An overview:

Epping to Chatswood railway
- Upgrade to rapid transit
- Temporary transport plan
- Review of Environmental Factors exhibition

September 2014
Cover and this page: Sydney’s new rapid transit train.

Important Note
This document is an overview of the complete Review of Environmental Factors and the temporary transport plan documents developed by Transport for NSW in relation to the proposed upgrade of the Epping to Chatswood railway.

Full detail of all matters raised in this overview can be found in the above documents and their technical papers.

Your say will be an important part of this review process.

The complete review documents will be on public display and the community is encouraged to review all relevant materials before making a submission.

Details of the public exhibition and how to make a submission are on Page 28 of this document.

Transport for NSW will carefully consider all community submissions before proceeding to make a final decision on the proposed works and temporary transport plans.

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Introduction

Rapid transit rail will transform public transport in Sydney forever.

No other form of transport ever before seen in Sydney can move more people, more quickly than rapid transit rail.

Sydney, Australia’s only true global city, needs to start working now to prepare for the economic, housing and jobs growth of the future.

Sydney’s population today of around 4.4 million is expected to grow to around 5.9 million in less than 20 years - growth patterns that previously took 40 years to take place.

That is why the NSW Government developed Sydney’s Rail Future and why new rapid transit trains are so important to our transport plans.

One of the first things the NSW Government did when it came to power in March 2011 was to begin the North West Rail Link project.

Today, construction on this massive $8.3 billion project is well underway, and the first tunnel boring machine has now started work - four months ahead of schedule.

The 13 km Epping to Chatswood railway is a critical component of the overall North West Rail Link, and its upgrade to rapid transit standards will be an essential and final step towards bringing rapid transit to Sydney.

The benefits that rapid transit will bring to the Epping to Chatswood railway are significant, taking the number of trains from just four trains an hour in the peak direction today to 15 rapid transit trains in the future.

And there’s much more room to grow beyond that.

Sydney’s next generation rapid transit trains will feature easy access, three wide doors per carriage and plenty of seats.

The NSW Government has also now awarded the $3.7 billion Operations, Trains and Systems contract to Northwest Rapid Transit, comprising MTR Corporation (Australia), John Holland, Leighton Contractors, UGL Rail Services and Plenary Group.

Northwest Rapid Transit will be responsible for installing the new rail systems and providing the new trains for the North West Rail Link.

This will include upgrading all the stations between Epping and Chatswood including new passenger information systems, platform screen doors and better customer amenities including upgraded security and climate control to underground stations.

These works are not merely a cosmetic face lift.

They require a considerable construction effort over an extended period, taking what was a suburban train line to a next generation rapid transit rail line.

To operate rapid transit, many aspects of the existing suburban line have to be upgraded – from the signals to the platforms and the new passenger safety screen doors.

This document explains further the works that need to be done, and the interim public transport arrangements that will be necessary.

Key facts

The Epping to Chatswood railway will become part of an expanded rapid transit rail network for Sydney.

- It joins rapid transit rail from the north west that will use a proposed Sydney Harbour crossing to serve a new underground rail line and new CBD rail stations.
- To upgrade the Epping to Chatswood railway Transport for NSW will have to temporarily remove trains for seven months.
- This will occur in late 2018 and early 2019.
- A temporary transport plan featuring five rail replacement bus routes will be put in place while trains are unavailable on the line.
- Brand new rapid transit trains will be running on the Epping to Chatswood railway after the upgrade.
- New rapid transit will deliver almost four times the number of trains.
- Better facilities at upgraded stations will include platform screen doors and constant CCTV.

About this Review of Environmental Factors

On 8 May 2013 the Minister for Planning and Infrastructure approved the operation of rapid transit rail between Epping and Chatswood as part of the North West Rail Link Environmental Impact Statement Stage 2 – Stations, Rail Infrastructure and Systems.

This Review of Environmental Factors for the upgrade of the Epping to Chatswood railway is being undertaken in accordance with Part 5 of the NSW Environmental Planning and Assessment Act 1979 and Clause 79 of the State Environmental Planning Policy (Infrastructure) 2007.

Clause 79 outlines that railway infrastructure works are permissible without the need for development consent if they do not significantly affect threatened species, populations of species or ecological communities.

Following a review of the proposed works, Transport for NSW has determined that no significant impact upon the environment or threatened species is predicted and therefore a formal Environmental Impact Statement or a species impact statement is not required.

Transport for NSW has prepared a Review of Environmental Factors that includes a range of mitigation measures to manage and minimise likely impacts.

