Issues within the EIS include the lack of a comprehensive description of the analysed "do-nothing" scenario; as well as the EIS incorrectly assuming that certain problems could only be rectified with the metro conversion.

- From the less than one-page of "do-nothing" scenario analysis presented in the EIS, it is unclear if a detailed analysis was undertaken for the EIS.
- From the above quote, the EIS assumes the benefits of the project are disbenefits for the "do-nothing scenario". It is highly irregular to do so, because this effectively counts the project benefits twice by effectively adding the advantages once for the preferred scenario and also effectively subtracting the benefits from the do-nothing scenario.

[1] The identified needs are 1) population growth, 2) accessibility, 3) network bottlenecks. All three are addressed in previous bullets.
[2] Infrastructure changes are required whether the mero is extended or terminated.

- The accessibility issues listed above between Marrickville and Bankstown are clearly the outcome of Government policy. The Auditor General found the government and the department spent a large proportion of the $700 million Transport Access Program on car-parks rather than accessibility upgrades; see (Auditor NSW 2019). The Auditor General notes that NSW is non-compliant with the legally binding Disability Standards for Accessible Public Transport (the DSAPT) issued by the Australian Government in 2002. Contrary to the repeated assertions in the EIS, if funding was allocated to address these accessibility issues, they could be rectified directly without the metro conversion.
- In addition, the 2014 Metropolitan Strategy and the Department's subsequent population projections used for the EIS, are based upon the policy to focus population growth within the Bankstown corridor. It is highly irregular to assume the population growth from government policy as intrinsic to the City in a "do-nothing" scenario.

Finally, from the scenario above, it is clear that a key factor in the process was the 27,000 fewer trips on the metro during the morning peak hour if the metro was terminated at Sydenham and the Bankstown Line continued to run via the City Circle. The EIS notes that the reduced patronage risked the financial viability of the Metro already under construction. This may indicate the department consider the creation of a captive community with limited public transport alternatives as an essential component of the Metro's development.

EIS 6.2 Rail network alternatives

The following tables and figures are excerpts from the EIS which outline the decision-making process and describes the alternative options.

Table 1: Criteria for assessment of rail network alternatives; (Metro 2017, p 6.4, Table 6.3)

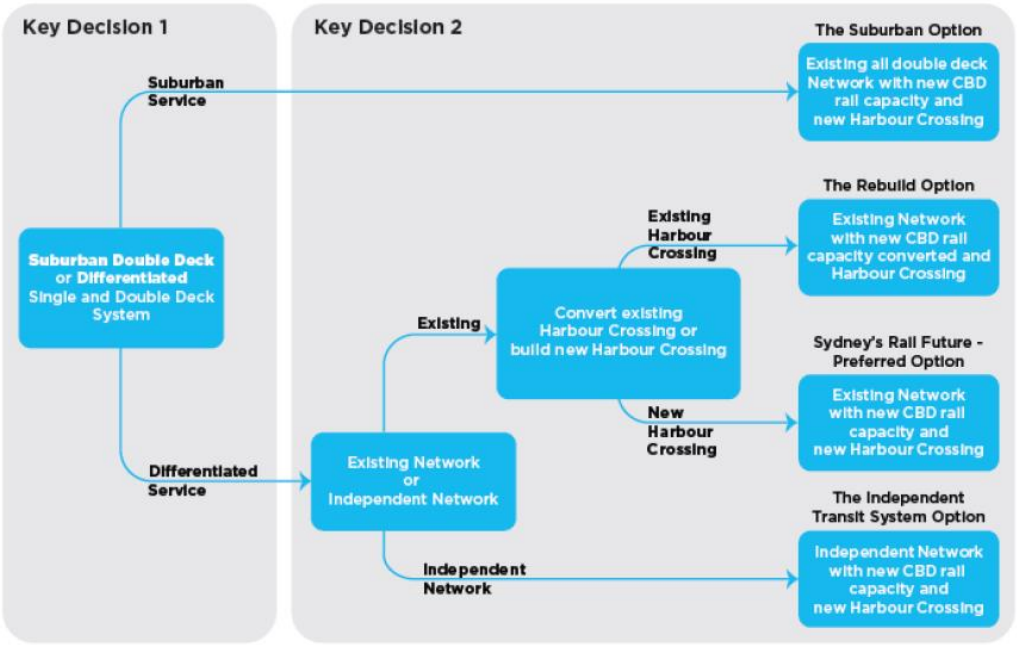
Criteria	Measure
Customer focus	Delivery of high-quality, customer-centric services, which prioritise timeliness, safety and security, and comfort.
Network capacity	Provision and management of capacity to match future population growth and meet increased demand for passenger rail travel.
Network resilience	Improvement of on-time running performance and sectorisation (i.e, operating the rail network as independent units, which provides the ability to increase frequency and reliability of services particularly during peak periods), and reduction of incident occurrence rate.
Delivery risk	Feasibility of construction, and risks in implementation.
Cost effectiveness	Delivery of value for money, taking into account capital costs and whole-of-life costs, including operations and maintenance.

