**TRANSPORT AND WORKS ACT 1992**

**TOWN AND COUNTRY PLANNING ACT 1990**

**PLANNING (LISTED BUILDINGS AND CONSERVATION AREAS) ACT 1990**

**LONDON UNDERGROUND (BANK STATION CAPACITY UPGRADE) ORDER 201[X]**

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# STATEMENT OF CASE

**OF**

**LONDON UNDERGROUND LIMITED**

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**DOCUMENT CD/F1**

**5 January 2015**

## Contents

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## GLOSSARY

| Abbreviation/Term | Definition |
|---|---|
| % | Per cent |
| Aquifer | A below ground, water-bearing layer of soil or rock. |
| BCR | Benefit cost ratio |
| BSCU | Bank Station Capacity Upgrade |
| Bank Station | The Bank Monument Station Complex is an amalgamation of London Underground stations containing:<br>- six lines - District, Circle, Waterloo & City, Central, Northern Lines and the DLR;<br>- five sets of platforms – District & Circle, Waterloo & City, Central, Northern Lines and the DLR terminus;<br>- three existing ticket halls – Central Line (under Bank Junction), Northern Line (under Lombard Street) and Monument (under Monument Junction) as well as the Bloomberg entrance currently under construction for the Waterloo & City Line; and<br>- 15 entrance/exits. |
| CAZ | Central Activities Zone |
| CCTV | Closed Circuit Television |
| CEEQUAL | The Civil Engineering Environmental Quality and Assessment Scheme |
| Central Line link | A new tunnelled passageway from the Northern Line concourse with its moving walkways approximately 95m long |
| CLP | Construction Logistics Plan |
| CoCP | Code of Construction Practice |
| CP | Cross passage: This will usually be followed by a number which identifies its location i.e. CP1 |
| DAS | Design and Access Statement. Document explaining the design rationale underpinning the proposed locations, layouts and design for the project. |
| dB | Decibel. The ratio of sound pressures, which we can hear, is a ratio of 106 (one million: one). For convenience, therefore, a logarithmic measurement scale is used. The resulting parameter is called the ‘sound pressure level’ (Lp) and the associated measurement un~ is the decibel (dB). As the decibel is a logarithmic ratio, the laws of logarithmic addition and subtraction apply |
| DfT | Department for Transport |
| DLR | Docklands Light Railway |
| EIA | Environmental Impact Assessment. A technique for ensuring that the likely effects of new development on the environment are fully understood and taken into account before the development is allowed to go ahead. It provides a focus for public scrutiny of the project and enables the importance of the predicted effects, and the scope for modifying or mitigating them, to be properly evaluated by |

| Abbreviation/Term | Definition |
|---|---|
| | the decision-making authority. |
| EqIA | Equalities Impact Assessment |
| ES | Environmental Statement. The outcome of the Environmental Impact Assessment presented in a formal document or documents in accordance with EC Directive 85/337 (as amended). Includes such information that is reasonably required to assess the environmental effects of a development. |
| Faculty Licence | A licence to carry out works to church buildings, their contents and churchyards. |
| GDP | Gross domestic product |
| GLA | Greater London Authority |
| HIA | Health Impact Assessment |
| LAFmax | Maximum value that the A-weighted averaged sound pressure level reached during a measurement period. LAFmax, or Fast, indicates that the sound pressure level is averaged in 0.125 second slices. |
| LUL | London Underground Limited |
| m | metre(s) |
| $m^2$ | Square metre(s) |
| MTS | Mayor's Transport Strategy |
| NLU | Northern Line Upgrade |
| NPPF | National Planning Policy Framework |
| NPS | National Policy Statement |
| OSD | Over Site Development |
| The City | City of London. It is both a city and ceremonial county within Greater London and also colloquially known as the Square Mile, as it is 1.12 sq mi (2.90 km2). |
| tph | trains per hour |
| TfL | Transport for London |
| S106 | Section 106 of the Town and Country Planning Act 1990 (as amended) |
| UK | United Kingdom |
| WEI | Wider Economic Impacts |
| Whole Block Site | Site bounded by King William Street, Nicholas Lane, Cannon Street and Abchurch Lane (The term Cannon Street Site is used within the consultation and some other application documents). |

