Crossrail

Crossing the Capital, Connecting the UK

BLACKWALL WAY SHAFT

CROSSRAIL PROPOSALS

Blackwall Way Shaft

Intermediate shafts are required where there are distances of more than 1km between stations.

They serve several purposes:

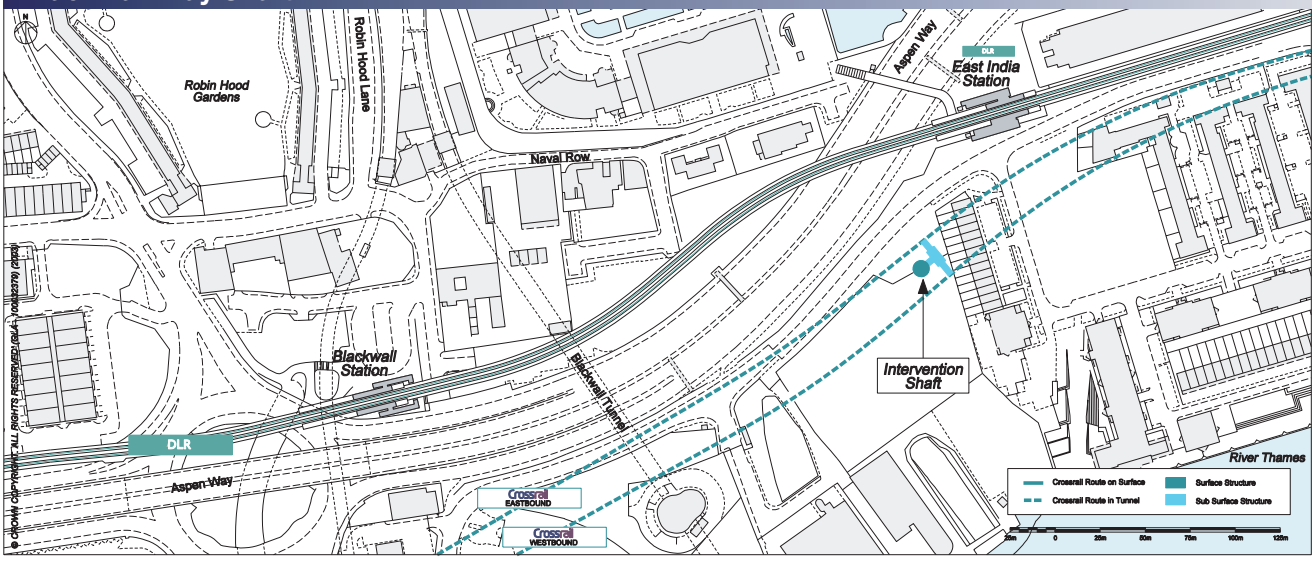
- Ventilation - Fresh air is needed to keep temperatures comfortable in the tunnels and provide cooling around trains.
- Smoke Extraction - In an emergency the shafts will be used to keep the evacuation routes free from smoke.
- Emergency Access - Firefighters and emergency services will need access to the tunnels in the event of an incident.
- Emergency Evacuation - Passengers would be guided to the nearest station except in situations where they are more than 2km apart. Some shafts therefore will be designed to bring passengers to the surface.

The shaft would be located at Blackwall Way, adjacent to East India station. It would be situated at the eastern end of the car park behind existing residential development. It would provide emergency service access to the Crossrail tunnels and would incorporate a central lift and intervention stairwells.

The shaft design would have a minimal surface impact with plant rooms being located in a basement. The shaft would reflect the character of buildings on either side.

A temporary worksite would be needed to construct the shaft.

Blackwall Way Shaft



10601-c1v17-50001

Crossrail

Crossing the Capital, Connecting the UK

BOND STREET STATION

CROSSRAIL PROPOSALS

Bond Street Station

Bond Street - Station Design

The Crossrail station would be located south of Oxford Street. Two new street level ticket halls, situated at Davies Street to the west, and Hanover Square to the east would serve a large catchment area of the West End, especially the Oxford Street retail area.

One of the major benefits of Crossrail would be the ability to access Central London from outer areas without having to change at Paddington or Liverpool Street. This would result in a significant reduction in crowding on the Central Line.

With 24 Crossrail trains in each direction every hour, Crossrail Bond Street station would significantly improve the area's transport infrastructure, relieve overcrowding and improve access to London's West End.

Crossrail Bond Street Station would provide:

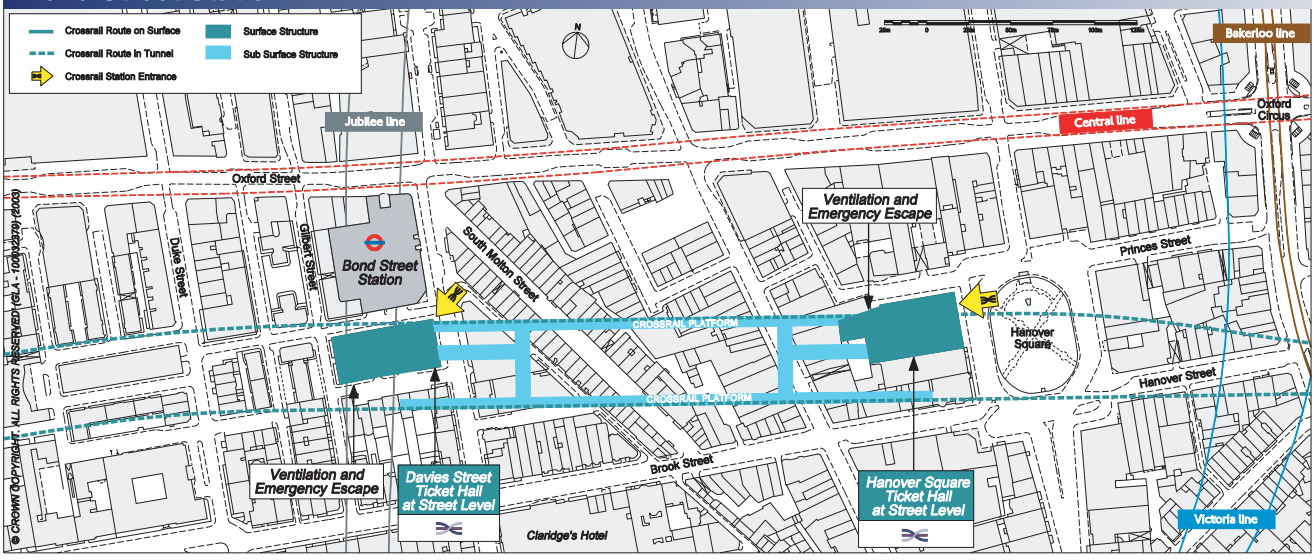
- Two new Crossrail ticket halls.
- New direct journey opportunities.
- A Crossrail train every 2.5 minutes during peak times.
- Step free access to Crossrail platforms - the first such station in the West End.
- Major reduction in crowding on the Central and Jubilee lines.
- Major reduction in crowding at Oxford Circus and Bond Street stations.

Construction

Crossrail proposes to construct the station primarily from sites at Davies Street and Hanover Square.

The proposed work sites will be the subject of future consultation and will be agreed with local authorities.

Bond Street Station



Crossrail

Crossing the Capital, Connecting the UK

BOND STREET STATION

PROPOSED TICKET HALLS

Davies Street

View of potential new building above the western ticket hall.

The western ticket hall would occupy the block bounded by Davies Street, St Anselm's Place, Gilbert Street and Weighhouse Street. The station entrance would be on the corner of Davies Street and Weighhouse Street.

From the Davies Street ticket hall, two flights of escalators would provide access to the Crossrail platforms, via an intermediate concourse. From the eastern ticket hall (Hanover Square) one flight of escalators would provide access to the Crossrail platforms.

Hanover Square

View of potential new building above the eastern ticket hall.

Hanover Square

View of ticket hall entrance.

The eastern ticket hall would be situated in the ground floor of 18 & 19 Hanover Square. The entrance would be on the west side of Hanover Square, at the corner of Tenterden Street.

1/0601 -c1s06-50002

Crossrail

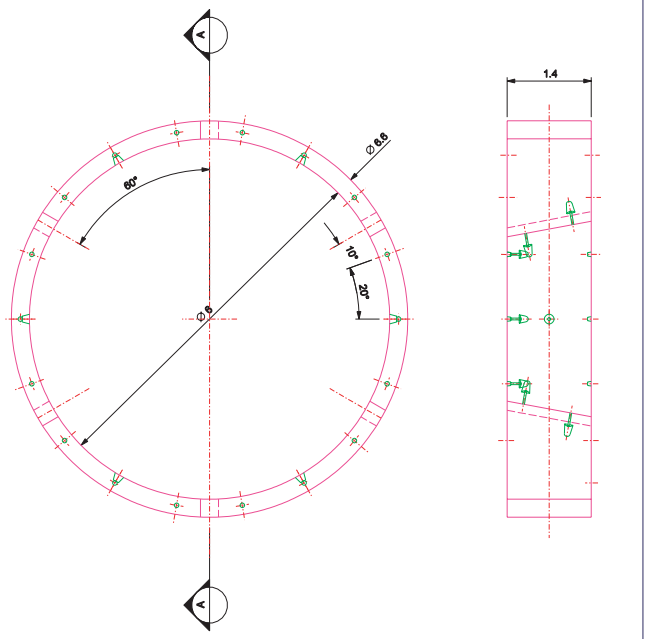
Crossing the Capital, Connecting the UK

CANAL WAY JUNCTION

CROSSRAIL PROPOSALS

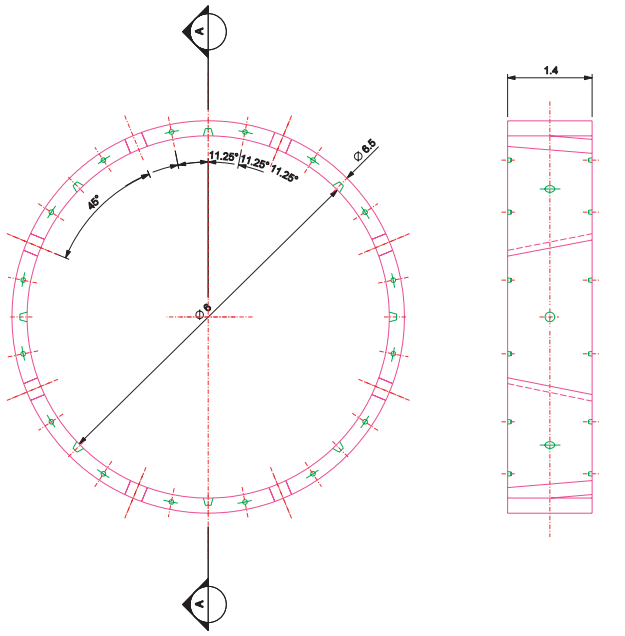
Crossrail proposes a new twin bore tunnel alignment from Canal Way Junction to a portal at Chiswick Back Common. The tunnels would commence on the northern side of the Great Western Main Line (GWML) on Network Rail land. They would then pass under the GWML and head south under Wormwood Scrubs Park at a depth of approximately 14m below ground.

Emergency Intervention Shafts and Ventilation Shafts would be provided at about one kilometre intervals along this route. These structures would provide access for emergency services, and ventilation for the tunnels.



TYPICAL SECTION THROUGH
6m I.D. BOLTED TRAPEZOIDAL RING
(6 SEGMENTS PER RING)

SECTION A-A



TYPICAL SECTION THROUGH
6m I.D. EXPANDED TRAPEZOIDAL RING
(8 SEGMENTS PER RING)

SECTION A-A

Typical Section - Twin Bore Tunnels

Twin Bore Tunnels

- Approximately 6m in diameter
- Constructed approximately 20m below existing ground level
- Construction will be carried out using a Tunnel Boring Machine

Tunnel Boring Machine Operation

The tunnel boring would commence from the work site at Wormwood Scrubs, tunnelling south to the site of the new Turnham Green station. The machines would be retrieved and transported back to the Wormwood Scrubs site to be reassembled to complete the process northwards to the Canal Way portal.

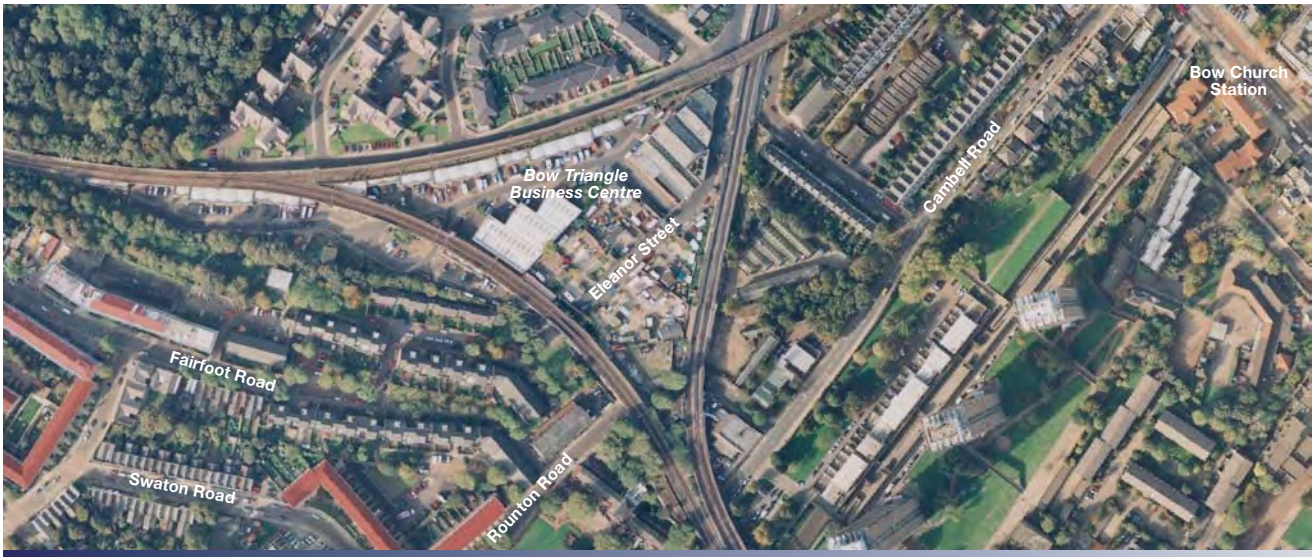
10601-w-t100-50000

Crossrail

Crossing the Capital, Connecting the UK

ELEANOR STREET SHAFT

CROSSRAIL PROPOSALS



Eleanor Street Shaft

Intermediate shafts are required where there are distances of more than 1km between stations.

They serve several purposes:

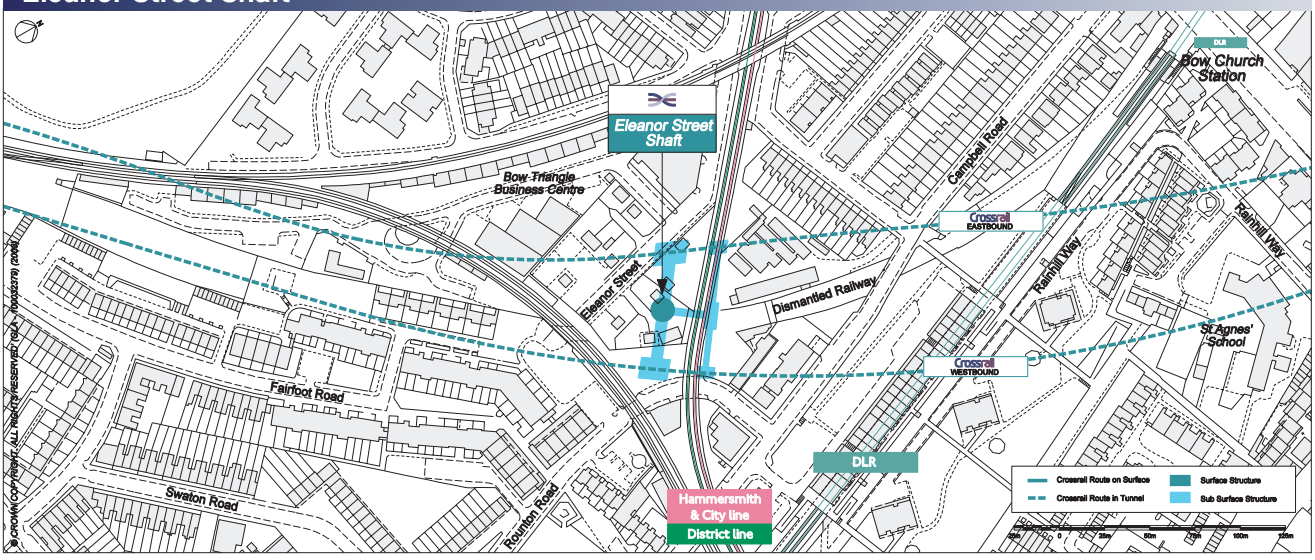
- Ventilation - Fresh air is needed to keep temperatures comfortable in the tunnels and provide cooling around trains.
- Smoke Extraction - In an emergency the shafts will be used to keep the evacuation routes free from smoke.
- Emergency Access - Firefighters and emergency services will need access to the tunnels in the event of an incident.
- Emergency Evacuation - Passengers would be guided to the nearest station except in situations where they are more than 2km apart. Some shafts therefore will be designed to bring passengers to the surface.