Table 2: Summary of rail network alternatives considered; (Metro 2017, p 6.3, Table 6.2)

Alternative	Key features
Rail Future A – the suburban alternative (existing rail network)	• use of the existing suburban rail network • continuation of using double-deck rolling stock on the existing network, including for all future expansions (including a second harbour crossing) • capacity of 20 trains per hour per direction (or 24,000 people per hour per direction)
Rail Future B – the rebuild alternative	• rebuilding parts of the existing network to run single-deck metro trains • conversion of the North Shore Line services across the Harbour Bridge to metro, using the existing harbour crossing • major upgrading of the existing CBD infrastructure and stations required
Rail Future C – a metro network integrated with the existing rail network	• a metro rail network that would maximise use of, and be integrated with, the existing rail network • new CBD rail line and harbour crossing
Rail Future D – an independent metro network	• a completely new metro network • would operate independently and not integrate with the existing rail network • new CBD rail line and harbour crossing

The EIS outlines the decision-making process that led to the selection of the Bankstown Line for conversion to a Metro in Figure 2 and Table 3 below. Note, the table incorrectly labels the options from (Transport for NSW 2012a); swapping Option D with Option C.

Figure 2: Sydney's Rail Future alternatives decision process; (Metro 2017, p 6.4, Figure 6.1)



Source: Sydney's Rail Future (Transport for NSW, 2012a)

Table 3: Summary of the rail network alternatives assessment (Metro 2017, p 6.5, Figure 6.4)

Alternative	Assessment findings
Rail Future A – the suburban alternative	This alternative would not meet the long-term capacity and service improvements required by the *NSW Long Term Transport Master Plan,* and would not meet customer expectations for reliability, improved journey times, increased service frequency and convenience. The main beneficiaries of this alternative would be the North Shore and East Hills lines. Benefits for the west and Illawarra (Sutherland) would be limited, and further investment would be required to make more than an incremental difference to services on the Western and Illawarra lines.
Rail Future B – the rebuild alternative	Although rebuilding the existing network would improve capacity in the medium term, it would not meet demand in the long term, because capacity would be restricted to the existing single train line across the Harbour Bridge. Conversion of the existing North Shore line to accommodate a metro line would create increased safety issues associated with greater congestion on the existing, already overcrowded CBD stations. In addition, the number of services using these stations would reduce network reliability and resilience. This alternative offers the lowest cross-harbour capacity of the alternatives evaluated. It presents a high risk in terms of reliability and network resilience as it involves bringing more trains through the CBD and Wynyard and Town Hall Stations and fails to relieve existing bottlenecks that constrain the ability to deliver capacity increases that will help meet future demand.
Rail Future C – a metro network integrated with the existing rail network	This alternative scored higher than Rail Future D, as it would deliver significant capacity increases, provide high-quality levels of service, and significant improvements in operational reliability.
Rail Future D – an independent metro network	This alternative would only benefit customers along the new lines, and would not adequately address the future requirements of the rail network. It would result in marginal benefits in terms of service enhancement, capacity improvements, and improved operating efficiency on the existing rail network. This alternative would also be the most expensive, and would divert funding from service improvements on the existing rail network.

When considering the conversion of the Bankstown Line, the Sydney Metro Project Stage 1 and Stage 2 where already underway. As such, it is reasonable to take the construction of the North-Western Metro, the conversion of the Epping-Chatswood Rail Line, and the construction of the second harbour crossing as a given.

