Independent Rail Review

29 August 2025

Kerry Schott AO,
Carolyn Walsh,
Trevor Armstrong

Acknowledgments

The Panel acknowledges the Traditional Custodians of the land on which we work and live and on which Sydney Trains operates. The Panel pays respect to Elders past and present and recognises their continued connection to Country.

Acknowledgement of assistance

The Panel acknowledges the support and assistance provided by staff at Sydney Trains and Transport for NSW in preparing this Final Report. Special thanks to those directly involved in the incident on the ground, passengers, contractors, senior executives and members of the Rail, Tram and Bus Union and the Electrical Trades Union.

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1. Executive summary

On 20 May 2025 at 2.56pm a suburban train, travelling from Leppington to Central, stopped just before it reached Homebush Station. This was the start of an incident that caused a major disruption to Sydney train services for two days – a critical service that transports more than a million passengers a day.

The incident raised immediate questions – why did it happen, and why did it bring so much chaos and take so long to recover? The NSW Government tasked this independent panel to investigate the management of the incident at Sydney Trains on terms set out in Section 2 of our report.

The cause of the incident is clear. An overhead wire that carries power to the train broke and fell onto the roof of the incident train. We found that despite visual inspections of this wire every 13 weeks, and planned physical measurement every four years, the fact that it was thin and beyond breaking limits was not detected. The visual inspectors rely on binoculars and cannot get close enough for an adequate view. In our view their tools are insufficient for the job they are given. The reason why the physical measurements missed the issue appears to be that this section of wiring was not measured. Added to these failings was a trial of technology done in 2020 that did detect the issue, but it was not followed up.

The failure of power at this busy junction in the Sydney Trains network was always going to have a major impact. Indeed, the only service that was not affected was the Illawarra line (T4). We have examined the maintenance plans and activities at Sydney Trains and made recommendations (in Section 6) that we hope will be helpful to improve maintenance and reliability of this important system and its assets. Maintenance activity should be risk based rather than time based so it focusses on those areas that are critical, because of their location or function. Other maintenance should be done but critical assets need extra care. We have also made suggestions about tools that could be more useful for the maintenance crews and staff and about access and possessions adequate for their work. It is then obviously important that managers check that they have properly specified the work, that it is clearly passed on, and that the work has been done. We are not confident that this first line of assurance is adequate.

The time that passed between the incident, and its recovery two days later, was far too long. One of the main reasons for that appears to be a lack of management capability in dealing with an incident of this kind. Every day Sydney Trains manages relatively routine incidents, like a sick train passenger or a fallen tree. These Level 1 Routine incidents have limited local impact and are promptly managed. The same cannot be said for incidents that are more severe. This incident was quickly identified and classified as Level 2 Critical, and shortly after upgraded to Level 3 Crisis. Each incident type has management protocols and processes to suit its need and all are managed from the Rail Operations Centre (ROC).

Both Level 2 Critical and Level 3 Crisis incidents involve an incident leader supported by a team set up to assist that leader with the various matters that need attention. In this incident the leadership did not appear to be confident, strong or disciplined and the teams were not deployed by that leader as we would have expected. Part of the issue was a lack of qualifications in the operation of the railway and the safety procedures and rules that accompany that operation. The incident was managed as a sequence of tasks, with debates concerning the appropriate procedures even before those tasks commenced. The timeline below shows there were hours that simply disappeared as this happened.

As shown in the diagram below, passenger detraining did not start for more than 100 minutes. The incident train was then not removed for over four hours. The repair crew was not given access for another four hours. All lines were not operational until 3.5 hours after repairs finished and normal service was not resumed until the start of the third day following the incident.

Incident Timeline 20-22 May

20 May

Time to detrain 3 hours	2:28pm	Overhead wire breaks.
	2:56pm	Incident train stops outside Homebush Station.
	3:02pm	LEVEL 2 Critical incident called.
	3:46pm	LEVEL 3 Crisis incident called.
	4:37pm	Passengers start to disembark incident train.
	5:57pm	Last passenger leaves the incident train
Train removal 4 hours	10:04pm	Incident train removed from location of broken wire.
Site access 4 hours	10:55pm	Site access granted for repair work to start.
	11:06pm	Site access revoked for repair work to start.
	11:07pm	LEVEL 3 Crisis incident downgraded to LEVEL 2 incident.

21 May

	2:52am	Site access granted for repair work to start.
	3:30am	Repairs to overhead broken wire commenced.
	5:30am	Overhead broken wire repaired.
	7:00am	Power on.
	8:45am	All lines operational via Homebush.
		Disrupted services continued throughout the day.

22 May

	2:00am	LEVEL 2 Critical incident closed.
	5:00am	Resumption of normal timetable.

An incident should be managed holistically with tasks being done concurrently – and that is what the team assisting the leader is there to do. Each of those team members has a particular duty and reports progress or difficulties back to the leader for assistance. For example, one person would have been tasked with getting crew and trains where they were needed for alternative services and recovery. Another with detraining passengers at Homebush. Another with moving the train once the passengers left so that crew could get their equipment and tools onto the site to replace the wire. Another to ensure Transport for NSW (TfNSW) was coordinating other modes of transport to assist (buses, taxis, rideshare, ferries, metro and so on). And importantly, another would have been ensuring that information was reaching stations, Sydney Trains staff, passengers, the general public and Government. The problems at the ROC and its incident management are discussed in Section 7 and recommendations made for improvement.

A disturbing feature on 20 May and the next day was the absence of effective communications. The passengers stuck on the train did not know what was happening; the passengers expecting to get a train home did not know either; and neither did the general public. The Government received some limited communication from Sydney Trains but not in detail and not reliable, especially about available train running or when normal operations would recommence. Information flows from the ROC are effective when the system is on timetable, or very close to it. Once there is a significant departure from the timetable information flows are managed manually and getting communication out is impossible. The communication technology that was intended to be installed as part of the ROC was not included. As a result, the station staff do not know what is happening and cannot relay information through their electronic boards or by loudspeaker. Transport apps have no useful information, and the media can only provide the most general communication along the line that the system is disrupted. We have provided recommendations that we hope will go some way to fixing this, but Sydney Trains must also give communication the priority it deserves. People are not surprised by the odd incident (they happen), but they do expect to know what is going on so that alternative plans can be made.

We could find no defensible reason why it took so long to detrain the passengers at Homebush. A confusion about safe rules for detraining in this type of incident occurred even though a 2024 incident at Redfern had posed the same issues and as a result the appropriate procedure to follow had been widely circulated. We were also concerned about the lack of care offered to the 300 passengers on that train. No attempt to take their details or follow up if requested was made. The toilet facilities at the station were opened but water was only provided if asked for, no alternative transport was available, and recharging for flat mobiles does not appear to have been thought about. This must be improved. Having said that we were impressed by the calm way in which the driver and the guard on that train managed the increasingly distressing passenger situation with the little information they had.

A short review of the Rail Infrastructure and Fleet Repair Plans follows as requested, with several recommendations made. The improvement in infrastructure performance that was achieved after that work has not been sustained and levels of reliability of service have also fallen back though the reasons are not entirely clear to us. Our earlier recommendations on maintenance may assist.

We finish the report with a short note on governance and assurance along with related recommendations.

2. Terms of reference

The Review Panel (the Panel) was appointed by the Crown, in right of the State of NSW, to conduct a review of an incident that caused disruption across the Sydney Trains network on 20 May 2025, and which continued into 21 May before services were returned to normal operations on 22 May. An overhead wire, carrying power for train operations, broke just beyond Homebush Station. The Panel was asked to take a system-wide look at maintenance and reliability. Specifically, we have been asked to review and, where necessary, make recommendations to Cabinet on the following matters:

1. Resilience and Reliability. Identify the specific cause of the Tuesday 20 May electrical incident and what can be done to ensure the system is as resilient as possible
2. Financial Investment. Assess whether investment in the system made after the recent Rail Repair and Fleet Repair Plans has improved reliability as a result
3. Passenger Experience. Determine whether communications with passengers, real time updates and internal communication by Sydney Trains during disruptions is fit for purpose and meets the needs of passengers.

We were also requested to note the 2023 Review of Sydney Trains[1] led by Carolyn Walsh and take that report's findings into consideration in the course of our work.

3. Introduction

On a typical weekday, the Sydney Trains network supports more than 1.1 million passenger journeys across 3455 timetabled services. The network also supports critical but limited links to the national freight supply chain.

Sydney Trains has a workforce of about 13,000 staff. Its physical infrastructure includes 1790kms of track, more than 1700kms of overhead wiring, 2372 trains, and other facilities including stations and work depots.

The Sydney Trains network is a complex and interconnected system, and any significant disruption has ripples through the entire city and beyond. While other public transport is provided by Sydney Metro, buses, ferries and light rail, these modes have strong interdependencies with Sydney Trains when it comes to effectively moving people across Sydney.

The findings and recommendations we set out in this report seek to identify and address the specific measures that will reduce the impact of future disruptions. We recognise that Sydney Trains has an aging workforce, in common with many other operational businesses and utilities. As experienced staff retire they leave with important knowledge. This is a major issue and difficult to address. Nevertheless this experience and knowledge must be transferred to younger staff and where possible by digital systems. Some of the difficulty evident in the management of this incident is a result of the experience and knowledge that has been lost.

1. Carolyn Walsh, Peter Medlock, Arthur Smith, Sydney Trains Review, Final Report: Modernising the Railway, December 2023.

The Panel's approach was to undertake a series of interviews with Sydney Trains, TfNSW, unions, Premier's Department, NSW Treasury, the NSW Transport Asset Manager, Infrastructure NSW, Downer executives and the Office of the National Rail Safety Regulator to inform our deliberations. This saw the Panel undertake more than 100 meetings and engagements. As part of our review, we also sought and reviewed more than 350 documents that were provided by either Sydney Trains or TfNSW. Site visits were conducted at the Homebush incident site, Strathfield electrical switching yards, the ROC and the Transport Emergency and Crisis Coordination Hub. Finally, but not least important, we met with one of the passengers on the incident train to inform ourselves directly of the impact on those who were affected.

4. The initial incident

At 2.56pm on Tuesday 20 May 2025, a suburban passenger train travelling from Leppington to Central on the T2 line lost power and came to a standstill about 50 metres short of Homebush Station. An overhead wire was resting on the train, as shown in the photo below.

The wire, above the crossover points near the station, failed at 2.28pm. Two earlier trains had passed through the damaged section, causing their supply circuit breakers to register a trip in power supply in the ROC. The first of these trains continued its journey, while the second sustained damage to its pantograph, lost power at 2.52pm, and came to a halt with one carriage on Platform 7 at Stratfield Station. The train that stopped outside Homebush Station with the broken wire on one of its carriages is referred to in this report as the incident train. It was carrying about 300 passengers.

The driver of the incident train carried out some checks through the train's control systems but failed to determine the cause of the power failure. The ROC signaller (formally known as an Area Controller) then advised the driver to stay in position until detraining was authorised.