It is proposed that the shaft would be located on land south of Eleanor Street in Bow Triangle.

- The shaft would be used for ventilation and emergency intervention
- Ventilation fans would be located vertically within the shaft
- The shaft would have a firefighter lift and intervention stairs

A temporary work site would be needed to construct the shaft.

Eleanor Street Shaft



10601-c1v61-50011

Crossrail

Crossing the Capital, Connecting the UK

FARRINGDON STATION

CROSSRAIL PROPOSALS

Farringdon Station

Farringdon - Station Design

Crossrail's Farringdon station would be located between Farringdon Road and Charterhouse Square, to the south of the existing London Underground Farringdon station. There would be two Crossrail ticket halls serving a wide area of Farringdon and the Barbican area.

With 24 Crossrail trains in each direction every hour, Crossrail Farringdon station would significantly improve the area's transport infrastructure and help to enable new development.

Crossrail Farringdon Station would provide:

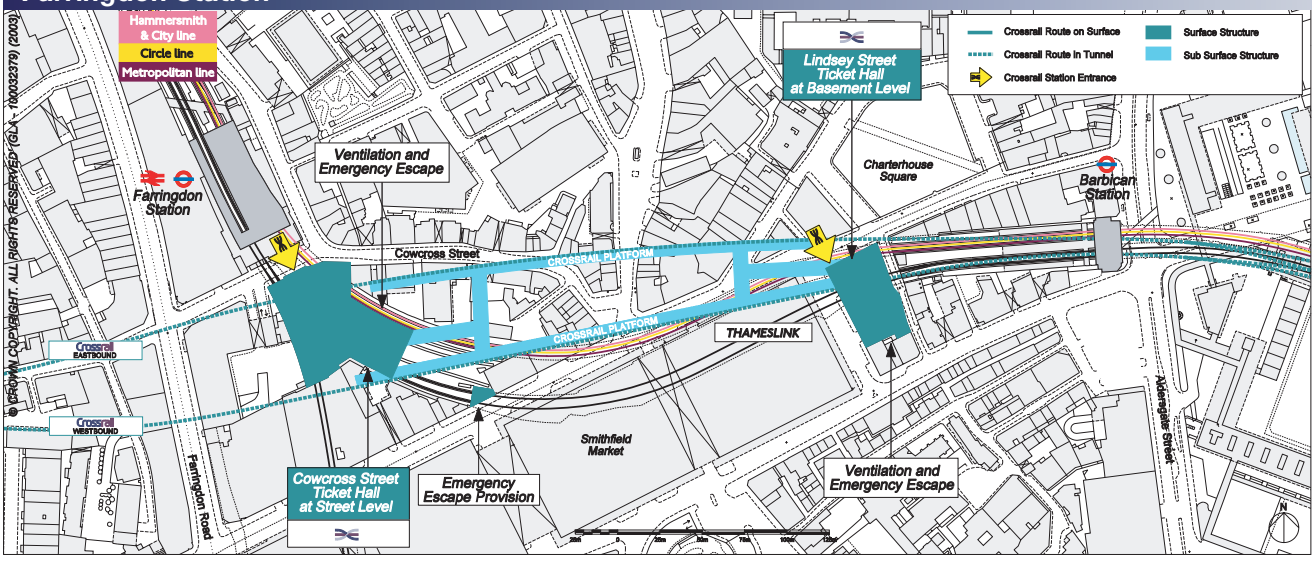
- Two new Crossrail ticket halls.
- A Crossrail train every 2.5 minutes during peak times.
- Step free access to the Crossrail platforms.
- Interchange with existing mainline and underground lines.
- New direct journey opportunities to Heathrow and London Docklands.

Construction

Crossrail proposes to construct the station primarily from sites at Charterhouse Street, Cowcross Street, Lindsey Street and Hayne Street.

The proposed work sites will be the subject of future consultation and will be agreed with local authorities.

Farringdon Station



Crossrail

Crossing the Capital, Connecting the UK

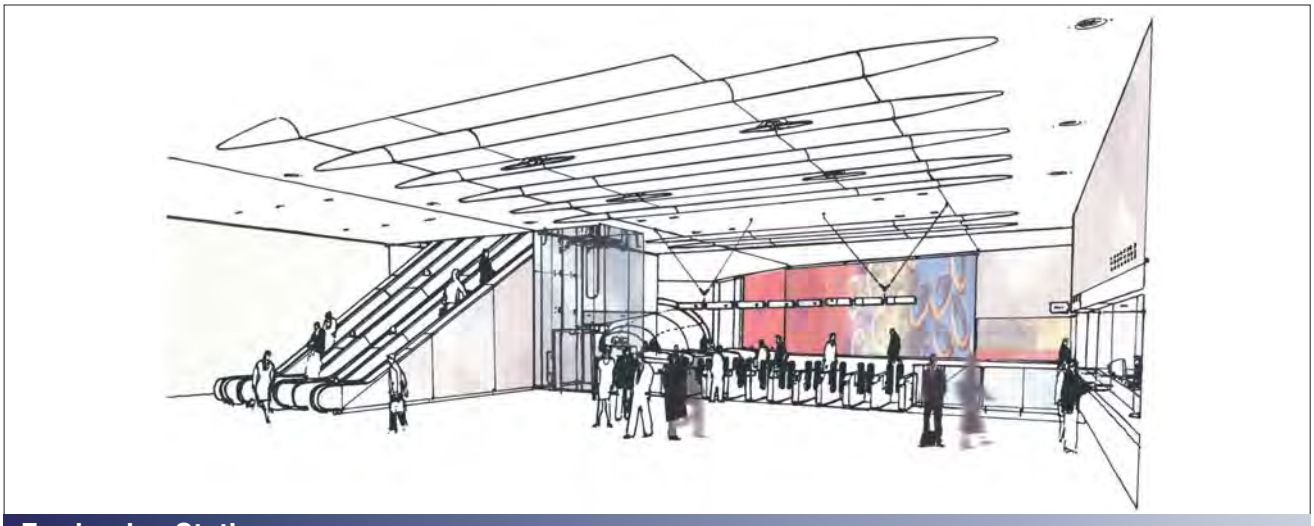
FARRINGDON STATION

PROPOSED TICKET HALLS

Farringdon Station

View of Cowcross Street looking east. Proposed Thameslink/Crossrail station is on the right.

The new combined Crossrail and Thameslink ticket hall at the western end of the station would face onto Cowcross Street. The ticket hall would be at street level, opposite the existing London Underground Farringdon station entrance. It is anticipated that the area between the London Underground and the Crossrail station entrances would be pedestrianised.



Farringdon Station

View of the ticket hall interior at Lindsey Street.

The eastern ticket hall would be situated in the basement of the block bounded by Charterhouse Street, Hayne Street, Long Lane and Lindsey Street. It would provide interchange with the Metropolitan, Hammersmith & City and Circle lines at Barbican station. There is potential here for new development above the ticket hall.

18060-c1s10-50002

Crossrail

Crossing the Capital, Connecting the UK

FISHER STREET SHAFT

CROSSRAIL PROPOSALS

Fisher Street Shaft

Intermediate shafts are required where there are distances of more than 1km between stations.

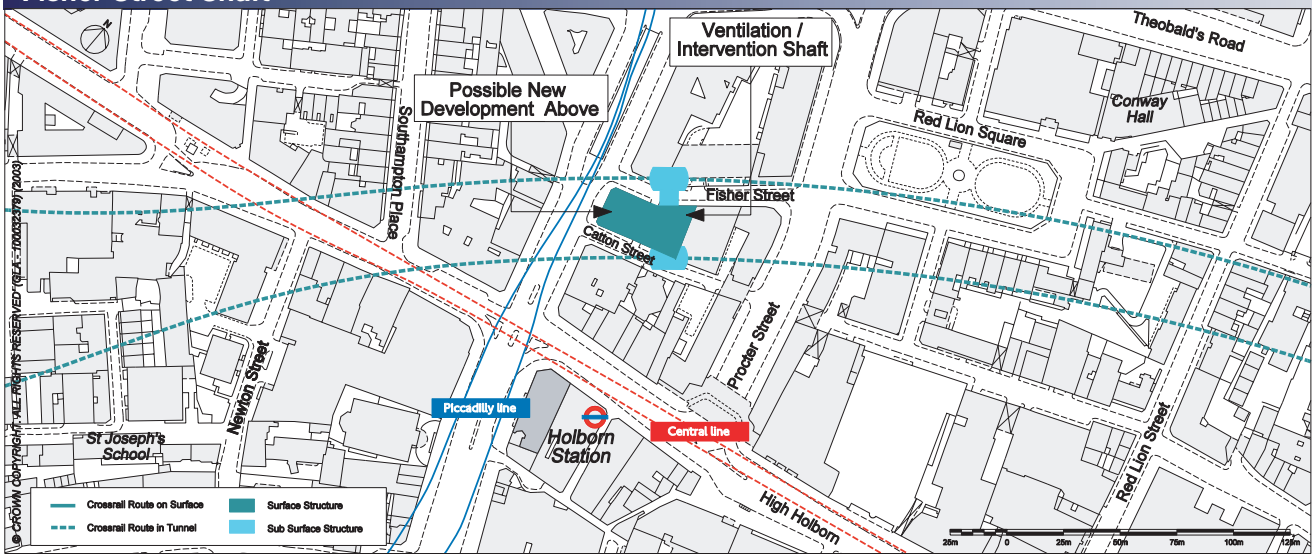
They serve several purposes:

- Ventilation - Fresh air is needed to keep temperatures comfortable in the tunnels and provide cooling around trains.
- Smoke Extraction - In an emergency the shafts will be used to keep the evacuation routes free from smoke.
- Emergency Access - Firefighters and emergency services will need access to the tunnels in the event of an incident.
- Emergency Evacuation - Passengers would be guided to the nearest station except in situations where they are more than 2km apart. Some shafts therefore will be designed to bring passengers to the surface.

Fisher Street shaft would be used for ventilation and emergency intervention.

The proposed location for the shaft would be the block between Southampton Row, Fisher Street, Catton Street and the adjacent London Electricity substation.

Fisher Street Shaft



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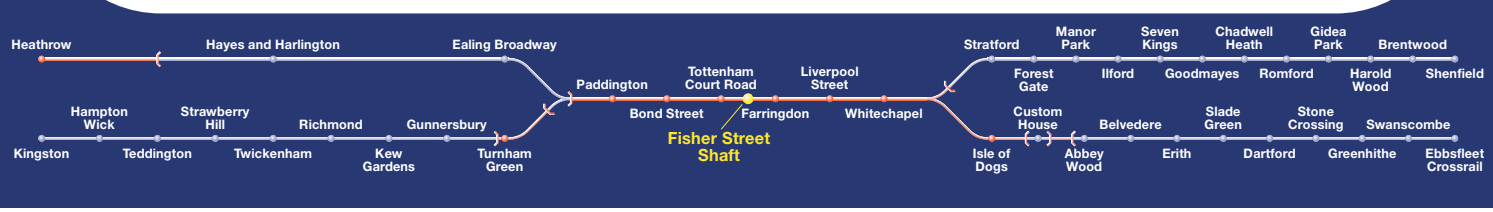


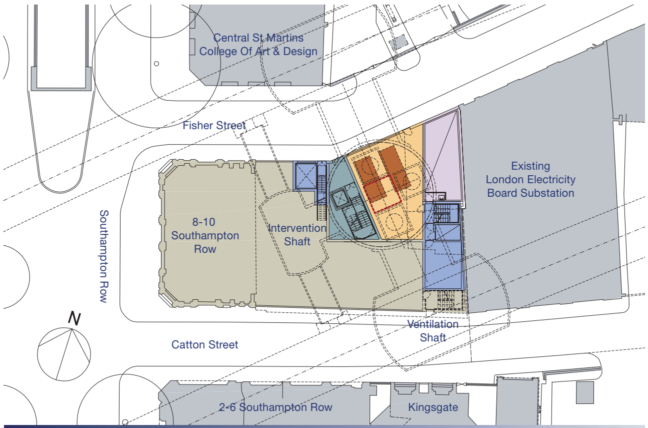
Crossing the Capital, Connecting the UK

FISHER STREET SHAFT

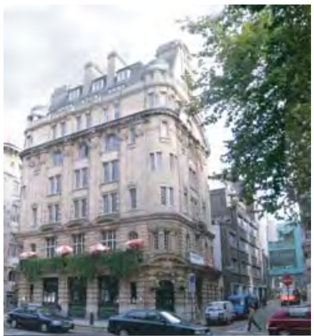
PROPOSED SHAFT DESIGN

Southampton Road Façade

Showing possible development. It is intended that the façades on Southampton Row will be retained.



Ground Floor Plan



Existing

Intervention

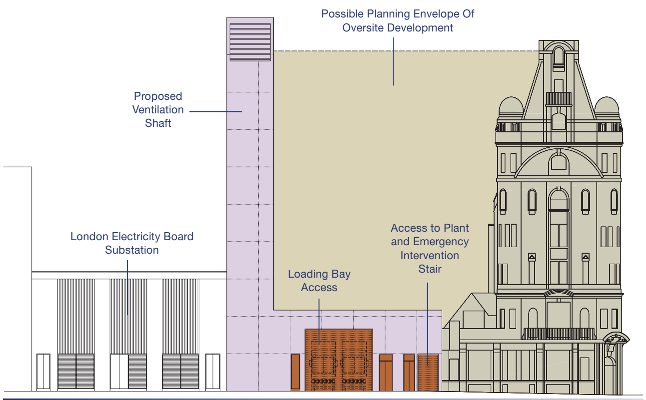
The internal access stairs and landings would provide access for emergency services in the event of an incident.

Access for emergency services and maintenance would be on Fisher Street, with provision for a two van loading bay for minimum disruption during maintenance of the ventilation fans and plant.

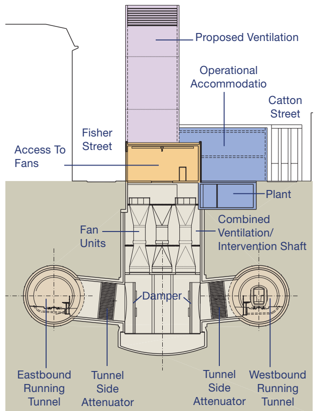
The Fisher Street Shaft would not be used for the evacuation of passengers, however there would be provision for the assisted evacuation of disabled/ injured passengers by stretcher from track level directly to street level.

Future Development

The possible future development shown indicates 8-10 Southampton Row converted to an office building with its major entrance on Southampton Row. The new building to the west (wrapped around the ventilation shaft) could have secondary entrances and exits onto Fisher Street and Catton Street. The operational vent at the north eastern corner of the site would rise to a height comparable with this development.



Fisher Street North Elevation



Section

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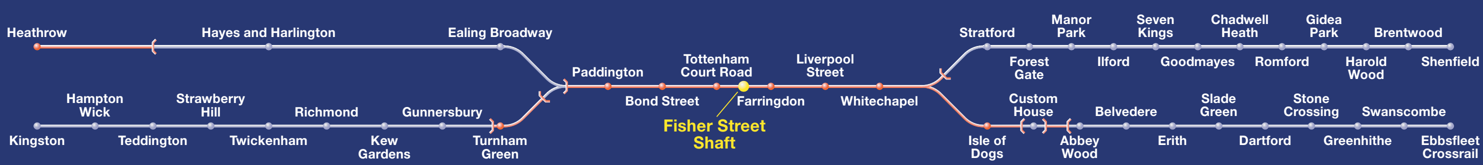


Crossrail

Crossing the Capital, Connecting the UK

HANBURY STREET SHAFT

CROSSRAIL PROPOSALS

Hanbury Street Shaft

Intermediate shafts are required where there are distances of more than 1km between stations.