The complete Review of Environmental Factors will be publicly exhibited and the community will have the opportunity to study the Review and its supporting technical papers and make submissions to Transport for NSW.

Following the exhibition, Transport for NSW will consider all issues raised in the submissions and respond to community feedback in a submissions report.

After finalising and considering the submissions report, Transport for NSW will determine whether to proceed with the proposal and identify any further mitigation measures that might be required.
Sydney Rapid Transit

On 10 June 2014, NSW Premier Mike Baird and Minister for Transport Gladys Berejiklian announced plans to build SRT – Sydney Rapid Transit – the next big step in Sydney’s rail system.

Sydney Rapid Transit is the next major rail project for Sydney after the North West Rail Link and has been identified as an infrastructure priority from the proceeds of the long-term lease of the State’s electricity assets.

SRT will connect directly onto the North West Rail Link at Chatswood and will:

- Allow for a train every 2 minutes in each direction under the harbour
- Run in 12.5 km of new twin tunnels beneath North Sydney, Sydney Harbour and the CBD
- Provide new underground stations in the CBD, including potential stations at Martin Place, Pitt Street and Central
- Provide a massive boost in the number of trains right across Sydney
- Deliver less crowded CBD rail stations, with less people getting on and off trains at Wynyard and Town Hall
- Help reduce the number of buses crossing the Sydney Harbour Bridge each morning – cutting York Street congestion in the CBD
- A 60 per cent increase in train services to the CBD from all across Sydney.

Rapid transit benefits

Sydney Rapid Transit will be able to run up to 30 trains an hour in each direction on a brand new train network. You won’t need a timetable … you’ll just turn up and go.

Fast, safe and reliable … Sydney’s new generation of trains will arrive more often – and with 98 per cent reliability.

More doors mean it will be quicker to get on and off – and less stopping time at stations.

The platforms will be level with the train doors – and new technology like platform screen safety doors will keep people and objects away from the tracks.

This means trains will be able to come into the stations and leave much faster … delivering superior performance.

And inside, you’ll be able to see from one end of the train to the other … while there will be constant CCTV monitoring on board and at all the stations.

The trains

All trains on the North West Rail Link will be new, modern, “next generation” single deck rapid transit trains.

These next generation, automated rapid transit trains will deliver a fast, safe and reliable journey. They will have high performance standards and good customer amenity features.

The rapid transit trains will feature:

- Three doors per side per carriage – fast to get on and off to improve reliability
- 98 per cent reliability
- Air conditioning
- A mixture of seating arrangements
- Wheelchair spaces
- Priority seating areas for mobility impaired, the elderly and parents with prams
- Level access between platform and train
- Modern passenger information systems
- Advanced train control and safety systems.

Sydney’s rapid transit capacity of about 40,000 people per hour is comparable to the average capacity of rapid transit trains world-wide.

Sydney’s current suburban trains can reliably carry 24,000 people an hour per line.

MAXIMUM SYDNEY TRAIN CUSTOMERS PER HOUR PER LINE

![Sydney Rapid Transit Map](image-url)

To build SRT, specialised tunnel boring machines will carve out twin tunnels through sandstone bedrock beneath Sydney Harbour.
The North West Rail Link – bringing rapid transit to Sydney

The North West Rail Link is a priority project for the NSW Government and Australia’s biggest single public transport project.

The North West Rail Link is the first stage of Sydney’s rapid transit network which will expand to take rapid transit trains under Sydney Harbour and into the city. As an integral part of Sydney’s Rail Future, the project will feature a new generation of reliable, safe, automated state-of-the-art rapid transit trains to Sydney – an Australian first.

The North West Rail Link will deliver a new high frequency rapid transit rail between Rouse Hill and Chatswood, a rapidly growing region that has increasing importance to the city’s future economic development.

Customers will benefit from a train every four minutes in peak times, or 15 trains an hour. There will be no need for a timetable – just turn up and go.

The project has been designed to meet the current and emerging transport needs of North West Sydney and improve access to jobs and services for people living in the corridor, while also providing greater travel choice. An extra 200,000 people are expected to move into Sydney’s North West over coming decades, taking the region’s population above 600,000.

Specifically, the North West Rail Link will provide:
- Approximately 400,000 existing residents in the North West with rail access to Epping, Macquarie Park, Chatswood then on to St Leonards, North Sydney and the Sydney Central Business District
- New rail services to existing suburbs in the Hills District as well as future areas of growth that are planned for residential and commercial development
- Frequent, regular rail services and improved travel time reliability compared with bus and private car
- Travel time savings from many areas of the North West region to the Sydney CBD and Macquarie Park, and also within the region, including to the Rouse Hill Town Centre, Castle Hill and Norwest Business Park
- An increase in services to Macquarie University and Macquarie Park
- Reduced bus congestion in the Sydney CBD in the longer term.

