

# City Talk



Cross-Harbour Tunnel staff put the final touches ahead of the reopening today. REO WORK

## LET'S NOT HAVE TUNNEL VISION ON CLOSURE

The closure of the Cross-Harbour Tunnel in Hung Hom is causing major havoc to commuters as it is a major artery of the Hong Kong road system.

Beginning operation in 1972, it transformed the mode of commute for all, as drivers were able to cross the harbor without using car ferries. Some will say it was a major milestone in linking the island with Kowloon and New Territories, enhancing social and economic development.

The inevitable congestion the closure causes to the road system, and the effect on our livelihoods, is devastating. We can no longer predict traveling time as the congestion extends to other parts of the stressed road network.

Some may believe that the reopening of this link can be quickened by dispensing with the toll collection system. Though this is the most visible piece of equipment we saw damaged, it is not critical for operations.

Once again, the issue is public safety. The damage to the main control room paralyzed the vital elements of the road tunnel system, including the power supply, the ventilation and the traffic surveillance and control system, and will take time to fix.

The importance of the power system is obvious, as without power, the lighting, the ventilation and the traffic surveillance and control system will not work.

The traffic surveillance and control system manages the traffic flow. It warns of dangers ahead and directs traffic as necessary. Drivers are advised to slow down when they see flashing amber and stop when the red lights show.

The ventilation system is the most essential part of the safety system. Not only does it provide the necessary fresh air supply, in the event of a fire, it ensures a safe escape for people in the tunnel.

When a fire occurs in the tunnel, the fumes may cause suffocation, so smoke extraction is vital. Time has proven that most casualties in fire incidents were caused by smoke rather than by actual burning.

Road tunnels in Hong Kong are designed to combat fire and smoke. All exposed equipment are fire-rated to withstand a blaze for 30 minutes or more to



### Nuts and bolts

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ensure continuous operations. The tunnel structure is designed to withstand fire for two hours to ensure safe evacuation of passengers and firefighters.

More importantly, the ventilation system caters for an oil tanker burning in a tunnel. One would have thought that tunnel bylaws banning oil tankers and other vehicles carrying inflammable materials from using the tunnel would be adequate. But they have forgotten Murphy's Law, which dictates that whatever we can plan not to happen, will happen.

There had been a few cases in Europe and America of drivers of these dangerous goods vehicles ignoring the ban and driving through tunnels. As they know they are taking a big risk, they drive recklessly to escape prosecution, and accidents inevitably occur, causing catastrophic fires and casualties.

The tunnel ventilation system is designed to allow a margin of safety to protect us even in the event of such unlikely events. This ensures foolproof operations that ensure the safety of tunnel users.

Effective smoke extraction can only work within a certain air velocity range.

Too little force obviously will not work, but high velocity will only draw air but not smoke.

The system must also run air flow opposite to evacuation paths so that the escaping public can breathe fresh air that is not tainted by smoke.

Fortunately, our governmental authorities had the foresight to plan and supervise the systems in a road tunnel to ensure a high level of public safety.

Over the many years these tunnels have operated, there are no known casualties due to inadequate ventilation and suffocation. So next time we travel through these road tunnels, please thank them for looking after our well-being.

**Veteran engineer Edmund Leung Kwong-ho casts an expert eye over Hong Kong's iconic infrastructure**