November 2014

SRT SYDNEY RAPID TRANSIT

Transforming Sydney

60% more trains

Faster, more frequent services

No timetable – just turn up and go

A once in a generation transformation of Sydney's rail network

Sydney Rapid Transit (SRT) will cut crowding on trains and platforms – slashing congestion right across the Sydney rail network.

Working together with major advances to the existing suburban rail network, new state-of-the-art SRT will provide the capacity for 60 per cent more trains across greater Sydney in the peak – room for an extra 100,000 customers per hour.

SRT is the next major rail project identified in Sydney's Rail Future, the NSW Government plan released in 2012 which includes the North West and South West Rail Links.

This project can be brought forward into the short term with the long-term lease of poles and wires.

The project will extend the North West Rail Link under Sydney Harbour, through the CBD and to Bankstown.

This will provide over 60 km of rapid transit across Sydney.

Together, SRT and the **Western Sydney Rail Upgrade Program** (a major program including new services and rail upgrades for the T1 Western Line) will deliver benefits for train customers across all of Sydney, especially the west and south west, including:

- **Cutting crowding** on the T1 Western Line and on trains from the south west
- **Less platform crowding** at Wynyard and significant reductions at other key stations such as Town Hall and North Sydney
- **Up to 10 minutes faster** from Bankstown to the city
- **Around 20 minutes faster** trip, Martin Place to Macquarie Park.

SRT will future-proof the city's rail system for generations to come.

SRT will have the capacity to operate 30 trains an hour through the CBD – or one train every two minutes in each direction, with 98 per cent reliability.

The Western Sydney Rail Upgrade Program will deliver more trains and more capacity for people from Penrith, Blacktown, Westmead and Parramatta.

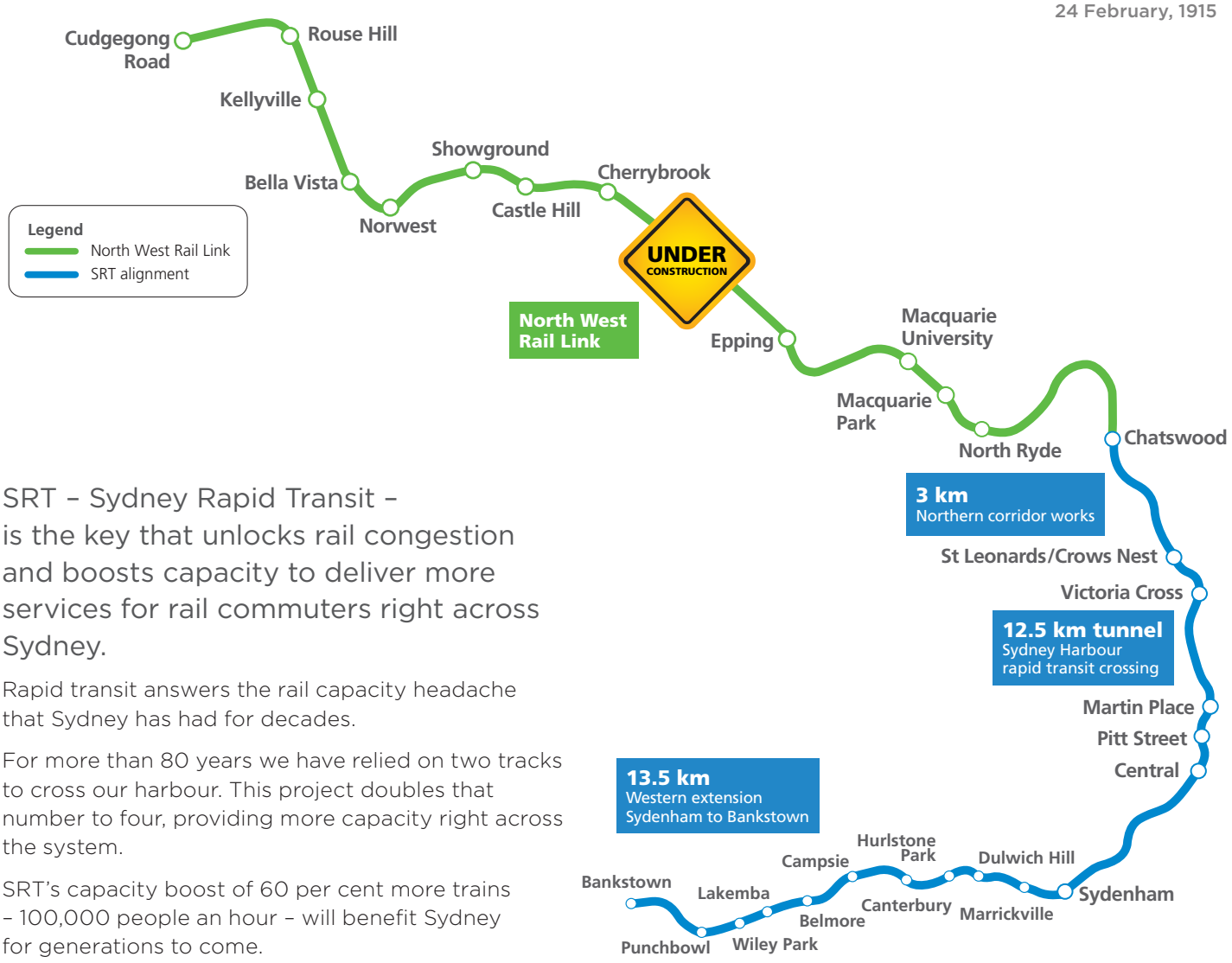
At least five new SRT stations will be built at Central, Pitt Street, Martin Place, Victoria Cross and St Leonards/Crows Nest.