The project will also help the NSW Government to meet the priorities and objectives of NSW 2021 – the Government’s 10 year plan.

Overview: Epping to Chatswood railway – Review of Environmental Factors

- Upgrading the existing 13 km Epping to Chatswood railway to rapid transit standards, including the existing stations at Epping (lower level), Macquarie University, Macquarie Park, North Ryde and Chatswood (rapid transit platforms)
- Australia’s longest rail tunnels – up to 58 metres below ground at their deepest point and 15.6 km long
- Between Bella Vista and Rouse Hill, a 4 km skytrain viaduct is being built, followed by 4 km of bridges, embankments and surface tracks to the terminus
- A stabling yard to allow trains to be cleaned, maintained and parked at night and off peak at Tallawong Road, Rouse Hill.

The North West Rail Link will, for the first time, deliver a reliable heavy rail public transport service to a region that has the highest car ownership levels per household in Australia.

Building the North West Rail Link

An extra 200,000 people are expected to move into Sydney’s North West over coming decades, taking the region’s population above 600,000.

The project will meet the current and emerging transport needs of North West Sydney and improve access to jobs and services for people living in the corridor, while also providing greater travel choice.

The North West Rail Link will reduce car trips by 14 million a year – 12,000 fewer car trips than at present in an average two-hour morning peak.

The new stations are being designed to reflect the character of the local areas they serve and, where possible, environmentally friendly features such as natural lighting and ventilation will be used.

The project includes parking for 4,000 cars at five of the new stations as well as two major bus interchanges.
The Epping to Chatswood railway currently forms part of the Sydney suburban rail system.

The line features stations at:
- Epping
- Macquarie University
- Macquarie Park
- North Ryde
- Chatswood

Currently, the line links the T1 Northern Line with the T1 North Shore line, and carries services from Hornsby to the city via Epping and Chatswood.

The introduction of rapid transit will greatly increase the number of trains on the line, as well as its overall importance to Sydney’s transport system. Rapid transit will deliver faster journey times across Sydney’s rail network.

The Epping to Chatswood railway will become a part of Sydney’s new rapid transit system. It will be the link between new rapid transit on the North West Rail Link and new rapid transit using the new Sydney Rapid Transit system from Chatswood to North Sydney, the CBD and beyond.

Stations and facilities on the Epping to Chatswood railway will be upgraded to rapid transit standard.

Sydney Rapid Transit represents the biggest capacity boost to Sydney’s rail system for over 100 years, and the Epping to Chatswood railway is critical to its success.

That is why the upgrading of the line is so important to Sydney’s bigger transport plans.

Not only will the upgrade of the line bring major improvements to local customers, all of Sydney will benefit along the way.

The NSW Government has also now awarded the $3.7 billion Operations, Trains and Systems contract to Northwest Rapid Transit, comprising MTR Corporation (Australia), John Holland, Leighton Contractors, UGL Rail Services and Plenary Group.

The contract includes:
- Building eight new railway stations between Cudgegong Road, Rouse Hill and Cherrybrook
- Delivering commuter car parking for 4,000 cars
- Supplying the new generation rapid transit single deck trains
- Building and operating a stabling and maintenance facility at Tallawong Road, Rouse Hill
- Installing track, signalling, mechanical and electrical systems
- Upgrading the Epping to Chatswood railway for new rapid transit

- Operating the North West Rail Link - including all maintenance work
- NRT has undertaken extensive studies to maintain existing Epping to Chatswood railway systems. For example, the track, walkways, tunnel ventilation, overhead wiring and some station systems will remain.

The contract is one of three major contracts to deliver the North West Rail Link.

The other two contracts are:
- A $15 billion tunnelling contract was awarded in June 2013 to deliver Australia’s longest rail tunnels – 15 km twin tunnels from Bella Vista to Epping. The first of four tunnel boring machine has now started work
- The contract to build the 4 km elevated skyrail, from Bella Vista to Rouse Hill and other surface works including a bridge over Windsor Road.
The North West Rail Link will open in 2019 with 15 trains an hour during the peak initially - that’s one train every four minutes. Australia’s biggest public transport project includes eight new railway stations, five upgraded stations and 4,000 new commuter car parking spaces.

The North West Rail Link is Australia’s first fully-automated rapid transit rail network. Around the world, millions of people use these networks everyday in cities like Paris, Singapore, Dubai and Hong Kong.