A further hour after coming to a stop, the incident train lost all power, and its air conditioning and lights failed due to batteries becoming flat. The effect on passengers was understandably distressing and some became very anxious. The Panel is aware that one passenger was diabetic, and one elderly passenger sought help from the guard on the train. Coincidentally, the guard was undergoing an assessment, so his assessor was also on the train. Another off-duty guard was a passenger travelling to work. These two additional Sydney Trains staff assisted throughout the incident. The guard and staff on the train managed the situation by quietly moving those passengers that they knew needed priority detraining towards the front of the train where this would occur. The number of passengers moved forward for priority was very limited to discourage crowding and crushing as anxiety increased.

Regrettably, it was not until 4.37pm, more than 100 minutes after the train came to a standstill, that detraining from the front of the train began. This slow process requires passengers to walk down a steep ramp one by one, assisted by staff, noting that bulky items need to be handled separately. Passengers then walked the 50 metres to Homebush station where toilet facilities were available. The last passenger left the train at 5.57pm – three hours after the train stopped.

The experience of one passenger

The panel spoke with a passenger on the incident train, Jane Everage*, who detailed the cascading personal impacts of such an incident. Ms Everage ran to make the train at 2.20pm at Yennora for what was expected to be a 45-minute train trip to Central. From there she usually transfers to a bus to reach home. On the train she was seated in a carriage towards the back of the train. When the train stopped outside Homebush Station, passengers were told of a "short delay due to a technical issue". She described this as the last meaningful update she heard for two hours. For the final 45 minutes, Ms Everage said there was no communication.

During the period that about 300 people were stuck on the train, no water was provided, even after the loss of power and air-conditioning. Ms Everage said there was considerable anxiety as no one knew what was happening and many passengers, including herself, desperately needed to use toilet facilities. By this stage many people had lost battery power in their mobiles, adding to their concerns about getting home and the lack of information.

Ms Everage's phone was almost out of battery by the time she was able to leave the train. It was almost dark by this stage, there were no extra buses and the only way she could see to get to Central was an Uber, which cost her $80.

The $80 Uber was not the only cost to Ms Everage. The ongoing disruptions the following day meant she was unable to attend work – a caring role where she is paid for attendance – and so she in effect lost $80 and a whole day's income. The free travel days TfNSW offered as compensation were not useful to her as her weekly travel costs exceed the $50 cap and as a result, she travels "free" for some trips anyway.

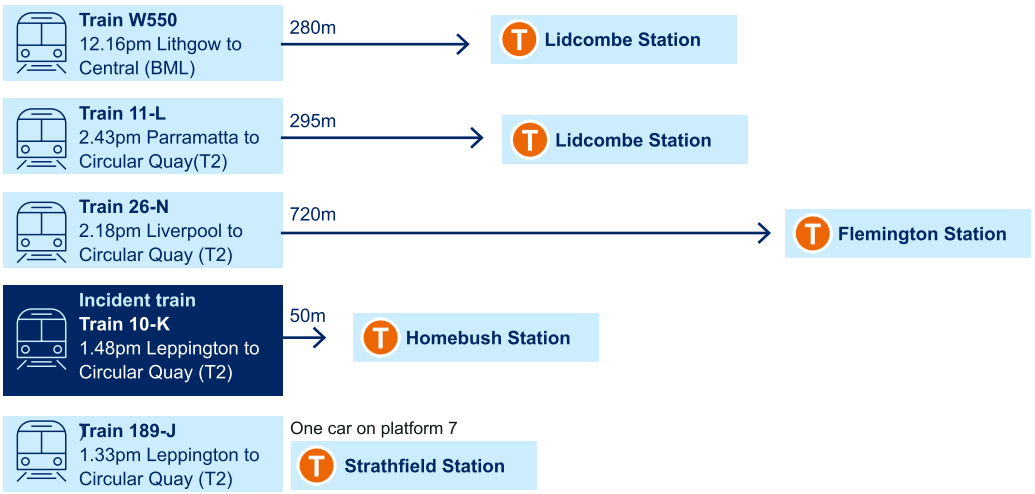
In the Panel's view, many aspects of Ms Everage's experience are simply unacceptable. Detraining took far too long, with the negative effects of this experience compounded by the absence of meaningful customer care – including more assistance in completing their journeys once passengers disembarked. We are also of the view that, with their consent, customer details should have been taken to allow subsequent follow up.

*The passenger's name has been changed

Detraining of the train stranded at Strathfield began within a few minutes of it arriving, through the one carriage at the station that had reached Platform 7. This detraining began at 2:56pm for all but one passenger who, in a mobility scooter, was unable to move through the train. After being cared for by station staff, this passenger left the train almost two hours later.

Three other trains lost overhead power but were able to move under their own power to Lidcombe (two trains) and Flemington (one train) where they were able to detrain about 60 minutes after the incident. A diagram of the five immediate trains affected is shown below, along with the stations where their passengers left the train.

Train locations at the time of incident



All travelling toward Central on the Main (express) or Suburban (limited stops) lines.

The need to cut power at this critical junction ultimately meant that six tracks could not run passenger services. The impact of this rippled out across the network as Sydney Trains' ability to run timetabled services on all but one line (the Illawarra T4 service) was irreparably compromised. By the end of the day, 1288 train services were affected – more than 80 per cent of these cancellations – disrupting the commutes and the lives of thousands.

The disturbing shortcoming in the incident response, and evident to the whole city, was poor communication. Several people commented to us that they felt there was an "information void" about the incident both within Sydney Trains and for the public.

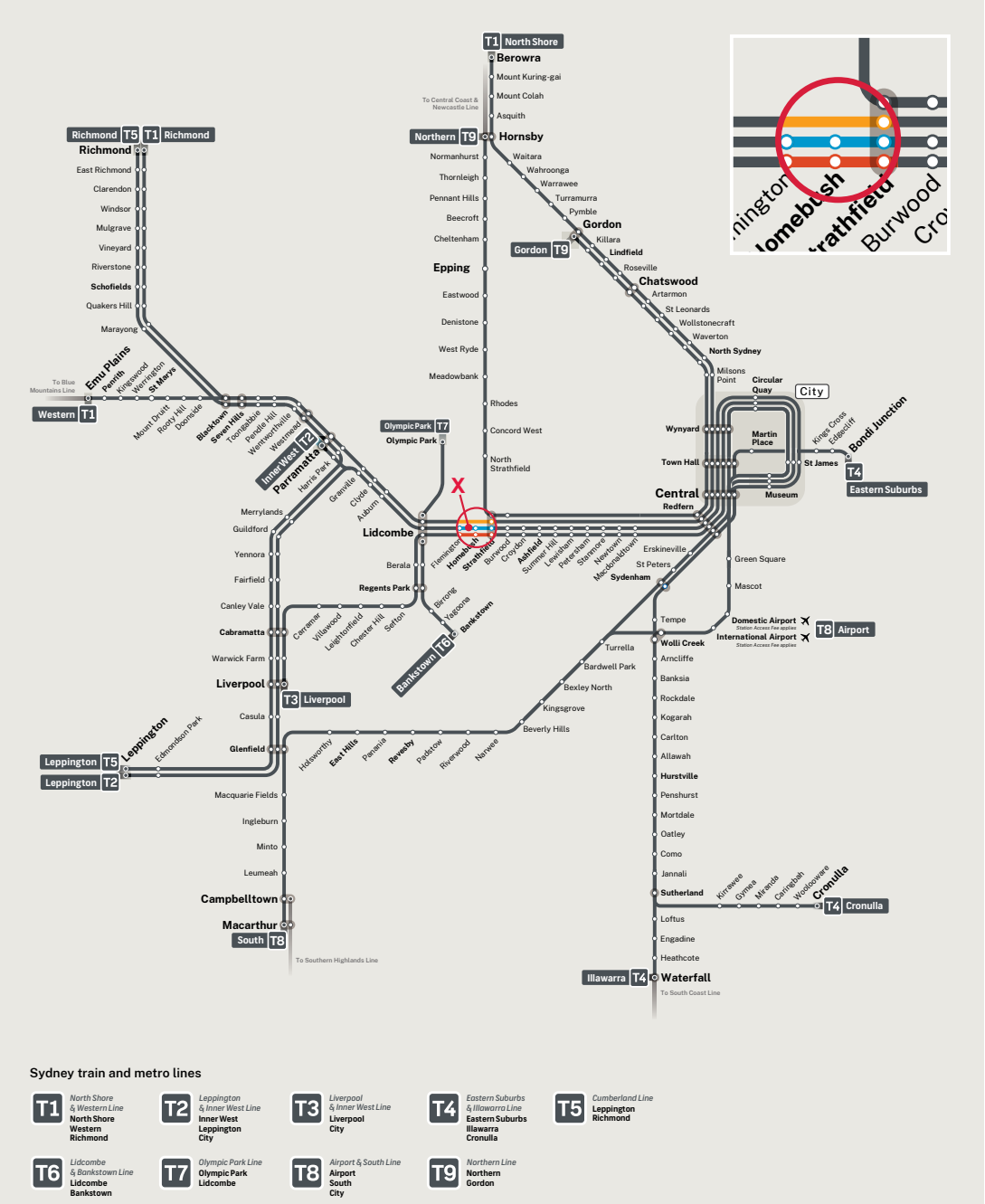
People expecting to travel as normal continued to arrive at stations at peak hour. Platforms became very crowded and very difficult to manage. Information at stations for both station staff and intending passengers was lacking, leading to a chaotic situation.

Other than contacting the Transport Management Centre to request 17 buses to move passengers between Lidcombe and Ashfield – nowhere near enough for the disrupted train passengers – there were no apparent efforts to enact a Transport-wide response by formally escalating this to TfNSW. The following day, bus services were arranged to move passengers from the Sydney Trains network (at Schofields Station) to the Sydney Metro network (at Tallawong Station). But again, this solution was limited and important opportunities to activate other transport options were missed. There was no effective whole-of-transport response.

Delays in repairing the overhead wire and damaged trains overnight meant that Sydney Trains was unable to return, as planned, to normal services on 21 May. Disrupted and limited services continued, with poor information flows to customers throughout the day. Services did not return to normal until the morning of 22 May.

5. Issues arising from the incident

An incident at this location can be expected to have a significant impact on the Sydney Trains network (see the network map below with the incident location highlighted). It is an important junction that a number of services pass through – the T5 to Richmond, the T1 to Penrith and further west, and the T2, T3 and T5 to Liverpool and Leppington.



The incident raises two immediate questions. First why did it happen in the first place; and second, once it occurred was the management of the incident adequate? There were so many problems arising on 20 May and the following day that the answer to the second question is obviously negative – improvements are needed to lift incident management to an acceptable level.

In response to the first question about cause, we have examined the maintenance plans and their implementation. Does the maintenance of the overhead wiring system, and other assets, need improvement? How often is maintenance conducted by the staff? Where, in the network, is it focussed? Do the maintenance teams have adequate time and tools to do the job? Is the maintenance budget sufficient? Are any follow-up checks or assurance of the plan done and its implementation in the field? Is there any assurance audit?

