IN THE CORONERS COURT
OF VICTORIA
AT MELBOURNE

Court Reference: 5005/09

FINDING INTO DEATH WITH INQUEST

Form 37 Rule 60(1)
Section 67 of the ***Coroners Act 2008***

(Amended pursuant to s76 of the *Coroners Act 2008* on 25th May, 2012)

Inquest into the Death of PETER JOHNSTON

Delivered On:	2nd December, 2011
Delivered At:	Melbourne
Hearing Dates:	30th May to the 1st June, 2011
Findings of:	IAIN TRELOAR WEST
Representation:	Ms S. Hinchey for Department of Transport and Victrack Mr T. Burns for Metro Trains and Veolia Transport Mr M Shume for United Group Melbourne Transport Ltd

Police Coronial Support Unit: Sergeant Tracey Weir

I, IAIN TRELOAR WEST, Deputy State Coroner having investigated the death of PETER JOHNSTON

AND having held an inquest in relation to this death on the 30th May to the 1st June, 2011 at Melbourne

find that the identity of the deceased was PETER JOHNSTON

born on 1st September, 1973

and the death occurred on 20 October 2009

at Melbourne Central - 100m Bw Melbourne Central And Parliament Station, Melbourne, Victoria 3000

from:

1a. MULTIPLE INJURIES

in the following circumstances:

1. Peter Johnston, aged 36 years, was unemployed at the time of his death and resided at Flat 7, 366 Bell Street, Reservoir. On the 20th October, 2009, at approximately 1.00pm, Mr Johnston was arrested outside Melbourne Central Shopping Complex for being drunk in a public place. He was in the presence of his girlfriend, Lisa McGuire, and his brother and his partner, all of whom had been drinking alcohol from a wine cask in the vicinity of the shopping complex and the State Library. When Mr Johnston was lodged at the Melbourne Custody Centre, he had in his possession a bottle of Xanax, prescription medication which had been dispensed earlier in the morning. After being arrested and lodged in the cells, Mr Johnston was subsequently bailed and released at approximately 6.30pm. After leaving the Custody Centre he again met up with Lisa McGuire, before purchasing a cask of wine from which they commenced drinking, in addition to consuming a number of Xanax tablets. The pair decided to go for a train ride which they did by taking a train to Frankston, further consuming alcohol during the course of their journey. At Frankston, they alighted from the train to have a cigarette.

2. At approximately 10.33pm, Mr Johnston and Miss McGuire boarded the Melbourne bound train at Frankston and sat near the leading end of the last carriage. During the course of the return trip, more alcohol was consumed from the wine cask. The train travelled via Flinders Street and Southern Cross Stations before entering the Melbourne Underground loop and arriving at Platform 2, Melbourne Central Station, at 11.51pm. The train then departed at 11.52pm and shortly after it commenced to move, Mr Johnston forced open one of the closed train doors and attempted to get off. Miss McGuire followed and fell over him and onto the platform. After exiting the carriage, Mr Johnston's left leg fell between the carriage and the platform where it made contact with a component of the train's undercarriage. As the train gathered speed and the door closed, Mr Johnston remained in a seated position on the platform edge with the left side of his body against the side of the train. He was dragged approximately 120 metres along the platform with his right leg extended in front and holding a bottle in his right hand. He slid on his buttocks in this position until striking a safety handrail post at the end of the access stairway at the platform extremity, before then falling to the ground and beneath the train. The speed of the train at that point was in excess of 50 kilometres per hour. Mr Johnston sustained significant fatal injuries and died at the scene. The train continued towards Parliament Station and, at a point approximately midway between Melbourne Central and Parliament, the driver received and

acknowledged an emergency intercom call from a passenger in the rear carriage who had witnessed the event. The driver halted the train at Parliament Station, notified Metrol train control and waited for emergency services attendance. Miss McGuire, who fell to the Melbourne Central platform, did not receive serious injuries as a result of the incident.