A number of possible additional SRT stations are also being investigated such as Barangaroo, Sydney University and Waterloo.

How SRT unlocks rail across all of Sydney

> **"The seating and carrying capacity of the cars, and the rapidity with which they can be loaded and unloaded are very important factors in the success of any rapid transit railway."**

J.J.C. Bradfield – Report into proposed electric railways for the City of Sydney
24 February, 1915



SRT – Sydney Rapid Transit – is the key that unlocks rail congestion and boosts capacity to deliver more services for rail commuters right across Sydney.

Rapid transit answers the rail capacity headache that Sydney has had for decades.

For more than 80 years we have relied on two tracks to cross our harbour. This project doubles that number to four, providing more capacity right across the system.

SRT's capacity boost of 60 per cent more trains – 100,000 people an hour – will benefit Sydney for generations to come.

SRT is the new rapid transit line planned to extend from the North West Rail Link at Chatswood, under the harbour, through the heart of the city and on to Bankstown.

When completed, the project will deliver fast, safe and frequent automated rapid transit all the way between Rouse Hill and Bankstown.

It is the biggest step forward in rail travel in Sydney in a century.

SRT provides a brand new, high frequency rapid transit line through the heart of the city, with new underground stations proposed at Martin Place, Pitt Street and Central.

New rapid transit stations are also proposed for St Leonards/Crows Nest and Victoria Cross (North Sydney).

Ultimately this new line can run up to 30 trains an hour (one every two minutes) – each way.

New CBD stations will take pressure off existing city stations like Town Hall and Wynyard.

Extending SRT to Bankstown injects an immediate capacity boost for the Bankstown line. Customers from Bankstown, Lakemba, Campsie and Marrickville will just turn up and go on a rapid transit train every four minutes in the peak.

With rapid transit to Bankstown, Sydney Trains will instantly have ten new paths for extra trains that allows immediate advantages to flow onto other lines.

SRT benefits: jobs, the economy and growth

Every weekday, the population of Sydney's CBD swells from its 50,000 residents to around half a million people.

As Australia's only true global city, Sydney's economy provides a fifth of Australia's gross domestic product.

Once operational, Sydney Rapid Transit will boost economic activity by more than $5 billion per year by supporting jobs and business growth along its route.

The economic boost delivered by Sydney Rapid Transit will:

- Improve access to jobs
- Change the way people move about the city and reduce congestion
- Allow people to travel from one key centre to another in minutes
- Enable housing and employment growth along the Global Economic Corridor and south to Bankstown
- Encourage greater commercial development – and jobs – in key areas of the city and North Sydney
- Deliver huge flow-on benefits across productivity, wages and the state's overall economic performance.

SRT economic benefits

An economic review has indicated that by delivering SRT by 2024, the following outcomes are achieved:

Economic boost

- $1.3 billion in North West corridor per annum
- $3.5 billion in CBD
- $800 million in Bankstown corridor.