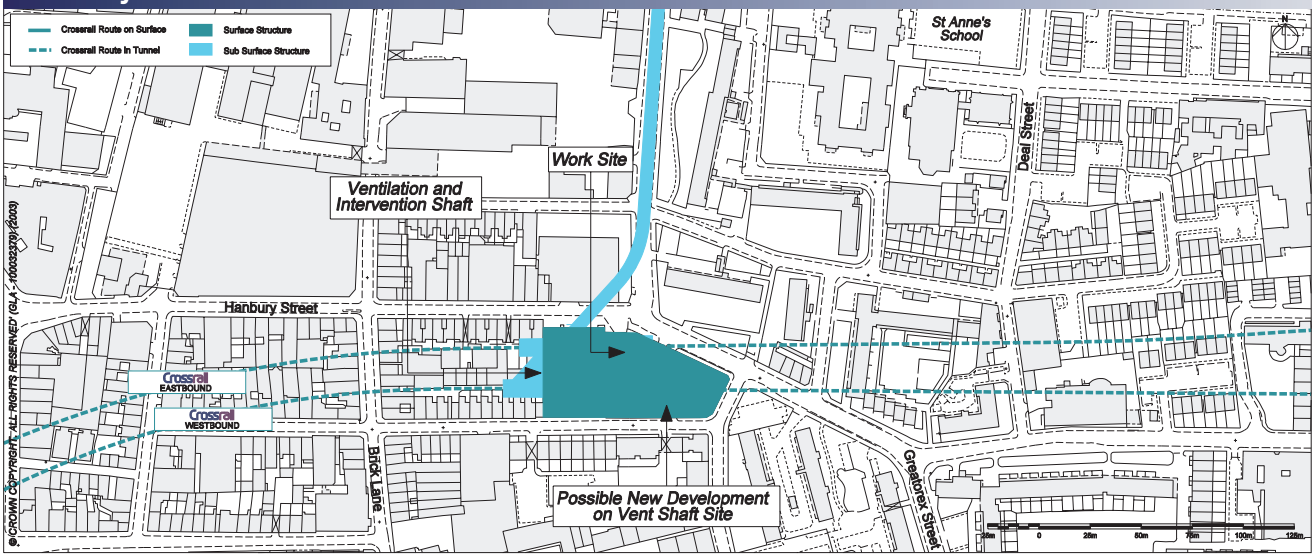
They serve several purposes:

- Ventilation - Fresh air is needed to keep temperatures comfortable in the tunnels and provide cooling around trains.
- Smoke Extraction - In an emergency the shafts will be used to keep the evacuation routes free from smoke.
- Emergency Access - Firefighters and emergency services will need access to the tunnels in the event of an incident.
- Emergency Evacuation - Passengers would be guided to the nearest station except in situations where they are more than 2km apart. Some shafts therefore will be designed to bring passengers to the surface.

The shaft worksite is also proposed to be used as a launch and retrieval point for tunnel boring machines that would be used during tunnel construction.

During tunnel construction, spoil would be removed via an underground connection to temporary sidings to be located on the Great Eastern viaduct near Pedley Street, for onward removal by rail.

Hanbury Street Shaft



10601-c1v13-50001

Crossrail

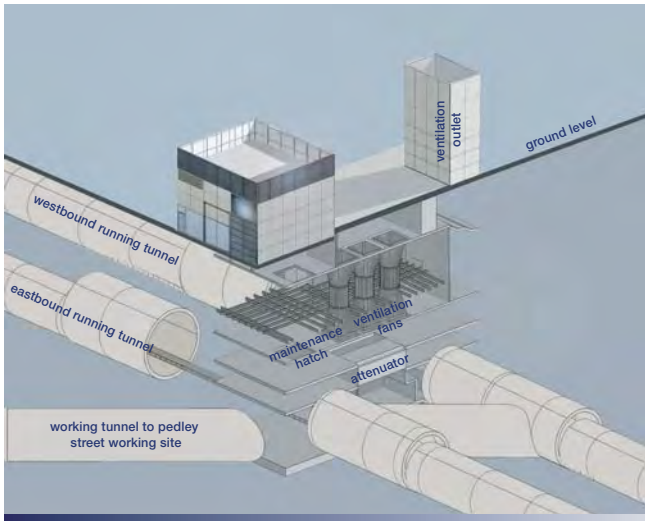
Crossing the Capital, Connecting the UK

HANBURY STREET SHAFT

PROPOSED SHAFT DESIGN

The shaft is proposed to be located at the junction of Hanbury Street and Princelet Street and would provide emergency access and ventilation to the Crossrail tunnels between Liverpool Street and Whitechapel Stations.

The ventilation building would house equipment needed to operate the ventilation fans. The fans would extract air or smoke from the tunnels and intake air below ground as required. The building would also allow emergency services to enter the tunnels. The overall arrangment of the building, fans and tunnels is shown in the drawing right. The intake and outlet for the fans is through the vertical shaft adjacent to the new building.



Proposed Ventilation Shaft

North Elevation

Existing

The ventilation outlet could be surrounded by future development. It would then terminate above roof level.

Proposed with Possible Future Development

10601-c1v13-50002

Crossrail

Crossing the Capital, Connecting the UK

HERTSMERE ROAD SHAFT

CROSSRAIL PROPOSALS

Hertsmere Road Shaft

Intermediate shafts are required where there are distances of more than 1km between stations.

They serve several purposes:

- Ventilation - Fresh air is needed to keep temperatures comfortable in the tunnels and provide cooling around trains.
- Smoke Extraction - In an emergency the shafts will be used to keep the evacuation routes free from smoke.
- Emergency Access - Firefighters and emergency services will need access to the tunnels in the event of an incident.
- Emergency Evacuation - Passengers would be guided to the nearest station except in situations where they are more than 2km apart. Some shafts therefore will be designed to bring passengers to the surface.

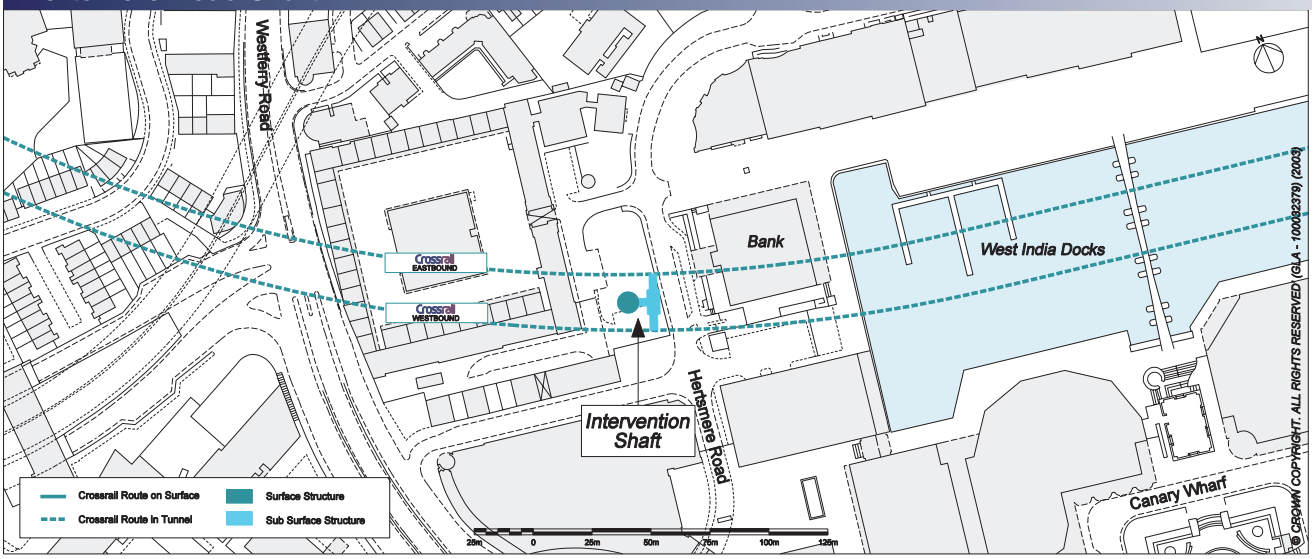
Hertsmere Road shaft would be located in the Cannon Workshop Car Park and would be used for emergency intervention.

At ground level a visually and materially high quality 'pavilion' structure is proposed to blend in with the listed structures belonging to Cannon Workshops.

Hardstanding areas off Hertsmere Road will be provided for emergency services vehicles.

A temporary work site would be needed to construct the shaft.

Hertsmere Road Shaft



10601-c1v15-50021

Crossrail

Crossing the Capital, Connecting the UK

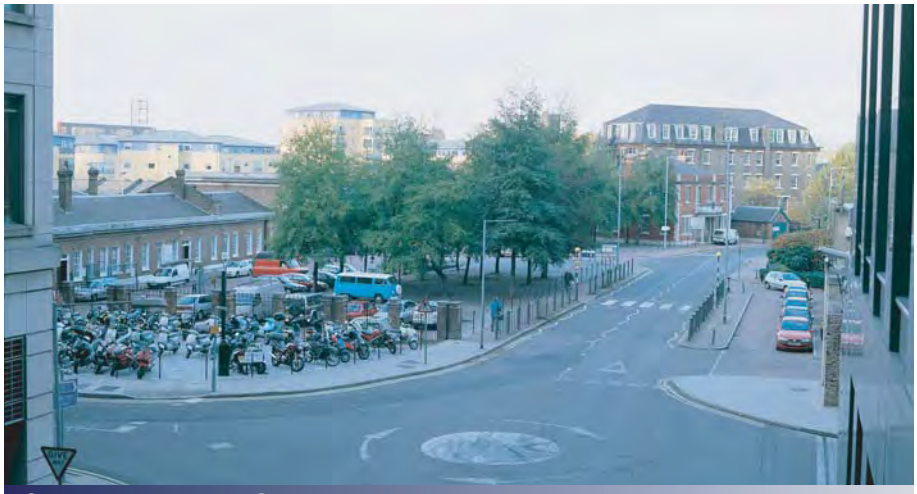
HERTSMERE ROAD SHAFT

SHAFT DESIGN

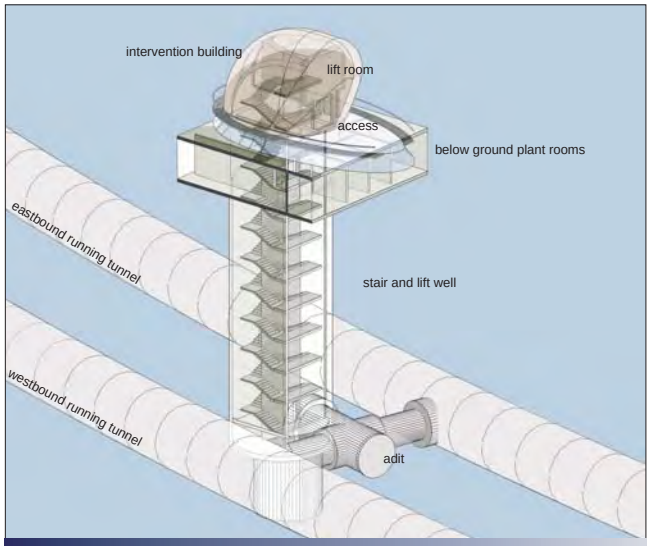
Ground Floor Plan

The shaft would allow access and emergency intervention to the tunnels below.
As part of the shaft development, the existing car park could be rearranged to provide more car spaces than at present, possibly as indicated left.

The cobbled forecourt could be made level and accessible to cars from Hertsmere Road and Cannon Drive.
The shaft enclosure would be above existing car park level and form part of the hard landscaping.
The shaft base would be located on a granite 'pier', integrating it with other finishes in the car park.



Site of Proposed Shaft



Arrangement of Building and Tunnels

The shaft entrance would be at pavement level from an off-street gated vehicle hardstanding. Inside the shaft, stairs and a lift would be provided between ground and track levels. Below the level of the car park, a basement would be provided for electrical and mechanical equipment.

Existing trees on the site would be retained as far as possible following construction of the shaft building and car park.

10601-c1v15-50022

Crossrail

Crossing the Capital, Connecting the UK

HYDE PARK SHAFT

CROSSRAIL PROPOSALS

Hyde Park Shaft

Intermediate shafts are required where there are distances of more than 1km between stations.

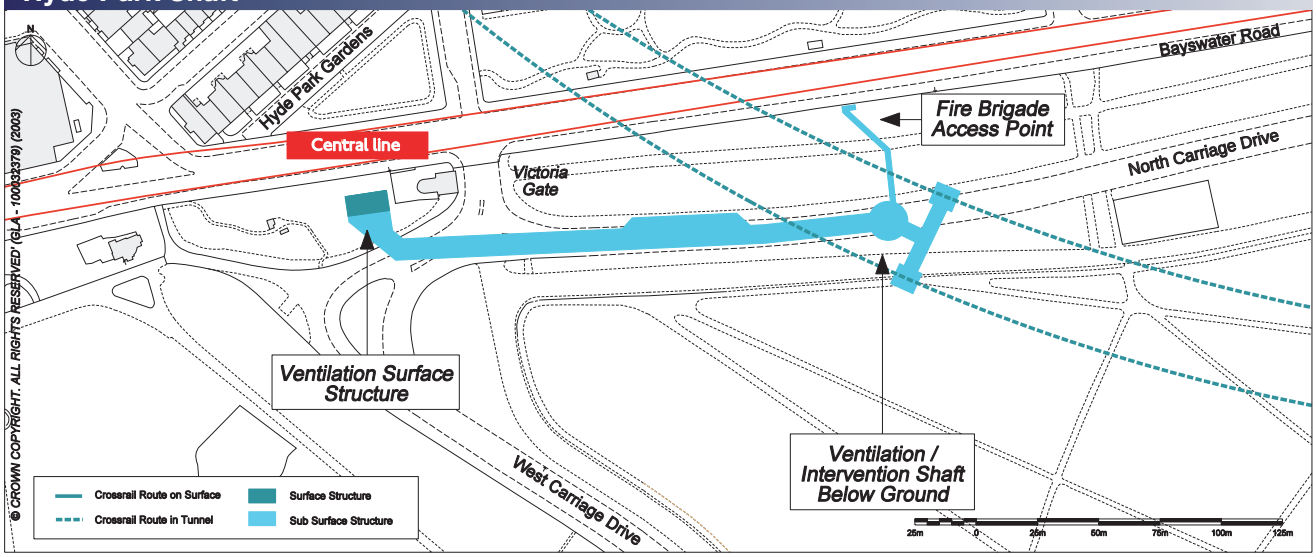
They serve several purposes:

- Ventilation - Fresh air is needed to keep temperatures comfortable in the tunnels and provide cooling around trains.
- Smoke Extraction - In an emergency the shafts will be used to keep the evacuation routes free from smoke.
- Emergency Access - Firefighters and emergency services will need access to the tunnels in the event of an incident.
- Emergency Evacuation - Passengers would be guided to the nearest station except in situations where they are more than 2km apart. Some shafts therefore will be designed to bring passengers to the surface.

Hyde Park shaft would be used for ventilation and emergency intervention.

The shaft would be located between the Crossrail tunnels where they would pass beneath North Carriage Drive. This location would reduce disturbance to the park and the nearby residential neighbourhood.

Hyde Park Shaft



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Crossrail

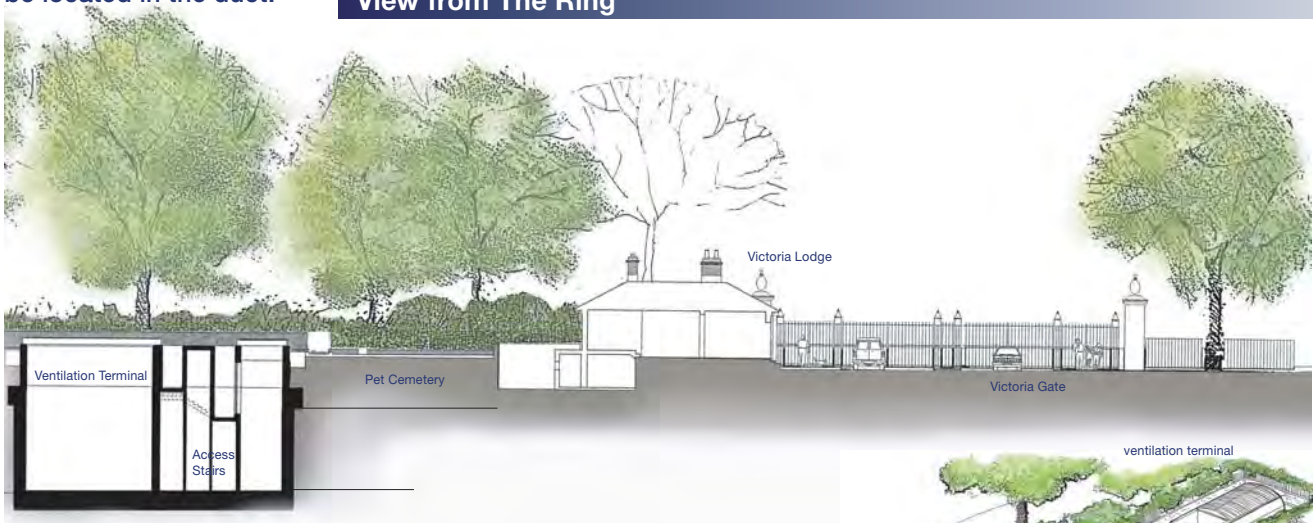
Crossing the Capital, Connecting the UK

HYDE PARK SHAFT

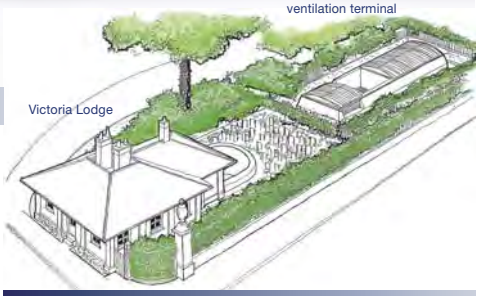
PROPOSED SHAFT DESIGN

The shaft would be connected to a ventilation terminal by a duct under North Carriage Drive. The ventilation terminal would be at ground level in the shrubbery behind the Pet Cemetery at Victoria Lodge. It would be protected by a grille, fence and shallow ditch to prevent unauthorised access. Equipment to operate the fans would be located in the duct.

