Australian Government
Australian Transport Safety Bureau

Safe working incident involving MTM trains TD3148 and TD7255

Ferntree Gully, Victoria, on 25 February 2024

ATSB Transport Safety Report
Rail Occurrence Investigation
RO-2024-001
Preliminary – 17 May 2024

This investigation was conducted under the *Transport Safety Investigation Act 2003* (Cth) by the **Office of the Chief Investigator (Victoria)** in accordance with a Collaboration Agreement with the Australian Transport Safety Bureau.

Released in accordance with section 25 of the *Transport Safety Investigation Act 2003*

Publishing information

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Addendum

Page	Change	Date

Preliminary report

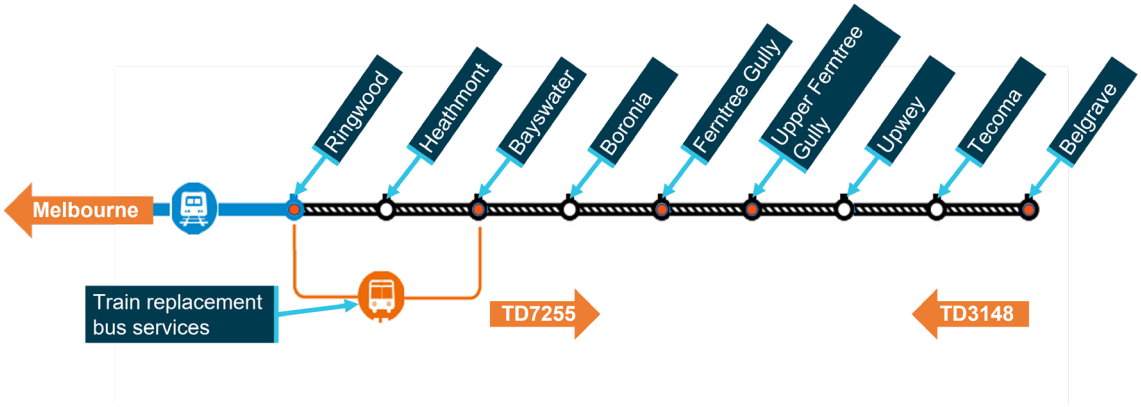
This preliminary report details factual information established in the investigation's early evidence collection phase, and has been prepared to provide timely information to the industry and public. Preliminary reports contain no analysis or findings, which will be detailed in the investigation's final report. The information contained in this preliminary report is released in accordance with section 25 of the *Transport Safety Investigation Act 2003*.

The occurrence

Background

As part of the Victorian Government's Level Crossing Removal Project (LXRP) on the Melbourne metropolitan rail network, level crossing removal works were being carried out at Bedford Road in Ringwood. The removal works had implications for train operations between Ringwood and Belgrave (Figure 1). Down trains travelling from Melbourne were being terminated at Ringwood and up trains originating at Belgrave and travelling towards Melbourne were being terminated at Bayswater. Trains were being operated to an altered timetable and buses replaced trains between Bayswater and Ringwood.

Figure 1: Section of Belgrave line affected by level crossing removal works



Source: Public Transport Victoria annotated by the Office of the Chief Investigator

Prior to the incident

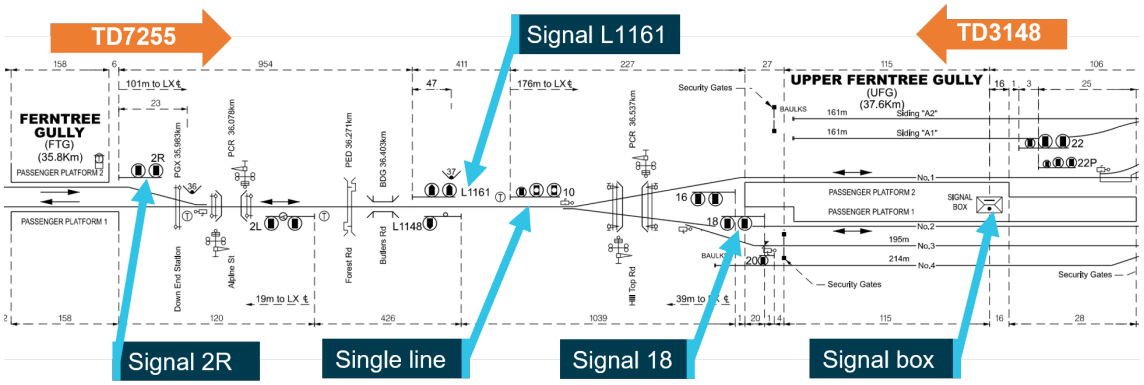
On the morning of 25 February 2024, after taking on passengers transported by bus from Ringwood, train TD3109 departed Bayswater at about 0935 (local time) for a scheduled service to Belgrave. Shortly after, train TD7255, a non-revenue service (not taking passengers), departed Bayswater, following TD3109. Train TD7255 was scheduled to leave Bayswater Station at 0950 but left early at about 0937. Being a non-revenue service, it was authorised to move via signals rather than at the scheduled time.