Jobs created

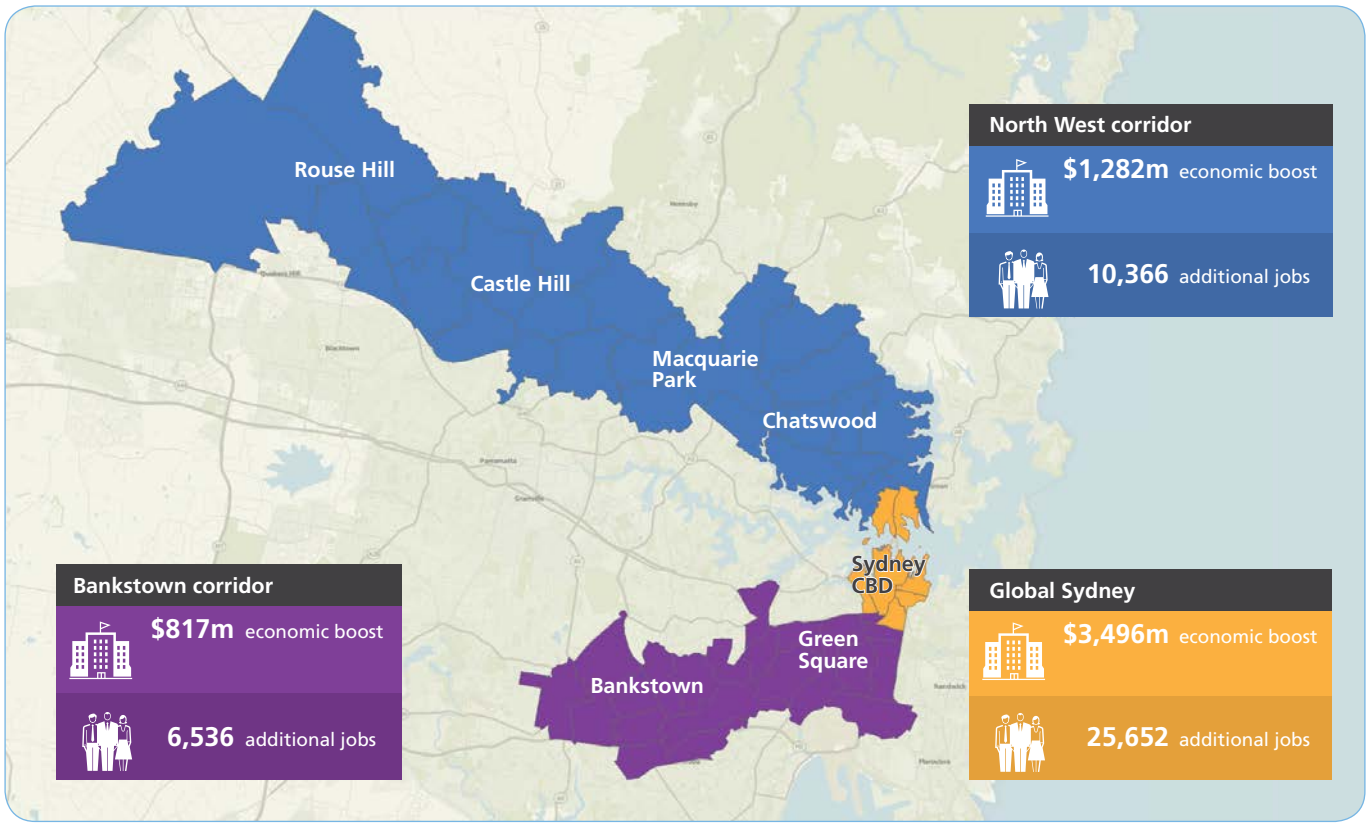
- 42,500 in the Global Economic Corridor by 2036 (3,500 per annum).

Boost Sydney's international competitiveness

Employment across Sydney is expected to increase from 2.1 million workers today to about 3 million by 2031.

About 60 per cent of people will work in the Global Economic Corridor stretching from Macquarie Park, through Chatswood, North Sydney, the Sydney CBD and on to the Airport.

SRT ECONOMIC BENEFITS



The three core components of the SRT project are:

1 Northern corridor works

A 3 km section of new tracks between Chatswood and the St Leonards area.

2 Sydney Harbour rapid transit crossing

Approximately 12.5 km of twin tunnels from northern Sydney to the Sydenham area, including the crossing beneath Sydney Harbour and a new underground CBD rapid transit line. New underground stations are proposed for St Leonards/Crows Nest, Victoria Cross (North Sydney), Martin Place, Pitt Street and Central with investigations at other locations like Barangaroo, Sydney University and Waterloo.

