

# Engineering System Integrity

Sydney Trains  
Engineering and Maintenance



# About Engineering and Maintenance



Sydney Trains' Engineering and Maintenance Branch manages a \$1.5 billion annual maintenance program for Sydney Trains and NSW Trains.

Engineering and Maintenance is made up of 4,173 people working across NSW to deliver a safe, reliable passenger fleet and metropolitan rail network, meet growing customer demand and keep Sydney and NSW moving.

Engineering and Maintenance is made up of six functions:

- Major Works
- Network Maintenance
- Fleet Maintenance
- Commercial and Supply Chain
- Asset Management
- Engineering System Integrity

Whether its identifying infrastructure needs, or procuring goods and services, or the designing, building, operating, or maintaining transport infrastructure, each function plays an important role in every aspect of our network.

Working in Engineering and Maintenance brings so much variety. You could be part of rebuilding bushfire-affected infrastructure. You might be crunching data to inform future network upgrades. Or working with drones to assess for flood and landslip damage to railway infrastructure. Or helping deliver significant events like the FIFA World Cup or Grand Final Day.





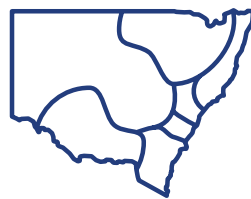
# 4,173

People in Engineering  
and Maintenance



# \$39 bn

Value of assets under  
Sydney Trains management



# 364

Sydney Trains and NSW  
TrainLink stations maintained

## We operate and maintain

**2,190** electric and diesel cars

**1,610** kilometres of track

**948** kilometres of electrified  
mainline track

**1,548** kilometres of overhead  
wiring

**1,970** turnouts

**3,972** signals

**82** tunnels

**97** substations

**1,197** bridges

“We ultimately work as one team with a common purpose – our travelling customers. I love being involved in change and driving outcomes that directly benefit the communities we support.”

— Samiha Najem, AD Operational  
Technology, Network Maintenance



# Engineering System Integrity

Our Engineering System Integrity (ESI) function keeps Sydney moving by providing design, engineering, and assurance integrity services to Sydney Trains and Transport for NSW more broadly.

We're made up of over 500 people who are responsible for ensuring system safety and integrity. Our teams provide technical expertise and assurance to our partners across the asset management teams. Our team also holds a Sydney Trains' Technically Assured Organisation (TAO) accreditation.

## Stories from our team

### *How a proactive ESI design helped to avert disaster*

Shahram Farnoudi, a Senior Geotechnical Engineer within ESI identified a high-risk site on the Main North Line near the Hawkesbury River Bridge.

"The site is part of the National Park, with lots of large caves and isolated boulders extending outside the rail corridor, and a high risk of slippage, that could potentially do major damage to trains and infrastructure," explained Shahram.



To prevent potential damage to trains and infrastructure, Shahram designed a five-meter high rockfall barrier capable of supporting 3,000 kilograms of fallen rocks. Shahram worked closely with installation teams from Major Works and Safety Environment Quality Risk and the barrier was completed in June 2021.

During a subsequent assessment in June 2022, Shahram discovered that the barrier had accumulated over 300 tonnes of rocks, debris, and trees due to a breached top drain caused by extreme weather.

The accumulation could have led to a major incident, including track closures and significant delays. However, the rockfall barrier successfully prevented any such incident.

To address the issue, Shahram proposed using jack hammers and water jets to break the large rocks and wash away the loose debris. A temporary top drain was created, and the damaged area was protected with an impermeable geomembrane. Repairs at the site are ongoing, with top drain repair work scheduled to commence in October 2022.





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WOLO  
SIGN





↖ Watch the video

# About Sydney Trains

At Sydney Trains, our rail services keep Sydney moving by putting our customers at the centre of everything we do.

We work with our local communities to deliver safe, timely and efficient rail services 24 hours a day, seven days a week.

Our trains and network are evolving to meet the needs of our customers now and well into the future. We're continuing to integrate technological innovations that help us deliver a smarter and more sustainable network.

Find out more about [Sydney Trains](#)



# Deliver transport infrastructure projects across NSW

We're committed to delivering better transport for the future of NSW. Our current projects are helping to shape our cities, centres and communities for generations to come.

Explore all current projects via [Projects - Transport for NSW](#)

## Our teams voted these as the top four reasons to work at Transport



**Flexible working/  
work-life balance**



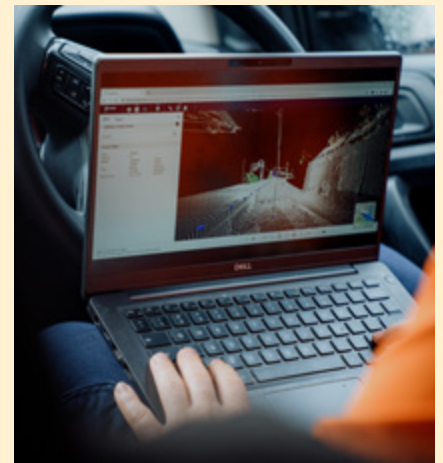
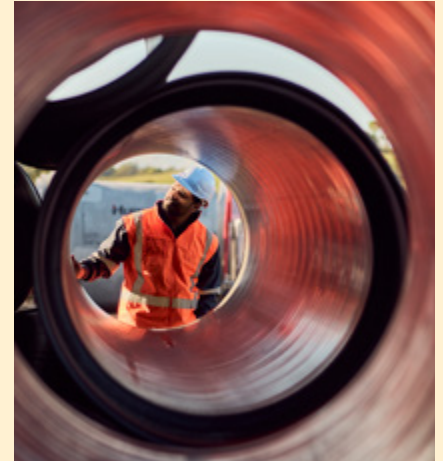
**Great teams and  
co-workers**