Train TD3109 continued its journey ahead of TD7255 and towards Belgrave as scheduled. Meanwhile, passenger train TD3148 departed Belgrave at about 0942 and was travelling in the opposite direction towards the temporary terminus at Bayswater station.

The incident

Trains TD7255 and TD3148 were travelling towards the single line section between Ferntree Gully and Upper Ferntree Gully (Figure 2).

Figure 2: Signalling arrangement between Ferntree Gully and Upper Ferntree Gully



Source: Metro Trains Melbourne annotated by the Office of the Chief Investigator

The driver of TD7255 reported that after passing through Boronia station, they proceeded at between 30 and 40 km/h through Ferntree Gully station on a departure home signal[1] (2R) that displayed a medium speed warning (Figure 3). A medium speed warning (red over yellow) indicated that the line ahead was clear, but the next signal was at stop. A train must not exceed 40 km/h after proceeding past a signal displaying a medium speed warning.

Figure 3: Home signal 2R located at the end of the platform at Ferntree Gully station

Signal 2R annotated to show a Medium Speed Warning indication
Source: Office of the Chief Investigator

[1] A Home Signal controls arrival and departure movements at stations, and protects points and other interlocking. A Home Signal can only be passed on the issue of a caution order by a signaller.

Train TD7255 then entered the single bi-directional line between Ferntree Gully station and Upper Ferntree Gully station. The train arrived at signal L1161 at about 0947 and stopped at that signal as it displayed a stop indication (Figure 4). Train TD3109 that was travelling ahead of TD7255 was stopped on platform 2 at Upper Ferntree Gully awaiting the arrival of TD3148.

Figure 4: Signal L1161 on the approach from Ferntree Gully

Signal L1161 annotated to show the signal aspect when at stop
Source: Still frame from Metro Trains Melbourne training video annotated by the Office of the Chief Investigator

After departing Belgrave, train TD3148 had stopped at Tecoma and Upwey stations before arriving on platform 1 at Upper Ferntree Gully Railway Station at about 0951. TD3109 then departed the station towards Belgrave. TD3148 was to depart towards Ferntree Gully but was held at the platform by departure home signal 18 that displayed a stop indication (Figure 5).

Figure 5: Departure home signal 18 at Upper Ferntree Gully station at stop

Source: Office of the Chief Investigator

The signaller based at Upper Ferntree Gully reported checking the signalling panel and train schedule and making an unsuccessful attempt to reset the signals. In the belief that the departure signal for TD3148 would not clear due to a recurring fault, the signaller contacted Metrol[2] and sought permission to issue a caution order[3] to the driver of TD3148. This instrument would allow the driver to proceed at slow speed (no more than 25 km/h) towards Ferntree Gully. The Metrol train controller confirmed that a caution order could be issued.

The signaller issued a caution order for the train to proceed past signal 18 and the train departed at about 0958. The train tripped the automatic train stop[4] for signal 18 and came to a stop a short distance past the signal. After the driver reset the train's systems, TD3148 proceeded into the single line section between Upper Ferntree Gully and Ferntree Gully stations.

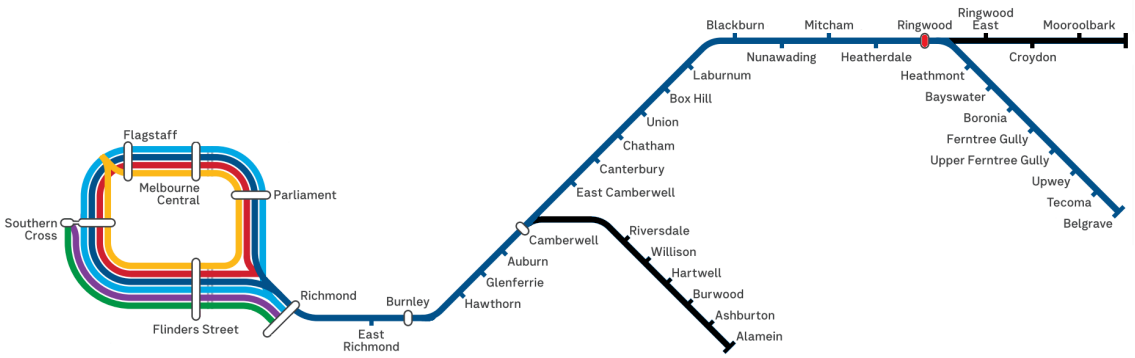
The train proceeded towards Ferntree Gully and the stationary TD7255 at speeds not exceeding 20 km/h. As TD3148 approached the other train, the driver was alerted to its presence by the whistle of TD7255. The driver brought TD3148 to a stop with the trains on the same line facing each other and about 300 m apart. The train was recorded as stopped at about 1001.