3 Western extension to Bankstown

Upgrading and converting the existing 13.5 km rail line from Sydenham Station to Bankstown Station to rapid transit rail.

SRT and Western Sydney Rail Upgrade benefits


100,000 MORE PEOPLE EVERY PEAK HOUR
New intercity trains from Central Coast
HORNSBY
Around 10 minutes faster Norwest to Central than with only North West Rail Link
98% reliability
EPPING
CARLINGFORD
Express trains to city
Around 10 minutes faster – Macquarie Park to North Sydney
Around 10 minutes faster – Chatswood to Central
CHATSWOOD
MATTA
SYDNEY OLYMPIC PARK
LIDCOMBE
Capacity for a SRT train every 2 minutes – each way
Around 20 minutes faster – Martin Place to Macquarie Park
Bottlenecks reduced
STRATHFIELD
CENTRAL
BONDI JUNCTION
15 SRT trains an hour
10 minutes – Bankstown ntral
BANKSTOWN
20 trains an hour each way on City Circle
Around 10 minutes faster – Bondi Junction to North Sydney
SYDENHAM
People attracted across to rapid transit
Sydney Airport
Future SRT extension to Hurstville
HURSTVILLE
rains
SUTHERLAND
New intercity trains from Wollongong
CRONULLA
WATERFALL
Legend
SRT
Sydney Trains

Western Sydney Rail Upgrade

In combination with SRT, the Western Sydney Rail Upgrade will 'future proof' Sydney's suburban rail system.

It fixes the fundamental issues faced by Sydney's busiest train line, the T1 Western Line.

Sydney's rail system today is a complex tangle of lines that have tried for too long to serve the many needs of customers with just one product.

The Western Sydney Rail Upgrade identifies bottlenecks and delivers solutions that will guarantee more trains, more often.

A key task will be to do away with present rail junctions to eliminate the need for trains to slow down and queue as one train crosses tracks to pass another.

KEY BENEFITS

Fixing rail pinch points

Better signals

Parramatta to the City, turn up and go

Guaranteed express run

The work involves a series of detailed tasks such as new traction power supply systems, new high speed rail turnouts, and better train stabling and maintenance systems, which will transform an outdated rail line into a modern system.

Some projects include:

Introducing Automatic Trains Operations (ATO) – modern train operating system to assist train drivers between Parramatta and North Sydney, as used in some of Europe's big cities. ATO delivers more reliable train operations, ensuring smooth braking and acceleration to allow more trains per hour.

Introducing Automatic Train Control (ATCS) – signalling between Penrith and the city. ATCS replaces line-side rail signals with in-cab signalling that brings Sydney suburban train operations up to international standards and best practice.

Additional rail projects that increase reliability for customers:

- Upgrades to rail tracks at pinch points
- Reducing Sydney's biggest rail bottleneck near Redfern
- New signals
- Traction power supply upgrades.

Why act now?

Transport across Sydney's Global Economic Corridor is already at or near capacity.

Today, there are parts of the rail network where up to 20 trains an hour should run, but because of train and platform congestion only 17 trains an hour actually get through.

TfNSW assessments indicate that unless SRT is built, by 2026 most rail lines approaching the CBD will have significant crowding.

There will be places where customers will simply not be able to get on a train because it is already so crowded.

Increasing demand will mean that by 2026 the majority of trains approaching the city will be at or exceed capacity.

By 2031, the number of people travelling to the city centre is expected to grow to 775,000 – an extra 145,000 more trips a day than today.

This is the equivalent of 116,000 more cars driving into the Sydney CBD every day – the daily volume on a six-lane motorway. It also equals an extra 2,685 buses driving into the Sydney CBD every day.

Rapid transit, with its ability to ultimately run 30 trains an hour each way through the heart of the CBD, must clearly be the 'heavy lifter' for Sydney's transport workload.

Already, 620 buses cross the Sydney Harbour Bridge into the Sydney CBD each morning peak.

In future, without SRT, transport capacity constraints will limit jobs growth.

If a commercial area is difficult to reach, fewer people will want to do business or work there.