# 1. INTRODUCTION

## 1.1 Foreword

1.1.1 On 9 September 2014, London Underground Limited (LUL) applied to the Secretary of State for Transport for an Order (the London Underground (Bank Station Capacity Upgrade) Order 201[X] **[CD/A1** and **CD/A2]**) made under the Transport and Works Act 1992 **[CD/E2]** for powers to construct, operate and maintain the Bank Station Capacity Upgrade (BSCU). In this Statement of Case this is hereafter referred to as the "BSCU Order application".

1.1.2 The BSCU involves a major upgrade of the Bank Monument Station Complex (Bank Station) to provide greatly improved passenger access, circulation and interchange and improved emergency fire and evacuation protection measures. Appendix 3, Figures 6 and 9 show the BSCU.

1.1.3 A seven week formal consultation period ran from 9 September to 21 October 2014. At the time of printing 37 objections, six representations and eight letters in support have been received in response to the BSCU Order application. One objection has subsequently been withdrawn.

1.1.4 On 18 November 2014, the Secretary of State for Transport announced that there would be a public inquiry into objections to the BSCU Order application. This will include the seven applications **[CD/A25-CD/A31]** made by LUL for listed building consent under the Planning (Listed Buildings and Conservation Areas) Act 1990 **[CD/E4]** which have been referred to the Secretary of State for Transport. One letter of no objection to the listed building consent applications **[CD/A25-CD/A31]** has been received. In addition, one objection to the BSCU Order application also objects to the listed building consent application at 1 King William Street **[CD/A28]**.

1.1.5 The Transport and Works Inquiries Procedure Rules **[CD/E10]** require LUL to provide a Statement of Case by 5 January 2015. This document is LUL's Statement of Case **[CD/F1]** under Rule 7 of the Transport and Works Inquiries Procedure Rules **[CD/E10]** and sets out the particulars of the case that LUL intends to make in support of all of its applications set out above at the public inquiry.

1.1.6 Appendix 1 is a list of those documents which LUL currently intends to refer to or put in evidence at the Inquiry. These documents are available for inspection at the locations and times set out in Appendix 2 from 5 January 2015 until the start of the public inquiry.

1.1.7 In this Statement of Case references to documents included in the list in Appendix 1 are in bold, e.g. **[CD/A1]** is a reference to document CD/A1, The Transport and Works Acts Order Application.

### 1.2 Structure of this document

1.2.1 This Statement of Case has 13 chapters as summarised below:

i. Chapter 2 – Other consents applied for by LUL.

ii. Chapter 3 – The need for the BSCU, its aims and the context of the project.

iii. Chapter 4 – National, London and local policy support for the scheme.

iv. Chapter 5 – Scheme development and consideration of alternatives at alignment and scheme design level.

v. Chapter 6 – The description of the scheme and its construction.

vi. Chapter 7 – Environmental issues.

vii. Chapter 8 – Consultation undertaken, on BSCU principle, alignment and design.

viii. Chapter 9 – Costs and Funding.

ix. Chapter 10 – Economic and social benefits of the scheme.

x. Chapter 11 – Land and property required for the BSCU.

xi. Chapter 12 – Objections, representations and letters of support or no objection received.

xii. Chapter 13 – Conclusions.

1.2.2 Appendices are included at the end of this Statement of Case.

### 1.3 The Applicant

1.3.1 LUL is the promoter of the application for the BSCU Order under section 1 of the Transport and Works Act 1992 **[CD/E2]**. LUL is a company incorporated under the Companies Act with limited liability and since 15 July 2003 is a wholly owned subsidiary of Transport for London ("TfL"). TfL is a statutory body created by the Greater London Authority Act 1999 and is an executive arm of the Greater London Authority ("GLA"). It is the body responsible for the Capital's transport system.