3. No autopsy was performed in this case as the Coroner directed that no autopsy was required. On the 22nd October, 2009, Dr David Ranson, Deputy Director of the Victorian Institute of Forensic Medicine and a Senior Forensic Pathologist, performed an external examination of Mr Johnston at the mortuary, reviewed the circumstances of his death, the post mortem CT scan and provided a written report of his findings. Toxicological analysis of post mortem body fluid was positive for alcohol with a reading of 0.09%, Diazepam at 0.4mg per litre and Alprazolam, which is commercially available in Australia as Xanax. Diazepam is a sedative/hypnotic drug in the Benzodiazepine class and Alprozolam is used as a short acting antidepressant for treating generalised anxiety, phobia and panic disorders. Dr Ranson concluded that in all the circumstances a reasonable cause of death appeared to be multiple injuries.

4. At the time of this incident, the train was being driven by Mr Stephen Norrey, a qualified train driver with approximately 23 years experience. Mr Norrey told investigators the stop at Melbourne Central Station was normal and that at the time of departure, he checked his right hand rear view mirror and waited for passengers to complete boarding and alighting. Upon being satisfied, he closed the doors and received a steady blue door closed light on his control panel, sounded the train warning device and departed the train. He further stated that the platform was empty and the train doors were closed so he looked forward concentrating on the railway signals while he drove the train steadily towards Parliament Station. He told investigators that he did not receive the door warning alert and that there is no requirement for a driver to look rearward while departing a platform. It is considered undesirable for a train driver to look rearward as his attention is required to be focused on the area in front of the forward moving train.

5. A number of investigations were conducted into the circumstances surrounding this incident, one of which was undertaken by senior investigator, Paul Downes of Metro Trains Melbourne. In a detailed and thorough report, Mr Downes states that Platform 2 runs generally east/west and services a single bi-directional track enclosed within a tunnel. Platform 2 is approximately 165 metres in length with there being approximately 170mm clearance between the side of a Comeng train and the outer edge of the platform coping where Mr Johnston fell. This gap is within the clearance specifications that allow a gap of up to 300mm. The train was a Southern Fleet refurbished Comeng type that was operated by a one crew member and was 142 metres long, comprising six carriages with the incident occurring in the most rear carriage (499M). In respect of the safety features of the train, Mr Downes stated in his report that they included a) the train carriage doors open manually and close automatically. They are not locked but are closed by air pressure of approximately 25 to 30 kilos enforced. The door air pressure release and the power close functions are actuated by the driver; b) indicator lights on the lower portion of the train driver control panel display the open or close position of the doors; c) door chimes are audible in the saloon carriages before doors open or close; d) closing doors that are obstructed result in loss of traction power available to the driver so that the train cannot be driven forward; e) decals inside the train carriage indicate that it is an offence to open carriage doors once they

have been closed; f) rear view mirrors are fitted to the exterior of the train driver's cab both on the driver's side and the offside. The offside rear view mirror provides the train driver with a view along the length of the Melbourne Central Station platform. The tracks there are straight and level; g) if carriage doors are forced open after proving closed, an intermittent tone will sound inside the saloon cabin for up to 60 seconds to alert passengers; h) a blue indicator light on the driver's panel flashes when the train door is forced open. Mr Downes identified a number of contributing factors leading to this incident as did a report undertaken by the Office of the Chief Investigator, Transport Safety. The identified contributing factors relate to:

1) The actions of Mr Johnston
2) A faulty door monitoring system
3) The Passenger Emergency Intercom
4) Control Room monitoring and communication
5) Conduct of the train driver

The actions of Mr Johnston

6. Of primary concern was the action of Mr Johnston in forcing open a powered door and attempting to alight from the moving train. The evidence satisfies me that Mr Johnston was physically affected and impaired by drug and alcohol consumption, with his partner indicating that he consumed and sold some Xanax tablets and bought a cask of wine with the proceeds of the sale. Both he and his partner then drank from the cask of wine as they travelled in the train, with other passengers indicating that Mr Johnston and his partner were drug impaired. I am satisfied that Mr Johnston's state of insobriety and physical impairment led to his decision to ignore and defeat the safety mechanisms of the train. This action was the primary contributing factor that led to the tragic outcome. It appears that his leg was not caught by any part of the train, as subsequent examination of the carriage found that his leg was likely to have been positioned against the free end of the brake cylinder located below the doorway and laterally between this cylinder's air supply and the matching plugged attachment point. With the forward movement of the train, it is believed the brake cylinder was bearing against the back of Mr Johnston's leg and/or thigh and in his seated position, he was propelled along the platform. Although apparently not physically trapped, Mr Johnston was not observed to make any meaningful attempt to extricate himself as he was propelled along the platform. In all probability, the difficulty of holding the doors apart, the concern of wanting to exit a moving train and the lack of co-ordination due to his impaired physical condition, have contributed to Mr Johnston stumbling at the doorway with one leg slipping between the platform and the train. Whilst the door monitoring system on the train was found to be faulty, it is clear from the evidence, that anyone who didn't attempt to defeat the pressure closing mechanism of the door was safe within the carriage of the moving train.