Why the incident caused so many problems and became a major disruption for the city poses a number of further questions. The management of this incident obviously could have been better but what is needed to bring about this improvement? If a similar incident occurred again what is needed to ensure that the outcome is better? We recognise that all operational businesses and utilities have incidents from time to time and most of these are almost routine – but when incidents are more serious, management must be capable and ready.

We have focussed on the following matters:

- Was the incident management at the ROC effective?
- Why were communications to the public, station staff and passengers so poor?
- Why did detraining take so long?
- Why did it take so long for the maintenance crew to be given access to the track to fix the broken wire?
- Why was the replacement plan for train running so difficult to implement?
- Why did recovery of normal operations take so long?

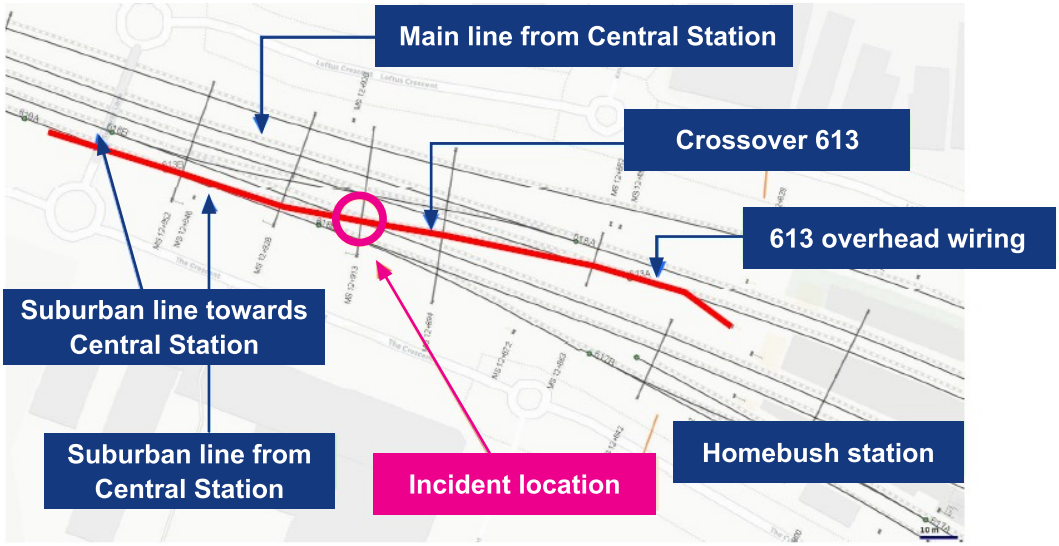
By answering these questions, we hope to identify where improvements can be made to ensure that serious incidents of this kind can occur less often, and when they do happen that they are effectively managed.

6. The approach to maintenance

Given the interconnected system that is Sydney Trains there are some parts of the network, such as large and busy junctions, where an incident is going to have a major impact. This suggests Sydney Trains should focus maintenance attention here and at other points like it. While maintenance across all assets is important, some assets are more critical than others for reliable and resilient operations.

The Panel found that the focus on time-based rather than risk-based maintenance is a major contributor to the heightened risk of major failures of this kind. The criticality of the asset (including its location and intensity of wear) should be factored into the maintenance carried out across the network. While asset maintenance plans at the highest planning levels in Sydney Trains appear to take some account of risk and are applied in targeted programs like the Rail Repair Plan in 2023-24, this is not translated into actual action on the ground in routine maintenance.

The overhead wire that failed is above what is known as a crossover – a section of track that allows trains to switch between parallel tracks. Crossovers are crucial for the effective operation of busy junctions; they allow trains to pass slower services or move across train lines bound for different destinations. Their design and condition must allow for the smooth transition (forking in and forking out) across overhead lines by a train's pantograph, when it accesses the power to operate. The wire that failed outside Homebush was at what is known as Crossover 613, as set out in the diagram below.



Sydney Trains carries out inspection maintenance of overhead wiring at crossovers by two methods – a visual inspection undertaken every 13 weeks, and a hands-on inspection every four years. None of these inspections reported thin wire at Crossover 613. Additional scans for thin overhead wires following a similar incident at Redfern in July 2024 also failed to detect the defect.

This is despite evidence that came to light during this investigation that thin wire had been detected at this location as far back as 2020. At that time, Sydney Trains commissioned Teksol International to undertake measurements of the thickness of overhead wiring across parts of the network, including this junction at Homebush. The Teksol technology is capable of measuring the thickness of wire to a high level of precision. It detected that the overhead wire was below the condemning limit of 10.9mm, and close to the elastic limit of 10.1mm and that the defect ran for 630mm.

The Teksol measurements were not part of the routine maintenance plans for overhead wiring and were commissioned to inform long-term asset management strategies. When the thin wire was detected, Sydney Trains did not integrate this information into its defect management system. As a result, there was nothing to trigger a work order to repair the wire.

Of equal, if not greater, concern to the Panel is that subsequent routine inspections conducted since 2020 failed to detect the thin wire. The most recent visual inspection of the overhead wiring at the Homebush location was on 8 April 2025, just over a month before the incident.

An internal investigation by Sydney Trains into this incident found that, while the routine visual inspections had been conducted, the method of conducting the inspection is inadequate. The Panel agrees.

Visual inspections require workers using binoculars to observe wires from a distance. Inspections are done in daylight hours, but the frequency of trains prevents workers from having access to the track and the inspection team simply cannot get an adequate view. They must stand too far away and cannot view the full length of the wire from various positions and angles.

Even if the inspection team is able to get access and stand within the track, the Panel is of the view that this method of inspection is not sufficient to ensure the integrity of these assets. It is an approach that relies on imperfect human judgement and carries a raft of opportunities for things to be missed, including a parallax effect (objects appearing differently from different angles) and the inability to discern wire thinness. The Panel's view appeared to be generally shared by the workers doing the visual inspections.

The second form of routine inspection, the hands-on inspection, is required every four years at crossover points and every eight years over straight tracks. The most recent hands-on inspection at this location was conducted in October 2024. These inspections involve workers physically measuring wire thickness. They should provide sufficient accuracy, and certainly greater accuracy than visual inspections can hope to achieve.

Yet, this hands-on inspection also failed to detect the thin wire.

The Sydney Trains internal investigation found that this inspection was not completed to the full extent of the requirements of the Technical Maintenance Plan (TMP). Close review of the relevant paperwork shows that some of the detail tasks set out in this TMP were not completed. One of the incomplete tasks was measuring the thickness of the wire of the crossover that later failed.

Sydney Trains found that the job card used by the inspectors did not provide specific direction to inspect the wire and it seems that staff were unaware that they needed to do so. This is because the job card used an abbreviated description of the tasks to be done.

Finally, the Panel understands that Sydney Trains has a "High Wear Location TMP" which provides for increased frequency of inspections and maintenance on parts of the network subject to particularly high volumes of train movements. This High Wear TMP was not activated at this location.

These failures give rise to a number of issues that need to be addressed:

- Maintenance crews need better "tools" for the visual inspection. At a basic level the crew need safe access that enables both adequate visual inspections and the less frequent, physical measurements to be carried out.
- Managers, at all levels, are responsible for assuring themselves that maintenance has been carried out as specified, and that the specification of the task is clear and adequate. Managers need to talk to the crew on the ground to understand their difficulties and assist them in safely addressing problems. The Panel has found little indication that this was happening to the extent required.
- There needs to be more frequent use of existing technology for infrastructure inspections, such as the use of Teksol, and these need to be better integrated into maintenance plans and defect management systems.
- Maintenance plans need to be based on the actual condition of the assets rather than generic time-based inspections across all the network. The High Wear Location TMP should also be better integrated into inspection regimes.

- Maintenance interventions need to reflect the risk to operations arising at different locations on the network. High-risk locations where a single infrastructure failure can have extensive consequences on the operation of the whole of the Sydney network must receive greater attention than areas posing less risk.
- Looking ahead, Sydney Trains should investigate whether installation and activation of existing front-facing cameras in new generation trains might provide video of track and wiring to aid maintenance plans and related actions. Similarly, equipment in the roof of their Mechanised Track Patrol Vehicle (MTPV), which currently examines certain track conditions, might assist crew with overhead wiring inspections.
- In addition, investigating other urban rail companies operating a network like Sydney Trains, might suggest other methods of inspection that could be useful. The Panel notes that video film files of track and overhead wiring may be a useful data source for AI inspection to assist and add to manual inspections. Such videos could be sourced from existing trains and from the MTPV. This technology is being used in similar circumstances in other industries.

The Panel is particularly concerned about how the failures in the inspection regime failed to be identified through appropriate certification processes confirming that inspection was completed as required. The Panel has more to say about governance and assurance under Section 11 of this report.

A critical constraint in undertaking maintenance in a rail context is getting access to the track. Some simple tasks can be done during times while trains are running. Most tasks, and especially major upgrades and renewals, need to be done either overnight while there are no scheduled services, or in planned “possessions” where scheduled services are suspended and replaced by buses.

Sydney Trains needs to plan for major possessions some years in advance. They are refined and revised in the months leading to the possession so that the scope of works, deployment of resources and information to customers can be arranged.

The Panel was advised that there are at times pressure on Sydney Trains to cancel these possessions when there are competing demands on the transport system, such as concerts, sporting fixtures and the like. A cancellation of a possession not only incurs significant cost, but generates backlogs in maintenance works required.

The Panel is of the view planned possessions should not be cancelled within three months except in unforeseen and exceptional circumstances.

Recommendations

1. That Sydney Trains:
   a) Revise its approach to the development and application of Technical Maintenance Plans so they are predictive and condition (rather than time) based
      - TMPs for high-wear locations should be implemented as a matter of priority
      - High risk locations (i.e. where infrastructure failure can have network wide impacts) should be subject to relatively more frequent inspections and greater levels of assurance.
   b) Introduce more effective tools to support the routine visual inspection process.
   c) Explore the feasibility of extending the use of cameras, including those currently used for monitoring track condition and those on newer trains, to monitor the condition of overhead wire.
   d) Determine whether the application of Artificial Intelligence (AI) in reviewing footage captured by cameras could assist in identifying anomalies in the condition of infrastructure. If so, along with discussions with maintenance, take steps to implement this AI viewing.
   e) As recommended in the 2023 Review, transfer engineering assurance function from the Engineering and Maintenance Branch to the Safety, Risk and Assurance. This "level two" assurance function should initially focus on:
      - Compliance of work orders with requirements in TMPs
      - Backlogs in maintenance inspections and corrective actions
      - Confidence in the front-line certifications that work has been completed as planned
      - Confirming that supervisors and senior management have sufficient on-site presence to ensure positive engagement with, and feedback from, front line staff and a sound understanding of work practices and challenges in the field.
2. That TfNSW and Sydney Trains develop an agreed policy and protocol specifying that planned possessions for maintenance will not be cancelled within three months of the planned possession except in unforeseen and unavoidable circumstances.

