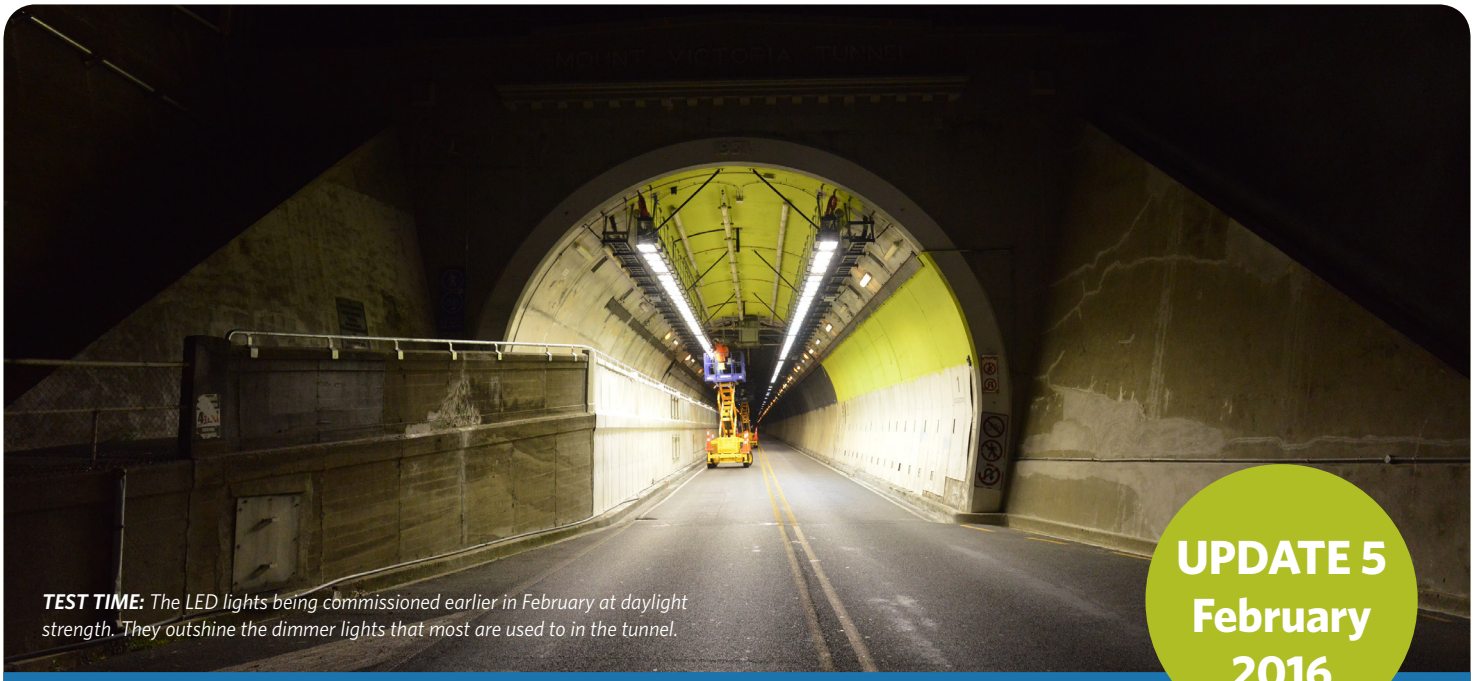


TEST TIME: *The LED lights being commissioned earlier in February at daylight strength. They outshine the dimmer lights that most are used to in the tunnel.*

UPDATE 5 February 2016

Clever lights to brighten the gloom

"Intelligent" lights will soon turn Wellington's dim 623-metre Mt Victoria Tunnel into a brighter, safer place for drivers, pedestrians and cyclists.

The new electronically-controlled LED (light emitting diode) lighting system is being commissioned through February and is likely to be illuminating the tunnel day and night in early March.

The upgraded lighting system is a milestone in the NZ Transport Agency's plans to bring Mt Victoria Tunnel up to 21st Century standards.