Faulty door monitoring system

7. Inspection of the implicated carriage found that the door monitoring system on the train was faulty and, as a result, the blue indicator light on the driver's control panel did not receive a signal, warning that a carriage door in the rear of the train had been forced open. In order to explain this fault,

it is necessary to identify the train composite and the carriage configuration. The train was a Comeng brand, Electric Multiple Unit (EMU) train made up of two units, with a total of six carriages. An EMU is comprised of three carriages, two motor carriages separated by a non-motorised trailer carriage. The two EMU's were coupled together by a Scharfenberger coupler, thereby allowing a number of relay drive commands and status indicators to flow between the carriages and the train driver's control panel. One of the relay drive commands and/or status indicators, is the Auto Coupler Contact (ACC) switch which completes a door operator safety circuit. A warning system monitors the door closed state by means of an energised wire that extends the length of the train and that is supplied from a single point at the rear of the train. This wire is carried through the door control system on each car, and its operation is such that any interruption to the voltage upon it, will be detected as a voltage drop and will cause the driver's door closed push-button to flash. When two three car EMU sets are coupled together, this monitoring wire is extended to include the attached car set. A component called the Coupler Plunger Striker Arm (part of the ACC contained within each coupler) opens each ACC, also isolating the door monitoring wire from the electrical supply at these two intermediate locations. This leaves the supply controlled by the rear most ACC as the only supply to the door monitoring wire. In this case, the coupler plunger arm in the ACC in the second coupler of the third car was out of adjustment, such that, although the coupler was in it's coupled state, the ACC remained closed, providing an intermediate feed onto the door monitoring wire. The misalignment was such that the door closed circuit only looped round the first three cars in the six car train. This was a hidden fault, as the driver would have observed a steady door closed light when all the doors on the first 3 cars were closed, even if a saloon door was open on the rear 3 cars. There was no backup mechanism that activates or provides warning to the train driver should the ACC switch fail. The result was that the monitor system in the driver's cab, did not detect a voltage drop and therefore did not provide a warning indication to the driver.

8. Had it not been defective, the ACC switch would cause a blue light located on the console of the driver's panel to flash in circumstances where a door was forced open. The controls for the driver's passenger door consist of three illuminated push buttons mounted on the driver's control console, two being used to release either the left or right hand doors, and the centre button to close the doors. These buttons illuminate when pressed, yellow for the release button and blue for the closed button. The button will display a blue flashing closed door light until all doors in the train are closed. Had the ACC switch been operating correctly, the relay required the door to be open for 2.7 seconds for the light to flash. As the evidence supports a finding that the door was opened twice in 5 seconds, once by Mr Johnston and once by his partner, had the ACC switch been operating correctly, it is unlikely the relay would have caused the blue light to flash. The blue flashing light in the cab gets activated after 4 relays have engaged. Each of these contribute to the lag time and it is not possible to reduce the lag time without a major redesign and modification of the door circuit. Hence it cannot be concluded on the evidence before me, that had this circuit been working as it should, the corresponding flashing light would have resulted in a different outcome.