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

A train every minutes outside peak hours, at night and weekends.

26 CCTV cameras per train; inside you can see from one end of the train to the other

Real time travel information and live electronic route maps

Wheelchair spaces, separate priority seating and emergency intercoms

Two multi-purpose areas per train for prams, luggage and bicycles

Six carriage trains at start

168 m long platforms – longer than most of Sydney

Faster journeys

System minimises the time trains are stopped at stations and the time between each train

98 per cent on-time running

Sydney’s rapid transit target capacity of about 45,000 customers per hour is comparable to the average hourly capacity of rapid transit trains worldwide.

Sydney’s current suburban trains can reliably carry 24,000 people an hour per line.

Safety doors

Platform screen doors keep people and objects away from the edge, improving customer safety and allowing trains to get in and out of stations much faster. These doors run the full length of the platforms and only open at the same time as the train doors.

Operations Control Centre

The nerve centre of the new rapid transit network will control and monitor all aspects of the new fully-automated system.

At all times, a team of expert train controllers monitor the system, making sure everything runs smoothly.

Constant monitoring

Expert train controllers monitor entire rapid transit system

Security

More than 230 tunnel cameras

Operations Control Centre

State-of-the-art network controlled from new high-tech facility at Tallawong Road

Signalling and communications systems

Controls 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

90 per cent on-time running

Sydney’s rapid transit target capacity of about 45,000 customers per hour is comparable to the average hourly capacity of rapid transit trains worldwide.

Sydney’s current suburban trains can reliably carry 24,000 people an hour per line.

Safety doors

Platform screen doors

Level access between platform and train

Three double doors per carriage for faster loading and unloading

Two multi-purpose areas per train for prams, luggage and bicycles

Six carriage trains at start

168 m long platforms – longer than most of Sydney
Overview: Epping to Chatswood railway – Review of Environmental Factors

Key impacts
The Review of Environmental Factors has identified a range of impacts, mostly from the need to implement a temporary transport plan during the time when it is essential to temporarily remove trains from the current Epping to Chatswood line.

Preliminary estimates indicate that this work, to be implemented across late 2018 and into 2019, will take about seven months to complete.

Impacts of the need to provide rail replacement services include:
- Around 60 extra buses in the peak hour in areas that already experience peak hour congestion, including the Macquarie Park area
- Extra buses and more people transferring between bus and rail at the Epping, Chatswood, Eastwood, Beecroft, Gordon and St Leonards Stations
- The need to relocate some current bus stops to provide room for the extra railway buses, such as some existing bus stops at Epping and Chatswood
- Temporary removal of some on-street car parking to make way for extra buses
- Limited impacts from construction traffic at some sites
- Construction noise and vibration impacts at some construction sites that are located near residential and business areas
- The performance of how some roads and intersections operate because of the extra buses using them.

Overview: Epping to Chatswood railway – Review of Environmental Factors

Transforming the Epping to Chatswood railway is a detailed engineering challenge that includes an extensive works program of track modifications, improved stations, new train operating systems and better customer amenity and safety.

Once upgraded, next generation rapid transit trains will serve stations on the line every four minutes in the peak. New rapid transit runs on the same type of tracks and the same railway gauge as Sydney Trains.

The upgrade requires:

Rail track work:
- Removal of existing tracks at Epping Station with the T1 Northern Line
- Connection of the rail lines to and from the new North West Rail Link with the existing lines at Epping (that run towards Chatswood)
- Removal of the existing tracks at Chatswood Station that currently run from the Epping to Chatswood railway and join onto the T1 North Shore Line
- Build in provision for future connection from the North West Rail Link at Chatswood to the new Sydney Rapid Transit line that is planned to run from Chatswood via 12.5 km of new twin tunnels beneath North Sydney, Sydney Harbour, the Sydney CBD and beyond to Sydenham and Bankstown
- Removal and separation of rail signalling and power supplies from those Sydney Trains lines that will become North West Rail Link lines.

New power systems:
- Routing of new power cables from the State’s power network to connect with the new rapid transit system
- Upgrading the existing Chatswood North power sub station which currently serves Sydney Trains. This work will include new power systems for Sydney Trains and new rapid transit.

Building modifications:
A series of building modifications are planned for Epping, Macquarie University, Macquarie Park, North Ryde and Chatswood, including:
- Replacement of platform seating, signage and other infrastructure with new facilities
- Installation of platform screen doors at Macquarie University, Macquarie Park and North Ryde
- Platform screen doors will also be installed on the Chatswood and Epping rapid transit platforms
- Installation of new air-control units – to provide cooler ventilation during the summer months
- New lighting.