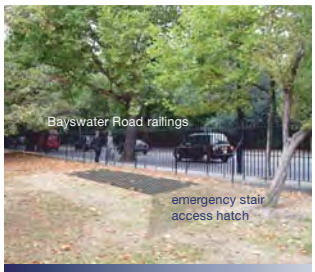
View from The Ring



Section Through Ventilation Terminal Looking North

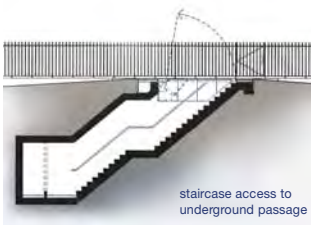


Ventilation Terminal

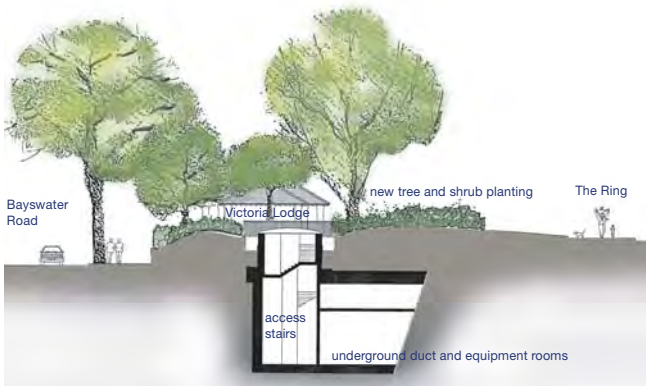


Access Hatch

An access hatch beside Bayswater Road and a short subway to the shaft would give 24 hour access for emergency services to the staircase leading to the tunnels. The hatch would be flush with the grass behind the railings on Bayswater Road. A gate with a fire brigade lock would give access to the hatch.



Emergency Stair



Section through Ventilation Terminal

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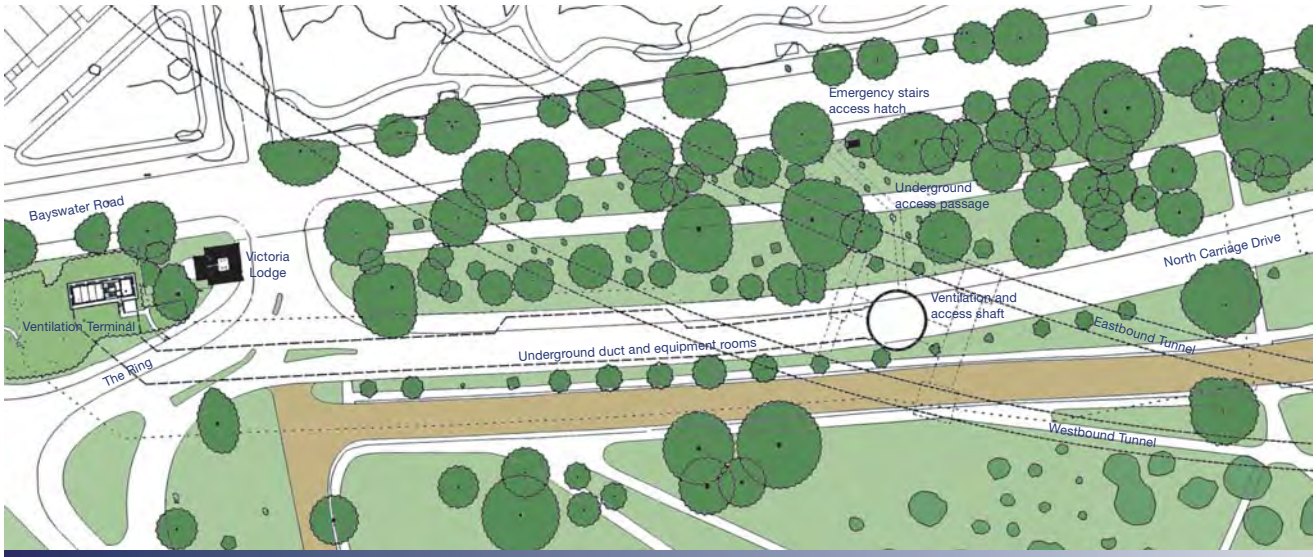
Crossrail

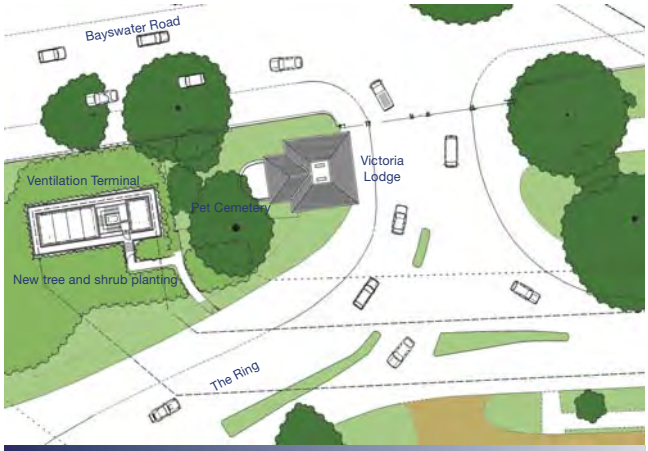
Crossing the Capital, Connecting the UK

HYDE PARK SHAFT

PROPOSED SHAFT LOCATION



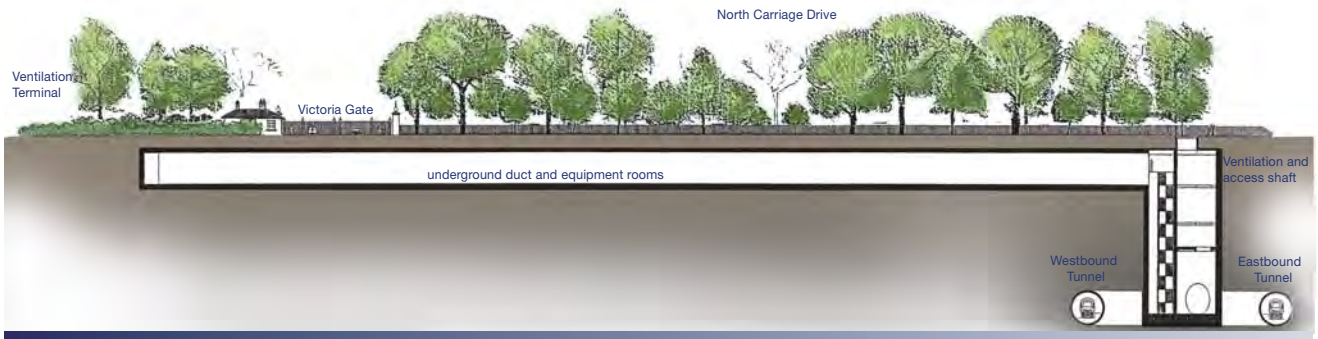
Site Plan



Detailed Site Plan at Victoria Lodge

The shaft would contain a staircase and three fans. These would be switched on as required to assist tunnel ventilation or control smoke in an emergency. In either case, only two fans would be needed to operate at any given time, the third being a backup for maintenance. Sound absorbent material would be fitted to reduce operating noise.

Worksites are proposed to be in North Carriage Drive and North Ride and will be agreed with the Royal Parks and Westminster City Council.



Long Section Through Duct and Shaft Looking North

10601-c1v05-50002

Crossrail

Crossing the Capital, Connecting the UK

ISLE OF DOGS STATION

CROSSRAIL PROPOSALS

Isle of Dogs Station

Isle of Dogs - Station Design

The first phase of Canary Wharf office development was completed in 1991 and now has in the region of six million square feet of office and retail space. A further eight million square feet of office and retail space is currently under construction. With 12 Crossrail trains in each direction every hour during peak times, the Crossrail station would significantly improve the area's transport infrastructure and help to facilitate further new development.

Crossrail Isle of Dogs Station would provide:

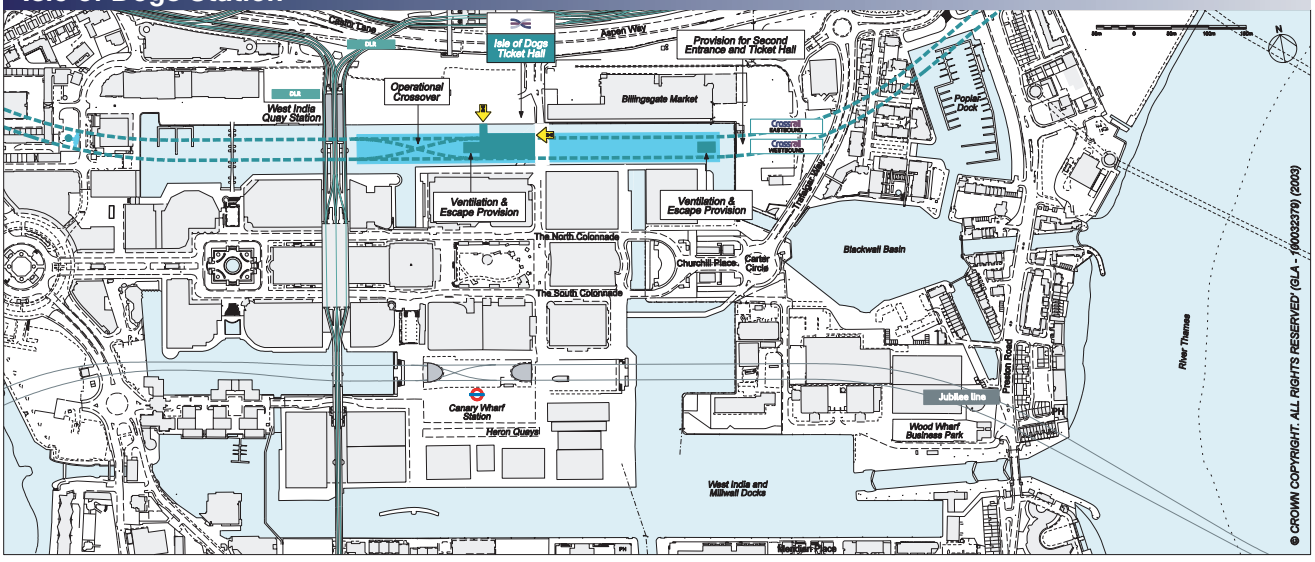
- New direct journey opportunities.
- A Crossrail train every 5 minutes during peak times.
- Step free access to the Crossrail Station.
- A direct connection to the City and Heathrow Airport.
- Substantial new transport capacity and reduction in crowding.

Construction

Crossrail proposes to construct the station primarily from sites at North Quay and the western end of Billingsgate Market.

The proposed work sites will be the subject of future consultation and will be agreed with local authorities.

Isle of Dogs Station



Crossrail

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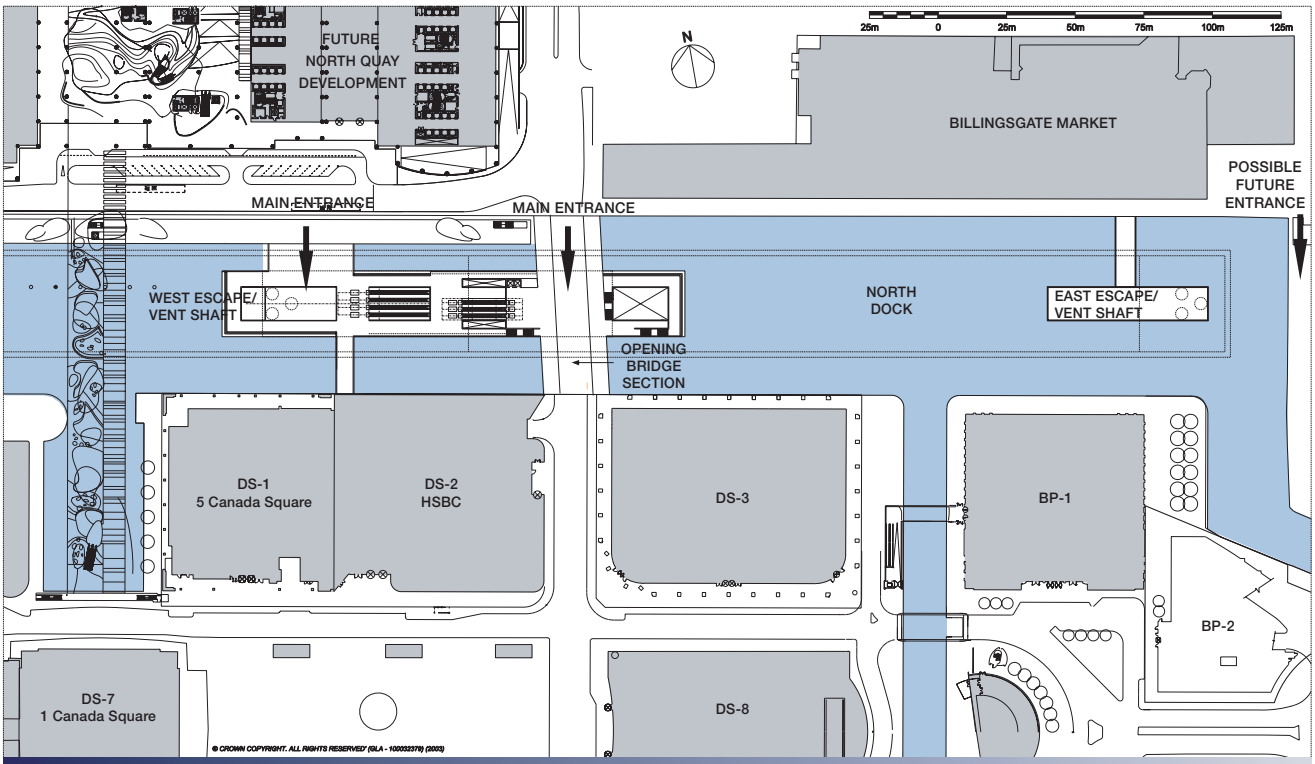
ISLE OF DOGS STATION

PROPOSED STATION



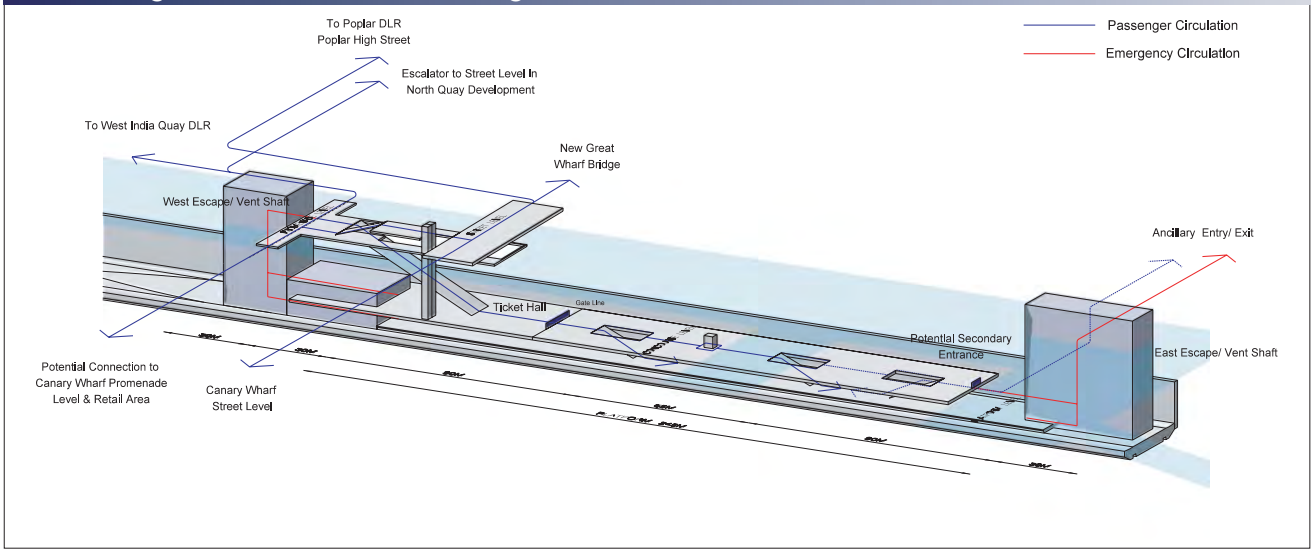
Isle of Dogs Station - Street Level Plan

Crossrail Isle of Dogs station would be situated below the North Dock at West India Quay, approximately 30 metres below ground level. The station would incorporate a concourse level with platforms.