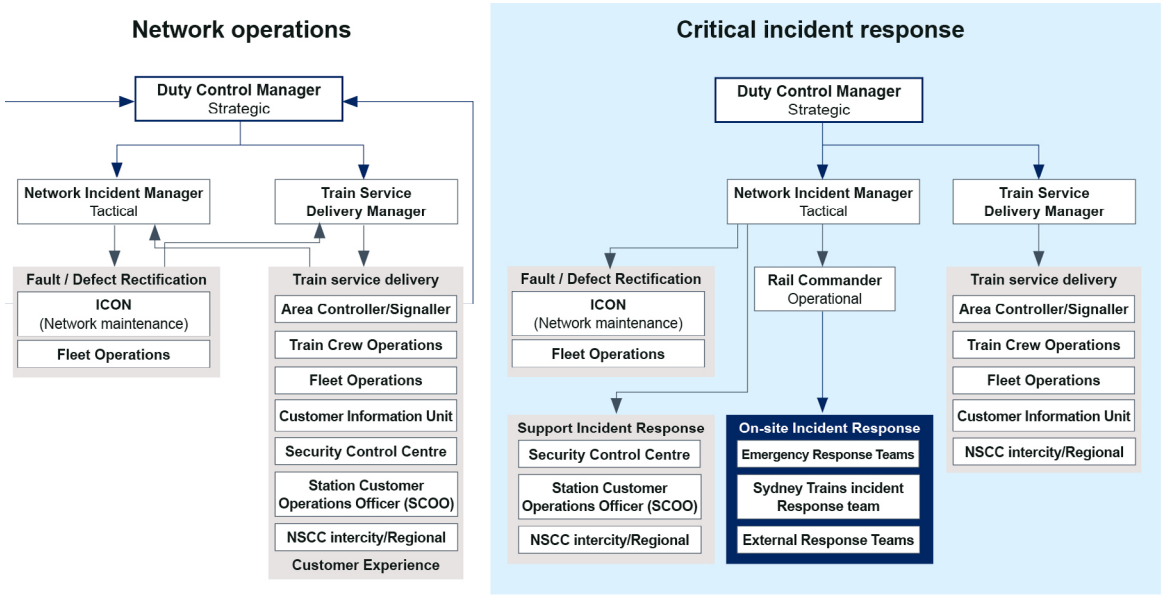
7. Management by the Rail Operations Centre

7.1 Normal operations

The day-to-day running of Sydney Trains is managed at the ROC. The ROC has all the key operational functions of the railway co-located in a single control room supported by the operational technology and systems required to manage rail services. These functions include:

- Control of the trains
- Management of alternate train plans when the normal timetable is disrupted
- Train crewing
- Incident management coordination, by Network Incident Managers (NIMs)
- Other functions such as Customer Operations, Communications, Infrastructure Control (ICON), Fleet Engineering and Maintenance, Security.

The management and coordination of the ROC floor is the responsibility of a Duty Control Manager (DCM). This person has a number of Train Service Delivery Managers (TSDMs) reporting to them. The TSDMs each control the operations in a large section of the network and they inform the signallers (formally Area Controllers (ACs)) as required. The chain of responsibility in the ROC is shown in the diagram below:



When operations are normal with nothing particularly remarkable happening, a system control centre like the ROC is typically calm, quiet and businesslike. This was not our experience at the ROC. Operations were running normally but the ROC was noisy, crowded and there was a small degree of tension.

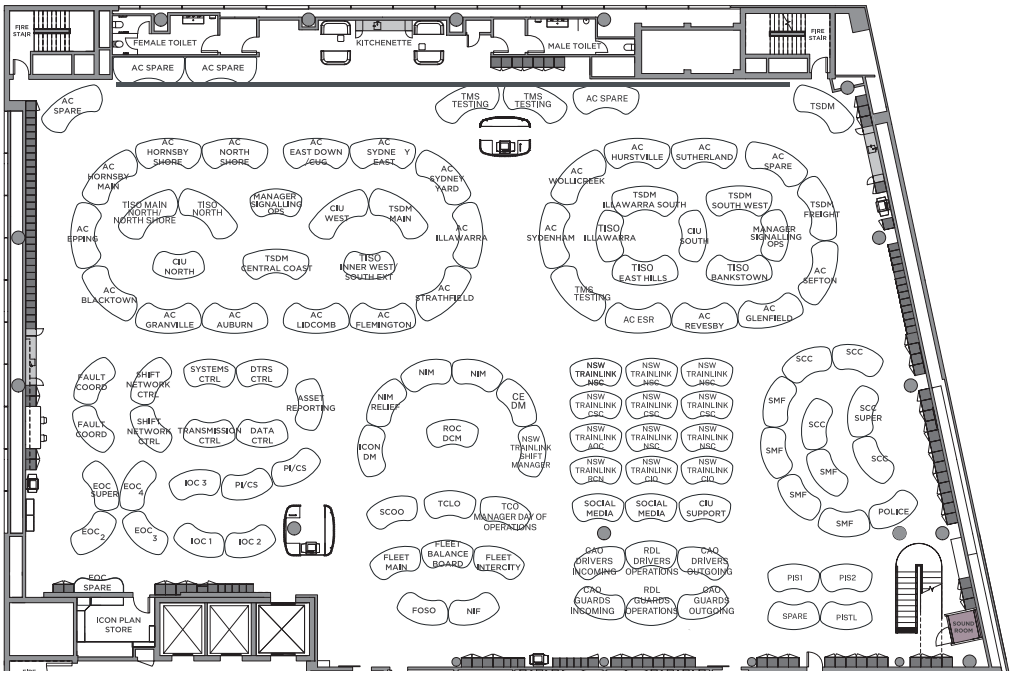
The Panel is aware that Sydney Trains is taking action to address certain difficulties in the ROC and we strongly support this move. First, people on the ROC floor who have no need to be there should be removed. This may include NSW Trains.

We were surprised to find that DCMs do not need to hold high levels of operational and safety qualifications. It is essential that these managers completely understand how the system operates on the ground, and that they have a full understanding of safety rules and procedures.

The precise role and duties of each of the people in the ROC (as in any operational centre) must be clear – and relations between those roles must be known, understood and conducted in a cooperative, business-like manner. This is not always the case and is one of the issues being addressed by Sydney Trains. It is an essential attribute in any operational area. Sydney Trains explained that in normal operations there could be issues between the NIM, managing a routine issue (like a sick train passenger), and the TSDM. The reason for this is not clear to us but may be due to some overlap in functions that occurs.

In normal operations the customer, station and train crew information flow from the ROC, is timely and accurate. But when there is a change in the timetable drivers and guards are instructed through handwritten transposition slips delivered at stations by station staff walking to the train driver and guard. This is not an efficient method but manageable for minor changes.

The physical layout of the ROC is presented below, which illustrates the congestion in the room and the difficulties in communications between people.



7.2 Incident management

Incidents with different levels of severity demand different management. A routine and relatively minor network disruption (Level 1 Routine) falls within the remit of a NIM. The TSDM continues to focus on service delivery, and the NIM coordinates matters directly. This includes keeping management and operational staff updated on incident status, including expected resolution time, and escalating an incident where required. It is also a NIM who controls track access authorisation during any level of incident.

Level 2 incidents are Critical. A DCM takes a whole-of-network view and steps in to lead the Level 2 Critical incidents along with an incident management team. These require clear recovery and communication plans. Elements this role must consider include what is happening at stations, the communications to customers, the location of crews and whether they are where they need to be, whether the right plans are being deployed and how the incident at the site is being managed. This role needs to see what others miss, including a clear path through competing priorities and ambiguity. To perform this role the DCM must be very experienced in operations, safety and incident management.

On 20 May, the incident was initially escalated to Level 2 Critical at 3.02pm. This was about 10 minutes after the incident train stopped and an Incident Management Team (IMT) led by the DCM was called for. By 3.46pm, the incident was upgraded to Level 3 Crisis, led by a member of the Sydney Trains executive and a Crisis Management Team (CMT). It would be the expectation of the Panel that this escalation would be matched by clear and clearly understood processes, including triggering relevant protocols and disruption plans.

The reason an Incident Management Team is set up, and led by either a DCM (in a Level 2 Critical incident) or a Sydney Trains Executive (in a Level 3 Crisis) is to enable the management of the many tasks that come with an incident. In this 20 May incident, the tasks included:

- Detraining the passengers at Homebush.
- Turning off power to enable safe access and egress.
- Moving the incident train so repairs could be done.
- Mobilising the repair crew.
- Moving other trains and passengers that were impacted at Strathfield, Lidcombe and Flemington.
- Choosing an alternative timetable for all routes affected.
- Informing police of the disruption.
- Working out where trains and crew are positioned and whether operating this alternative is feasible.
- Communicating to staff, passengers, public and government.
- Coordination of alternative transport options available.
- Estimating when normal operations can be established post incident.

All these tasks clearly must be managed by the leader (DCM or a Sydney Trains executive as a Crisis Event Chair) and the team must be all allocated and delegated to progress each one and report back on progress and any difficulties arising. A competent incident manager leads this team and orchestrates activities until the incident is over. Changes of personnel at both the leader and team level is typically needed, as hours are worked and fatigue managed.

Management of the incident on 20 May appeared to be unstructured, with no regular meeting cadence, clear protocols or cohesion. The CMT did not hold its initial meeting until 6.15pm, meaning formal chains of command were unclear. While the network delays meant CMT members had difficulty reaching the ROC before this time, no pre-agreed workaround seemed to exist. In its absence, informal channels overtook the discipline of a well-managed incident. Problems in contacting key operations staff by phone, both in the ROC and at the incident site, were reported to us. These key people were constantly distracted by others not in incident management positions and phones were continually engaged.

The incident was downgraded to Level 2 Critical at 11.07pm. There was an expressed belief among some executive staff at that time that services would commence as usual the following day, although other executives have also informed us that they did not have that view. In any case in our experience, it is usual for an incident to stay at its highest rating until closure and when “business as usual” has occurred. This did not happen until the morning of Thursday 22 May 2025, two days after the incident commenced.

Quite apart from management inside the ROC, the Panel also does not understand why this was not escalated to a Transport network-wide incident. It is our expectation that this should have happened when the incident was escalated to Level 3. As a result, beyond the missed opportunity for better coordination transport across modes, there was also poor information sharing from Sydney Trains to key stakeholders, including TfNSW and the Government, which a coordinated crisis response would have provided.

The consequences of this muddled management were profound.

- Effective communications simply did not occur.
- Detraining at the incident site took far too long.
- Repairing the broken wire took too long, and no fault should be found with the maintenance crew.
- Widespread service disruption continued unnecessarily into the second day.