New rail operation systems:
Automated rapid transit rail will introduce a range of new rail operating systems including:
- Automatic train operation
- Automatic train protection
- Installation of more than 26 km of new data, communications and signalling cables
- Removal of rail equipment no longer required such as signals and rail systems
- Modifications and improvements to current fire and life safety equipment, mechanical and fire control systems
- Installation of more than 230 security cameras in the tunnels.
Rapid transit benefits

- Sydney's new rapid transit trains allow people to get on and off more quickly than double deck trains
- This greatly improves reliability and increases the capacity of rapid transit compared to Sydney's current suburban trains
- Modern operating systems and signalling technology will optimise train running and maximise rail line capacity.

"No other form of transport ever before seen in Sydney can move as many people as quickly as rapid transit."

- Brand new, automated, fast, safe, frequent rapid transit will be running on the Epping to Chatswood railway every four minutes
- Better trains, better stations
- Turn up and go - no timetable
- Almost four times more trains under rapid transit in the peak direction
- High capacity
- Seamless interchange with other transport.
**Temporary transport plan**

Transport for NSW has developed a temporary transport plan for replacement bus services while the Epping to Chatswood railway is being upgraded.

This plan has been developed based on customer service objectives and forecast passenger demand. Transport for NSW will work closely with affected customers, residents, businesses and education facilities to help people plan ahead for the temporary transport arrangements.

A range of temporary works will be implemented across the temporary bus routes to facilitate bus operations during the Epping to Chatswood railway upgrade to:

- Provide extra bus stops, shelters and seats
- Provide signage
- Introduce bus-only signal phasing at selected locations such as at Epping
- Temporarily remove some on-street car parking at locations such as at Epping, Chatswood and St Leonards to make way for extra buses at these locations
- The core bus route will provide accessible services.

Transport for NSW recognises the impacts that the Epping to Chatswood railway upgrade and the need to have a temporary transport plan will have on people’s daily lives, and we will work to minimise impacts as much as possible. This will include working to ensure the duration of the essential works is kept to an absolute minimum.

Transport for NSW analysis indicates that around 14,000 customers a day will need to use the rail replacement bus services during the upgrade program. Because of the comparative speed of trains over buses in the Epping to Chatswood railway corridor, customers can expect longer journey times when the replacement bus strategy is in place.

**Three step upgrade program**

**2015 – 2018**

Early works take place during weekends and at night during routine Sydney Trains trackwork periods across the year.

**Mid 2018**

From mid 2018, the train timetable will change to provide trains from Hornsby to the city via Epping, West Ryde and Strathfield, instead of the present route from Epping via Macquarie Park.

An interim rail service could potentially run between Epping and Chatswood for about four months, subject to operational considerations closer to the start of conversion work.

**Late 2018**

From late 2018 until early 2019, it will be necessary to temporarily remove trains from the line. During this time, which is expected to take about seven months, the temporary transport plan involving five bus replacement routes will be put in place.

**2019**

The complete North West Rail Link between Rouse Hill and Chatswood will be operating - with a fully automated, next generation train running every four minutes during peak periods.

Transport for NSW has identified five customer segments, namely:

1. Northern Line customers from between Hornsby and Cheltenham who currently interchange at Epping to go to the Macquarie Park area.
2. Customers who might catch a train on the Epping to Chatswood railway to travel to stations either south of Chatswood or to stations north of Epping to Hornsby.
3. Customers from the Northern Line (south of Epping) who currently travel to stations between Epping and Chatswood.
4. Customers who interchange south of Chatswood to travel to the Macquarie Park area.
5. Customers from the North Shore Line who interchange to the Epping to Chatswood railway at Chatswood.

As a result, five distinct rail replacement bus routes have been identified to meet these customer needs.

**Making the best use of rail**

Although trains will be temporarily removed from the Epping to Chatswood railway for around seven months from late 2018 to early 2019, there will still be many options for rail travel.

People who do not need to get on or off a train at Macquarie University, Macquarie Park or North Ryde will find that rail will still be a viable option.

Customers travelling between the T1 Northern and T1 North Shore Line will be able to use alternative rail routes either via Hornsby or via Strathfield. Some examples are:

- Customers from Eastwood who want to travel to Artarmon can catch a train to Hornsby and change to a T1 North Shore Line train to Artarmon.
- Customers from Gordon can catch a train to Hornsby and then change trains to travel to Beecroft.
- Customers living at Pennant Hills or Normanhurst can catch the train to the city via Strathfield.
- Trains will continue to run from Hornsby to the City via Gordon, Chatswood and North Sydney on the T1 North Shore Line.