The main station entrance and ticket hall would be located to the west of a new Great Wharf Bridge, which would link Aspen Way and North Colonnade. Provision would be made for future construction of a second eastern ticket hall and entrance at the eastern end of Billingsgate market car park. Access from the new Crossrail Station to the existing London Underground and DLR Stations would be at street level.

Crossrail will continue to develop proposals in consultation with groups including the London Borough of Tower Hamlets, Canary Wharf Group, British Waterways, the Environment Agency, the local community and other stakeholders.

Isle of Dogs Station - Circulation Diagram



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Crossrail

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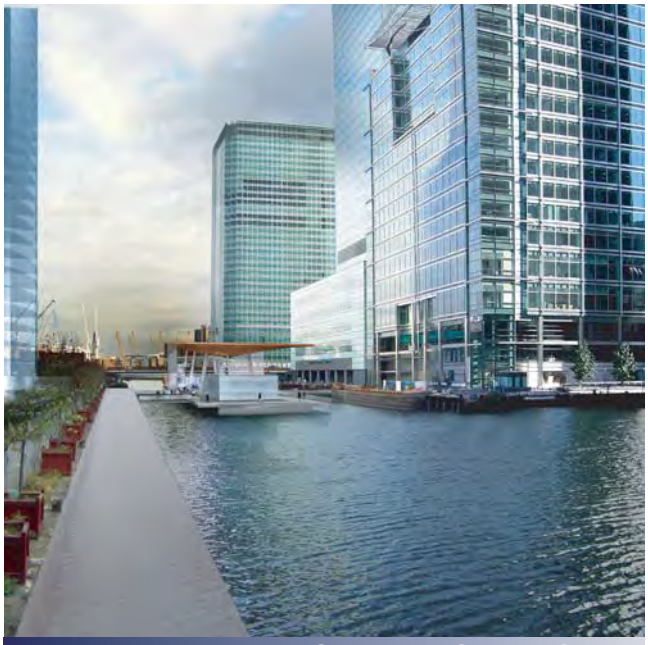
ISLE OF DOGS STATION

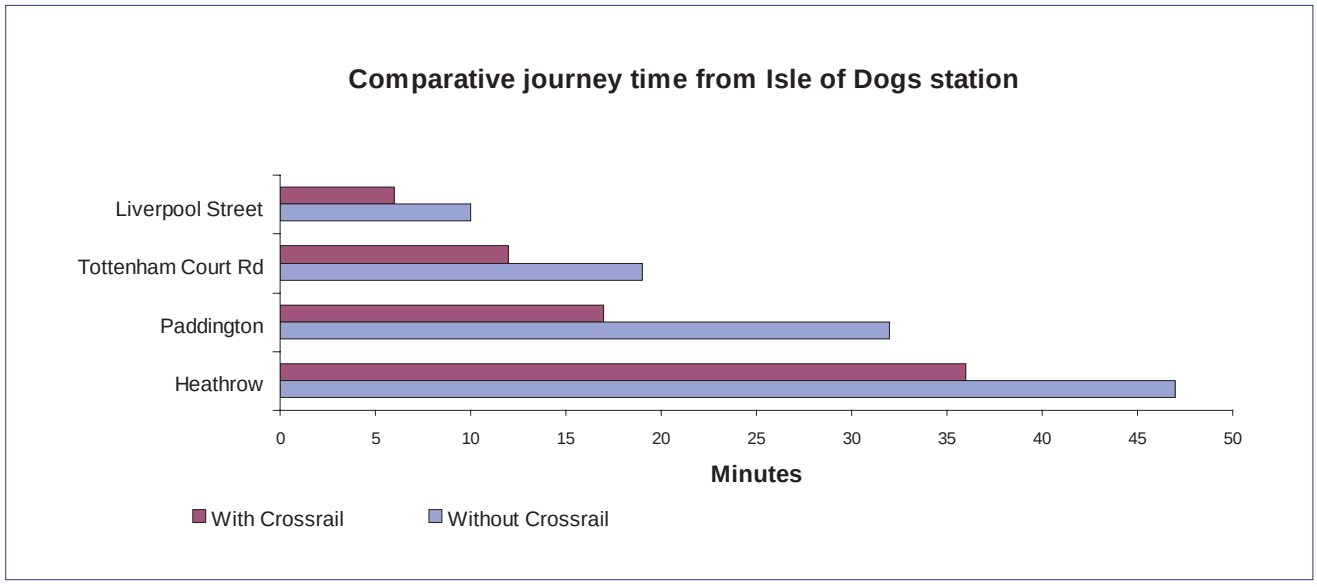
PROPOSED SERVICE IMPROVEMENTS



View from West India Quay DLR Station Stair

View from No 1 West India Quay

Crossrail will improve train services to and from Isle of Dogs station by providing journey time savings and a much greater variety of convenient travel destinations.



The table/graph highlights some of the journey time savings that will be available to passengers travelling on Crossrail services to/from Isle of Dogs station.

The Crossrail service pattern is still under development. The precise service pattern will be set by the Strategic Rail Authority in consultation with train operating companies responsible for operating Crossrail services.

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Crossrail

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LIVERPOOL STREET STATION

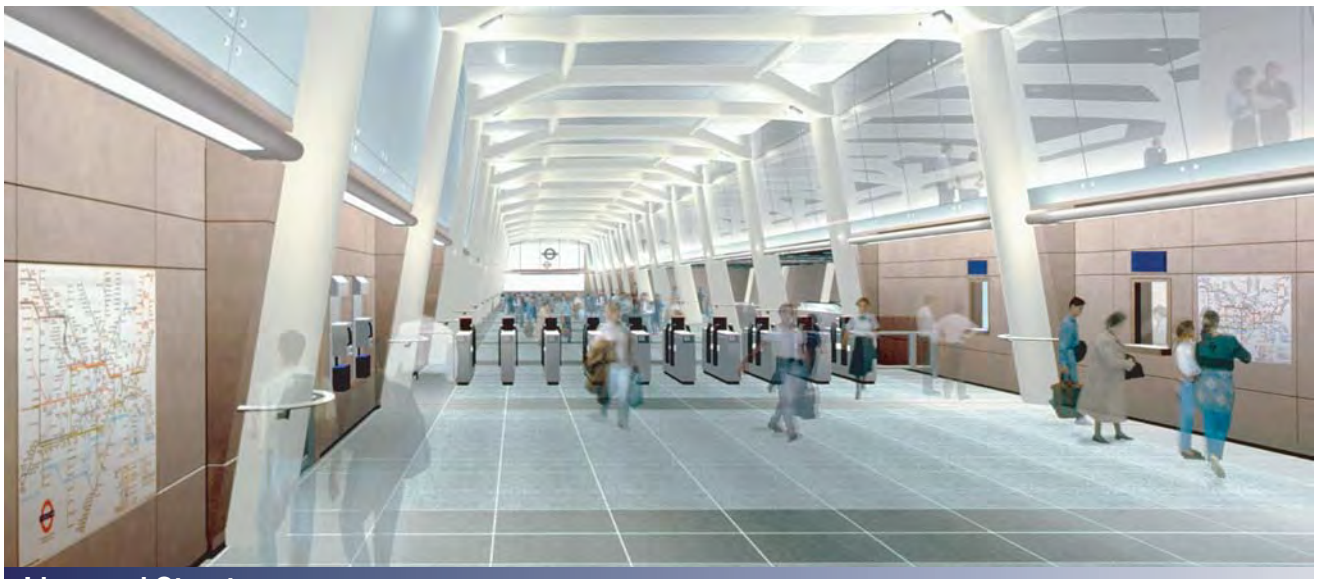
PROPOSED EASTERN TICKET HALL

Liverpool Street

View of proposed new station entrance on Old Broad Street

At the east (Liverpool Street) end of the Crossrail Station, new escalators from the Crossrail platforms would link directly into the existing London Underground Liverpool Street ticket hall, giving access to the main line concourse.

It is possible that a new ticket hall would be built over the London Underground Circle line platforms, replacing the Liverpool Street Arcade. This new ticket hall would replace and supplement the London Underground ticket hall currently on the corner of Old Broad Street and Liverpool Street.



Liverpool Street

View of interior of proposed new 'Arcade' ticket hall

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Crossrail

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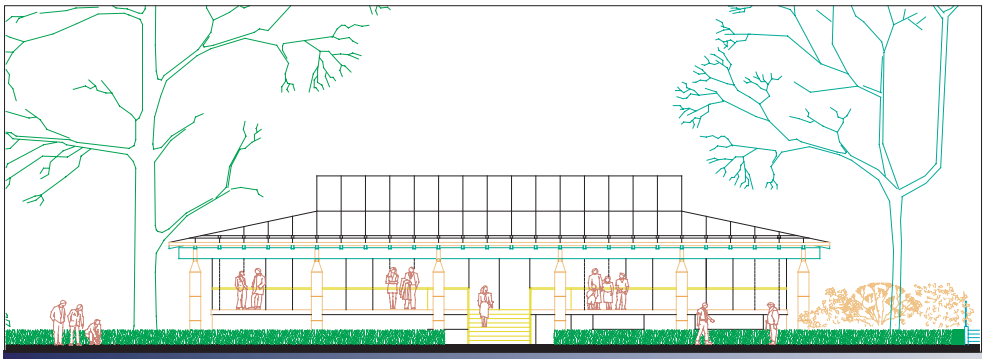
LIVERPOOL STREET STATION

FINSBURY CIRCUS

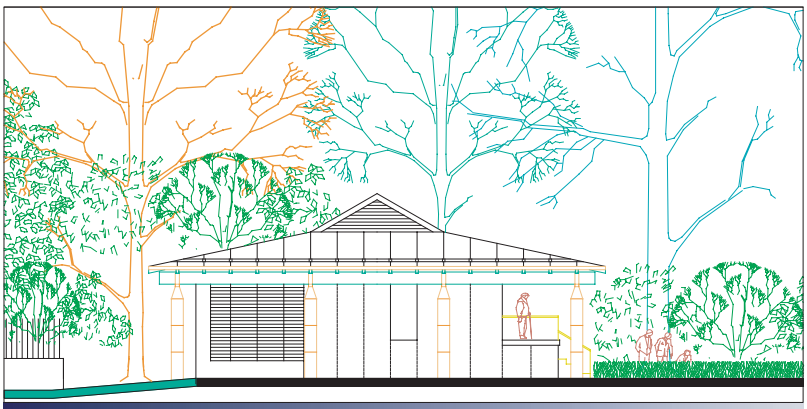
Finsbury Circus

A shaft in Finsbury Circus would be required for construction of the station. The illustration left shows how Finsbury Circus could look after reinstatement.

Existing pavilion



North Elevation



East Elevation

The illustrations above and to the left show a possible replacement pavilion.

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Crossrail

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LIVERPOOL STREET STATION

CROSSRAIL PROPOSALS

Liverpool Street Station

Liverpool Street - Station Design

Crossrail's Liverpool Street station would be located between Moorgate and Old Broad Street, serving a wide area of the City of London. With 24 eastbound Crossrail trains plus 24 westbound Crossrail trains every hour during peak times, Crossrail Liverpool Street station would significantly improve the area's transport infrastructure.

Crossrail Liverpool Street Station would provide:

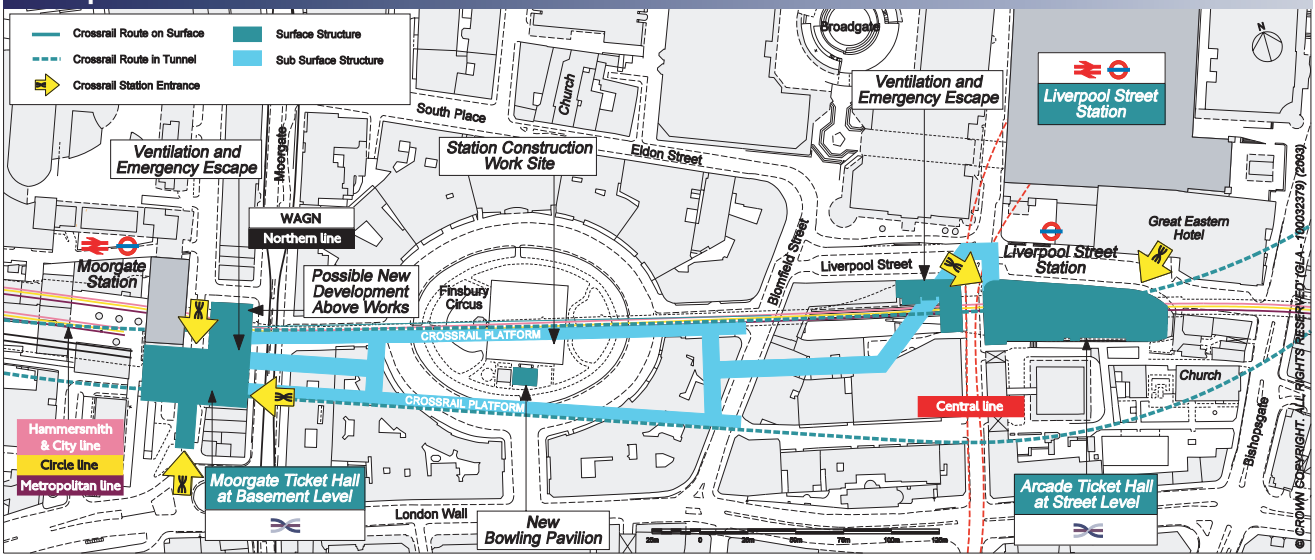
- Two new Crossrail ticket halls.
- Step free access to the Crossrail platforms.
- A Crossrail train every 2.5 minutes during peak times.
- Direct access to Central London from outer areas.
- Interchange with existing main line and underground lines.
- Direct access to Heathrow and Canary Wharf from the City.
- Major reduction in crowding to existing services.

Construction

Crossrail proposes to construct the station primarily from sites at Finsbury Circus, Moorgate and Liverpool Street station.

The proposed work sites will be the subject of future consultation and will be agreed with local authorities.

Liverpool Street Station



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LIVERPOOL STREET STATION

PROPOSED WESTERN TICKET HALL

Moorgate

View of new Crossrail entrance on Moorgate.

At the west (Moorgate) end of the Crossrail station a new basement level ticket hall would be provided adjacent to the existing London Underground Moorgate station. It would have access off a newly pedestrianised area in front of Moor House and from Moorgate. The ticket hall would be situated partially under the northern part of the block bounded by Moorfields, Moorgate and Keats Place. A single flight of escalators and a lift would provide access to the Crossrail platforms.

Moorgate

Illustration showing escalators descending to the Crossrail platforms at Moorgate.

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Crossrail

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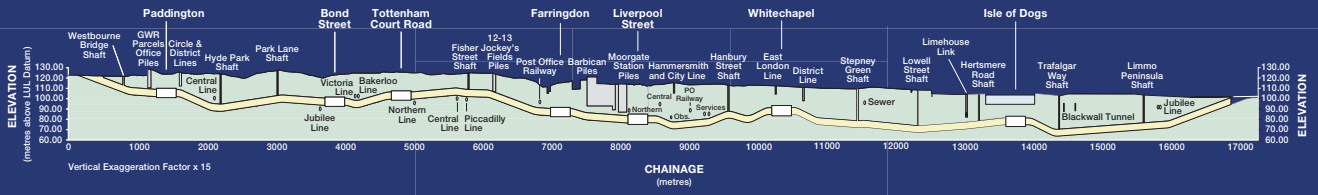
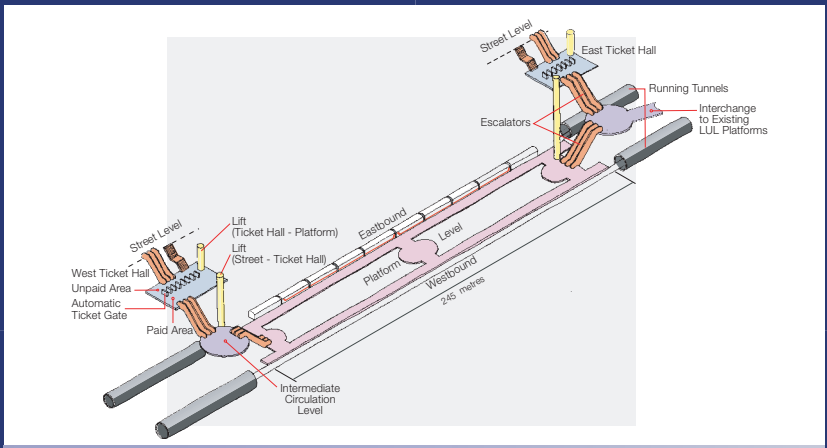
CENTRAL LONDON STATIONS

Location of Central London Stations



Proposed Tunnel Long Section - Paddington to the Isle of Dogs

This shows how Crossrail would thread its way through existing underground structures. It shows the tunnel, the location of the stations and intermediate ventilation shafts.