Context

Melbourne metropolitan rail network

Metro Trains Melbourne (MTM)[5] was the network manager and the operator of all trains on the Melbourne metropolitan passenger rail network and the Belgrave line was a part of the network.

Figure 6: Melbourne metropolitan rail network showing eastern lines including the Belgrave line



Source: Public Transport Victoria annotated by Office of the Chief Investigator

Metrol was the central control centre for the Melbourne suburban rail network. While the centre's train control function covered the whole suburban network, its control of points and signalling was limited to a centrally controlled area. Outside this area, signals were controlled by signallers located either in dedicated signal-boxes or operating signal control panels at suburban railway stations.

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2 Metrol is the central control centre for the Melbourne suburban rail network (see section in Context).

3 An ATC caution order is an instrument used by a signaller to give a train driver authority to pass a signal at stop under the Automatic and Track Control signalling system.

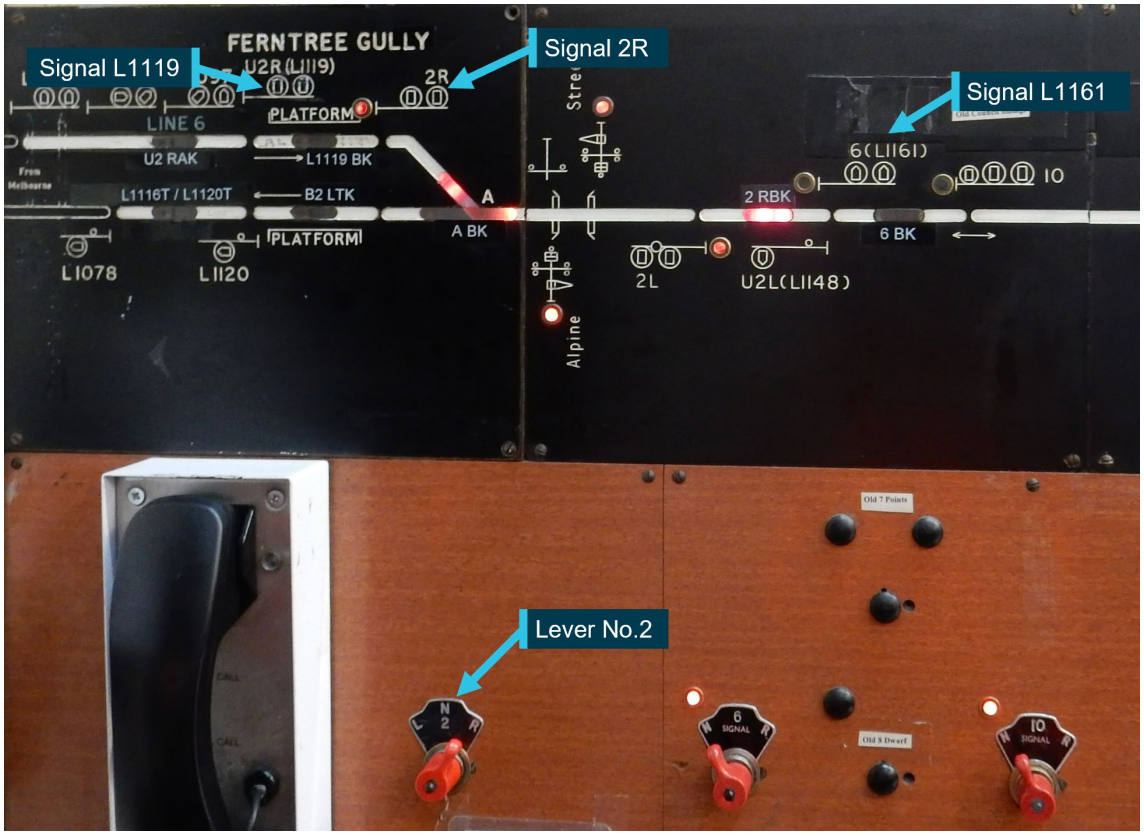
4 The purpose of the automatic train stop is to bring a train to a stand when the train passes a signal that is at stop. The trip mechanism has to be reset by the driver before the train can proceed.

5 MTM is the franchise contract manager for the Melbourne metropolitan rail network. MTM is also responsible for asset maintenance on the network.