Therefore, it is reasonable to address only option C and Option D within context of the Bankstown Line conversion; not Option A or Option B.

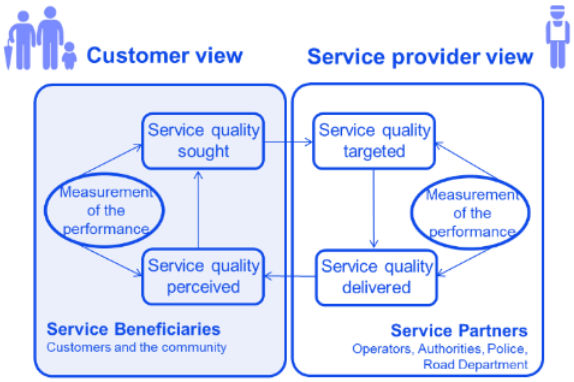
At no point has anyone suggested the creation of an independent metro network; as in Option C. As outlined in my submission to the inquiry[3], it has always been planned that any Metro development would be connected and integrated with the existing rail system at Epping and Central stations.

In addition, Option C also presumes that an Independent Metro would "*only provide benefits to customers who use the new lines*". This represents a fundamental misunderstanding of the nature of urban systems.

Firstly, a region's transport network is a single entity that emerges from the combination of all transport options available to persons within the region. That is because a customer is a free agent; they will select the best perceived transport option available from all possible combinations of modes and routes.

Furthermore, the benefits of a transport network are not delivered solely to the persons using the network to travel. The beneficiaries of a transport network are all the entities that create value through direct or indirect utilisation of the services provided by the network. As such, any improvements to the region's transport network deliver benefits to the entire community in that region.

Figure 3: The Service Quality Loop (CEN 2002)



For example, all the businesses in Macquarie Park are beneficiaries of the Sydney Metro by utilising its services to access a larger labour pool spread throughout the entire city. All stores in the Macquarie Centre shopping complex are beneficiaries of Sydney Metro, as Macquarie University station allows them to access a greater number of customers. In addition, people driving to Macquarie Park also benefit from the metro service, as it reduces the number of cars on the road.

It is also incorrect to assume that the people of NSW will not change their usage of the transport network if a more optimal solution were to become available. People will choose the optimal combination of modes and route available to satisfy their journey needs. As an example, in my submission, I outlined significant increased patronage on the Cumberland Line (Liverpool-Blacktown via Parramatta) after the number of services increased which serves as a clear example of travel adaption. Adaption means passengers would change from the crowded heavy rail, even to an "independent" metro, if it provided them a better option.

The assumption that Option C - an independent metro - would not integrate with existing heavy rail system was never policy. It is also incorrect to assume that an independent metro would not directly and indirectly benefit the entire community. These misunderstandings inevitably lead to an incorrect options assessment.

Since the options assessment was between conversion of an existing line (Option C) and the strawman of an impossible independent metro network (Option D) the government could only reasonably choose the conversion. An options analysis where the assumptions lead the government inevitably to a specific conclusion is highly irregular.

[3] Beginning on page 14 under Sydney Metro Mark I trough to Sydney Metro Mark IV; and continuing in my additional submission.

6.3 Rail line conversion options

Table 4 below summarises the three pages of alternatives analysis. The alternatives analysis was incomplete because the rail options analysis discussed above resulted in the assumption that at least one rail line must be converted to metro. The assumptions excluded alternative solutions to the bottlenecks.

The alternatives are listed here for your reference. Regrettably, this is the extent of detail for the options analysis presented in the EIS. Therefore, I was unable to precede with an analysis. My analysis would have required many assumptions regarding the considered alternatives and invariably those assumptions would have differed significantly from the assumptions used by the department. As such, I would not be conducting the analysis requested by the honourable member during the inquiry.