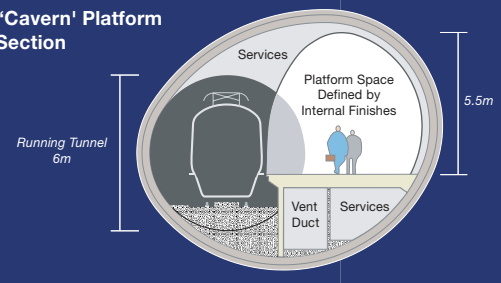


The core section of Crossrail between Paddington and Liverpool Street was part of a previous scheme in the 1990's. The designs you see here are based on the earlier project but have been reviewed to ensure they meet modern space and safety standards.

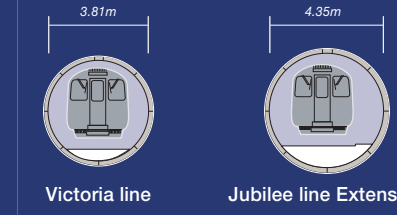
Typical Station Design

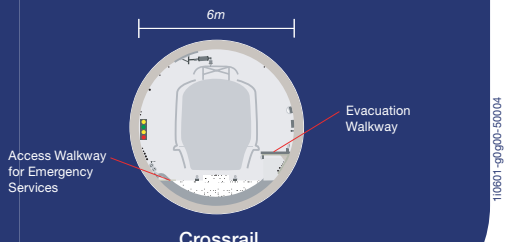
Building a new line across London allows Crossrail to design its new central area stations to be convenient and practical. This artist's impression shows a typical design, with dual access from street level, and wide, brightly lit platforms.

Typical 'Cavern' Platform Tunnel Section



Crossrail Tunnel in Comparison to Existing Underground Tunnels





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Crossrail

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LOWELL STREET SHAFT

CROSSRAIL PROPOSALS

Lowell Street Shaft

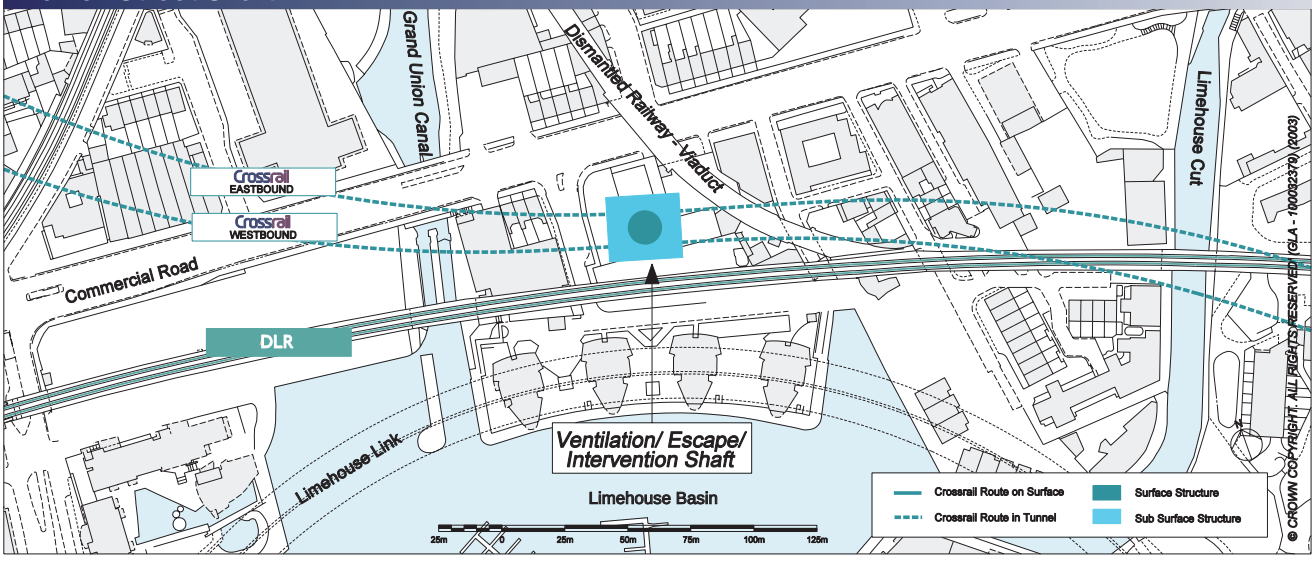
Intermediate shafts are required where there are distances of more than 1km between stations.

They serve several purposes:

- Ventilation - Fresh air is needed to keep temperatures comfortable in the tunnels and provide cooling around trains.
- Smoke Extraction - In an emergency the shafts will be used to keep the evacuation routes free from smoke.
- Emergency Access - Firefighters and emergency services will need access to the tunnels in the event of an incident.
- Emergency Evacuation - Passengers would be guided to the nearest station except in situations where they are more than 2km apart. Some shafts therefore will be designed to bring passengers to the surface.

Lowell Street shaft would be located adjacent to Limehouse Basin. The shaft would incorporate infrastructure for ventilation, intervention, and passenger evacuation.

Lowell Street Shaft



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Crossrail

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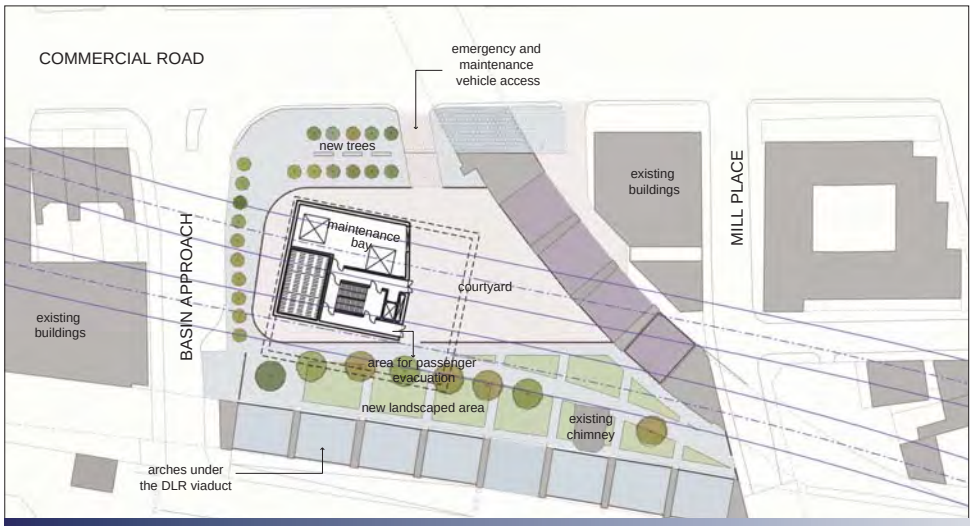
LOWELL STREET SHAFT

SHAFT DESIGN



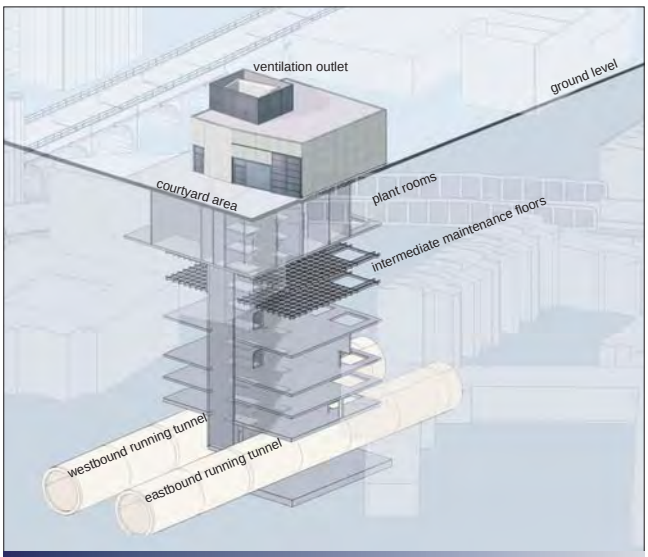
Ground Floor Plan

The shaft has been designed to provide tunnel ventilation, intervention and evacuation.
The shaft would include a courtyard for maintenance and emergency vehicles. Vehicle access would be directly off Commercial Road through a gated enclosure. Separate site access would be provided to enable evacuation from the tunnels.

Evacuees from the tunnels would be able to congregate in the courtyard or in the area bounded by the DLR viaduct to the south.

A listed chimney structure is located in the south of the site and this could form the focus of a landscaped pedestrian route connecting Basin Approach with Mill Place.

Site of Proposed Shaft



Arrangement of Building

In order to provide tunnel ventilation, the shaft building would house mechanical equipment and large below ground fans. The intake and outlet for the fans would be through a ventilation outlet at roof level. Intervention and evacuation stairs and a lift would be provided in the shaft.

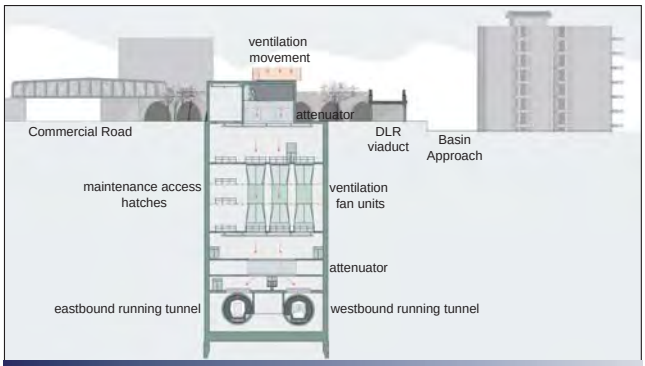


Illustration of Ventilation to Tunnels

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Crossrail

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MILE END PARK SHAFT

CROSSRAIL PROPOSALS

Mile End Park Shaft

Intermediate shafts are required where there are distances of more than 1km between stations.

They serve several purposes:

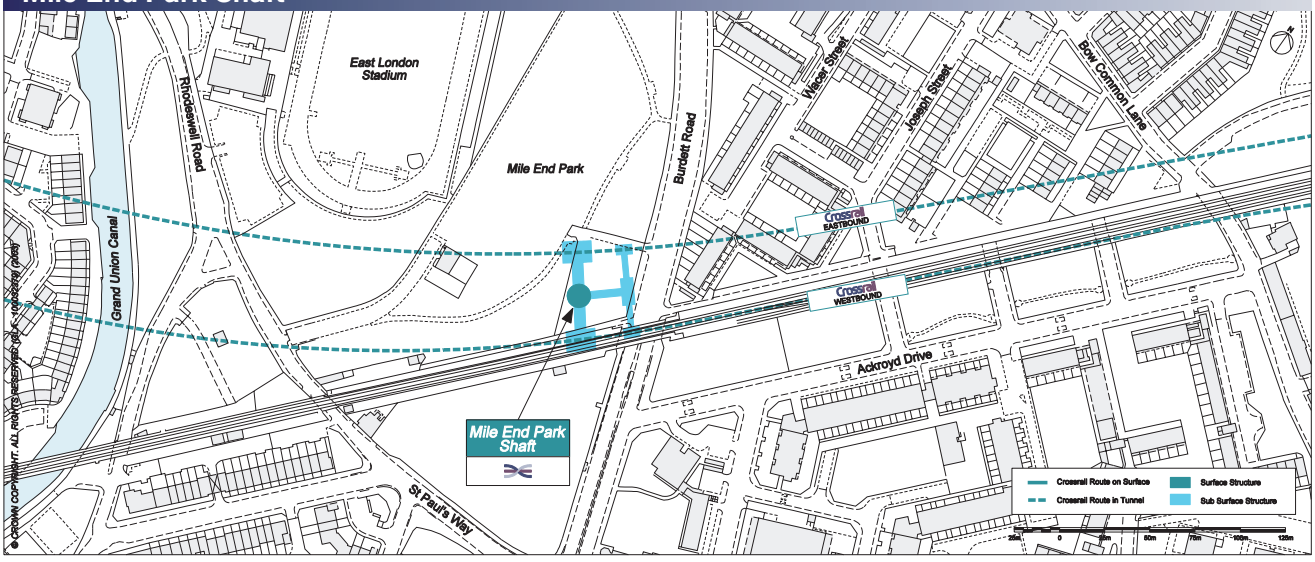
- Ventilation - Fresh air is needed to keep temperatures comfortable in the tunnels and provide cooling around trains.
- Smoke Extraction - In an emergency the shafts will be used to keep the evacuation routes free from smoke.
- Emergency Access - Firefighters and emergency services will need access to the tunnels in the event of an incident.
- Emergency Evacuation - Passengers would be guided to the nearest station except in situations where they are more than 2km apart. Some shafts therefore will be designed to bring passengers to the surface.

It is proposed that the shaft would be located within the south eastern corner of Mile End Park near the junction of Burdett Road and Ackroyd Drive.

- The shaft would be used for ventilation and emergency intervention and evacuation
- Mechanical and electrical plant rooms would be located in a basement with access to the ventilation fans through the surface structure
- Ventilation fans would be installed vertically within the shaft
- The shaft would have an evacuation lift and intervention and evacuation stairs

A temporary work site would be needed to construct the shaft.

Mile End Park Shaft



Crossrail

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PARK LANE SHAFT

CROSSRAIL PROPOSALS

Park Lane Shaft

Intermediate shafts are required where there are distances of more than 1km between stations.

They serve several purposes:

- Ventilation - Fresh air is needed to keep temperatures comfortable in the tunnels and provide cooling around trains.
- Smoke Extraction - In an emergency the shafts will be used to keep the evacuation routes free from smoke.
- Emergency Access - Firefighters and emergency services will need access to the tunnels in the event of an incident.
- Emergency Evacuation - Passengers would be guided to the nearest station except in situations where they are more than 2km apart. Some shafts therefore will be designed to bring passengers to the surface.

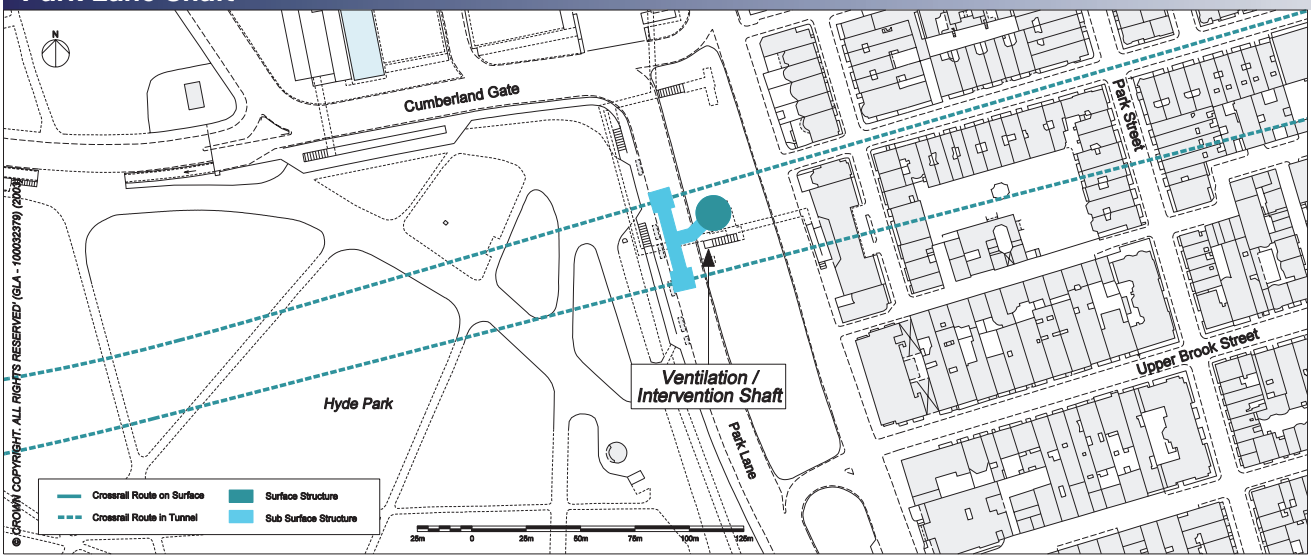
Park Lane shaft would be used for ventilation and emergency intervention.

The shaft would be located in the central reservation of Park Lane near the junction of Green Street.

Operating equipment would be concealed in basement rooms beneath the ventilation terminal. The basement is planned to avoid the mature trees which would be protected during construction.The new landscape would include an enlarged paved area, new benches and additional planting. Vehicular access for Crossrail maintenance would be via the southbound carriageway.