Passenger Emergency Intercom

9. An issue examined during the course of the inquest was the repeated pressing of the Passenger Emergency Intercom (PEI) button by passengers, hindering the driver in communicating with the

distressed passengers and in understanding the nature of the emergency. Mr Norrey reported receiving a PEI call when the train was about halfway between the Melbourne Central and Parliament Stations. The PEI is positioned around the central carriage door and on depressing the intercom button, an alarm tone is activated in the driver's cabin. Each PEI unit consists of a microphone, speaker and indicator and when the PEI call button is pressed, the associated camera switches to recording for a 2 minute period. When responded to by the driver by pressing the intercom reply button, CCTV vision from the carriage is displayed on the driver's display unit. From departing the Melbourne Central Station platform until stopping at Parliament Station platform, the train travelling approximately 1117 metres. From the CCTV vision and time recorded thereon, the journey from Melbourne Central to Parliament took approximately 1 minute and 47 seconds. The first passenger to use of PEI to alert the train driver, activated the intercom 31 seconds after departure, by which time the last carriage of the train had passed almost 160 metres into the tunnel. Mr Norrey told investigators that he could see 4 or 5 people around the intercom and that they were pressing the PEI button numerous times. He further stated that he initially could not hear anything that was being said, because a passenger repeatedly pressed the PEI button which kept activating the alert alarm tone in the driver's cabin. The driver made a PA announcement asking passengers what the emergency was, however, he was still unable to hear passengers due to the beeping noise of the alarm. He again made another PA announcement asking what was the emergency and finally got an audio response from a female passenger, who advised that "somebody had jumped from the train at Melbourne Central Station". I am satisfied that due consideration was given to the train's location and as it is in train driver's discretion as to whether it is necessary to stop the train immediately, he acted appropriately in deciding to continue on and secure the train at Parliament Station. It is clear from the evidence that Mr Johnston has fallen to the tracks approximately 15 seconds prior to the first depression at the PEI and, hence, even if communication with the driver had been trouble free, the evidence does not support a finding that the PEI use in circumstances similar to these, would make any difference. Precious time is lost whilst passengers endeavour to comprehend what is occurring in front of them, then making a decision to act by attending the intercom and communicating with the driver, together with the driver comprehending what the emergency is and stopping the train.

Control Room Monitoring and Communication

10. The Melbourne Central Station has a control room which is fitted with 4 television monitors displaying various pieces of information. These screens can be set in various configurations with two typically set to scroll through the station precinct including the ticket booking office, escalators, elevators and various platform views. The control room is usually staffed by a station officer, although the screens are not necessarily monitored during staff comfort breaks and while other station duties are performed. At the time of this incident, the duty control room officer reported that he was securing the booking office keys and staff computer flash cards in the safe, when he heard an emergency phone ring at the control desk. He returned to the control desk and acknowledge a call from a passenger on Platform 2 who alerted him to the incident. He alerted other station staff to attend the incident site and then advised Metrol train control. The Control Room communication system does not permit contact between the station control room officer and the train driver, as there is no direct contact between the two.

Conduct of the train driver

11. I make no criticism of the train driver, Mr Stephen Norrey, whom I found to be an honest and forthright witness and I am satisfied that he was unaware of the presence of Mr Johnston outside the doors of the rear carriage. He had checked his mirrors and viewed the platform prior to departing. His attention was then appropriately diverted to the track and signals ahead. He was medically fit for duty at the time of the incident, had been appropriately rostered, and reported that he was alert and well rested. Mr Norrey should not be criticized for preceding to Parliament Station after receiving and understanding the PEI emergency call, rather than stopping the train in the tunnel. He initiated an emergency radio call to Metrol and provided particulars to Metrol who undertook to contact police and ambulance services, after which he secured the train and made a PA announcement to passengers that there would be an indefinite delay. I am satisfied Mr Norrey complied with all at the requirements placed upon him and there can be no suggestion that his actions in any way led to Mr Johnston's death.

COMMENTS:

Pursuant to section 67(3) of the **Coroners Act 2008**, I make the following comments connected with the death:

12. Investigation undertaken found that at the time of the occurrence, no daily process existed to check the integrity of the door monitoring circuit, prior to a train entering service. It was not possible to determine when the ACC switch became defective, nor was it possible to conclude what the cause of the incorrect adjustment was. The investigation undertaken by the Office of the Chief Investigator concluded that, although the existence of this fault condition on any train would not be evident to any casual observation, the train operator was aware that these trains were susceptible to developing this defect. Following this incident, MTM (Metro Trains Melbourne - who assumed control of the metropolitan train service on 30th Nov, 2009) has developed a modification alerting the operator to the fault where it exists. Modification works have gone to a tender process and a tenderer has been selected, with MTM expecting all trains in service to have modification works completed by March 2012. That will be almost two and a half years after the incident occurred.