The analysis has included the customer needs of people travelling on other lines that connect with the Epping to Chatswood railway (see map above). A fleet of around 75 buses, operating about 160 services each weekday morning peak period and about 170 services each afternoon / evening peak will be provided. All buses involved in the temporary transport plan will be clearly identified.

Transport for NSW has developed a temporary transport plan for replacement bus services during the upgrade program. Because of the comparative speed of trains over buses in the Epping to Chatswood railway corridor, customers can expect longer journey times when the replacement bus strategy is in place.
5 temporary bus routes

Bus route 1:
A full time service stopping at all stations between Epping and Chatswood in both directions.

Bus route 2:
A peak period service with limited stops from Epping to North Ryde and Chatswood in the morning peak period and from Chatswood to North Ryde and Epping in the afternoon / evening peak.

Bus route 3:
A peak hour service operating: Two peak period bus services between Macquarie University and Macquarie Park, and from Chatswood to North Ryde and Epping in the morning peak period.

Bus route 4:
A peak period bus service from Eastwood to Macquarie University / Macquarie Park in the morning peak and running from Macquarie Park / Macquarie University to Eastwood in the afternoon / evening peak period.

Bus route 5:
A full time service stopping at all stations between Macquarie University / Macquarie Park / Macquarie University and an afternoon / evening service between Macquarie University / Macquarie Park and Gordon.

Five separate bus routes deliver these benefits:

1. Minimises customers interchanging between bus and rail at Epping and Chatswood.
2. Minimises the impact on local amenity at Epping and Chatswood by reducing the overall number of additional buses visiting these sites.
3. Gives customer direct services from Eastwood, Beecroft, St Leonards and Gordon to and from Macquarie Park and Macquarie University.

Bus route 1 provides consistency between the rail service and the temporary rail replacement buses.

Epping – Chatswood – Epping

Route 1 will form the standard rail replacement bus service.

It will:
- Operate to the same span of hours across the day / night as the trains
- Operate seven days a week
- It will provide a frequent bus service between Epping, Chatswood and return.

These buses will pick up and drop off passengers at all stations along the rail line: Chatswood, North Ryde, Macquarie Park, Macquarie University and Epping.

This route is proposed to provide accessible services wherever possible.
Bus route 2

**Overview:** Epping to Chatswood railway – Review of Environmental Factors

**Bus route 2** provides a faster bus transit time between Epping and Chatswood compared to the route 1 all stations service.

It will run from Epping to Chatswood via North Ryde in the morning peak hours and from Chatswood to Epping via North Ryde in the evening peak hours.

It will stop at Epping, North Ryde and Chatswood Stations only – bypassing Macquarie University and Macquarie Park stations which will be served by routes 1, 3, 4 and 5.

**Epping – Chatswood – via North Ryde, limited stops**

This route will be of major benefit to commuters who need to travel beyond the limits of the Epping to Chatswood railway, e.g. to North Sydney or the city.

**ROUTE 2: NUMBER OF BUSES IN THE MAIN PEAK HOUR**

<table>
<thead>
<tr>
<th></th>
<th>Morning peak</th>
<th>Evening peak</th>
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</thead>
<tbody>
<tr>
<td>Epping to Chatswood via</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>North Ryde</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chatswood to Epping via</td>
<td></td>
<td></td>
</tr>
<tr>
<td>North Ryde</td>
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</tbody>
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**Beecroft – Macquarie University – Macquarie Park – St Leonards**

Route 3 connects the existing T1 Northern Line with the T1 North Shore Line to provide customers from north of Epping and south of Chatswood with direct services to / from Macquarie University and Macquarie Park.

The operation of buses from Beecroft and St Leonards also minimises the number of buses that need to go to Epping and Chatswood.

People who currently catch trains on the T1 Northern Line but who do not need to get on or off at one of the affected stations on the Epping to Chatswood railway can also catch a train to the Sydney CBD, via Strathfield.

**ROUTE 3: NUMBER OF BUSES IN THE MAIN PEAK HOUR**

<table>
<thead>
<tr>
<th></th>
<th>Morning peak</th>
<th>Evening peak</th>
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</thead>
<tbody>
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<td>Beecroft to St Leonards</td>
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<td>8</td>
</tr>
<tr>
<td>St Leonards to Beecroft</td>
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<td></td>
</tr>
<tr>
<td>St Leonards to Macquarie University</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Macquarie University to St Leonards</td>
<td>17</td>
<td></td>
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</tbody>
</table>
Overview: Epping to Chatswood railway – Review of Environmental Factors

**Bus route 4**

**Eastwood – Macquarie University – Macquarie Park**

Route 4 will cater for customers who currently travel from T1 Northern Line stations south of Epping to Macquarie University or Macquarie Park. This route provides a direct service between Eastwood and the Macquarie Park area and avoids the busy Epping Railway Station during peak hours.

