

2021

**THE LEGISLATIVE ASSEMBLY FOR
THE AUSTRALIAN CAPITAL TERRITORY**

Response to Assembly Resolution of 10 November 2021 – Light Rail Vehicle Safety

**Presented by
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Minister for Transport and City Services
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Assembly motion

On Wednesday 10 November 2021 the ACT Legislative Assembly passed the following resolution regarding the light rail vehicle fleet:

That this Assembly:

1) *Notes that:*

- a) *The NSW Inner West Light Rail line has been decommissioned for 18 months because of structural issues with the CAF Urbos 3 light rail vehicles;*
- b) *That the same vehicles are used on the ACT light rail line;*
- c) *That the NSW CAF Urbos 3 vehicles were purchased seven years ago; and*
- d) *That the ACT fleet was purchased two to three years ago; and*

2) *Calls on the ACT Government to:*

- a) *Report back to the Assembly on outcomes of safety inspections on the light rail vehicle fleet by the last sitting day of 2021; and*
- b) *Advise the Assembly on the contingency planning it will undertake in the event the fault experienced in NSW and other countries emerges in the ACT light rail vehicle fleet.*

Government response

Canberra's light rail system is a central part of the city's public transport network. In normal times it accounts for around one in five trips taken on public transport every day across Canberra; pre-COVID passengers made over 90,000 journeys using light rail services each week. It provides a frequent and convenient connection to the city for people on Canberra's northside, significantly reducing both the number of cars on our roads and the harmful emissions they create.

The ACT Government takes safety on Canberra's light rail very seriously. Following reports of problems with the light rail vehicle (LRV) fleet servicing Sydney's Inner West line, the operator and maintainer of Canberra's light rail line – Canberra Metro – has undertaken inspections of the vehicle fleet. This has not detected any cracking in the LRV frames to date.

The following response provides information on the:

- specifics of the ACT's LRV fleet and key differences with the vehicles used on the Sydney Inner West line;
- steps taken to verify the safety and serviceability of the ACT LRV fleet and ongoing maintenance program;
- contingency plans in place in the event of availability issues with the ACT LRV fleet.

Canberra light rail – delivery model and operations

Canberra Light Rail is operated and maintained under a public private partnership (PPP).

The Canberra Metro consortium includes Canberra Metro Operations (CMET) who operate the ACT LRV fleet and maintain the track and infrastructure, and CAF – the vehicle manufacturer – who maintain the ACT LRV fleet. The ACT Government makes regular payments to the Canberra Metro consortium for the provision of light rail services. The contract for services includes benchmarks and performance standards for the availability of light rail vehicles and the provision of light rail services.

Light rail vehicles – specifications

The NSW Government has opted to temporarily remove 12 CAF light rail vehicles from service on the Inner West Light Rail line following the identification of cracking on the bogie boxes¹ of these vehicles.

The ACT Assembly resolution suggested that these same vehicles are used on Canberra's light rail system. This is not technically correct. The ACT LRV fleet design documentation identifies these vehicles as Urbos 100 models. These are a similar model to those used in the Sydney fleet, but are a newer version with key differences in the design and construction. The Canberra light rail fleet has aluminium components in the area that was affected by cracking in the Sydney fleet. This compares with mild steel componentry in the Sydney LRVs. CAF has advised that LRVs with this aluminium configuration are used on 14 projects globally in addition to Canberra's light rail network. They have confirmed no other Urbos fleets with this configuration have reported issues with vehicle cracking to date.

A detailed inspection of an ACT LRV vehicle were undertaken by Canberra Metro on 9 and 11 November 2021. This identified a range of further component and fabrication differences between these vehicles and those in service in Sydney. This includes:

- The addition of a structural element between the upper and lower bogie boxes;
- The addition of a flat plate on the lower bogie box, supporting the corners of the upper bogie box;
- A change to the lid of the upper box;
- Addition of stitch welding to join the upper and lower bogie box;
- A different element to facilitate the lifting of the LRV using an external jack, attached directly to the lower bogie box and reinforcement at this location; and
- Additional element between upper bogie box and side wall of the car.

In aggregate, these changes demonstrate structural differences in the components which have experienced cracking on the Sydney fleet. These differences indicate that CAF has made improvements to the LRV designs over time, resulting in a progressive evolution of rolling stock in service around the world. The Sydney Inner West Light Rail fleet entered service in 2014 and 2015. By comparison, the Canberra fleet entered service several years later in April 2019.

¹ A bogie box is the chassis or framework where the wheelset (the bogie) is attached to the light rail vehicle.

