Sydney Metro
North Sydney CBD Business Forum

Alex Daly | Contract Director | Tunnel & Station Excavation Works

sydneymetro.info
Overview

1. Introduction
2. Sydney Metro Overview
3. Northwest
4. City & Southwest
5. Q&A
66km new metro line
Two stages
31 metro railway stations
Strategic context

Rebuilding NSW
State Infrastructure Strategy 2014

State Infrastructure Strategy

NSW 2021
A PLAN TO MAKE NSW NUMBER ONE

State Plan

Planning

Budget

Infrastructure Statement
2015-16

NSW

Budget Paper No. 2

Transport

NSW LONG TERM TRANSPORT MASTER PLAN
December 2012

Rail

SYDNEY’S RAIL FUTURE
Modernising Sydney’s Trains
June 2010
Sydney Metro Benefits

- Allowing people to travel from one key centre to another in minutes
- Improving access to jobs, education and recreation
- Ultimate capacity: a train every two minutes under the CBD and an increase of up to 60 per cent across the wider network
- Reduce crowding on trains, stations and platforms
- Encouraging greater commercial development and job creation along the global economic corridor and west to Bankstown
- Enabling housing and employment growth along the Global Economic Corridor and west to Bankstown
- Stand-alone line operating independently of the existing rail network, not subject to wider suburban delays
- Connecting Sydney’s economic centres with a boost of activity up to $5 billion per year
Sydney's rail congestion

A railway network built over 160 years

MORNING PEAK HOUR

T1 Western
T1 Richmond
T1 North via Strathfield
T1 North via Macquarie Park
T1 North Shore
T2 Airport
T2 South & Inner West
T2 East Hills
T3 Bankstown
T4 Eastern Suburbs
T4 Cronulla
T4 Illawarra
Blue Mountains
Newcastle & Central Coast
South Coast

120 TRAINS PER HOUR

15 TRAIN LINES

CURRENT Before Sydney Metro

South & Inner West
City Circle
Bankstown
Airport & East Hills
City Circle

The Bankstown Line adds to Sydney's big rail bottleneck
It funnels trains on to the East Hills and Inner West lines outside Central
Queuing trains make delays worse, causing backlogs in the west and south west

6 CBD TRACKS

FUTURE With Sydney Metro - busting congestion

South & Inner West
City Circle

SYDNEY METRO

Bankstown

Airport & East Hills
City Circle

ROUSE HILL

- Removes the Bankstown Line bottleneck by putting the line on Sydney's new stand alone metro system
- Suburban trains from the Bankstown Line allocated to other lines
- Clearing the funnel means more trains and more reliable services
Features of Sydney Metro

**Key Facts**

- **2019**: Sydney Metro Northwest opens
- **2024**: Sydney Metro City & Southwest opens
- **31**: 31 Metro stations
- **10**: Off-peak train every 10 minutes
- **98%**: On-time running reliability
- **4000**: Commuter car parking spaces (Northwest)
- **No timetable - just turn up and go**: Continuous mobile phone coverage throughout network
- **Opal ticketing like rest of Sydney**: Ultimate capacity - a train every two minutes each way under the CBD

**Train Features**

- Three double doors per carriage for faster loading and unloading
- Level access between platform and train
- Wheelchair spaces, separate priority seating and emergency intercoms
- Real-time travel information and live electronic route maps
- Two multi-purpose areas per train for prams, luggage and bicycles

- **26 CCTV cameras per train**: inside you can see from one end of the train to the other and video help points
- **Platform screen doors keep people and objects away from the edge**: and allow trains to get in and out of stations much faster

**Safety**

- Sydney Metro is Australia’s first fully-automated metro rail network
- Around the world, millions of people use these networks every day in cities like Paris, Singapore, Dubai and Hong Kong

- **Constant monitoring**: Expert train controllers monitor entire metro system
- **Security**: More than 230 tunnel cameras

