

HOW THE WATerview TUNNELS WILL WORK



WHAT'S THE SIZE OF THE WATerview TUNNELS?

Each tunnel is 2.4km long – twice the length of the Auckland Harbour Bridge – and has an internal diameter of 13.1 metres. Because they were constructed using the 10th largest tunnel boring machine in the world, the tunnels are the tenth largest diameter tunnels in the world.

While they are New Zealand's longest road tunnels, they are quite short in international terms. The longest tunnel in the world is the 24km Laerdal tunnel in Norway.

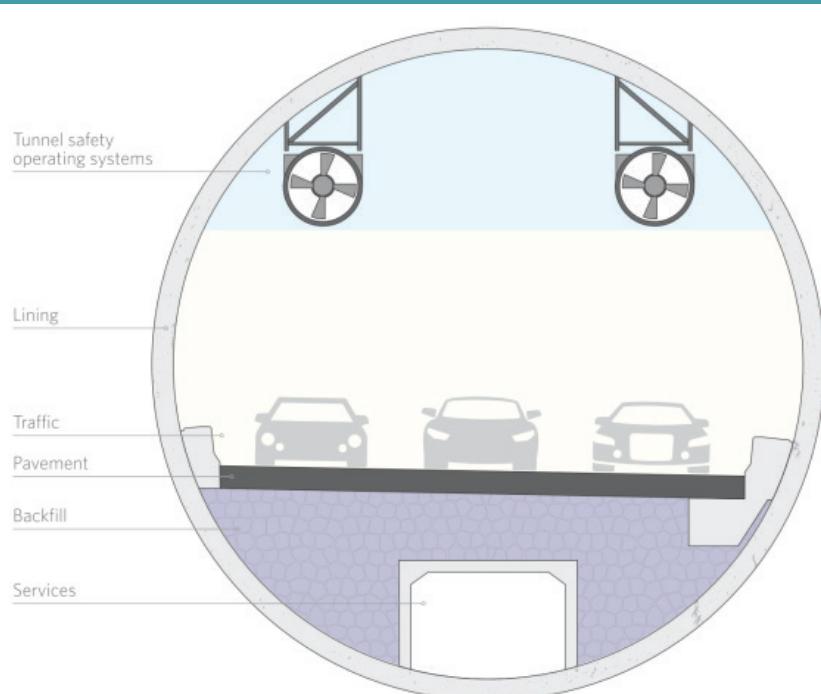
HOW WILL THE TUNNELS BE ORGANISED?

As shows by the diagram right, each tunnel can be divided into thirds.

The lower third is the motorway, built around and above a services culvert that runs along the floor of both tunnels. The culvert carries all the cables for the ventilation, lighting, communications and other services that will operate that tunnel.

Three lanes of traffic will occupy the centre of each tunnel while the upper third is for the huge jet fans, lights and fire protection system.

Each tunnel will have a ventilation services building near its exit, containing more jet fans that push vehicle emissions out into the atmosphere via 15m-high vent stacks.



IS THERE ANYTHING SPECIAL DRIVERS WILL NEED TO KNOW BEFORE USING THE TUNNELS?

There will almost certainly be a big information campaign before the tunnels open to let people know how they should drive in the tunnels. The first priority will be to establish driving practices and protocols that will minimise incidents that could disrupt traffic flows. That includes:

- Drive within the speed limit
- Avoid overtaking
- Avoid changing lanes
- Stay a safe distance from the vehicle in front
- Keep driving – but if you need to stop, stay in your vehicle unless you are told otherwise

WILL THE TUNNELS BE CLOSED FOR MAINTENANCE?

We expect each tunnel to close completely to traffic four times a year – once per quarter. The closures will only happen at night, when traffic is lightest, and the detour routes have already been decided.

Most maintenance will be done under lane closures, expected to be once weekly in each tunnel. Again, the closures will be at night.

Mobile closures (when traffic is slowed right down behind attenuators) will be used for quick repairs or for access. One per week is expected for each tunnel.