1.3.2 TfL's role is to implement the Mayor of London's Transport Strategy **[CD/C8]** for London and to manage the transport services across the capital for which

the Mayor has ultimate responsibility. TfL is accountable for both the planning and the delivery of transport facilities and the promotion of the BSCU Order is consistent with this duty.

### 1.4 The Proposed Scheme

1.4.1 The BSCU includes works to provide a new passenger entrance opening on to Cannon Street at the junction with Nicholas Lane with lifts and escalator connections; a new Northern Line passenger concourse using the existing southbound platform tunnel; a new Northern Line southbound running and platform tunnel; and new internal passenger connections between the Northern Line, the Docklands Light Railway (DLR) and the Central Line.

1.4.2 Works to divert and protect utilities and to protect listed and other buildings from ground settlement as a result of construction will also be undertaken where monitoring and/or damage analysis indicates this is required. The compulsory purchase and temporary use of land, the temporary stopping up of streets, street works and ancillary works will also be required.

1.4.3 It is expected that the BSCU will be constructed during the period 2016-2021. Further description of the BSCU and its construction is provided in Chapter 6.

1.4.4 An environmental impact assessment (EIA) of the BSCU has been undertaken and this assessment is set out in the Environmental Statement **[CD/A16]** and supporting figures **[CD/A17]** and appendices **[CD/A18-CD/A22]**. This was submitted as part of LUL's BSCU Order application on 9 September 2014.

### 1.5 Proposed modifications to the BSCU since application submission

1.5.1 A number of modifications are proposed either as a result of advanced works being permitted through alternative consents or project refinement.

1.5.2 There is no longer a requirement to undertake works to provide alternative access for fire service vehicles when Arthur Street is closed. Works to remove bollards at the junction of Suffolk Lane with Upper Thames Street and remove and relocate motorcycle parking at this location to allow fire service vehicles to access Cannon Street via Suffolk Lane and Bush Lane have already been undertaken under an agreement with the City of London Corporation in accordance with Section 8 of the Highways Act 1980.

1.5.3 As a result of further engineering design work there is no longer a requirement for a construction shaft on Walbrook for the purposes of accessing the Low Level 2 Sewer to undertake the protective works. Access will be secured through the Whole Block Site and an existing access point on Walbrook.

1.5.4 In response to a representation from the City of London Corporation, it is proposed that the provision in the draft BSCU Order **[CD/A2]** which allows for the disapplication of the London Permit Scheme is removed. In addition, a separate Traffic Order under Section 6 of the Road Traffic Regulation Act 1984 is proposed by TfL to vary the vehicle weight restriction. The Traffic Order is currently being consulted upon and, subject to consultation responses, the Order is anticipated to come into force in January 2015.The traffic regulation provision set out in Part 6 of Schedule 9 to the draft BSCU Order **[CD/A2]**, which provides for the suspension of the 18 tonne vehicle weight restriction on the northbound carriageway of King William Street at Monument Junction, would not need to be exercised subject to the Traffic Order coming into force.

## 1.6 The Aims and Objectives of the BSCU

1.6.1 The Statement of Aims **[CD/A4]** sets out the objectives of the scheme and these are elaborated in the Supporting Statement **[CD/A11]**.

1.6.2 The overarching aim of the BSCU project is to ensure that TfL continues to provide a fit-for-purpose public transport station complex to support the City of London. It shall do this by:

i. increasing the capacity of Bank Station so that it is able to handle present and forecast demand, and thereby support the economic growth of the City;

ii. minimising passenger journey time through the station, and thereby reduce crowding;

iii. improving the quality of access, interchange and ambience, including the provision of step-free access routes from street level to Northern Line trains and providing step-free interchange between Northern Line and DLR trains; and

iv. improving emergency fire and evacuation protection measures.