Recommendations

3. That Sydney Trains:

   a) Redesign the floor of the ROC with a view to reducing the number of positions on the floor, minimising noise levels and allowing for better flow of information between key operational decision-makers.

   b) Ensure that within two years, all DCMs have safe-working qualifications and are trained in all aspects of the railway's operational functions (especially train control, crewing, incident management and customer communications).

   c) In the interim, ensure that a suitably experienced and qualified DCM is on call to take control of the floor in any Level 2 Critical incident and that a similarly qualified Sydney Trains executive is on call to take control in a Level 3 Crisis incident.

   d) Employ sufficient number of staff in the ROC to ensure time is available to support mandatory training interventions and incident debriefs/lessons learned exercises.

   e) Revise its incident and crisis management documentation

      - To make it simpler, clearer and easily understood.
      - To clearly delineate between a Level 2 Critical incident (requiring a tactical response by Sydney Trains) and a Level 3 Crisis incident (requiring a strategic and Transport-wide response).
      - Explicitly requiring a Level 3 Crisis incident to be escalated to a Transport-wide incident.
      - Mandating that an incident should not be downgraded until all issues are fully resolved and service delivery is back to "business as usual".

4. That TfNSW ensure that the TMC has the capacity and capability to coordinate a multimodal incident response when there is a significant disruption to Sydney Trains' operations.

5. That Sydney Trains and TfNSW:

   a) Undertake regular simulated operational exercises to test the veracity of Sydney Trains incident and crisis plans and to embed the skills and knowledge required of key personnel to enact them.

   b) A joint Level 3 Crisis incident coordinated by TfNSW should be exercised at least annually and be facilitated by an expert advisor and coordinated across all transport modes. These exercises must include participation by senior executives and key operational staff.

8. The absence of effective communications

Customers and the community are well aware that in operational businesses and utilities like Sydney Trains disruptions can and do happen from time to time. They also expect priority to be given to informing passengers and the public about the disruption, and the alternative services available. When this happens, there is understanding and better acceptance of the inconvenience.

It is therefore critical – especially for a train network that more than a million people rely on every day – that there is an efficient and effective way of communicating about delays and changes in service to the travelling public.

On this measure, the events of 20 and 21 May constitute a comprehensive failure of this core obligation to Sydney Trains passengers as well as the community at large. The Panel observed a sense of Sydney Trains' executive complacency about the role of communications during an event where a conservative view would put the number of directly impacted people into the many thousands – demonstrating a fundamental lack of understanding about the extent of this responsibility.

To the Panel, this was evident in the fact that the first push notification that went out on the Opal Travel App, was sent out at 8.16am on 21 May, almost 18 hours after the incident. The information given was already well and truly known:

> ***21/5/2025: Rail disruption is continuing***. *Passengers planning on travelling on the network this more [sic] are advised to avoid travel or use alternative transport*

This section considers communication in two respects: communication directly to customers, and the information flow across and between key internal stakeholders, including TfNSW and Government (who received only broad communication and limited detail, especially about available services and when normal running would resume).

8.1 Customer communications

In this incident, those arriving at a station expecting to travel as usual were confronted by confused crowds. Everyone was making real-time judgements about how to respond to the abrupt change in circumstances. Passengers would have looked to staff, travel apps or message boards to make informed choices about how best to travel. But information at stations for intending passengers, as flagged elsewhere in this report, was vastly inadequate, often in conflict with other messages, and compounded the incident's impact.

When the Panel looked at the processes in place inside the ROC to manage disruption communications to both Sydney Trains' staff, or to passengers arriving at stations or using travel apps, it became apparent that the level of confusion observed on 20 May was inevitable.

Accurate information about train movements, even amid some disruption, is possible if the system broadly is running to timetable. This is because the technology used to push out information to customer systems is automated and based on train numbers allocated in the timetable.

During disruption of the magnitude of 20 May, train services go "off timetable" and the ROC puts in place alternate train plans. As a consequence, the number of a particular train as linked to the timetable is no longer valid. In this disrupted mode, key functions within the ROC that affect customer communications revert to manual systems. The first of these is the data fed into the system that pushes information about the new train plan to the station information boards and to third-party apps. Each new train service must be manually entered, a process that we understand takes a few minutes for each instance. When plans are rapidly changing, and at volume, it is physically impossible to flow this information through to travel apps and station boards.

A second process relates to how information is relayed to station staff, who would be able to advise passengers waiting at platforms or through station announcements. When trains change their stopping patterns or destination under alternate train plans, this process also must be done manually. This involves a TSDM ringing station staff, who write out instructions onto a transposition slip, which they then hand

on to train drivers and guards as services stop at stations. There is a natural lag between the time taken to make this decision and to then relay it to key frontline staff, which again, has consequences when it is a task undertaken at volume.

Those waiting at stations were not to know any of this. Instead, announcements made intermittently during the disruption advised "please listen for announcements, check information screens and transport apps for updates before getting on trains" – a demonstrably futile exercise, as thousands of frustrated and confused would-be passengers could attest.

Communications made via media organisations are a valuable tool during major disruption, and in a general sense these updates were broad and frequent soon after the incident. But using media channels gives only broad messages. It does not replace the absolute prime responsibility for Sydney Trains to speak to passengers and prospective passengers through accurate information made available via station information boards, staff, announcements and travel apps.

As it stands, the day's disruption ended without any clear public notification that it would extend into the morning of 21 May. Sydney Trains itself acknowledges that normal operations became impossible to deliver, as had been intended. Detailed advice to passengers for the following day was not possible as a train plan was not finalised until about 3.30am on the morning of 21 May. The Panel was told that, but for the initiative of a media team member calling in to check the status about this time, early morning messaging would not have conveyed the extent of the disruption and advised passengers to avoid travel.

8.2 Information sharing within and across government

The ROC was announced in 2016 as a $276 million investment in a "new nerve centre" that would ensure that when delays happen, they would be communicated to passengers quickly. The reality, as this incident has demonstrated, is different.

The Panel has determined that there was no one person inside the ROC responsible for managing how messaging was communicated across all channels to the public. According to the minutes of the CMT, each meeting was attended by a "media coordinator". There was a slot for a "comms coordinator" but no one is marked as having attended in that capacity. We note that the Coordinator General did attend one meeting early in the event, however no further attendance from that unit occurred.

The broader lack of discipline around the Crisis Management Team had knock-on implications for communications, in that there was no regular cadence to updates that could be cascaded to senior stakeholders across government, as well as used for the timely dissemination/consideration of customer communications. Coordination with other agencies was minimal. Communication with Government Ministers was not sufficiently detailed during the incident.

The lack of coordination is curious to the Panel, as we have been shown that a multimodal coordination response involving TfNSW has been prepared for just this type of scenario. There was an awareness of the incident and its impacts within TfNSW, but seemingly not that this extended to TfNSW having a formal role in managing it. The Transport Management Centre did put on extra buses at the request of Sydney Trains in at least two locations, but buses are never sufficient to be able to substitute train timetable changes of this magnitude. In retrospect more coordination across other modes of transport should have occurred earlier and carried on until the incident was closed.

It is the Panel's view that a Level 3 Crisis incident should immediately trigger a response incorporating the resources and network reach of TfNSW. This should clearly have happened in this case. This comment also applies to Level 2 incidents causing significant disruption across the network.

Recommendations

6. That, within six months, Sydney Trains:
    a) Design simple messaging that can be pushed to customers through station information boards and third-party apps describing the types and frequency of services under the alternate plan(s).
    b) Ensure that staff interfacing with passengers (especially guards and station staff) are provided with scripts to convey messaging to customers.
7. That Sydney Trains, with the support of TfNSW's Operational Technology team:
    a) Prepare an end-to-end architecture for the operational technology within the Rail Operations Centre with a view to automating the current manual process for entering train services into passenger information data feeds.
    b) Gain positive assurance that the Digital Systems project will deliver the level of automation within the train planning system to support real time accurate information flows to customers through all channels.
8. That, within 12 months, Sydney Trains:
    a) Implement an electronic train transposition system, replacing the current paper-based method for advising train crew of changes to their routes during disruptions to timetabled services.
    b) Embed information about the new electronic transposition process into training courses for station staff and crew, emphasising the importance of using the new process to convey information to customers about the changed services in a timely way.

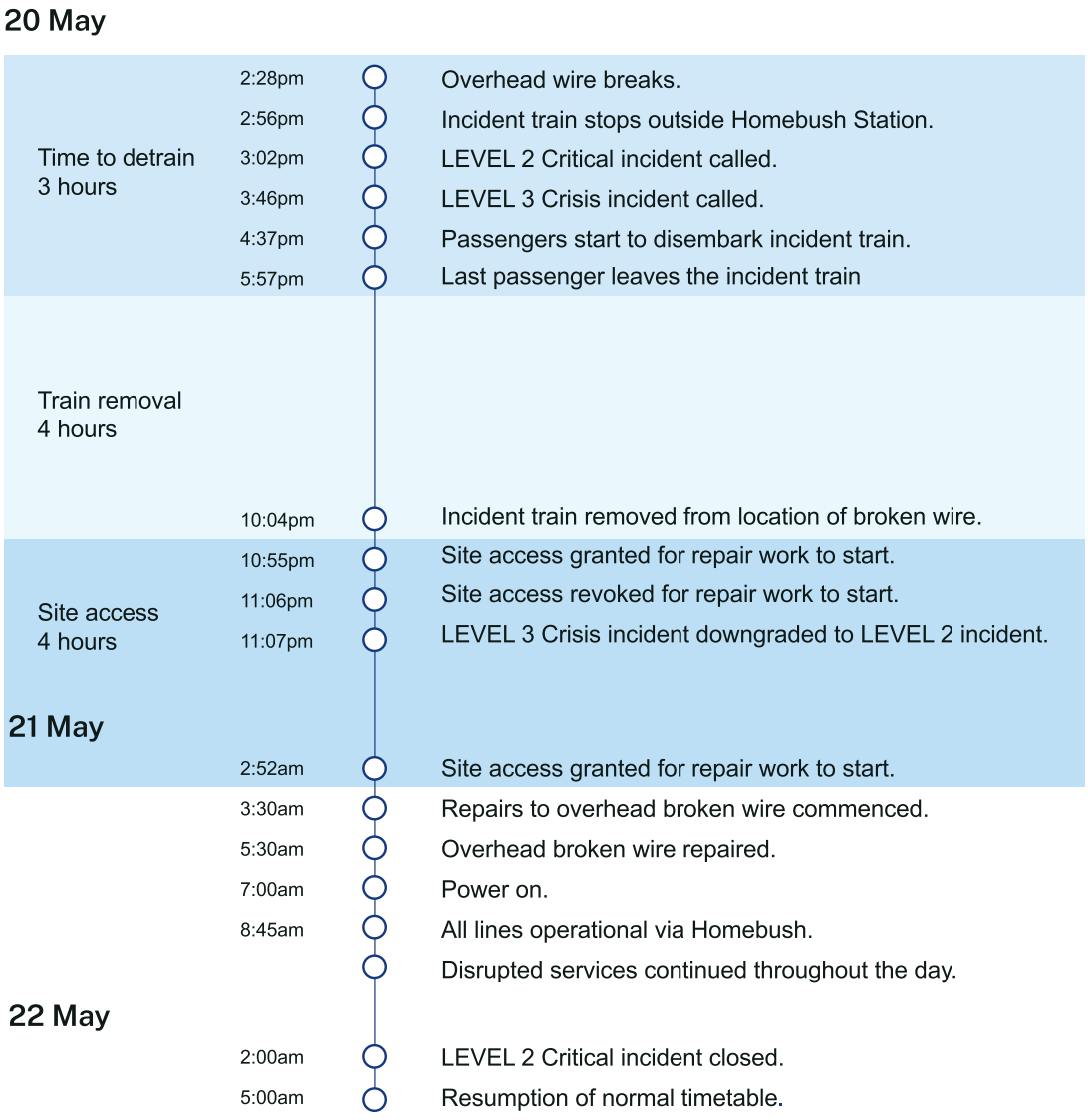
9. Site incident management

Safety is the absolute priority in any incident but several times during this incident safety management was poorly executed and took far too long. In our view the network should have been fully operational for the morning of 21 May.

