

Transport for London trials cool new solution to reduce temperatures on the Tube network

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Transport for London (TfL) trialling a state-of-the-art cooling panel on a disused platform at Holborn station to test its suitability for reducing temperatures on the deep Tube network – the Bakerloo, Central, Jubilee, Northern, Piccadilly, Victoria and Waterloo & City lines.

TfL's trial comes as the UK experienced its hottest temperatures on record earlier this week. The cooling panel aims to provide cooler air to passengers waiting on platforms, as well as mitigating potential temperature increases associated with running an increased number of trains on the Piccadilly line, as part of the line's future capacity upgrade.

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- [Transport for London: Second entrance at Hackney Central station opens](#)

The cooling panel works by circulating cold water around pipework within a curved metal structure to chill it. It then circulates air, using an industrial-sized fan, through gaps in the panel's structure, which in turn is cooled. The panel could also have the additional benefit of halving operational and maintenance costs, compared to existing technology used to manage temperatures on Tube lines.

The trial is part of the Government's TIES Living Lab programme, a collaboration of 25 partners focusing on 10 infrastructure, data research and digital demonstrator projects, of which the cooling panels are one. The cooling panel project was 70 per cent funded by the Department for Transport and Innovate UK. The cooling panel trial was managed by SRC infrastructure and manufactured by Direct Engineering/INAL with OCL group chosen as the multi-disciplinary contractor who carried out the installation at Holborn station.



The OCL team at work on the project

Following the trial at Holborn station and subject to funding being available, TfL will explore whether the

panels could provide a cooling solution for other deep Tube lines in the future. Further testing would need to take place in a station open to customers (Knightsbridge) before TfL could look to potentially introduce them at four additional stations on the Piccadilly line (Green Park, Holborn, Leicester Square and Piccadilly Circus). TfL could then identify other locations where the panels could provide a benefit. Progressing this trial at other locations would ultimately be subject to TfL having sufficient long-term capital funding available.

The Piccadilly line was chosen for this trial as when new, air-conditioned trains with walk-through carriages are introduced to the line from 2025, the current fleet will be gradually withdrawn from service and the frequency of trains in peak hours will rise from 24 to 27 trains per hour from mid-2027. This is a train every 135 seconds at the busiest times and represents a 23 per cent increase in peak service capacity. Although currently unfunded, line-wide re-signalling would enable TfL to increase train frequencies on the Piccadilly line to 33 and then 36 trains per hour. It is at this point that additional cooling at five Piccadilly line stations would be necessary, according to TfL's modelling.

Without long-term sustained investment from Government, only projects already underway or those required to be compliant with safety and other statutory regulations would continue - meaning no new investment by TfL at all in the transport network. This would mean that while the new Piccadilly line trains, which are currently on order, will be honoured, any new order for Bakerloo and Central line trains to replace the ageing fleet would be delayed by a further 10 years until at least 2040.

In the past it has been challenging to lower temperatures on the deep Tube lines, as traditional cooling systems have proved prohibitively expensive and difficult to install within the 120-year-old tunnels and stations. In recent tests on a prototype cooling panel in a lab environment, an air temperature reduction of 10-15 degrees in the vicinity of the panel was achieved. TfL is now keen to see if this can be replicated on the disused platform at Holborn, which mimics the live environment that these panels would operate in.

Paul Judge, TfL's Project Director for the Piccadilly Line Upgrade, said: "This innovative trial is taking place as we are experiencing record high temperatures. This new technology could play an important role in ensuring we are doing everything we can to protect TfL's network against future temperature increases, helping to keep staff and customers safe and comfortable.

"The TIES Living Lab project has given us a great collaborative platform for sharing innovative ideas, data and good practice with a range of suppliers. The cooling panel project is supporting the Piccadilly Line Upgrade, which will see new state-of-the-art trains with more space, air-conditioning, walk-through carriages and improved accessibility running at greater frequencies on the line.

"By seeking innovative solutions to cool platforms on the deep Tube network, we will be able to support future Piccadilly line train frequency increases with the possibility that the technology could be used on other Underground lines."

The aim of the new cooling panels is to significantly out-perform the existing Platform Air Handling Units, which are currently installed at some stations on the deep Tube network. Initial results show that the new cooling panels are much better equipped to operate in the unique conditions of the deep Tube environment.

Photo credit: Luca Marino/ Transport for London