

Bakerloo Line Extension



Intermediate Shafts and Head-houses

Why would shafts be needed?

Shafts would connect the Underground Bakerloo Line Extension tunnels with the surface. During everyday operations, the motion of trains would push air out of the tunnels and pull air into them from the atmosphere. As the air pushed out is usually warmer than the air pulled in, the shafts would help to provide a more comfortable temperature for passengers and staff.

During periods of disrupted service, when trains could be held in the Bakerloo Line Extension tunnels for an extended period of time, the shaft's ventilation system would deliver cooler air from above ground to the tunnels and to stationary trains.

In the unlikely event of a fire, the shafts would control smoke, provide access for the fire and rescue services and provide a safe evacuation route for passengers and staff.

Where are shafts required?

Shafts would be required at both ends of each Underground station. Where possible, these would be constructed within the overall station structure.

In addition, shafts would also be required at some locations between Underground stations, where operational and safety requirements determine they are needed.

The Bakerloo Line Extension would require shafts in the following proposed locations:

- Between Elephant and Castle and Old Kent Road I Station
- Between New Cross Gate and Lewisham Station
- At the line end overrun tunnels beyond Lewisham Station

What would a shaft look like?

Most of the shaft would be underground with an above-ground structure known as a 'head-house'. This would provide access to the shaft itself, the equipment within it and the tunnels below. A head-house is ideally located directly above the shaft and tunnels. When this cannot be achieved they can be located separately and connected by a short underground passage. This passage could consequently increase the size of the head-house above ground. A street-level entrance would provide access for the fire and rescue services, for the safe evacuation of passengers in an emergency and for maintenance. Direct access to the head-house is required for emergency and maintenance vehicles.

At stations the head-house would typically be integrated with the overall station structure. At locations between stations the head-house would be a separate building. At this early stage of the Bakerloo Line Extension design, we expect a typical head-house to occupy an area of approximately 25 metres by 25 metres and to be at least two storeys high – although the size of each head-house would be influenced by local factors including the depth of the tunnels and the height of surrounding buildings at each site. Further design work would be required to determine our requirements at each individual location.

As the Bakerloo Line Extension scheme develops further, we will engage with the relevant local authorities, London Fire and Emergency Planning Authority, relevant stakeholders and local communities to inform the designs for each head-house. The examples overleaf illustrate some of the different ways in which head-houses can be integrated into their surroundings.

Selecting shaft locations

The locations of station shafts would form part of the overall design for each station.

A separate process is undertaken to inform the locations of shafts in between stations and in doing so a range of factors have been considered.

These factors include:

- Whether a site can provide an area of circa 3,000 square metres
- Existing land use and community impacts
- Environmental and heritage impacts
- Site suitability for construction
- Site suitability for operational and safety requirements

Examples of previous shaft designs (note sizes shown are not necessarily representative of potential Bakerloo line extension head-house):



Gibson Square

Heritage design London Borough of Islington
Victoria Line



Mile End

'Green design' London Borough of Tower Hamlets
Crossrail Line 1 (post-construction, visualisation)

Bond Street

Incorporated into station box Crossrail Line 1
(post- construction, visualisation)