Customers travelling from Eastwood to Epping will still be able to use Sydney Trains services.

<table>
<thead>
<tr>
<th>ROUTE 4: NUMBER OF BUSES IN THE MAIN PEAK HOUR</th>
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<tr>
<td>Morning peak</td>
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<tr>
<td>Evening peak</td>
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</table>

**Why announce this review now?**

The Review of Environmental Factors is being announced now to allow the complete works package to be identified and incorporated into the Operations, Trains and Systems (OTS) Public Private Partnership.

Completion of the review process will allow essential early works in relation to the OTS package to start as soon as possible – including the provision of power supply systems as well as the upgrading of power supply substations for both the North West Rail Link and Sydney Trains systems.

**Bus route 5**

**Gordon – Macquarie Park – Macquarie University**

This route provides a direct service from Gordon to Macquarie Park / Macquarie University in the morning peak period to serve people travelling from North Shore line stations north of Chatswood.

In the afternoon peak period this service operates from Macquarie University / Macquarie Park to Gordon. It avoids the busy Chatswood Station area during peak hours.

It will use the Pacific Highway / Lane Cove Road to access Macquarie Park.

<table>
<thead>
<tr>
<th>ROUTE 5: NUMBER OF BUSES IN THE MAIN PEAK HOUR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morning peak</td>
</tr>
<tr>
<td>Evening peak</td>
</tr>
</tbody>
</table>

Customers travelling from Gordon to North Sydney / Sydney CBD or Hornsby can still use existing Sydney Trains North Shore line services.

**Why announce this review now?**

Should the proposal be approved, preliminary works will be underway in 2015. These works will take advantage of routine weekend track work that occur from time to time across the Sydney Trains network.

This way, as much work as possible will be done before the major upgrade from suburban rail to rapid transit takes place. It will also allow affected customers businesses, education facilities and communities ample time to plan ahead.
Indicative travel times

Trains have an advantage over buses when it comes to quickly moving large numbers of people:
- Trains are usually faster and follow a much more direct route, with fewer delays or intermediate stops, compared with buses.
- Trains can carry far more people than buses – one train can carry at least 20 bus loads of people. Therefore trains are a very efficient mode of mass transport.

It is difficult to provide firm estimates for bus transit times when the temporary transport plan is enacted during late 2018 and early 2019. This is because of a range of factors including:
- The nature of Sydney's traffic, which experiences fluctuations in volume and traffic flow from hour to hour.
- Fluctuations in customer demand.
- Changes in travel modes from day to day (i.e. between bus and rail, etc.).
- Different travel times for vehicles in the morning compared to the evening peak periods, and across all other hours of the day.

Bus transit times have been minimised through:
- A limited stops service during peak periods (Route 2).
- Buses providing direct connections from stations beyond the Epping to Chatswood railway with Macquarie Park and Macquarie University during peak periods (Routes 3 to 5).

As a general guide, indicative bus travel times for the temporary transport plan show that people will need to allow from around 10 to 45 minutes depending on the replacement bus trip and route. Transport for NSW will provide more detailed information on likely bus travel times before the temporary transport plan comes into effect.

Customers travelling between the T1 Northern and North Shore lines who do not need to get on or off at stations between Epping and Chatswood are encouraged to use the rail alternative via Strathfield or via Hornsby. Depending on individual circumstances people might find rail options quicker than the replacement bus services.

Transport for NSW analysis indicates that most customers will use either route 1 or route 2 during the temporary removal of rail services. The following indicative travel times are provided as a guide. More detailed travel time information will be available prior to the implementation of the temporary transport plan in 2018.