Safety inspections

In addition to being the manufacturer of the ACT LRV fleet, CAF is also responsible for its maintenance on Canberra's light rail system. CAF has advised that components identified as damaged in the Sydney fleet (the bump stop and stiffening web²) are inspected monthly during routine 2xIS inspections,³ and thorough verification checks undertaken during bogie replacement. CAF has not identified any cracking in these locations on any LRVs in the Canberra fleet.

To verify this, Canberra Metro conducted an examination of LRV011. This is the vehicle with the highest number of kilometres travelled in the Canberra fleet, at 192,000km. The examination included removal of the LRV seats to inspect the outside of the bogie box from within the interior of the passenger area. No cracks were visible in the bump stop, bogie box or L brackets. These are the locations where cracking was identified on the Sydney fleet.

CAF have developed an enhanced inspection regime which will now involve undertaking checks on the interior of the bogie boxes across the entire Canberra fleet. A proportion of the fleet will then be checked annually to provide ongoing assurance of safety and serviceability.

These visual inspections also confirmed the differences in the bogie design of the vehicles used in Sydney, and those used in Canberra.

Regulatory oversight

The Office of the National Rail Safety Regulator (ONRSR) has regulatory oversight of rail safety in every Australian state and territory. ONRSR independently administers the Rail Safety National Law to ensure safety of the community.

Under the Rail Safety National Law, ONRSR grants accreditation to Rail Transport Operators, which include Canberra Metro. This accreditation is granted on the basis of the operator demonstrating an approved Safety Management System. This includes requirements on having an asset management policy and processes that address all phases of the asset life cycle of the rail infrastructure or rolling stock operations, as well as systems and processes for monitoring and maintenance.

ONRSR has been actively engaging with CAF since the identification of cracking on the Sydney fleet. The regulator has advised the ACT Government that: *"ONRSR are investigating the issues in Sydney. ONRSR has confirmed that the light rail vehicles in Canberra are a different design to those in Sydney. We are not investigating Canberra LRVs further at this time."*

² The bump stop is a component on the vehicle chassis which can transfer loads from the bogie to the chassis. The stiffening web are L shaped brackets which stiffen the structure of the bogie box.

³ This is a 30-day inspection which involves a visual inspection around the bogie and wheels as well as a range of other components. Regular inspections intervals are IS (15 days), 2xIS (30 days), PO (every 18,750km), 2xPO (every 37,500km), P1 (every 75,000km), P2 (every 300,000km) and P3 (every 600,000km). Each inspection has different items to be checked depending on frequency in the asset maintenance plan.

The NSW Office of Transport Safety Investigation (OTSI) has commenced an investigation of the Sydney Inner West Light Rail issues and will provide a public investigation report to the NSW Parliament in due course. The ACT Government will closely monitor this investigation and pursue any recommendations or findings which may be relevant to promoting the ongoing safety and serviceability of the ACT LRV fleet.

Contingency planning

Transport Canberra regularly undertakes contingency planning for a variety of scenarios including disruptions to light rail services.

If the event the issue experienced in Sydney emerged in the Canberra fleet, Canberra Metro are commercially incentivised to resolve any issue without impacting light rail services. This is because the operations contract signed with the Territory imposes financial penalties in the event service levels drop below an agreed standard.

With the preventative maintenance and inspection regimes in place, and the increased surveillance of this issue from ONRSR, the most likely scenario is that issues would be identified early enough as to be managed through the regular and deep maintenance cycles which are already established for the Canberra fleet. This would see any necessary remediation works undertaken during maintenance hours without impacting light rail services. It should be noted that the ACT maintains a fleet of 14 LRVs, with 12 vehicles required to run services on the standard timetable. This provides contingency to maintain services in the event that a vehicle need to be taken out of service for maintenance.

If there was a requirement to have more LRVs out of service than are required to deliver the current timetable, a progressive contingency plan would be implemented. This would initially start with minor reductions in service frequency to allow vehicles to be progressively cycled out of service for maintenance works.

If a larger proportion of the fleet was required to be out of service, then a partial or full pause on light rail services would be considered. In this scenario, the existing Light Rail Replacement Protocol would be implemented, and rail replacement bus services would be provided.

This protocol was successfully implemented during the construction of the Sandford Street stop during January and March 2021. Any changes to light rail services would be supported by customer communications, with information provided on the best times to travel and service availability through Transport Canberra and Canberra Metro channels.

It should be noted that under the current contract with Canberra Metro, the consortium is required to have safe and serviceable LRVs available to deliver services. Canberra Metro is responsible for the operation and maintenance of the LRVs, including maintaining compliance with all relevant standards and repairing damage, until the end of the PPP contract term in 2038.

Cabinet is the peak decision-making body for the project and is accountable for the investment and funding decisions about future light rail projects. Cabinet will consider future decisions on the procurement of light rail vehicles to service the Stage 2 route.