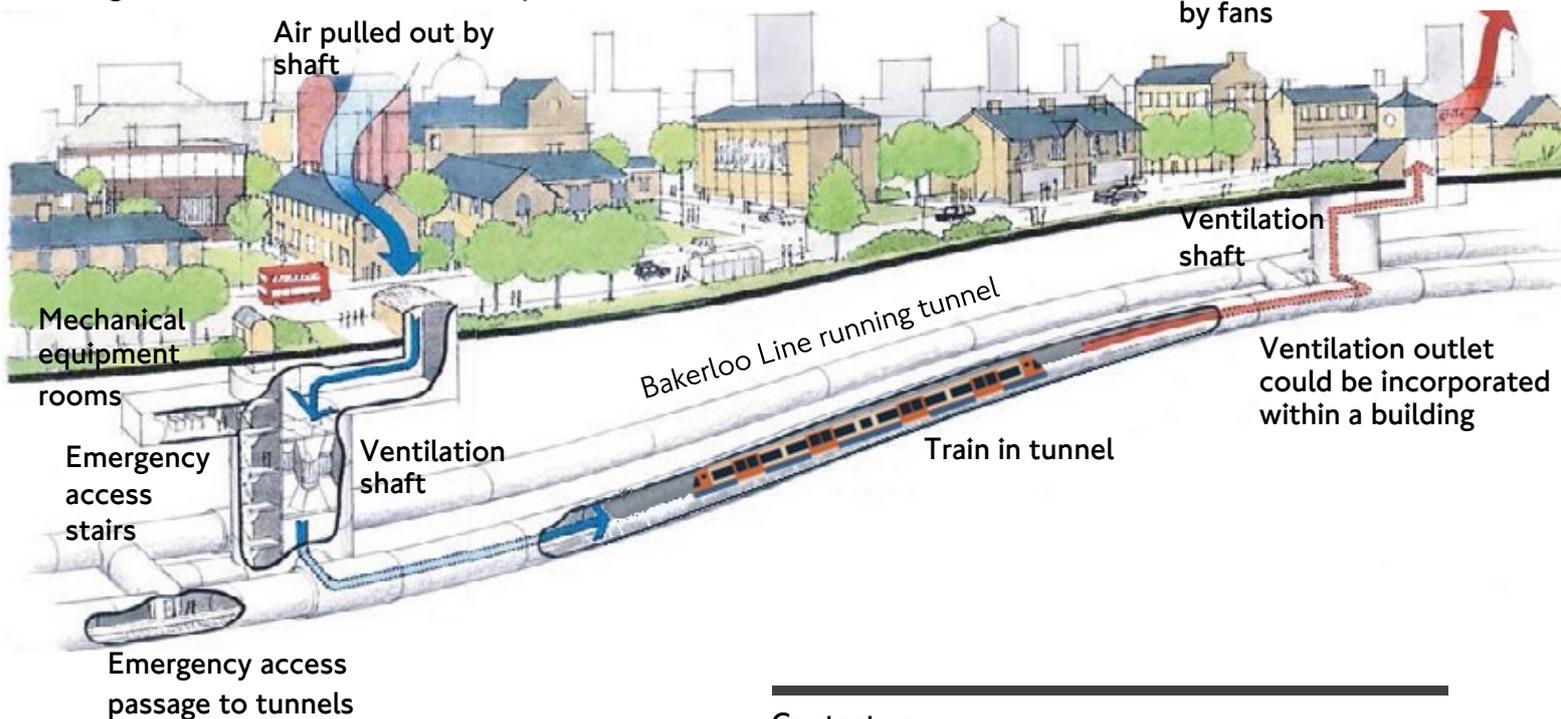


Minimising our impact

The Bakerloo Line Extension shafts would be designed to reduce the likelihood of any noticeable impact on background noise levels or air quality from their operation.

Proposals for the scheme are still at the early stages of design. Feedback from this and future consultations, together with further design and engineering work, will refine the proposals ahead of seeking permission to build the new extension.

Diagram to illustrate how a shaft operates



To find out more

Visit tfl.gov.uk/bakerloo-extension where you can view and download a range of factsheets, maps, and other information about the scheme.

Alternatively, come along to one of our drop-in events where you will have the opportunity to view our proposals and speak to members of the Bakerloo Line Extension team, more details about drop-ins are on the website.

Please contact us to request a copy of this leaflet and other Bakerloo Line Extension consultation material in hard copy, large print, audio or another language.

Contact us

- Email: ble@tfl.gov.uk
- Telephone: 0343 222 1155*
- Post: FREEPOST TFL CONSULTATIONS
- Website: tfl.gov.uk/bakerloo-extension

*Service and network charges may apply. See tfl.gov.uk/terms for details

Have your say

This consultation gives you the opportunity to comment on proposals for the Bakerloo Line Extension. Visit tfl.gov.uk/bakerloo-extension to leave a comment or provide a response to the consultation questions. The consultation will close on 21st April 2017.

Development is still at an early stage. There will be further opportunities to provide feedback on the Bakerloo Line Extension as the scheme develops.