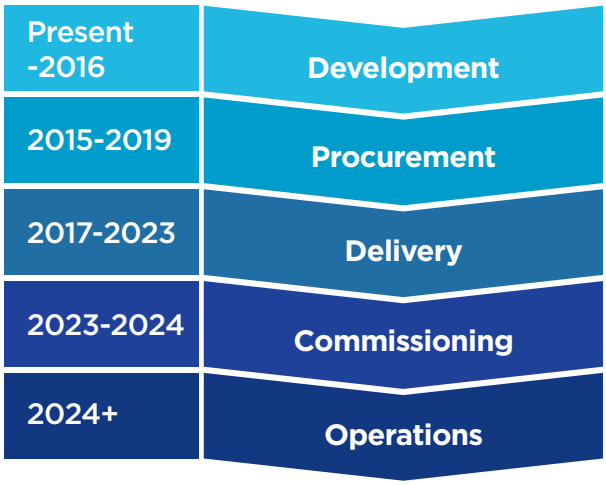
SRT and associated works will reduce both train crowding and cut queues at stations and make better use of our rail assets.

To meet the challenges that Sydney faces, SRT needs to be in operation around 2024.

Major infrastructure needs extensive lead times to plan and build.

It will take time to conduct the necessary environmental planning, work with communities and stakeholders, procure the construction contracts and then build and commission SRT, as shown in the indicative timeline below.

INDICATIVE TIMELINE



SRT engineering challenge

Building SRT – with twin tunnels beneath the harbour and rail lines running below Australia's biggest city – is a major engineering challenge.

It would be the biggest construction task the city has seen since the Harbour Bridge was built.

Initial engineering studies indicate the optimum way to build SRT will be with four tunnel boring machines.

The first challenge for SRT has been to identify the best route to cross beneath Sydney Harbour – west of the Harbour Bridge under McMahons Point and Millers Point.

This route provides:

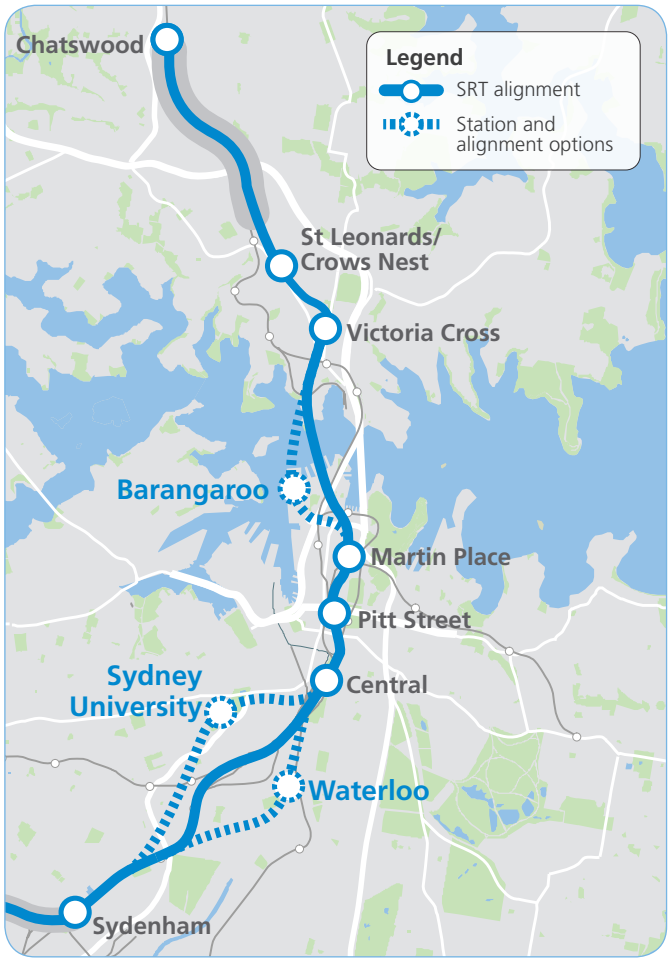
- A known area of sandstone that would be ideal for tunnelling
- A relatively shallow section of the harbour using a short route
- Few underwater obstacles such as submarine cables or major foreshore buildings
- Clear of major structures such as the Sydney Harbour road tunnel
- Allows the new line to easily access the central business district of the city.

SRT station options

In addition to five new underground SRT stations, the NSW Government plans to consult widely on a range of options, if re-elected.

These include possible additional stations:

- At Barangaroo
- At either Waterloo or The University of Sydney – but not both.



North West Rail Link tunnels now under construction.

SRT SYDNEY RAPID TRANSIT

NSW NOW The new state of business

NSW GOVERNMENT Transport for NSW