A total of 410 LED lights and the cable trays that support them have been fitted during the past three months. The efficient, energy-saving lights are specifically designed for drivers' visual comfort and tunnel safety. The lighting will be controlled by the tunnel's computer "brain", a new installation that will constantly receive information from sensors mounted in the ceiling and will take into account the progressive adaptation of the eye from outside to inside and the different levels of light required along the interior.

The lights will dim or brighten near the tunnel's portals to make the transition between natural and artificial light easier on drivers' eyes. Previously there was no transition from exterior bright light to low light inside Mt Victoria Tunnel.

Internationally it is known that a higher percentage of tunnel accidents occur in the transition areas where efficient lighting should avoid the "black hole effect" at the entrance and the "glaring effect" at the exit.

The difference between the light outside and the light inside near the portals will be made as small as possible to allow the driver to recognise an obstacle within the vehicle's stopping distance. Once in the tunnel, luminance levels will decrease slowly to allow the driver's eyes to adapt to lower lighting levels in the centre of the tunnel.

The supplier of the LEDs, Italian tunnel lighting specialist AEC, and New Zealand lighting designer Techlight have been on site this month to commission the new lighting system.

The old lights, which are at the end of their useful life, will be removed. Most are sodium lights plus fluorescents to improve the light at the portals.

The current upgrade is Stage 2 of a three-stage revamp of the tunnel and is due for completion in June this year. It includes:

- A new communications system, including emergency management
- Pedestrian walkway strengthened to seismic standards
- New wall panels along the carriageway
- Ventilation improved by replacing or reconditioning the fans
- Exterior portal slopes strengthened and concrete surfacing improved
- Three control rooms refurbished and a fourth built to contain upgraded and new equipment

AEC's Raffaelle Bendetti has been working with Memorial Park Alliance to commission the new LED lighting system.

New plant room filling up with technology

Controls for the new technology in Mt Victoria Tunnel will be contained in two plant rooms, half in a new plant room in Paterson St, the local street running uphill beside the tunnel, and half in the Hataitai control room.

To date, the new Paterson St plant room has been fitted with the main electrical switchboard, lighting distribution panels, the back-up power supply and the tunnel's computer "brain" – the programmable logic controller. The "brain" will receive and act on information from sensors mounted in the tunnel ceiling.

The rest of the plant room's technology will be put in place progressively through to the end of April.

It will include fibre optic cable from the tunnel's incident and fire detection cameras, the radio rebroadcast and public address systems. This information gathering and transmitting system will link with the Wellington Transport Operations Centre in Johnsonville which monitors tunnels and highways across the Wellington area. New fire alarm panels will extend and upgrade the existing alarm system.

The plant control room itself requires security, air conditioning and fire suppression systems to maintain its 24/7 operational capacity.

At the other end of the tunnel, the established Hataitai plant control room is receiving similar technological additions.

The tunnel has four control rooms now, the other two being by the Basin Reserve entrance and in the centre of the tunnel containing ventilation equipment.

"Pacing lights" a world-first for tunnel emergencies

Mt Victoria Tunnel will be the first in the world to use electronic cat's eye road studs that are programmed to pulse and pace in steps toward the exit in an emergency.