**1.6.3** In addition, the BSCU project supports planned network upgrades, in particular for the Northern Line, as set out by the Mayor's Transport Strategy (2010) **[CD/C8]** and TfL's *Fit for the Future: Our plan for modernising London Underground, London Overground, Trams and the DLR* **[CD/D35]**. Further increases in train service on the Northern Line will be implemented following the completion of the BSCU.

## 2. OTHER CONSENTS APPLIED FOR BY LUL

### 2.1 Overview

2.1.1 The BSCU Order application, submitted to the Secretary of State for Transport on 9 September 2014, requests powers for LUL to construct, operate and maintain works at Bank Station in the City of London for the purposes of creating additional passenger access, circulation and interchange capacity and improving emergency, fire and evacuation protection measures currently in place.

2.1.2 The draft BSCU Order **[CD/A2]** seeks authorisation to construct:

i. a new Northern Line southbound running and platform tunnel to the west of the existing Northern Line platform and the conversion of the existing southbound platform for the Northern Line into a new passenger concourse;

ii. four new cross passages from the proposed new southbound platform to the existing Northern Line southbound platform (which will become the new passenger concourse);

iii. new walkways and escalators to improve passenger access between the Northern line, Central Line and DLR;

iv. two new passenger lifts to link the new Station Entrance Hall directly with the Northern Line, one of which will also continue down to the DLR providing step-free access to, from and between these lines and the street; and

v. a new Station Entrance which will open on to Cannon Street at the junction with Nicholas Lane and entrance hall providing circulation space, staff facilities and associated retail space together with a bank of escalators down to the new Northern Line passenger concourse.

2.1.3 The draft BSCU Order **[CD/A2]** also proposes the authorisation of works to protect and divert utility apparatus; mitigate the effects of construction on land and property including listed buildings; and the carrying out of monitoring and investigatory surveys of land and property. Powers to compulsorily purchase and temporarily use land and property, stop up streets, undertake street works and undertake ancillary works are also sought.

2.1.4 Other applications for consent required for the BSCU were made by LUL before, at the time of, and after the submission of the BSCU Order application and these are detailed in the following sections.

## 2.2 Deemed Planning Permission

2.2.1 Alongside the submission of the BSCU Order application, on 9 September 2014 a request for a direction **[CD/A10]** was made to the Secretary of State for Transport, under section 90(2A) of the Town and Country Planning Act 1990 **[CD/E1]**, that planning permission, so far as it is required, shall be deemed to be granted for the development proposed to be authorised by the BSCU Order **[CD/A2]**.

## 2.3 Listed Building Consents

2.3.1 On 9 September 2014, LUL submitted seven listed building consent applications **[CD/A25-CD/A31]** to the City of London Corporation pursuant to the Planning (Listed Buildings and Conservation Areas) Act 1990 **[CD/E4]**, the Planning (Listed Buildings and Conservation Areas) Regulations 1990 **[CD/E11]**, and the Transport and Works Application (Listed Buildings, Conservation Areas and Ancient Monuments Procedure) Regulations 1992 **[CD/E12]** (all as amended). The City of London Corporation has subsequently referred them to the Secretary of State for Transport pursuant to regulation 3(4) of the Planning (Listed Buildings and Conservation Areas) Regulations 1990 **[CD/E11]** and section 12 (3A) of the Planning (Listed Buildings and Conservation Areas) Act 1990 **[CD/E4]** as inserted by section 17 of the Transport and Works Act 1992 **[CD/E2]**.

2.3.2 The works applied for are for the purposes of undertaking protective works to minimise the potential effects of the construction of the works applied for in the BSCU Order on listed buildings. The applications submitted were:

i. An application for listed building consent in respect of Mansion House at Mansion House Street for works comprising the adjustment and enhancement of existing internal structural ties; temporary removal for specialist repair/conservation of a section of stained glass from the eastern window of the Egyptian Hall and installation of a temporary replica panel; and consolidation of vulnerable decorative plaster in the principal and second floor reception rooms in the north and central areas of the building **[CD/A25]**.