There was a lack of understanding about the application of relevant network rules and as noted there is no requirement that a DCM be safe work qualified. Problems were exacerbated by managing the incident in sequential order and not holistically as a crisis - by either Sydney Trains or TfNSW. This meant valuable time was lost between tasks that had not been planned concurrently, and delays compounded. Ultimately, full network recovery by the following day became impossible.

As shown in the diagram below, passenger detraining did not start for more than 100 minutes. The incident train was then not removed for over four hours. The repair crew was not given access for another four hours. All lines were not operational until 3.5 hours after repairs finished and normal service was not resumed until start of the third day following the incident.

Incident Timeline 20-22 May



9.1 Time to detrain

While passengers across a number of services required detraining, the Panel focuses in this section on the experience of the incident train.

There is a three-stage Sydney Trains procedure[2], known as a "network rule", that must be satisfied before passengers are removed from a train. First, the wire on top of the train must be stable. Second, the train must be fully on the tracks. Third, there must be safe egress for passengers to exit the train. When these criteria are met, detraining can begin.

2. ICON Electrical Operating Procedure, Incident Response – Incidents in Electrified Area known as PR-IE-23005.

In this incident, this rule was satisfied much earlier than when detraining started. There appears to have been no good reason why detraining could not have commenced about an hour after the incident train stopped, if not earlier.

This was also recognised within Sydney Trains but instead of detraining a debate ensued, in the Panel's view, because there was not a clear shared understanding of the network rule and its correct application. This was compounded by a lack of clarity in decision making between the site and the ROC.

It is relevant to note that the same issue had emerged during the 2024 overhead wire incident at Redfern Station. One of the recommendations following that incident was that the relevant staff be briefed on the detraining protocol. This did occur. Yet the same issue arose again on 20 May 2025. This suggests staff were not properly trained or did not have the confidence to implement the network rule.

The Panel also observed that Sydney Trains is silent on the issue of core customer care. The names and contact details of passengers on the incident train were not sought. Water was only provided to those passengers detraining at Homebush Station who expressly asked for it. No other on-travel support was provided after a three-hour delay. As detailed by the passenger the Panel spoke to, many of these passengers had no battery left on their phones and so potentially no way of updating anyone about their whereabouts.

9.2 Removing the train

Before the wire could be repaired, the incident train needed to be moved – a step that was not authorised until 10.04pm, about six hours after the incident began. This was despite records showing a rescue engine had been brought to the site as early as 6.45pm. At least an hour was reportedly lost debating the rescue plan. The Panel's enquiries reveal this inefficiency was likely the result of differing opinions, an ineffective chain of command and no one person being in charge.

The different opinions include which direction the rescue vehicle should haul the incident train to – from the direction of the city, or from the west. Then, due to crew approaching the end of their shift, and the fact that a "coupler" was already attached to the eastern end of the train ("front") the initial plan was resumed. At this point, approximately seven hours had elapsed since the train stopped.

9.3 Access to site for repair crews

Repairs to the wire itself were efficient and a credit to the team involved, but the process of getting these crews on site, once the incident train had been removed, was far too slow.

The Track Occupancy Authority (TOA), a necessary step to enable repair vehicles onto the tracks, was requested at 10.25pm and authorised at 10.55pm. Regrettably, debate about the relevant safety rules then ensued, and the authorisation was revoked 11 minutes later. The TOA was reissued at 12.29am, with repair access vehicles put in place 16 minutes later, before these were instructed to be removed again. A plan for an intermediate access route was rejected at 1.40am, with a final successful approval put in place by 2.52am. Work on the wiring did not begin until 3.30am. At this point, more than 13 hours had elapsed since the initial incident.

Repairs were completed by 5.30am. Due to the previous delays the several teams needed to complete the electrical switching work had exceeded their shift length and headed home. This issue was recognised at 4am, but only one additional staff member could be sourced. Power supply was restored at 7am, and all lines reopened to rail traffic by 8.45am.

This was certainly much later than had been expected. The train plan that had been developed to operate on 21 May envisaged limited services in the morning but returning to full time tabled services by midday. However, lengthy delays in completing the repairs meant that significant disruptions occurred for the rest of the day.

9.4 Managing service disruption

One of the more difficult decisions for the incident leadership on 20 May was exactly what services should run when most of the network was off timetable and in degraded mode.

There is a Base Service Disruption Plan (BSDP), which is intended to be an off-the-shelf solution that can be implemented in a pre-identified scenario. A BSDP was not considered on 20 May "due to the circumstances unfolding as to the extent of the initial impact area". From the Panel's perspective it is not possible to conclude whether the BSDP would have been a better solution to the "shuttle" plans and other ad hoc changes put in place. We only comment that a BSDP is only effective to the extent it is tested, rehearsed and assured. Sydney Trains should consider putting its plans through this kind of rigour, and giving staff some awareness that BSDPs existed as an option.

As it happened, plans for services were drawn, and then redrawn several times during the course of the evening on 20 May and into the morning of 21 May. Qualified crew were not in the right location to commence services. The association between crew and fleet, which is maintained during the timetable, was broken. The Panel observed that a project existed whereby electronically linking trains to crew, known as "Train to Crew Association" was agreed in the latest enterprise agreement.

Recommendations

9. That Sydney Trains:

    a) Implement urgently the "Train to Crew Association" technology, as agreed in the recent enterprise agreement.

    b) Ensure that there are sufficient drivers available with relevant route and traction qualifications to implement alternate train plans when required.

10. That, within six months, Sydney Trains:

    a) Develop a small number of Base Service Disruption Plans that can be immediately deployed in circumstances where there are significant and likely extended disruption to passenger services.

    b) Review whether increases in driver qualifications (for different routes) and modifying reserve crew locations might allow more flexibility in the chosen incident replacement plans.

10. Rail Infrastructure and Fleet Repair Plans

Our Terms of Reference require us to review the investment made after the recent Rail Repair and Fleet Repair Plans and determine whether the reliability of services improved.

10.1 The Rail Repair Plan

The Rail Infrastructure Repair Plan arose from a recommendation of the Rail Infrastructure and Systems Review commissioned by the then Minister for Transport in March 2023 (the 2023 Review). The Panel undertaking the 2023 Review released an Initial Report in May 2023 which found that the reliability and resilience of Sydney Trains' operations had been fragile since the introduction of the 2017 timetable.

The 2017 timetable was designed to achieve maximum utilisation of the train network, in anticipation of growing patronage, but was far too tight to effectively maintain services, provide resilience following incidents and to give adequate access for maintenance of rail infrastructure.

The 2023 Review also found that incidents causing delays to train services were at their highest level for the previous 10 years and that over 50 per cent of those delays were attributed to the performance of rail infrastructure, i.e. track, structures, signalling and electrical infrastructure.

This coincided with increases in the backlog of routine inspections and the correction of identified defects. With the increasing number of defects, Sydney Trains had to impose Temporary Speed Restrictions (TSRs) across the network which, in turn, further impacted the reliability of train services.

A key driver of the backlog in maintenance was an extended period of Protected Industrial Action (PIA) from October 2021 to October 2022. However, the reduced windows for getting access to the infrastructure under the tightened timetable was also a factor.

To address this deterioration in performance, the 2023 Review recommended an immediate infrastructure "maintenance blitz" to reduce the backlogs to sustainable levels. The blitz would require both a rebalancing of resources, as well as shutdowns of train services, particularly on weekends, to support access for maintenance workers.

The resulting Rail Repair Plan (RRP) commenced on 3 June 2023 and met its key targets over the following 12 months:

- 1916 high-priority defects (75 per cent of the backlog) were removed by April 2024, three months ahead of schedule.
- 2116 high-priority defects (83 per cent of the backlog) were cleared by end June 2024.
- 29,000 defects in total were repaired.
- The inspection backlog in Zone 1 (the City Circle area) was reduced by 75 per cent.
- There was an accelerated delivery of the renewal of critical assets.
  - 93 track circuits were upgraded.
  - 1171 trainstop rams were replaced.
- Remote Condition Monitoring Equipment was installed.

Infrastructure performance saw encouraging signs of improvement at the conclusion of the Plan in June 2024:

- By August 2024, there were nine Temporary Speed Restrictions on the network, down from 31 in June 2021.
- There was an 18 per cent reduction in infrastructure related customer-impacting incidents (as at September 2024).
- Lost Customer Minutes attributed to infrastructure failures were 35 per cent lower in 2023/24 compared to 2022/23 despite a 21 per cent increase in customer volumes over that period.

The final cost of the Repair Plan was $69.8 million and was funded through a reallocation of the maintenance budget. It also relied on five new weekend possessions (that is, shutdown of trains services on selected lines) and the extension of either the boundary or time taken for a further 10 planned possessions for the year. So while infrastructure performance improved, it did come at the cost of disruption to services for customers.

Unfortunately, the improvement in infrastructure performance has not been sustained since the completion of the RRP in June 2024:

- The number of Temporary Speed Restrictions reached 65 in February, the highest number on record.
- The backlog in inspections also climbed from its low of 79 in August 2024 to 388 in December 2024.
- High Priority Defects reached the highest number on record (4714 across all disciplines) in June 2025.