- **Operations Control Centre**: State-of-the-art network controlled from new high-tech facility at Turrellong Road
- **Signalling and communications systems**: Control the trains, tunnels, platforms and skytrain to deliver a safe and reliable journey

- **Faster journeys**: System minimises the time trains are stopped at stations and the time between each train

Customer service assistants at every station and moving through the network during the day and night

170 metres long platforms - longer than most of Sydney

Clean platforms and trains

Heating and air conditioning

An example of a metro operations control centre

A train in a tunnel
“the customer is at the centre of everything we do at transport”
The customer journey

1. Origin
2. Travel to Metro
3. Interchange and precinct
4. The station
5. On board the Metro
6. The station
7. Precinct and interchange
8. Travel from Metro
9. Destination
Customer Experience

- Safe and secure
- Highly legible
- Fully automated trains
- Comfortable service
- Move more people
- Fast and reliable service
- Accessible system
- Connects jobs and people
New Solutions – Platform Screen Doors
Improving connectivity

Transport Infrastructure and Services for the Sydney Metro Corridor
Improving economic productivity

North West corridor
- $1,282m economic boost
- 10,366 additional jobs

Bankstown corridor
- $817m economic boost
- 6,536 additional jobs

Global Sydney
- $3,496m economic boost
- 25,652 additional jobs
Shaping Sydney's growth

Connecting 514,000 people and 775,000 jobs by 2036

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<th>POPULATION</th>
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<td>29,541</td>
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<td>CBD</td>
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<td>Southwest</td>
<td>37,861</td>
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<td>Total</td>
<td>562,106</td>
<td>774,552</td>
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Transforming land use - environments

New Communities
Vibrant new communities centred around Metro Station locations

Infill development
Infill development adjacent to metro stations within existing centres

Over Station Development
OSD opportunities integrated with new stations at existing commercial centres

Catalyst for development
Catalyst for development opportunities within existing centres
Sydney Metro Northwest

Stage 1 – 36km
Open first half of 2019
8 new stations; 5 upgraded
4,000 car spaces

Legend
- Sydney Metro Northwest alignment (tunnel)
- Sydney Metro Northwest alignment (skytrain)
- Sydney Metro City & Southwest alignment
Sydney Metro: City & Southwest

- Chatswood to Sydenham EIS exhibition  Q2 2016
- Start major contract procurement  Q3 - Q4 2016
- Sydenham to Bankstown EIS exhibition  2017
- Start construction  2017
- First TBM  2018
- Operations  2024
Contracting strategy – City & Southwest

TSOM
Trains, Systems, Operations and Maintenance (Operations and maintenance between Bankstown and Cudgegong Road)
Potential Augmentation

Line-wide Contracts
Multiple contract packages

SSC
Southwest Station and Corridor Works
Design and Construct with Early Contractor Involvement tender process

Central Station Main Works
Managing contractor (single stage) with Early Contractor involvement tender process

STME
Sydenham Junction Works

TSE
Tunnels and Station Excavation Works
Design and Construct

CSM*

Stations, Mechanical and Electrical Works
Design and Construct

Enabling Works
Multiple contract packages

*Central Station Main Works scope is subject to confirmation.
**Over station development is additional to above contract packages.
### City & Southwest Indicative Construction Timeframe

<table>
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<tr>
<th>Construction activity</th>
<th>Indicative construction timeframe</th>
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<tr>
<td><strong>Early works</strong></td>
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<td><strong>Tunnel construction</strong></td>
<td><img src="image" alt="Tunnel construction" /></td>
</tr>
<tr>
<td><strong>Station excavation and structural works</strong></td>
<td><img src="image" alt="Station excavation" /></td>
</tr>
<tr>
<td><strong>Services facility excavation and structural works</strong></td>
<td><img src="image" alt="Services facility excavation" /></td>
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<tr>
<td><strong>Tunnel fit out</strong></td>
<td><img src="image" alt="Tunnel fit out" /></td>
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<tr>
<td><strong>Station construction and fit out</strong></td>
<td><img src="image" alt="Station construction" /></td>
</tr>
<tr>
<td><strong>Services facility construction and fit out</strong></td>
<td><img src="image" alt="Services facility" /></td>
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<tr>
<td><strong>Testing and commissioning</strong></td>
<td><img src="image" alt="Testing and commissioning" /></td>
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*Image: sydneyMETRO*
Tunnel Construction