HOW WILL THE TUNNELS BE MONITORED?

Day to day monitoring and control of the tunnels will be done by ATOC, the joint Transport Agency and Auckland Transport traffic operations centre at Smales Farm in Takapuna.

The tunnels will be fitted with a CCTV camera every 60 metres, adding up to 145. In addition, each cross passage will have three cameras – another 54. These cameras will project onto a bank of screens which will be monitored 24 hours a day.

A system of sensors will automatically detect any change in the atmosphere in the tunnels

indicating, for example, a fire or congestion. Any change would, in turn, automatically trigger a response. For example:

- Ramp signals will be adjusted automatically to reduce the number of cars entering the tunnels if there is congestion
- Barriers at the entrances will be automatically triggered to prevent more vehicles entering the tunnels if there is a fire

Finally, there will also be speed cameras inside the tunnels.

WILL THERE BE HEIGHT RESTRICTIONS FOR VEHICLES?

The maximum vehicle height allowed inside the tunnel is 4.6 metres. Any vehicle of that height or above requires a special permit to circulate on the motorway anyway.

There will be an over height detection system to ensure that any vehicle over the allowed limit is detected and warned to leave the motorway at the nearest exit. In case it doesn't leave the motorway and goes to the tunnel instead, the tunnel will be closed using by barriers.

WILL VEHICLES CARRYING DANGEROUS GOODS BE ALLOWED IN THE TUNNELS?

No. Dangerous goods vehicles are not permitted to use road tunnels in New Zealand if there is an alternative route available to them.

An exception was made in the case of the Victoria Park Tunnel, which has special protection in case of an incident involving hazardous goods. However, this tunnel is only 450m compared to the 2.4km length of the Waterview tunnels.

WHAT KINDS OF AND HOW MANY UNPLANNED INCIDENTS DOES THE SUB-ALLIANCE EXPECT?

Our assessment, based on incident data for the Central Motorway Junction, is 36 incidents each year between Maioro Street and the Great North Road interchange. Of these less than half will be inside the tunnels and:

- 47% will involve debris on the motorway
- 24% will be accidents
- 12% will be breakdowns

The data indicates one serious incident, requiring a full emergency response, in 10 years.

WHAT WILL THE SPEED LIMIT BE IN THE TUNNELS?

80 kph, which is the standard for all road tunnels in New Zealand.

WILL MOBILE PHONES WORK INSIDE THE TUNNELS?

Yes, the same system that enables car radios to work inside the tunnels will allow mobile phones to work.

HOW WILL DRIVERS BE COMMUNICATED WITH IF ANYTHING HAPPENS IN THE TUNNELS?

The communication system will ensure that drivers approaching or inside the tunnel itself have all the information necessary to drive safely.

There are three ways this will happen:

- Variable message signs: these are electronic signs on overhead gantries on the approaches to the tunnels and at intervals inside the tunnels
- Car radios: a radio rebroadcast system will operate to enable drivers to continue to listen to their favourite station when they're in the tunnel. In the event of an emergency, the broadcast will be interrupted by a message from the tunnel operating staff at the Joint Traffic Operations Centre in Takapuna.
- Public address system: speakers spaced along the tunnels will ensure drivers without a car radio on also get the message.

WHAT IF A DRIVER HAS TO STOP, TO REPAIR A PUNCTURE FOR EXAMPLE?

Drivers and their passengers should stay in their vehicle and wait for an incident response vehicle to arrive. The 24-hour monitoring by CCTV cameras will ensure that monitoring staff at the Auckland Traffic Operations Centre see them and they will immediately send a vehicle to help.

Response vehicles will be stationed either end of the tunnel – one alongside the northern tunnel portals just off Great North Road and one at the Maioro Street interchange.

**WELL-CONNECTED
ALLIANCE**
PROUDLY
DELIVERING

16 20 Waterview Connection



FREEPHONE 0508 TUNNEL(886635)
www.nzta.govt.nz/waterviewconnection
twitter.com/wcnow