Table 4: Summary of the options assessment (Metro 2017, p 6.7, Table 6.5)

Option	Evaluation	Finding
Base case	[Sydney Metro on the T3 Bankstown Line to Cabramatta and Lidcombe, and the T4 Eastern Suburbs and Illawarra Line to Hurstville.] • Consistent with *Sydney's Rail Future* • Improved connectivity from the south and southwest to the CBD and North Shore/Macquarie Park • Strengthens travel and capacity within the Bankstown corridor • Allows wider suburban network to operate more effectively (especially additional capacity for the East Hills, South and Inner West Lines) • Provides relief to the Illawarra Line	Assessed as having some disadvantages. Otherwise performs reasonably well and consideration should be given to whether variations are available that overcome identified disadvantages.
Option 1	[Sydney Metro via the T4 Eastern Suburbs and Illawarra Line, and the T2 Airport, Inner West & South Line, to Hurstville and Revesby, with the T3 Bankstown Line remaining suburban but terminating at Central Station.] • Improved connectivity from the south to the CBD and North Shore/Macquarie Park • Connectivity and a metro service to the International and Domestic Airports	Assessed as having some disadvantages, as well as constructability issues. Has some advantages and consideration should be given to whether variations are available that overcome identified disadvantages.
Option 2	[Sydney Metro via the T2 Airport, Inner West & South Line only, with the T3 Bankstown Line remaining suburban but terminating at Central Station.] • The conversion of the Inner West Line to Homebush would lead to a reduction in capacity for the T1 Western Line, as T2 South Line services would need to merge with T1 Western Line services at Strathfield, reducing the capacity of both these lines • The connection of the tunnel to the T2 Inner West Line tracks would be a complex construction in an extremely constrained urban residential environment • The conversion of the T2 Inner West Line would result in driverless metro tracks operating in a six track corridor in parallel with suburban and intercity tracks.	Assessed as inferior, particularly in terms of system capacity, and would have constructability challenges and high cost.

Option	Evaluation	Finding
Options 3 and 4	[Sydney Metro to Revesby via Airport only (T2 Airport, Inner West & South Line), ○ #3 with the T3 Bankstown Line and the T4 Eastern Suburbs and Illawarra Line remaining suburban ○ #4 with the T3 Bankstown Line remaining suburban but terminating at Central Station.] • The conversion of the T2 Airport Line to Revesby to metro operations would lead to a reduction of capacity for the T2 South Line to East Hills. Services from west of Revesby would need to operate via Sydenham, and combined with T3 Bankstown Line Services, there would be insufficient capacity to operate the 14 services per hour that would be required to meet demands west of Revesby • The conversion of the T2 Airport Line to metro and the operation of this line with up to 30 trains per hour in peak periods, would be significantly higher capacity than would be required to meet demand • The conversion of the T2 Airport Line would involve a complex break into operating tunnel, significant tunnel ventilation upgrades to allow for 30 trains per hour and a significant period of closure • The ultimate operation of 30 trains per hour would be incompatible with the requirements of airport passengers with luggage, leading to longer dwell times and compromising the metro reliability.	Assessed as providing excessive capacity for T2 Airport Line patronage, while inadequately addressing network demand and relieving broader network capacity constraints.

As a result of the assessment, options 2, 3 and 4 were discarded. A review of the remaining options led to the development of a number of sub-options for consideration:

• Enhanced base case – extension of Sydney Metro tunnel from Central Station to Sydenham Station, conversion of the T3 Bankstown Line to metro operations between Sydenham and Bankstown stations, and safeguarding a future connection to Liverpool.

• Option 1, sub-option C – Sydney Metro via Airport to Hurstville and Revesby (with the

T3 Bankstown Line remaining as suburban and continuing to operate around City Circle).

• Option 1, sub-option D – Sydney Metro via Airport to Hurstville and Revesby (with the T3 Bankstown Line remaining as suburban and terminating at Central Station).

Bibliography

Metro 2017 also EIS	Transport for NSW - Sydney Metro Corp. (2017), "Sydney Metro City & Southwest Sydenham to Bankstown upgrade Environmental Impact Statement Volume 1A – Parts A and B – Chapter 5 & 6", State of New South Wales
Planning 2014	Department of Planning and Environment (2014) "A Plan for Growing Sydney", State of New South Wales
Transport for NSW 2012a	Transport for NSW. 2012, "Sydney's Rail Future – Modernising Sydney's Trains", State of New South Wales

ENDS