Northern Drive
- Chatswood dive site
- 6.2km of Tunnel to Blues Point
- 2 x Double Shield TBM

Southern Drive
- Sydenham launch site
- 6.8km of Tunnel to Barangaroo
- 2 x Double Shield TBM

Sydney Harbour
- 0.9km Slurry TBM
- Launch shafts at Barangaroo and retrieval at Blues
1 metre
City Circle
York Street/Wynyard rail tunnel

21 metres
Cross City Tunnel
Outside Town Hall

25 metres
Sydney Harbour Tunnel
Average depth

25 metres
Lane Cove Tunnel
Average depth

27 metres
Sydney Metro Northwest
Average depth

30 metres
Epping to Chatswood Rail Link
Average depth

32 metres
Eastern Distributor
Average depth

35 metres
WestConnex
(New M5)
Average depth

25-40 metres
Sydney Metro City & Southwest
(Chatswood to Sydenham)
Average depth

90 metres
NorthConnex
Maximum depth
Artist’s impression of Crows Nest Station
Artist’s impression Victoria Cross Station
Tunnels & Stations Excavation

Currently out to tender

Two consortia shortlisted and invited to tender

- The John Holland CPB Ghella Joint Venture, made up of John Holland Pty Ltd, CPB Contractors Pty Ltd and Ghella Pty Ltd
- The Ferrovial, Acciona Ltd and BAM Joint Venture, made up of Ferrovial Agroman (Australia) Pty Ltd, Acciona Infrastructure Australia Pty Ltd and BAM International Australia Pty Ltd

Tender closes at the end of the year

Tender will be awarded in mid 2017
# Key Milestones

The currently planned Project timeline is as follows:

<table>
<thead>
<tr>
<th>MILESTONE</th>
<th>COMMENCING</th>
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<tbody>
<tr>
<td>Early consultation</td>
<td>Q1 2015  ✓</td>
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<tr>
<td>Project scope consultation</td>
<td>Q2 2015  ✓</td>
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<tr>
<td>Industry engagement</td>
<td>Q2 2015  ✓</td>
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<tr>
<td>Lodgement of State Significant Infrastructure Application Report (SSIAR)</td>
<td>Q4 2015  ✓</td>
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<tr>
<td>Reference Delivery Strategy</td>
<td>Q4 2015  ✓</td>
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<tr>
<td>Start major contract procurement</td>
<td>Q2 2016  ✓</td>
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<tr>
<td>Chatswood to Sydenham EIS exhibition</td>
<td>Q2 2016  ✓</td>
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<tr>
<td>Sydenham to Bankstown EIS exhibition</td>
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<td>Start construction</td>
<td>2017</td>
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<td>First TBM</td>
<td>2018</td>
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<td>Operations</td>
<td>2024</td>
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## Key Milestones

Major contract packages – indicative timing

<table>
<thead>
<tr>
<th>PACKAGE</th>
<th>INDICATIVE START DATE</th>
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<tbody>
<tr>
<td>Tunnel and Station Excavation Works (TSE)</td>
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<tr>
<td>Early and Enabling Works</td>
<td>2016-2017</td>
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<tr>
<td>Central Station Main Works (CSM)</td>
<td>Q1 2017</td>
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<td>Southwest Station and Corridor Works (SSC)</td>
<td>Q1/Q2 2017</td>
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<tr>
<td>Sydenham Junction Works</td>
<td>Q1/Q2 2017</td>
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<tr>
<td>Stations, Mechanical and Electrical Works (STME)</td>
<td>Q3/Q4 2017</td>
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<tr>
<td>Line-wide Contracts</td>
<td>Q3/Q4 2017</td>
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Thank you