Signal control from Upper Ferntree Gully

Signal and points between Ferntree Gully and Belgrave were controlled from Upper Ferntree Gully Railway Station which was fitted with a signal control panel (Figure 7). Installed in 1962, the control panel had incandescent indications. Signals L1119 and 2R were operated by lever no.2 and when it was placed to the 'R' position, signals L1119 and 2R displayed proceed aspects.

Figure 7: Part of signalling panel at Upper Ferntree Gully station



Source: Office of the Chief Investigator

The signalling system used between Ferntree Gully and Belgrave was the Automatic and Track Control (ATC) system. In this system, authority for a train to enter a section of track was provided by signals located at each end of the section. In single-line operations, the signals at each end of a track section were configured such that once a train was in the section, an opposing train could not be signalled to enter the section.

The Upper Ferntree Gully signal box was also provided with a dedicated telephone line, signal post telephones and a Digital Train Radio System (DTRS) radio console, and a bell system.[6]

[6] A system for the practice of pressing a button at a signal box that rings a bell to inform that a train has departed a station and is heading towards another station.

Further investigation

To date the following investigation activities have been completed:

- examination of train operational information
- interview of several parties
- inspection of the Upper Ferntree Gully signal box
- collection of other relevant documentation.

The investigation is continuing and will include review and examination of:

- train operations
- actions of signallers and train controllers
- the operation of the signalling system
- management of train operations during level crossing upgrade works
- safe working systems and risk controls.

Should a critical safety issue be identified during the investigation, the ATSB will immediately notify relevant parties so appropriate and timely safety action can be taken.

A final report will be released at the conclusion of the investigation.

General details

Occurrence details

Date and time:	25 February 2024 – 1001 EST	
Occurrence class:	Incident	
Occurrence categories:	Safe working rule or procedure breach	
Location:	Ferntree Gully, Victoria	
	Latitude: 37.8911° S	Longitude: 145.3027° E

Train 1 details

Track operator:	Metro Trains Melbourne	
Train operator:	Metro Trains Melbourne	
Train number:	TD3148	
Type of operation:	Passenger service	
Consist:	3-car trainset - Lead car 876M	
Departure:	Belgrave	
Destination:	Bayswater	
Persons on board:	Crew – 1	Passengers – Unknown
Injuries:	Crew – Nil	Passengers – Nil
Damage:	None	

Train 2 details

Track operator:	Metro Trains Melbourne	
Train operator:	Metro Trains Melbourne	
Train number:	TD7255	
Type of operation:	Non-revenue service	
Consist:	3-car trainset - Lead car 191M	
Departure:	Bayswater	
Destination:	Belgrave	
Persons on board:	Crew – 1	Passengers – Nil
Injuries:	Crew – Nil	Passengers – Nil
Damage:	None	

Australian Transport Safety Bureau

About the ATSB

The ATSB is an independent Commonwealth Government statutory agency. It is governed by a Commission and is entirely separate from transport regulators, policy makers and service providers.

The ATSB's purpose is to improve the safety of, and public confidence in, aviation, rail and marine transport through:

- independent investigation of transport accidents and other safety occurrences
- safety data recording, analysis and research
- fostering safety awareness, knowledge and action.

The ATSB is responsible for investigating accidents and other transport safety matters involving civil aviation, marine and rail operations in Australia, as well as participating in overseas investigations involving Australian-registered aircraft and ships. It prioritises investigations that have the potential to deliver the greatest public benefit through improvements to transport safety.

The ATSB performs its functions in accordance with the provisions of the *Transport Safety Investigation Act 2003* and Regulations and, where applicable, international agreements.

Rail safety investigations in Victoria

Rail safety investigations in Victoria are conducted by the **Office of the Chief Investigator (OCI)** under a collaboration agreement with the Australian Transport Safety Bureau (ATSB). OCI is the office supporting the statutory position of the Chief Investigator, Transport Safety to conduct independent, no-blame investigation of transport safety matters in Victoria.

Purpose of safety investigations

The objective of a safety investigation is to enhance transport safety. This is done through:

- identifying safety issues and facilitating safety action to address those issues
- providing information about occurrences and their associated safety factors to facilitate learning within the transport industry.

It is not a function of the ATSB to apportion blame or provide a means for determining liability. At the same time, an investigation report must include factual material of sufficient weight to support the analysis and findings. At all times the ATSB endeavours to balance the use of material that could imply adverse comment with the need to properly explain what happened, and why, in a fair and unbiased manner. The ATSB does not investigate for the purpose of taking administrative, regulatory or criminal action.

Terminology

An explanation of terminology used in ATSB investigation reports is available on the ATSB website. This includes terms such as occurrence, contributing factor, other factor that increased risk, and safety issue.