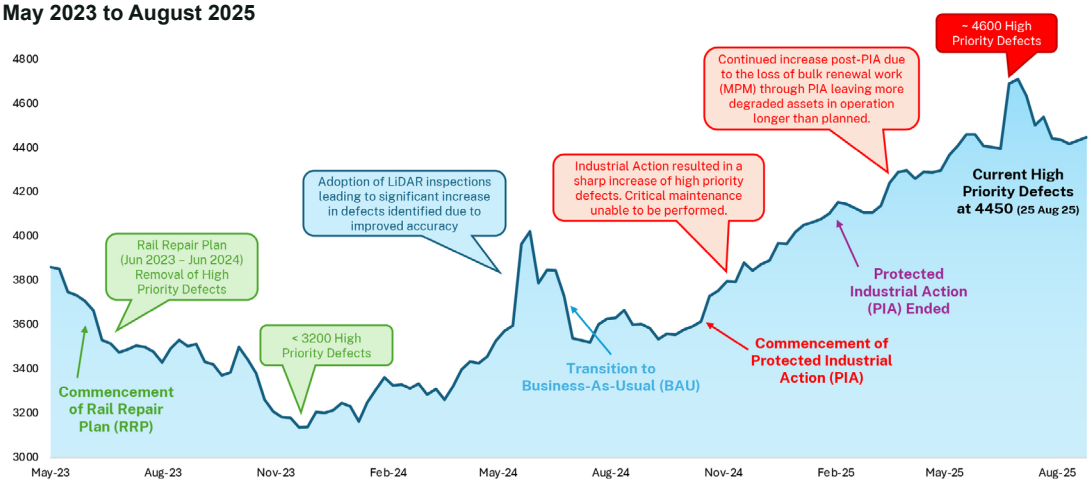
Sydney Trains attributes this deterioration in performance since the completion of the Rail Repair Plan to:

- Severe wet weather events in April 2024 and April 2025.
- The reduced number of defects removed as a result of the PIA taken from November 2024 to February 2025.
- The deferral of major maintenance work during the PIA period – leading to a high quantity of low priority (P3) defects not being removed and then degrading to become High Priority (P2) defects.
- The introduction of new LiDAR technology significantly increased the detection of defects due to increased accuracy and individual defects being recorded.

This deterioration in performance is reflected in the chart below which links the number of high priority defects to issues impacting the network since the Rail Repair Plan commenced.

High Priority Defects **(Asset with damage or flaw requiring maintenance to be fixed)**

May 2023 to August 2025



Why are High Priority Defects still increasing after PIA ended?

The quantity of defects being removed / month is significantly less than defects being identified

This is due to various factors:

1. Improved behaviours and standards – recording individual defects versus combining multiple defects into one report/notification – this assists with removal planning and increases the total quantity of High Priority Defects.
2. Inspections changes with new technology – Lidar (WSTA, Track Centres and Track Clearances, Platforms Clearance and OHW clearances) this has created an increase in the number of defects due to increased accuracy and individual defects being recorded.
3. Defect degradation - High quantity of low priority (P3) defects not removed previously, have degraded to become High Priority (P2) defects through PIA.

There are indications that infrastructure performance is now recovering. Temporary Speed Restrictions have reduced back from 65 to 10 at the time of writing. Similarly, the backlog in inspections has fallen back to 50.

However, the number of High Priority Defects remain stubbornly high with a total of 4421 defects in mid-August.

10.2 The Fleet Repair Plan

The Fleet Repair Plan was a 12-month program that commenced on 28 June 2024 designed to improve the reliability and resilience of NSW's train fleet. As with the infrastructure Rail Repair Plan the year before, the Fleet Plan's primary purpose was to clear a maintenance backlog. And, as with the Rail Repair Plan, the $35 million Fleet Plan was delivered within Sydney Trains' existing maintenance budget, headcount, and resources.

Pressure on fleet maintenance has increased over recent years with the delays in new fleet delivery to replace ageing assets. The train fleet was becoming increasingly unreliable and 2023-24 saw a 28 per cent increase in train faults over the year.

Key goals of the Fleet Repair Plan were to:

- Repair 2,037 train defects, across all 11 train models in use.
- Address 306 backlog maintenance repairs.
- Upgrade over 2,000 carriages (comprising 372 train sets), including cleaning and painting 1,622 carriages.
- Accelerate 68 reliability projects, such as,
  - Air conditioning
  - Toilets
  - Engine replacements
  - Technology systems (e.g., CCTV)
  - Brakes, doors, windows.
- Extend the life of diesel fleets (the XPT, Endeavour, Xplorer trains that operate regional and long-distance passenger services).

The Fleet Repair Plan achieved its goals and appears to have improved fleet performance:

- There has been a 16.8 per cent reduction in Lost Customer Minutes caused by fleet defects.

10.3 Impact of Rail and Fleet Repair Plans on asset performance

The Panel agrees that both the Rail Repair and Fleet Repair Plans were necessary to address a concerning deterioration in asset performance and safety. Further, both plans were successful to a point. They addressed the immediate backlog of maintenance, reduced the risk to Sydney Trains operations and resulted in some improvement to asset performance.

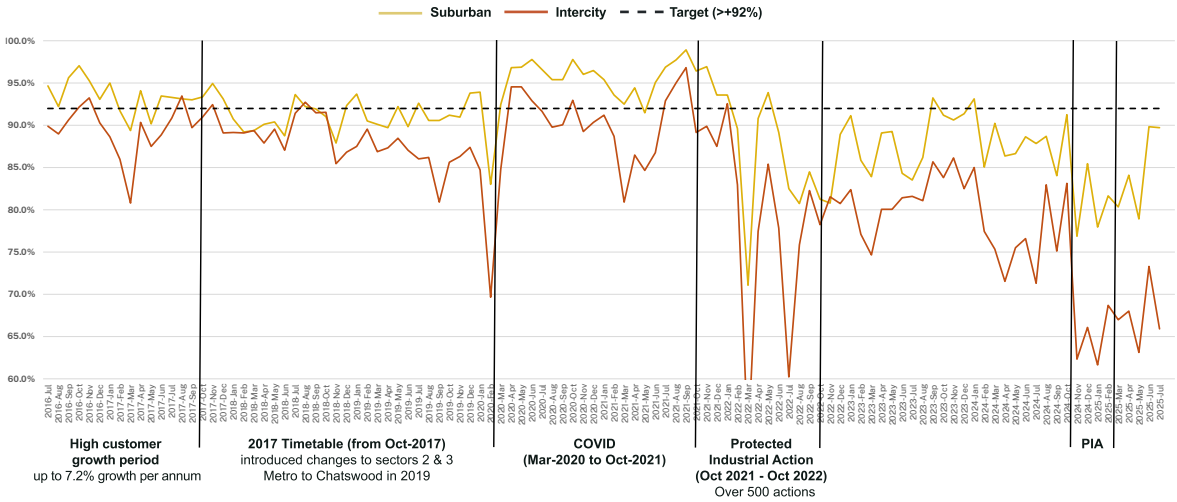
However, the Panel is of the view that the benefits from these interventions is not sustainable. This is because the Plans were funded from within existing budgets by re-balancing other maintenance works. Without an injection of additional funding and/or a significant uplift in productivity, it is not possible to continue to resource routine maintenance through the deferral of investment in renewals and upgrades.

We share the view of the 2023 Review that there are material opportunities to improve the efficiency and impact of Sydney Trains maintenance practices. The Panel encourages Sydney Trains, with the support of TfNSW, to expedite those recommendations.

10.4 Impact of infrastructure and fleet performance on reliability and train delays

Notwithstanding the investments in the Rail Repair Plan and Fleet Repair Plan, Sydney Trains continues to struggle to reach targets for the reliability of its service.

Punctuality – Peak Trains 2016-2025



The Panel has sought to get a greater understanding of what is driving this poor performance.

Infrastructure and fleet performance are only two of the operational areas within Sydney Trains that impact train services. Other areas include:

- Rail Operations - Security (delays caused by vandalism, self harm etc)
- Rail Operations – Non-security (operation of the ROC)
- Train Crewing
- Non Sydney Trains fleet (NSW Trains)
- Customer experience (e.g. station staff)
- Projects (delays caused by major projects or maintenance works).

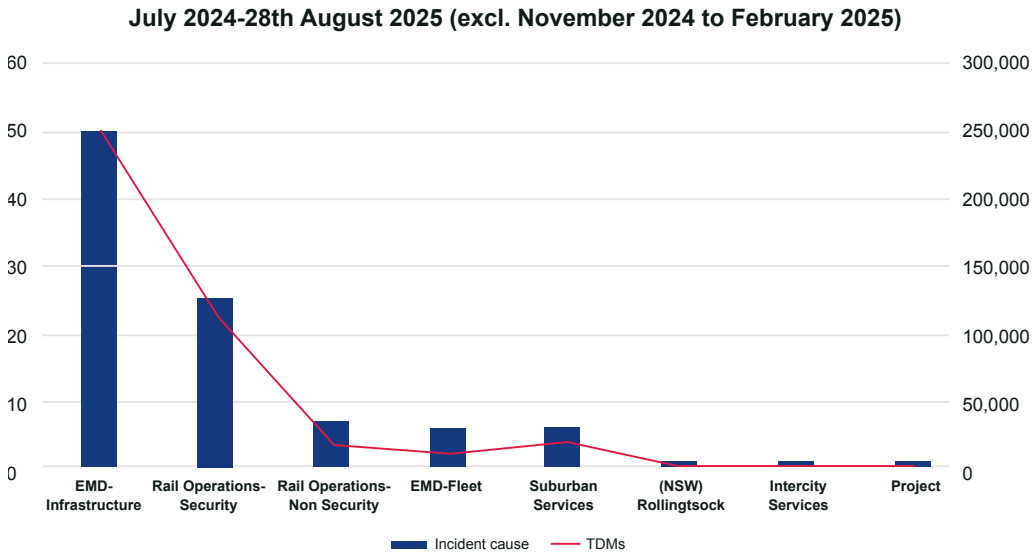
When there is an incident that causes train delays, Sydney Trains has a process to allocate the delays to the operational area accountable. These metrics are used to monitor performance of the different parts of the business and initiate improvements where necessary.

As seen in the chart below, the Engineering and Maintenance Division (EMD) – infrastructure – was allocated the highest level of incidents that cause train delays, around 44 incidents in the period July 2024-May 2025.

Sydney Trains' method for allocating train delay minutes is to calculate the delays and attribute them to the functional areas that instigated the incident. The allocation of TDMs to EMD is therefore correspondingly high.

Incidents by Train Delay Minutes

Incident categories (by total delay minutes > 1,000)



However, this may not be a true reflection of the reasons behind the delays to restoring services.

For instance, the incident on 20 May was initially caused by an infrastructure failure.

However, as our investigations into the incident has shown, the delay to train services arising from that incident was largely due to the failures in decision-making in the ROC and ability to locate crew.

Also, the impact on customers was greater than the delay to trains. It was the lack of information available to them to make informed choices. Providing accurate and timely information to passengers is not the accountability of EMD.

By allocating all the train delay minutes and customer impact to the initiator of the incident may mask under-performance in other operational areas.

Sydney Trains should review its incident allocation methodology to ensure it truly reflects the causes of avoidable delays once an incident occurs.

Recommendations

11. That Sydney Trains:

a) Expedite the outstanding recommendations of the 2023 Review relating to the reliability and resilience of the network (Chapter 9), with a focus on achieving efficient and sustainable asset management outcomes.

b) Revise its method for allocating responsibility for train and customer delays to accurately reflect which operational branches contributed to avoidable delays following an incident.

11. Governance and assurance

The reliability, safety and sustainability of complex operational organisations rely on sound governance and robust assurance.

The Three Lines of Defence model is a framework used in designing assurance functions to ensure effective risk management and governance within an organisation and its application is encouraged across NSW agencies by the Auditor-General and Treasury policy.