**Interesting projects**



**Job impact in making  
NSW a better place to  
live, work and visit**





# Why join Transport?

## Flexible hours and leave

We want our people to feel empowered to work in ways that work for them and their teams. We know work-life balance looks different to everyone so we've developed workplace flexibility policies. That might mean working remotely some days. Or having the option to start and finish a bit earlier or later, or allocating extra hours you've worked to a day off from time to time. We offer paid annual leave, sick leave, family leave, and community service leave for things like volunteering.

## Health and wellbeing

We are committed to providing a healthy workplace for our people, both mentally and physically. This includes a range of initiatives to promote wellness across our organisation as part of our Mental Health and Wellbeing Strategy.

- Fitness Passport provides discounted access to more than 400 gyms, pools and recreational centres across NSW for employees and their families.
- Free support and counselling for employees and their families through Transport's Employee Assistance Program.
- Free annual influenza vaccinations.
- Regular health and wellbeing workshops.







## We're diverse because you're diverse

Transport for NSW is deeply committed to creating an inclusive and diverse workplace where our people can be their whole selves at work. We champion people of all backgrounds, abilities, sexual orientations, gender identities, ages, family statuses and lived experiences.

We've developed a range of initiatives that support and develop great people from diverse backgrounds, and encourage a culture built on respect.

Some of E&M's key initiatives include:

- Harmony Week events to celebrate inclusion, diversity, and respect through employees sharing their personal stories.
- Our PPE Working Group ensures PPE options for women, including maternity clothing.
- Women within E&M have exclusive access to development events such as our regular E&M Connecting Women forums, Women in Rail, Women in Engineering and Women in Leadership groups.
- RISE Program intensive career and leadership training program for women.
- Our E&M Women's Amenities Working Group has introduced specific amenities for women at E&M worksites, including more toilets at remote and out-of-hours work locations and 25 breastfeeding rooms at E&M work locations.
- Opportunities for schools to participate in Engineering and Maintenance's immersive experience to help build an understanding of engineering activities within early-career groups and encourage students to consider Sydney Trains as a career option.
- School visits as part of the Inspiring the Future Australia program, where students learn about STEM careers from industry workers to encourage more students to pursue VET courses or engineering degrees.
- Participating in EmpowerHER Trades - Try-a-Trade Networking events, which target female students from Western and South Western Sydney schools.
- The development of the Women's Stream within the E&M Inclusion and Diversity Committee to hear and understand what women need to be supported and succeed in the workplace and create more opportunities for women to network and develop their careers.

# A place to progress your career

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We're passionate about supporting our people to pursue their career goals and deliver great work. We offer a range of learning and development opportunities designed to grow your skills, get experience in different areas and plan for the future.



## Entry-level programs

Sydney Trains offers a range of apprentice and trainee programs for people who are new to the industry or workforce to kick-start a career in rail and transport. All programs involve mentoring, on-the-job learning and working towards an industry-recognised accreditation.

## It's your career. Own it.

Taking ownership of your career starts right here. Our career hub, *Drive your career*, is full of advice, tools and strategies. These resources will help you get a clear picture of where you're at, what to work on and how to plan for your future career.

## Five Ways of Leading

Leadership isn't about a position, title or role — everyone is considered a leader at Transport. The [Five Ways of Leading](#) website covers the five key behaviours of strong leaders and promotes practical ways of applying these in our everyday interactions with each other. A range of podcasts, tool kits, videos, guides and activities are available to all Transport employees.

## Online and classroom-based learning

Stay curious and keep learning, with access to a variety of online and classroom-based courses to build your skills in a range of areas. We also offer a huge range of internally-run courses and workshops, access to LinkedIn Learning, subsidised programs, conferences and seminars to further your development and professional networks.

## Study assistance

Keep learning while you work. Study assistance is available for employees enrolled in part-time study. You may be eligible for financial contributions to help cover tuition and course-related expenses, as well as study leave for exams and study commitments.





## Transfers, temporary transfers, secondments and acting opportunities

Transfers, temporary transfers, secondments and acting opportunities

Whether you're looking to build on your skills or try something completely new, there are lots of ways to get experience across the huge variety of teams and projects at Transport or even another government agency.

Temporary transfers and secondments are temporary placement arrangements where you have the option to return to your substantive role.

Acting opportunities are a chance to step into a more senior role for a period of time and stretch your skills and experience.

Role changes also help Transport and the NSW Public Service meet short and long-term organisational goals by matching existing employee skills with available opportunities.

“Work within the railways is truly unique and there are so many great opportunities to learn more and work in different areas across Transport.”

— Jack Siu, Professional Head  
Electrical Engineering, Engineering  
System Integrity (ESI)

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