### Indicative travel times morning peak

<table>
<thead>
<tr>
<th>Route</th>
<th>From</th>
<th>To</th>
<th>Estimated bus travel time (minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Route 1</td>
<td>Epping to Chatswood</td>
<td></td>
<td>38</td>
</tr>
<tr>
<td>Route 1</td>
<td>Chatswood to Epping</td>
<td></td>
<td>35</td>
</tr>
<tr>
<td>Route 2</td>
<td>Epping to Chatswood</td>
<td></td>
<td>27</td>
</tr>
<tr>
<td>Route 3</td>
<td>Beecroft to St Leonards</td>
<td></td>
<td>24</td>
</tr>
<tr>
<td>Route 3</td>
<td>St Leonards to Macquarie University</td>
<td></td>
<td>37</td>
</tr>
<tr>
<td>Route 4</td>
<td>Eastwood to Macquarie Park</td>
<td></td>
<td>22</td>
</tr>
<tr>
<td>Route 5</td>
<td>Gordon to Macquarie University</td>
<td></td>
<td>34</td>
</tr>
</tbody>
</table>

### Indicative travel times evening peak

<table>
<thead>
<tr>
<th>Route</th>
<th>From</th>
<th>To</th>
<th>Estimated bus travel time (minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Route 1</td>
<td>Epping to Chatswood</td>
<td></td>
<td>44</td>
</tr>
<tr>
<td>Route 1</td>
<td>Chatswood to Epping</td>
<td></td>
<td>39</td>
</tr>
<tr>
<td>Route 2</td>
<td>Chatswood to Epping</td>
<td></td>
<td>27</td>
</tr>
<tr>
<td>Route 3</td>
<td>St Leonards to Beecroft</td>
<td></td>
<td>45</td>
</tr>
<tr>
<td>Route 3</td>
<td>Macquarie University to St Leonards</td>
<td></td>
<td>25</td>
</tr>
<tr>
<td>Route 4</td>
<td>Macquarie Park to Eastwood</td>
<td></td>
<td>25</td>
</tr>
<tr>
<td>Route 5</td>
<td>Macquarie University to Gordon</td>
<td></td>
<td>22</td>
</tr>
</tbody>
</table>

### Indicative travel times off peak

<table>
<thead>
<tr>
<th>Route</th>
<th>From</th>
<th>To</th>
<th>Estimated bus travel time (minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Route 1</td>
<td>Epping to Chatswood</td>
<td></td>
<td>34</td>
</tr>
<tr>
<td>Route 1</td>
<td>Chatswood to Epping</td>
<td></td>
<td>28</td>
</tr>
</tbody>
</table>
Have your say

Community input and feedback will be vital to the Transport for NSW decision-making process. We encourage you to have your say and to lodge a submission about the Review.

There is no set format on how to make a submission. Your submission must reach Transport for NSW by close of business on Monday 17 November 2014 and must include:

1. Your name and address.
2. The name of your application.
3. A brief statement on whether you support or object to the proposal.
4. The reasons why you support or object to the proposal.

Your submission should be marked ‘Attention: Epping to Chatswood railway review’ and can be:
- Emailed to info@northwestrail.com.au
- Website: www.northwestrail.com.au
- Posted to Transport for NSW, PO Box K659 Haymarket NSW 1240

Where can I see the full proposal?

The Epping to Chatswood railway upgrade Review of Environmental Factors will be on exhibition from Monday 13 October to Monday 17 November 2014. You can read a copy of the review documents and supporting papers by:
- Going to the website www.northwestrail.com.au
- Calling in at any of these locations:
  - Willoughby City Council Library, 409 Victoria Avenue, Chatswood 2067
  - City of Ryde Council Library, 1 Pepe Street, Ryde 2112
  - Parramatta City Council Library, Civic Place, Parramatta 2150
  - Hornsby Shire Council Library, 28 – 44 George Street, Hornsby 2077
  - Transport for NSW Information Centre, 388 George Street (corner of King Street), Sydney (Monday - Friday 9 am - 5 pm)
  - North West Rail Link Information Centre, 299 Old Northern Road (corner of Crane Road), Castle Hill (Monday - Friday 9 am - 6 pm)

Community information sessions

Three drop-in community information sessions will be held along the route of the Epping to Chatswood railway.

There is no need to make an appointment; you can call in at any time.

Technical experts from Transport for NSW will be available to answer your questions.

In addition, project information, copies of the Epping to Chatswood railway Review of Environmental Factors and a range of other material will be available.

The information sessions are scheduled as follows:

**North Ryde**

Wednesday 22 October 2014

MGSM Conference Centre

99 Talavera Road, North Ryde

4pm – 8 pm

**Chatswood**

Saturday 25 October 2014

Dougherty Community Centre– 7 Victor Street, Chatswood

10 am – 2 pm

**Epping**

Wednesday 29 October 2014

Epping Club

45-47 Rawson Street, Epping

4 pm – 8 pm

Contact us

For further information you can contact us via:

Phone: 1800 019 989

Email: info@northwestrail.com.au

Website: www.northwestrail.com.au
Overview: Epping to Chatswood railway – Review of Environmental Factors