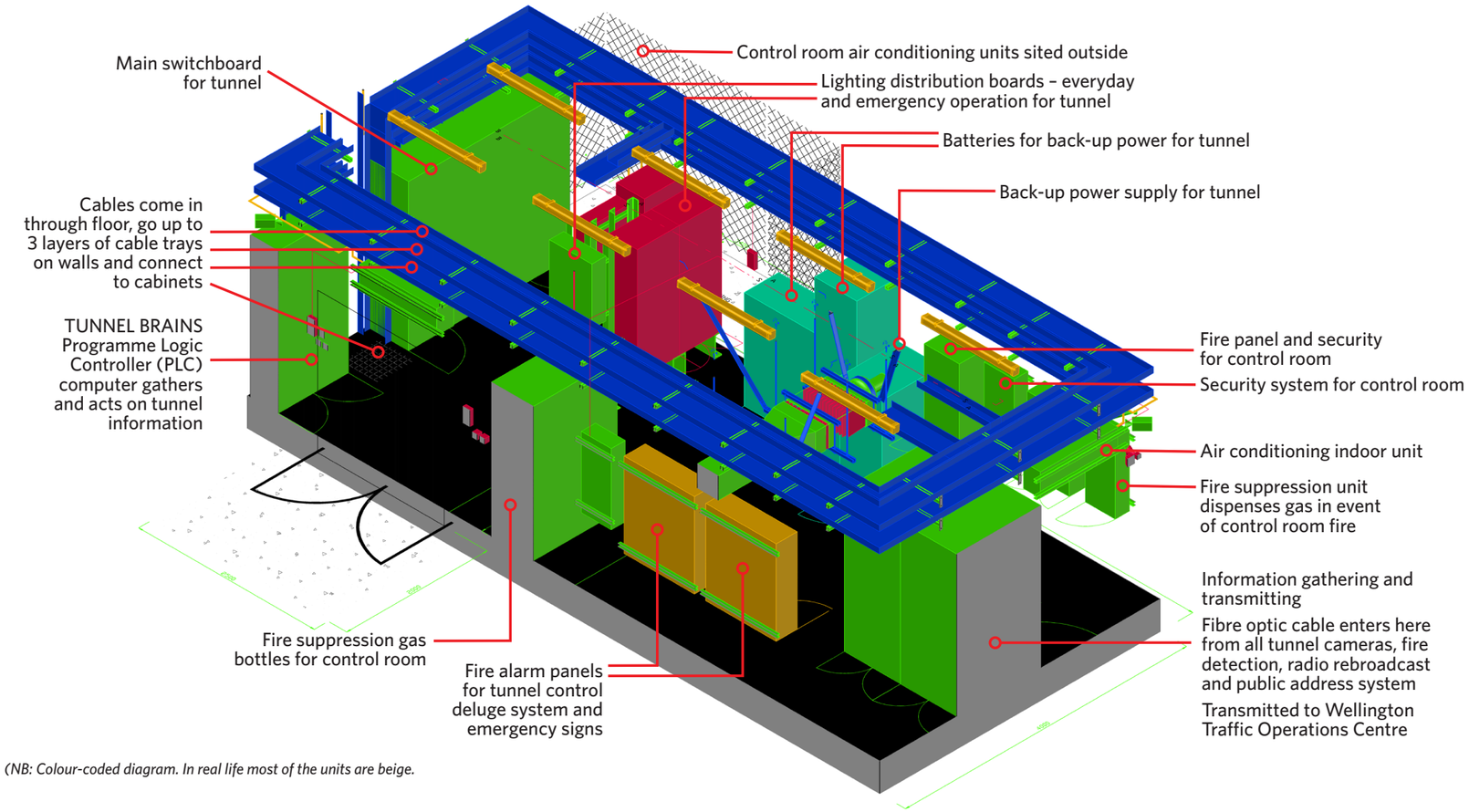
A recent trial run in the tunnel drew observers from the NZ Transport Agency and Wellington Transport Operations Centre to watch as Memorial Park Alliance and supplier 3i Innovation worked on programming the cat's eyes (also known as LED delineators).

The electronic cat's eyes will be an integral part of the tunnel's new emergency communications system. If a car crash fills the tunnel with smoke, for example, the operations centre will set the cat's eyes to pulse and pace toward the safest exit.

The importance of these for Mt Victoria Tunnel is that there is no other place of safety during an emergency than to get out at either end of the 623m-long tunnel. Modern tunnels have alcoves or emergency exits in the walls but Mt Victoria Tunnel dates back to 1931 before such safety measures were required.