Worksites would be located in the central reservation.

Park Lane Shaft



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Crossrail

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PARK LANE SHAFT

PROPOSED SHAFT DESIGN

Section Through Ventilation Shaft Looking East

Ventilation Terminal - Proposed

Existing

The staircase and ventilation terminal is proposed to be clad in Portland stone to match buildings in the surrounding area. The ventilation terminal would be 7.5 metres in diameter and 2.1 metres high. It would be protected by a bronze grille and located so as not to obscure views across Park Lane and up to Marble Arch.

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Crossrail

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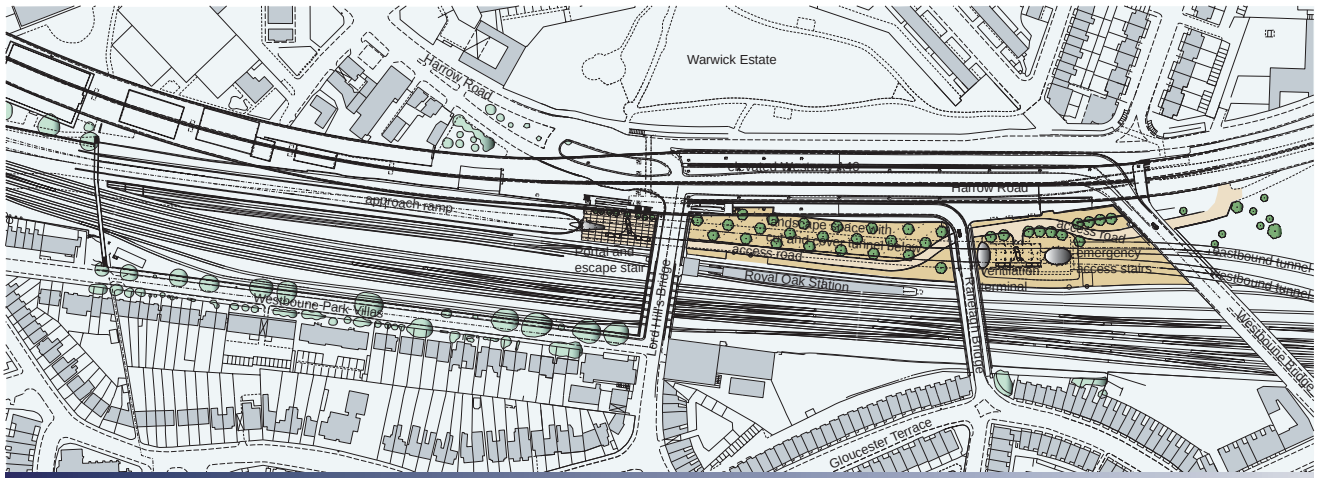
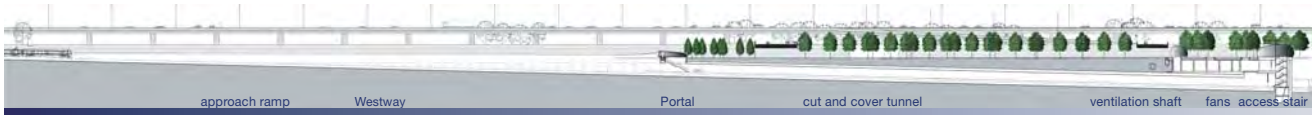
ROYAL OAK PORTAL

PROPOSED DESIGN



Site Plan



Site Section

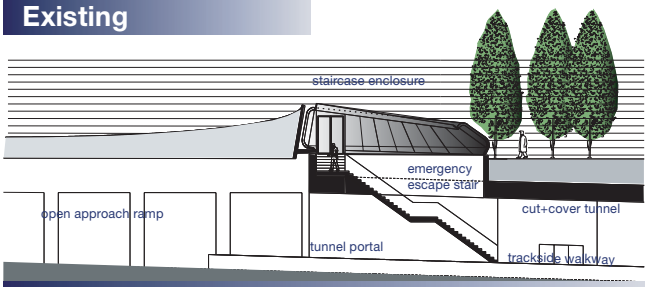
The Royal Oak / Westbourne Bridge Portal would consist of three elements:

- An open cut or ramp which would take the tracks from ground level to the tunnel portal.
- A covered way, approximately 270 metres long. This would be a shallow box-shaped cut and cover tunnel.
- A shaft at the point where tunnel boring becomes practical. This would be used as a working shaft during construction of the running tunnels. When construction is complete the shaft would be fitted out as a ventilation shaft to ventilate and provide emergency access to the tunnels between the portal and Paddington Station.

Proposed

Existing

The approach ramp down to the tunnel portal where an escape stair would be incorporated in the structure.



Escape Stair at Portal

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Crossrail

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ROYAL OAK PORTAL AND WESTBOURNE BRIDGE SHAFT

CROSSRAIL PROPOSALS

Royal Oak Portal and Westbourne Bridge Shaft

Intermediate shafts are required where there are distances of more than 1km between stations.

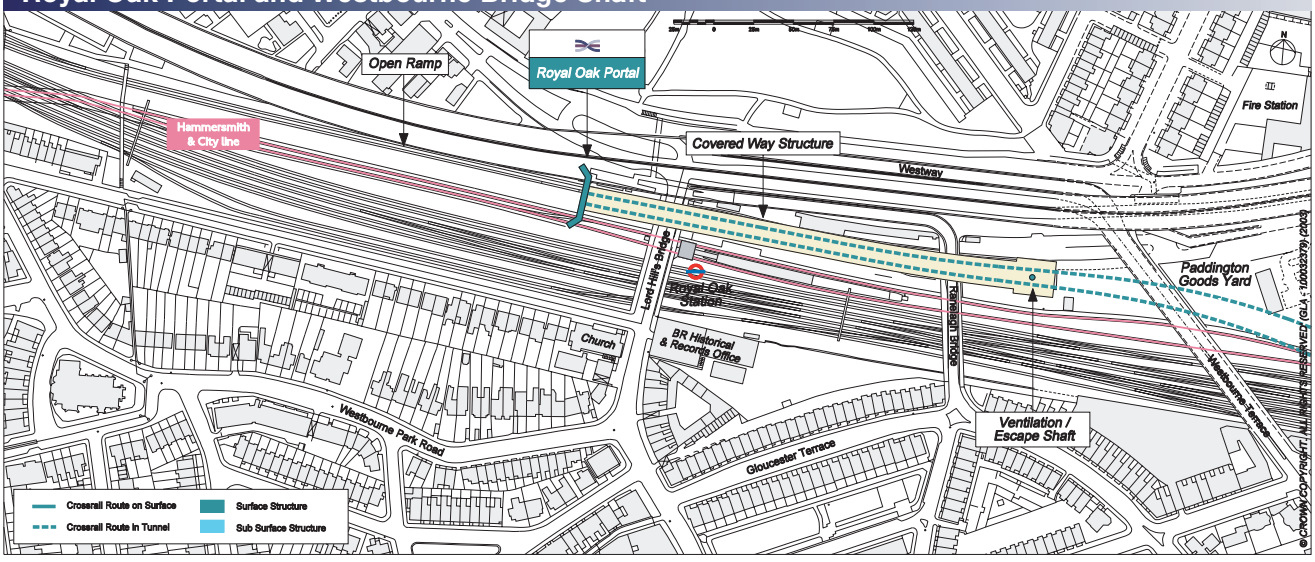
They serve several purposes:

- Ventilation - Fresh air is needed to keep temperatures comfortable in the tunnels and provide cooling around trains.
- Smoke Extraction - In an emergency the shafts will be used to keep the evacuation routes free from smoke.
- Emergency Access - Firefighters and emergency services will need access to the tunnels in the event of an incident.
- Emergency Evacuation - Passengers would be guided to the nearest station except in situations where they are more than 2km apart. Some shafts therefore will be designed to bring passengers to the surface.

Crossrail's tunnels through central London would surface near Royal Oak. The tracks would rise to join existing tracks at ground level before continuing west.

A temporary worksite is proposed, wholly within the existing railway corridor. It would be enclosed by hoardings and safety barriers during the construction period. New rail sidings from here to the temporary working shaft would allow tunnel linings to be delivered by rail, rather than road.

Royal Oak Portal and Westbourne Bridge Shaft



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Crossrail

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STEPNEY GREEN SHAFTS

CROSSRAIL PROPOSALS

Stepney Green Shafts

Intermediate shafts are required where there are distances of more than 1km between stations.

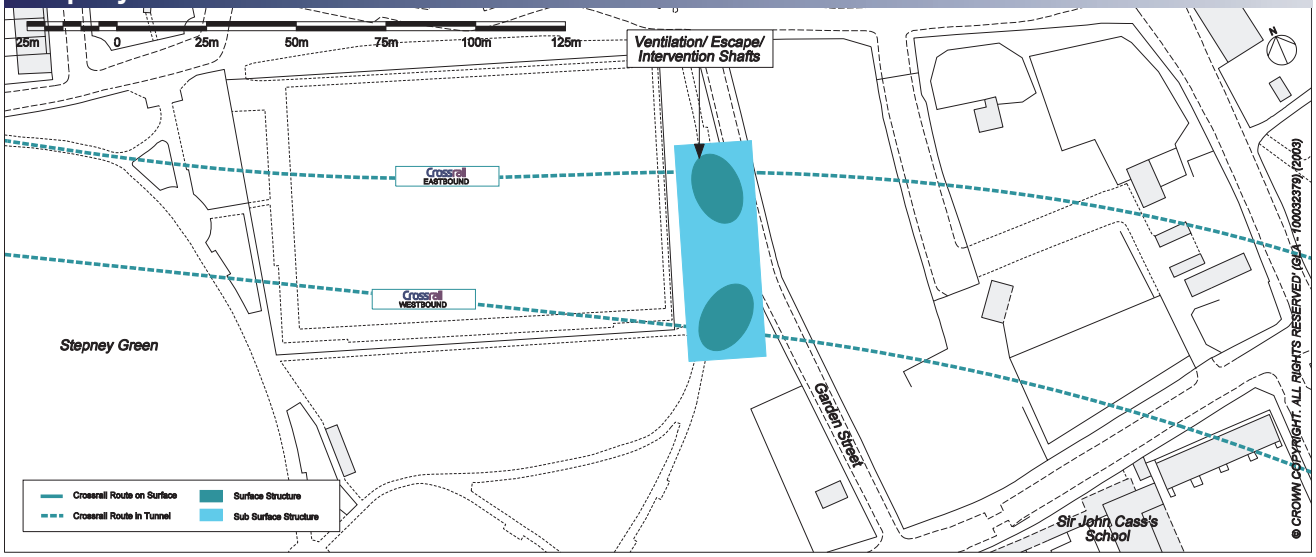
They serve several purposes:

- Ventilation - Fresh air is needed to keep temperatures comfortable in the tunnels and provide cooling around trains.
- Smoke Extraction - In an emergency the shafts will be used to keep the evacuation routes free from smoke.
- Emergency Access - Firefighters and emergency services will need access to the tunnels in the event of an incident.
- Emergency Evacuation - Passengers would be guided to the nearest station except in situations where they are more than 2km apart. Some shafts therefore will be designed to bring passengers to the surface.

Crossrail's proposed routes to Shenfield and Ebbsfleet would divide underground in the area of Stepney Green. A ventilation shaft would be required for each branch.

These shafts are proposed to also be used temporarily as construction shafts to enable the junction to be built.

Stepney Green Shafts



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Crossrail

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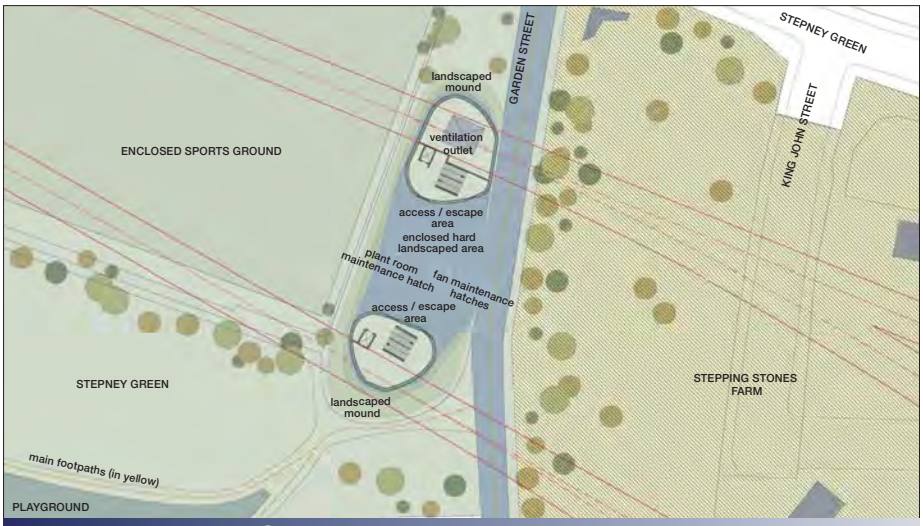
STEPNEY GREEN SHAFTS

PROPOSED SHAFT DESIGN



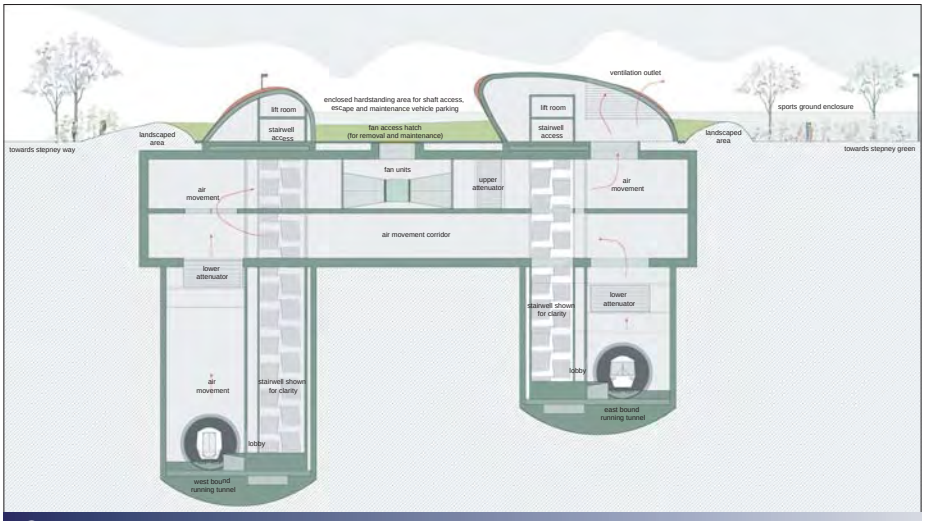
Plan of Proposed Shafts

The proposed location for the ventilation shafts would be a strip of park between the existing Astroturf pitch and Garden Street. The narrow site would be away from the major open spaces of the park and partly concealed by existing mesh fencing. Garden Street would be closed to traffic and could become a new pedestrian route for the park. Nearby paths would be replanned around the site.

The ventilation shafts would provide emergency access and ventilation to the Crossrail tunnels. The ventilation equipment would be located in two shafts connected by a rectangular underground box structure.

Existing

Proposed



Section Looking West

Each shaft would contain a staircase and some of the fan equipment and be located between each pair of Crossrail tunnels.

The basement, shown left, would house fans which would push air into the tunnels or extract as required.

The basement would also hold noise reducing attenuators, mechanical and electrical equipment for the operation of the fans.

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Crossrail

Crossing the Capital, Connecting the UK

TOTTENHAM COURT ROAD STATION

CROSSRAIL PROPOSALS

Tottenham Court Road Station

Tottenham Court Road - Station Design

Crossrail's Tottenham Court Road station would be located south of Oxford Street, between Dean Street and Charing Cross Road. Two basement level ticket halls would be provided serving a wide area of Oxford Street and Soho.

With 24 Crossrail trains in each direction every hour at peak times, Crossrail Tottenham Court Road station would significantly improve the area's transport infrastructure, help to relieve overcrowding and enable new development.

