

## **SUBMISSION**

Road tunnels should be minimised to essential locations, over short lengths on good alignments for the following reasons:

- Vehicles do not stop emitting exhaust products in a tunnel.
- It is very expensive to collect these emissions, then disperse them to another group of people.
- Tunnels are very expensive to construct and will exceed their construction cost by at least a factor of two during their life with lighting, ventilation and security monitoring.
- Vehicles do not fully occupy a tunnel and hence do not assist in ventilation as much as trains would.
- At least with trains the users are in a controlled environment and expensive lighting and deluge systems are not needed.
- There is a high likelihood of a major catastrophic accident during the life of the tunnel involving high mortality.
- In a short tunnel the inlet ventilation can be located at the entrance and the exhaust stack at the exit, usually at maximum grade locations and so improve efficiency rather than trying to turn ventilation around, with associated dead spots, at the worst location.
- With PPP the essential wiring documentation in emergencies is likely to fall between various operating bodies and there is at least 2-3 square metres cross section filled with dual 11 KV power supplies and associated lighting, signage, emergency system and ventilation control wiring.
- Stress relief in sandstone, as has occurred in high cuts on the F3, is likely to open up tight initial joints in tunnels over time, especially the wide tunnels with flat roofs promoted in Sydney, and substantial additional rock bolting would be required after the tunnel is trafficked.

The preferred solution is a trench, provided groundwater is accommodated, for the following reasons:

- Wide crossings can minimise community dislocation.
- Noise walls are built-in and cycle paths, local access and footpaths can be cantilevered from the walls to assist in noise mitigation.
- Natural lighting, ventilation and emergency access are available.
- Queuing of vehicles at intersections can be accommodated by half bridging the trench and so minimise disruption on side roads.

As there is limited space on the ridge, the railway line, Pennant Hills Road and the new route need to be considered as a whole. The current problem and many fatalities could have been greatly reduced if, instead of adjustments to about 350 properties on both sides in the late 1980s, a full line of properties on one side of Pennant Hills Road was resumed and a service road provided for the remaining side.

Regards  
David Dash