13. Installation of an audible alarm may be an appropriate way of increasing the likelihood of a driver becoming aware that a door has been forced after departure. An audible alarm system that acted in conjunction with the door light, could be connected to the same door loop circuitry as the door light. However, this solution would be subject to the same time delay as the door light and it would be unlikely to have operated to have prevented this incident. Installing a separate audible alarm would require considerable reconfiguration of the train circuitry and as the trains are within six years of their design life and an audible alarm is not guaranteed to prevent these occurrences, I accept that the extremely expensive process to reconfigure is not reasonable. A further issue for consideration is the position of the door closed light to a more visible position on the driver's dashboard. To move the light into the 30 degree zone of reference on the driver's dashboard is difficult as there is no space available within the upper areas of the driver's desk where it could reasonably be located, without introducing the potential for distraction. In addition, the fitting of a permanently illuminated device raises other

significant safety concerns, including confusion between door light and signally, the effect on driver vision and consequently, concentration at night.

14. As it is not practicable or cost effective to replace the PEI on the Comeng fleet, MTM undertakes to improve the passenger instruction with regard to use of the PEI by creating and replacing and instruction decal. Improved instructions on the label should assist the passengers to operate the equipment more effectively when trying to communicate with the driver. On the material before me, I am satisfied that the proposal by MTM to provide clearer signage in relation to the use of the PEI system is an appropriate response, proportional to the risk identified in the current PEI system.

15. An issue examined during the course of the inquest was the fact that station staff cannot communicate an emergency event directly with the driver of the train. This includes station staff who may be watching CCTV and notice an emergency situation unfolding. The inquest heard there were 212 stations on the metropolitan network, of which 84 are not manned, 50 are staffed during morning peaks only and only 78 are manned from first train to last train. Even at stations which are manned from the first train to the last train, station staff do not observe the departure of every train as they are frequently attending to other duties, including selling tickets and providing advice to customers. The MTM's dispatch panel operators are the best placed staff to observe the train departure. However, dispatch panel operators are only employed during peak hours with their role being to ensure the passengers are clear of the doors prior to departure. MTM operates 14,000 services per week, with most services having more than 50% of the stations being unmanned, where the train stops. I accept that increasing the number of manned stations to address the issue that happened would not be cost effective or practicable as additional staff would be unlikely to be deployed to unmanned stations solely for the purpose of monitoring train departure. Similarly, the use of a guard at the rear of the train is not practicable as the practice used in the 1990's would not meet current Occupational Health and Safety risk criteria. A member of staff standing at an open door with part of their body protruding whilst the train is in motion, is not acceptable due to the risks of falling from a moving vehicle. In order for a person to reasonably observe the side of a train in all light and weather conditions from inside the train, a new CCTV system would be required and this would involve fitting a completely new system focused on the exterior of the train. Costing has been estimated at approximately M$19 for the Comeng fleet in order to fit the equipment and would also require employing over 800 new staff to man the trains in this new role. In addition, if there was a reasonable means of observing the train, the person at the rear of the train cannot apply the brakes within the same time as the driver can.

RECOMMENDATIONS:

Pursuant to section 72(2) of the **Coroners Act 2008**, I make the following recommendations connected with the death:

a) That MTM ensure that all trains in service have the modification they developed to alert the operator of a defective ACC switch, undertaken not later than March 2012.

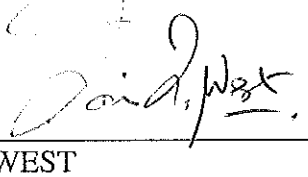
b) That MTM re examine the possibility of fitting an audible alarm system designed to alert a driver to a door having been forced after departure.

c) That MTM ensure a revised instruction decal is placement in all trains in service, that clearly sets out how to operate the Passenger Emergency Intercom, in order for passengers to effectively communicate with the driver.

I direct that a copy of this finding be provided to the following:

- Family of the deceased
- Department of Transport and Victrack
- Metro Trains Melbourne and Veolia Transport
- United Group Melbourne Transport Ltd

Signature:



IAIN WEST
DEPUTY STATE CORONER

25th May, 2012