The cat's eyes used in the trial were white, as can be seen on the road surface in the photograph. Those to be installed in the tunnel's road will be yellow along the centreline and red along the sides like the usual cat's eyes.

Paterson St Plant Control Room



(NB: Colour-coded diagram. In real life most of the units are beige.

Testing the programme for electronic cat's eyes in the tunnel

New panels with a protective coating are lining the tunnel.

Fresh, clean image from new lining

More than 1000 fresh white panels are being installed on the walls on each side of the vehicle carriageway, replacing the old dingy lining. They are made of fire-rated fibrous cement and have a protective coating to help them shed the grime from the exhausts of around 45,000 vehicles passing through the tunnel daily.

Today's vehicles are much cleaner than older models but emissions still collect on the panels and are washed down monthly by the Capital Journeys tunnel maintenance teams.

New life for veteran ventilation

Mt Victoria Tunnel, which opened in 1931, was the first in New Zealand to have a mechanical ventilation system. The current upgrade is focused on reconditioning and replacing parts of the existing system.

Four large fans operate to push in fresh air and suck out stale air. Two fans in the plant rooms at either end of the tunnel push fresh air under the walkway from where it disperses through grates and vents. Two extractor fans draw stale air out of the tunnel through shafts in the ceiling and are housed in the Wellington East Girls College grounds and in the town belt off Alexandra Road.

During the past two months, the extractor fan in the college grounds has been dismantled, fully reconditioned and reinstalled in its fan room. The next to be worked on is the fresh air fan at the Hataitai end of the tunnel. While this fan is itself in good condition, its motor needs to be replaced.

Finally, both the fresh air supply fan at the Basin Reserve end and the Alexandra Road extractor fan will be replaced with new units.

A look back in time

Why we toot in the tunnel

Most drivers are unaware that the ghost of tragic teenager Phyllis Symons is the reason they follow the tradition of tooting their car horns when driving through Mt Victoria Tunnel, a practice dating back to 1931.

Phyllis, 17, met George Coats, 29, in 1930 when she brought cups of tea to him and other labourers who were working near her home in an unemployment relief team, one of many such teams of otherwise unemployed men given work by the government in the days of the Great Depression. George, a former sailor, was a widower with six children being raised in an orphanage.

They started going out together and Phyllis became pregnant, a disastrous and shaming event for a single girl in those times. Her parents were horrified and she fell out with them and left home to stay with George in a rooming house. She was very unhappy there and wrote a letter – never sent - to her parents about how terrible life was and how she yearned to go home.

In June 1931 George lost his latest job as a labourer at the Mt Victoria Tunnel earthworks – where Hataitai Park is now – and not long after that, Phyllis disappeared. George was seen digging at the site and the police, who had been alerted about the missing girl, suspected the worst.

Phyllis's body was unearthed by searchers in front of a crowd of 600 "morbid-minded spectators", as described in the local paper. She had been hit on the head with a spade, tipped into a hole and buried, most likely still alive.

George was found guilty of murder and was hanged at Mt Crawford Prison in November that year, protesting his innocence. It was the first hanging at Mt Crawford Prison and the first in Wellington since 1923.

By then, with the opening of Mt Victoria Tunnel on 12 October 1931, drivers had begun tooting in the tunnel to pacify Phyllis's restless spirit, something that has happened every day to this very day.

Left: We toot in the tunnel to pacify the restless spirit of tragic teenager Phyllis Symons. Right: The search for Phyllis at the Mt Victoria Tunnel earthworks, now Hataitai Park.

FOR MORE SEE

http://undergroundhistory.blogspot.co.nz/2014/11/the-tragedy-of-phyllis-symons.html

http://www.stuff.co.nz/dominion-post/capital-life/67699197/150-Years-of-News-Wellingtons-Mt-Vic-tooting-tunnel-a-tribute-to-murdered-teen

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Tunnel closed 9.00pm – 6.00am Sundays to Thursdays to mid-2016

We provide regular email updates on work progress that impacts on neighbours. Please email us to join our contact list.