- **The First Line of Defence:** consists of operational management, which owns and manages risks. They are responsible for implementing and executing risk and control processes on a day-to-day basis.
- **The Second Line of Defence:** includes risk management and compliance functions. They provide oversight and support to the first line by developing risk management frameworks, monitoring compliance, and ensuring that risks are managed effectively.
- **The Third Line of Defence:** is the internal audit function. It provides independent assurance by evaluating the effectiveness of the first and second lines of defence, ensuring that risk management and internal controls are functioning as intended.

Our investigation has found opportunities to improve all lines of defence in Sydney Trains.

There are operational improvements to be made across infrastructure and fleet maintenance, the ROC, crewing and customer information systems. The first line of defence can be improved by better inspection of assets and checking by managers and supervisors that work requested has been done. Recommendations about these matters are covered in the Maintenance section.

We have recommended that Sydney Trains' second line of defence for maintenance be moved from the Engineering and Maintenance Division (which is responsible for operational management of maintenance) to Safety, Risk and Assurance to ensure transparent independence from the first line of defence.

Sydney Trains' internal audit function (the third line of defence) is managed through the TfNSW audit function and overseen by an Audit and Risk Committee that covers TfNSW and the heavy rail agencies. The Panel has formed the view that this arrangement is inadequate to meet the operational needs of Sydney Trains.

Sydney Trains is a corporate entity, managing a highly complex and hazardous operation. We believe that a dedicated audit function within Sydney Trains, with additional audits focusing on operational and safety risks, would provide a more robust mechanism for assuring the reliability, safety and sustainability of Sydney Trains' operations.

The Panel is comfortable that the non-operational risks of Sydney Trains' business can be more cost-effectively managed through TfNSW's audit and risk function. This reflects that many of Sydney Trains non-operational functions are managed through a shared services arrangement with TfNSW.

As noted in Section 6 on Maintenance, Sydney Trains second line of defence for assurance should move from the Engineering and Maintenance Branch to Safety Risk and Assurance.

Recommendations

12. That Sydney Trains:

a) Improve Level 1 assurance by checking that maintenance has been carried out as specified and that the specification task is clear and adequate. Managers should speak to staff on the ground to understand any difficulties they may have and assist them in safely addressing problems to ensure the work requested is able to be completed.

b) Establish an internal audit function, reporting directly to the Chief Executive and supported by a Sydney Trains Audit and Risk Committee with expertise in operational functions relevant to Sydney Trains' operations.

c) That the scope of Sydney Trains internal audit function and the audit program be focused on operational and safety risks, with other risk managed through the TfNSW internal audit function.

Appendix A - Consolidated list of recommendations

1. That Sydney Trains:

   a) Revise its approach to the development and application of Technical Maintenance Plans so they are predictive and condition (rather than time) based

      - TMPs for high-wear locations should be implemented as a matter of priority
      - High-risk locations (i.e. where infrastructure failure can have network wide impacts) should be subject to relatively more frequent inspections and greater levels of assurance.

   b) Introduce more effective tools to support the routine visual inspection process.

   c) Explore the feasibility of extending the use of cameras, including those currently used for monitoring track condition and those on newer trains, to monitor the condition of overhead wire.

   d) Determine whether the application of Artificial Intelligence (AI) in reviewing footage captured by cameras could assist in identifying anomalies in the condition of infrastructure. If so, along with discussions with maintenance, take steps to implement this AI viewing.

   e) As recommended in the 2023 Review, transfer engineering assurance function from the Engineering and Maintenance Branch to the Safety, Risk and Assurance. This “level two” assurance function should initially focus on:

      – Compliance of work orders with requirements in TMPs
      – Backlogs in maintenance inspections and corrective actions
      – Confidence in the front-line certifications that work has been completed as planned
      – Confirming that supervisors and senior management have sufficient on-site presence to ensure positive engagement with, and feedback from, front line staff and a sound understanding of work practices and challenges in the field.

2. That TfNSW and Sydney Trains develop an agreed policy and protocol specifying that planned possessions for maintenance will not be cancelled within three months of the planned possession except in unforeseen and unavoidable circumstances.

3. That Sydney Trains:

   a) Redesign the floor of the ROC with a view to reducing the number of positions on the floor, minimising noise levels and allowing for better flow of information between key operational decision-makers.

   b) Ensure that within two years, all DCMs have safe-working qualifications and are trained in all aspects of the railway’s operational functions (especially train control, crewing, incident management and customer communications).

   c) In the interim, ensure that a suitably experienced and qualified DCM is on call to take control of the floor in any Level 2 Critical incident and that a similarly qualified Sydney Trains executive is on call to take control in a Level 3 Crisis incident.

d) Employ sufficient number of staff in the ROC to ensure time is available to support mandatory training interventions and incident debriefs/lessons learned exercises.

e) Revise its incident and crisis management documentation

- To make it simpler, clearer and easily understood.
- To clearly delineate between a Level 2 Critical Incident (requiring a tactical response by Sydney Trains) and a Level 3 Crisis incident (requiring a strategic and Transport-wide response).
- Explicitly requiring a Level 3 Crisis incident to be escalated to a Transport-wide incident.
- Mandating that an incident should not be downgraded until all issues are fully resolved and service delivery is back to "business as usual".

4. That TfNSW ensure that the TMC has the capacity and capability to coordinate a multimodal incident response when there is a significant disruption to Sydney Trains' operations.

5. That Sydney Trains and TfNSW:

a) Undertake regular simulated operational exercises to test the veracity of Sydney Trains incident and crisis plans and to embed the skills and knowledge required of key personnel to enact them.

b) A joint Level 3 Crisis incident coordinated by TfNSW should be exercised at least annually and be facilitated by an expert advisor and coordinated across all transport modes. These exercises must include participation by senior executives and key operational staff.

6. That, within six months, Sydney Trains:

a) Design simple messaging that can be pushed to customers through station information boards and third-party apps describing the types and frequency of services under the alternate plan(s).

b) Ensure that staff interfacing with passengers (especially guards and station staff) are provided with scripts to convey messaging to customers.

7. That Sydney Trains, with the support of TfNSW's Operational Technology team:

a) Prepare an end-to-end architecture for the operational technology within the Rail Operations Centre with a view to automating the current manual process for entering train services into passenger information data feeds.

b) Gain positive assurance that the Digital Systems project will deliver the level of automation within the train planning system to support real time accurate information flows to customers through all channels.

8. That, within 12 months, Sydney Trains:

a) Implement an electronic train transposition system, replacing the current paper-based method for advising train crew of changes to their routes during disruptions to timetabled services.

b) Embed information about the new electronic transposition process into training courses for station staff and crew, emphasising the importance of using the new process to convey information to customers about the changed services in a timely way.

9. That Sydney Trains:

a) Implement urgently the "Train to Crew Association" technology, as agreed in the recent enterprise agreement.

b) Ensure that there are sufficient drivers available with relevant route and traction qualifications to implement alternate train plans when required.

10. That, within six months, Sydney Trains:

a) Develop a small number of Base Service Disruption Plans that can be immediately deployed in circumstances where there are significant and likely extended disruption to passenger services.

b) Review whether increases in driver qualifications (for different routes) and modifying reserve crew locations might allow more flexibility in the chosen incident replacement plans.

11. That Sydney Trains:

a) Expedite the outstanding recommendations of the 2023 Review relating to the reliability and resilience of the network (Chapter 9), with a focus on achieving efficient and sustainable asset management outcomes.

b) Revise its method for allocating responsibility for train and customer delays to accurately reflect which operational branches contributed to avoidable delays following an incident.

12. That Sydney Trains

a) Improve Level 1 assurance by checking that maintenance has been carried out as specified and that the specification task is clear and adequate. Managers should speak to staff on the ground to understand any difficulties they may have and assist them in safely addressing problems to ensure the work requested is able to be completed.

b) Establish an internal audit function, reporting directly to the Chief Executive and supported by a Sydney Trains Audit and Risk Committee with expertise in operational functions relevant to Sydney Trains' operations.

c) The scope of Sydney Trains internal audit function and the audit program should be focused on operational and safety risks, with other risk managed through the TfNSW internal audit function.

Appendix B – The Panel

Kerry Schott AO

Kerry Schott is currently a Director of AGL, Chair of the Carbon Market Institute and Chair of the Competition Review Panel for the Australian Government. These appointments follow a long career in infrastructure in both government and investment banking. She was a Managing Director at Deutsche Bank and became CEO of Sydney Water 2005-2011. She has had numerous Board positions including Chair of Moorebank Intermodal, a Director of NBN, and Chair of Retained Roads Pty Ltd (a 49 per cent owner of the WestConnex motorway).

Kerry has also served on a number of advisory committees and policy reviews and recently led a review of Freight Policy in NSW for the NSW Government. She conducted a review of Inland Rail in 2023 for the Australian Government and briefly chaired the ARTC.

Kerry holds a doctorate from Oxford University and was awarded an Order of Australia in 2015 for services to business and commerce. She holds honorary doctorates from the University of Sydney, Western Sydney University and the University of New England.

Carolyn Walsh

Carolyn Walsh has 40 years of experience in the Commonwealth and NSW public services, specialising in industry, science, and transport. She currently chairs the National Transport Commission and serves on the Board of the NSW Environment Protection Authority. She also provides consultancy services in safety and risk management.

Her previous roles include Commissioner of the Australian Transport Safety Bureau (2010-2020) and Chief Executive of NSW's Independent Transport Safety and Reliability Regulator (2004-2009). Carolyn conducted a review of the Sydney Trains network in 2023 for the NSW Government.

Carolyn holds a Bachelor of Economics and qualifications in risk management and auditing.

Trevor Armstrong

Trevor has over 35 years of experience in the energy industry, and has previously held senior executive roles at Ausgrid including CEO. His experience includes leading large and complex engineering operations with a focus on safety in high-risk environments. He also has extensive asset and incident management experience in the NSW electricity industry.

He was a member of the Australian Energy Market Commission Reliability Panel for 10 years. Until April 2025 he was the CEO of the Central West Orana Renewable Energy Zone and is currently on the Board of Power and Water Corporation in the Northern Territory.

Trevor holds a Bachelor of Engineering (Elect) from the University of Technology Sydney and Diploma from the Australian Institute of Company Directors. He is Fellow of the Institute of Engineers Australia and has completed the Advanced Management Program, INSEAD.

Glossary

AC	Area Controller
BSDP	Base Service Disruption Plan
CEC	Crisis Event Commander
CMT	Crisis Management Team
DCM	Duty Control Manager
EMD	Engineering and Maintenance Division
ICON	Infrastructure Control
IMT	Incident Management Team
MTPV	Mechanised Track Patrol Vehicle
NIM	Network Incident Manager
PIA	Protected Industrial Action
ROC	Rail Operations Centre
RRP	Rail Repair Plan
TDM	Train Delay Minutes
TfNSW	Transport for NSW
TMP	Tactical Maintenance Plan
TOA	Track Occupancy Authority
TSDM	Train Service Delivery Manager
TSR	Temporary Speed Restriction
XPT	eXpress Passenger Train