Crossrail Tottenham Court Road Station would provide:

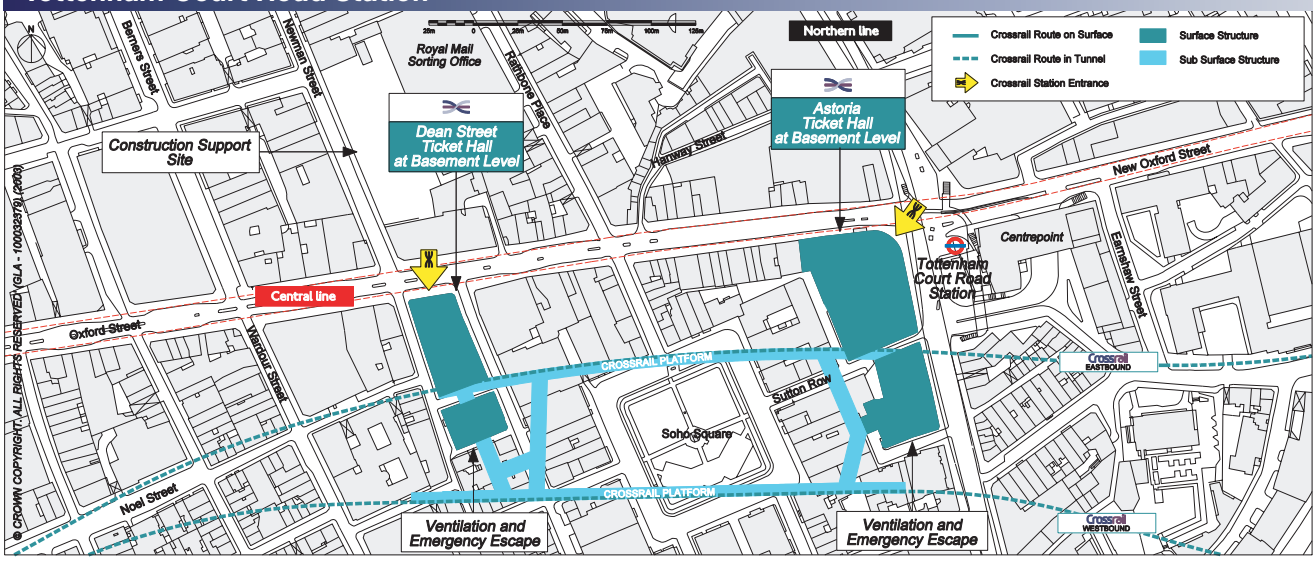
- Two new Crossrail ticket halls.
- Step free access to the Crossrail platforms.
- A Crossrail train every 2.5 minutes during peak times.
- Direct access to Central London from outer areas.
- Interchange with existing Northern and Central underground lines.
- New direct journey opportunities to Heathrow, the City and London Docklands.

Construction

Crossrail proposes to construct the station primarily from sites at Charing Cross Road and Dean Street.

The proposed work sites will be the subject of future consultation and will be agreed with local authorities.

Tottenham Court Road Station



Crossrail

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TOTTENHAM COURT ROAD STATION

PROPOSED TICKET HALLS

Dean Street Ticket Hall

Dean Street Ticket Hall
The western ticket hall would have an entrance from the south side of Oxford Street, and would be located in the block between Great Chapel Street and Dean Street.

A secondary site at Fareham Street would be used to construct ventilation and emergency access facilities.

We are discussing our proposals with London Underground who have separate proposals for a major upgrade of the existing London Underground station.

A second entrance may also be provided in the Centre Point Piazza.

Lifts would be provided from the Crossrail platforms and may also be provided from the eastern ticket hall to the London Underground Central and Northern Line platforms. Interchange between the existing London Underground Northern and Central Lines would be unchanged. Provision would be made for future integration of Crossrail line 2.

A secondary site at Goslett Yard would be used to construct underground circulation areas, ventilation and emergency access facilities.

Potential new commercial buildings could be built above the ticket halls.

Tottenham Court Road Ticket Hall
The eastern ticket hall would be located in the block bounded by Oxford Street, Charing Cross Road, Sutton Row and Falconberg Mews, and would incorporate the site of the Astoria Theatre. This ticket hall would serve the Crossrail platforms and be designed to also replace the existing London Underground ticket hall. The main entrance would be on the southwest corner of the junction of Oxford Street and Charing Cross Road. Crossrail will continue to consult with Westminster City Council and others regarding possible development above the ticket hall.

Tottenham Court Road Ticket Hall

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Crossrail

Crossing the Capital, Connecting the UK

WESTBOURNE BRIDGE SHAFT

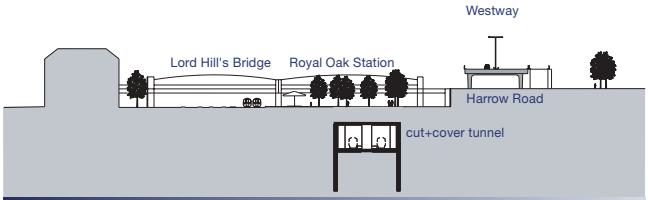
PROPOSED DESIGN

Proposed

Royal Oak Station and cut and cover tunnels

Existing

Crossrail's shallow cut and cover tunnels would occupy the space between Lord Hills Bridge and Ranelagh Bridge north of Royal Oak Station. An access road to the escape stair at the tunnel portal would provide access to this space. Following completion of work the area would be landscaped.



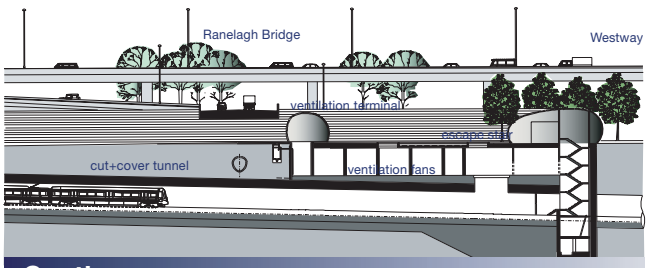
General Cross Section

Proposed

Possible staircase and ventilation terminal enclosures

Existing

The surface structures associated with the ventilation terminal and the emergency access stairs would be constructed in the area between Ranelagh Bridge and Westbourne Bridge and would be accessed from Harrow Road under Westbourne Bridge.
The proposed lightweight metal buildings are designed as eye catching sculptural objects to be seen from passing trains on the approach to Paddington Station and from the overlooking properties to the south.



Section

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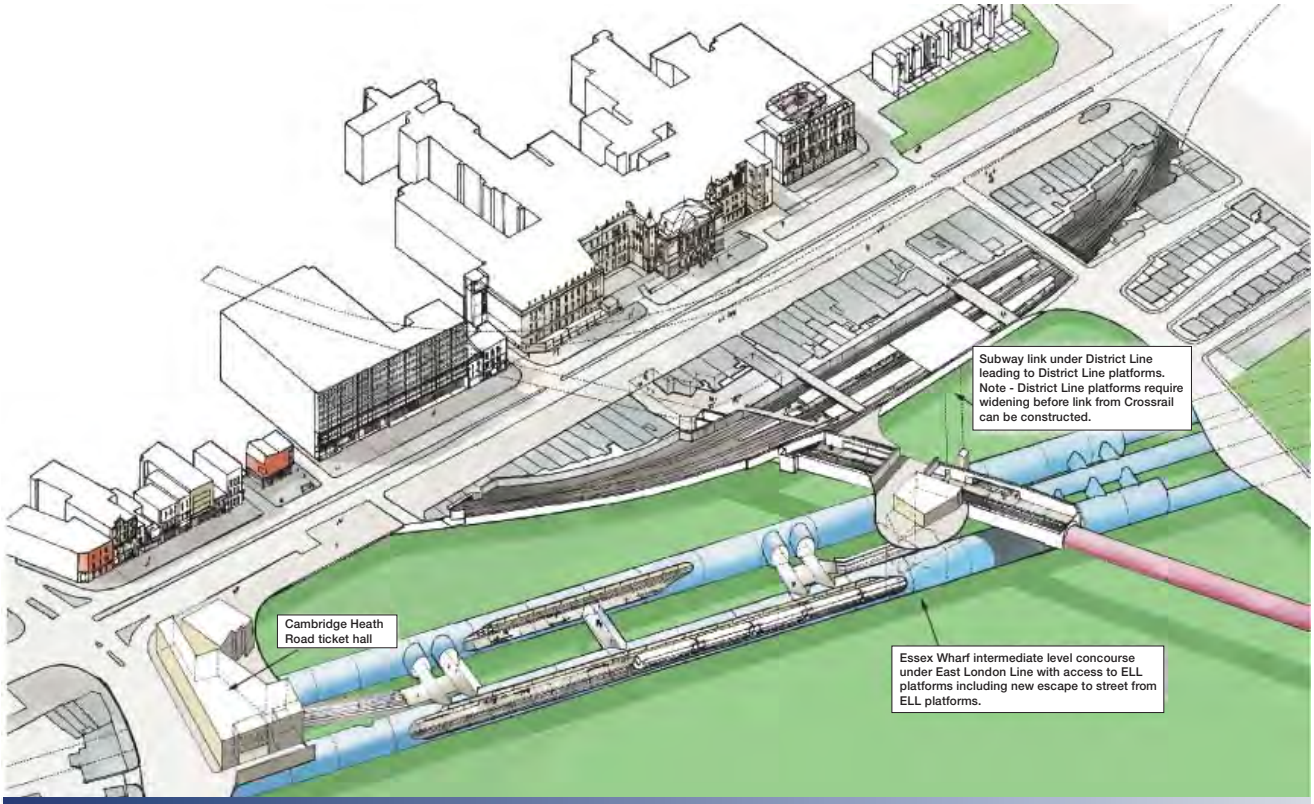
Crossrail

Crossing the Capital, Connecting the UK

WHITECHAPEL STATION

PROPOSED LINKS



Whitechapel

The above cut-away drawing shows the location of the Crossrail Whitechapel ticket hall, looking south. The proposed Crossrail ticket hall at Cambridge Heath Road is to the left.

Vallance Road Gardens

A ventilation shaft for the station would be located at Vallance Road. Above ground level, the precise form and location of this shaft is to be finalised. However, it is likely to be either within Vallance Road Gardens or in a new building on the west side of Vallance Road, opposite the Gardens. An emergency escape facility for the Crossrail station and East London Line would be constructed at Essex Wharf.

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Crossing the Capital, Connecting the UK

WHITECHAPEL STATION

CROSSRAIL PROPOSALS

Whitechapel Station

Whitechapel - Station Design

Crossrail Whitechapel station would be situated between Vallance Road and Cambridge Heath Road serving the Whitechapel area, and would have a new ticket hall at Cambridge Heath Road. The ticket hall would be at street level and would include part of the south-west corner of Sainsbury's car park. Once the proposed reorganisation of the District Line tracks has been completed by London Underground, it is anticipated a connection to the existing ticket hall and platforms would be provided.

With 24 Crossrail trains in each direction every hour during peak times, Crossrail Whitechapel station would significantly improve the area's transport infrastructure.

Crossrail Whitechapel Station would provide:

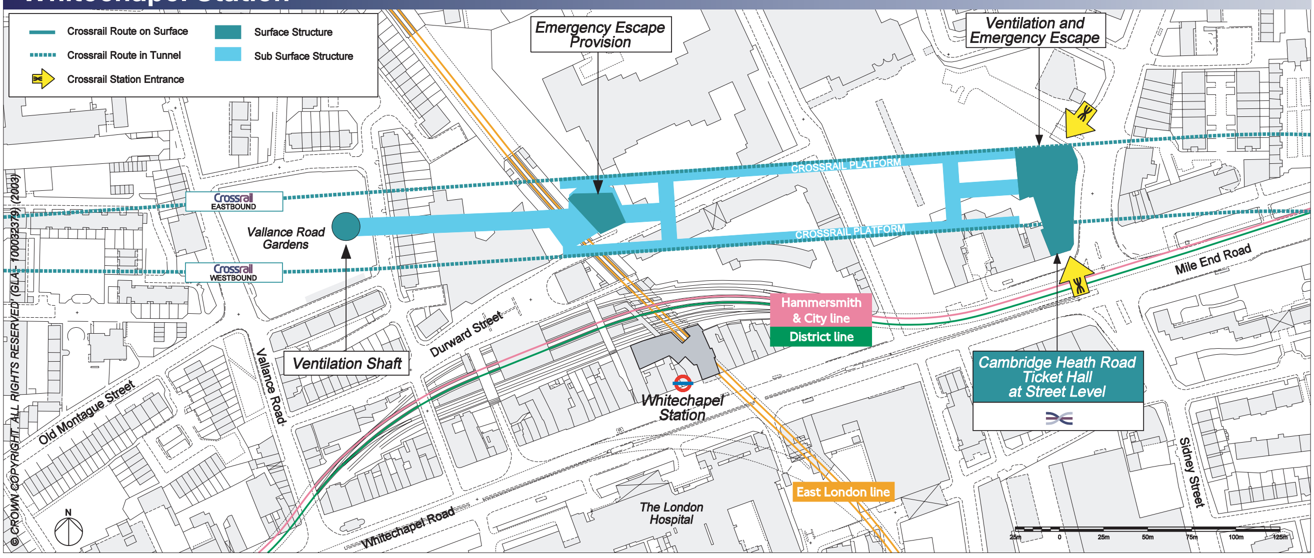
- New direct journey opportunities.
- Step free access to the Crossrail platforms.
- A Crossrail train every 2.5 minutes during peak times.
- Substantial new transport capacity and congestion relief to east-west routes.
- Interchange with existing Hammersmith and City, District and East London lines (subject to completion of proposed London Underground works).

Construction

Crossrail proposes to construct the station primarily from sites at Vallance Road Gardens, Sainsbury's Cambridge Heath Road car park and Essex Wharf.

The proposed work sites will be the subject of future consultation and will be agreed with local authorities.

Whitechapel Station



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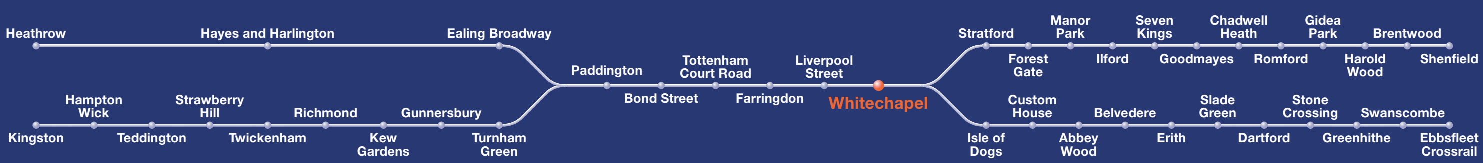
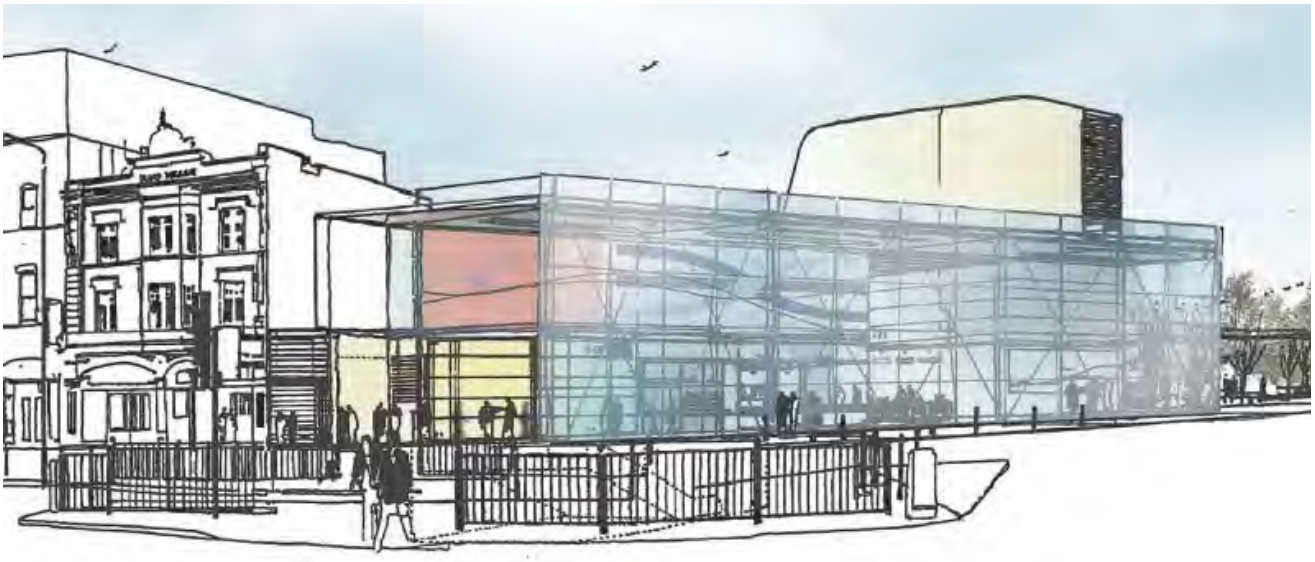


Crossrail

Crossing the Capital, Connecting the UK

WHITECHAPEL STATION

PROPOSED TICKET HALL



Station Design

The artist's impression above shows the Crossrail ticket hall at Cambridge Heath Road viewed from the south east. It shows a street level ticket hall two storeys high. The Blind Beggar pub is to the left.

Access to the Crossrail platforms from the Cambridge Heath Road ticket hall would be provided using a single flight of escalators and lifts.

Station Design

Illustration showing the entrance to the Crossrail station, with its glazed façade giving good views into and out of the station. Escalators and a lift will give direct access to the Crossrail platforms below.

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