ii. An application for listed building consent in respect of 1-6 Lombard Street, for works comprising the consolidation of decorative plaster to the ceiling/dome within the ground floor restaurant and the temporary strengthening of the cantilevered stair through the use of fixed props **[CD/A27]**.

iii. An application for listed building consent in respect of 5 King William Street for works comprising the adjustment of existing internal façade

fixings and insertion of additional ties and brackets to the Sherborne Lane elevation **[CD/A29]**.

iv. An application for listed building consent in respect of 1 King William Street for works comprising the adjustment of the existing internal façade fixings and insertion of additional ties and brackets to the Sherborne Lane elevation **[CD/A28]**.

v. An application for listed building consent in respect of 1 Princes Street for works comprising the strengthening of fixings to statuary at attic level on the south-eastern corner elevation, including the temporary removal of the statues to safe storage **[CD/A26]**.

vi. An application for listed building consent in respect of 15 Abchurch Lane for works comprising the consolidation and repair of existing cracked stonework and brickwork on the Abchurch Lane elevation **[CD/A30]**.

vii. An application for listed building consent in respect of 29 Martin Lane for works comprising the provision of temporary external bracing to the bay window at basement to first floor on southern elevation to be fixed to the main elevation, and insertion of internal ties and brackets **[CD/A31]**.

2.3.3 No changes have been made to the abovementioned applications since their submission.

### 2.4 Faculty Application

2.4.1 An application for a Faculty Licence under the Faculty Jurisdiction Rules 2013 **[CD/E5]** in respect of St Mary Abchurch is currently being prepared. This will be made to the Diocese of London. It is expected that the application will include works comprising the strengthening of the roof structure of the dome by the addition of cleets and ties; consolidating the painted plaster finish of the dome; temporary bracing to selected windows; and temporarily removing selected wall monuments to safe storage.

2.4.2 Although LUL is planning to make this application shortly, the draft BSCU Order **[CD/A2]** does propose to disapply the legislation requiring ecclesiastical consent. Disapplication has been applied for because LUL wishes to ensure the works are not delayed in the event that the Order is confirmed and a faculty licence is not yet granted on the date of the Order coming into force.

### 2.5 Practice Direction

2.5.1 LUL is also preparing an application to the Diocese of London for a practice direction to allow equipment to be placed on four churches in order to monitor ground movement. The churches to which the practice direction will apply are: St Mary Abchurch; St Mary Woolnoth; St Clement's; and St Stephen Walbrook.

### 2.6 Over Site Development Permission

2.6.1 Construction of the BSCU will require the demolition of existing buildings within the site bounded by King William Street, Cannon Street, Abchurch Lane and Nicholas Lane. Planning permission for the demolition of these existing buildings and the redevelopment with a new office building (B1 Use Class) at part basement, ground floor and six upper floors (known as an Over Site Development (OSD) located over and around the new station entrance infrastructure) was therefore sought via a planning application to the City of London Corporation under the Town and Country Planning Act 1990 on the 27 February 2014. Retail uses at part ground and mezzanine levels, the reconstruction of the existing historic façade at 20 Abchurch Lane and the passive provision for the Station Entrance Hall and associated infrastructure required for the BSCU were also applied for as part of this application. On 27 June 2014, the City of London Corporation granted conditional planning permission **[CD/B1]** for the OSD.

### 2.7 Suffolk Lane Works

2.7.1 Works to remove bollards at the junction of Suffolk Lane with Upper Thames Street and to remove and replace motorcycle parking at the junction have been carried out to provide alternative access to Cannon Street for fire service vehicles when Arthur Street is closed. Consent for these works was obtained under an agreement with the City of London Corporation in accordance with Section 8 of the Highways Act 1980.

### 2.8 Monument junction weight restriction suspension

2.8.1 A separate Traffic Order under Section 6 of the Road Traffic Regulation Act 1984 is currently proposed by Transport for London for the variation of the 18 tonne vehicle weight restriction on the northbound carriageway of King William Street, where it meets Cannon Street at Monument Junction. This will allow vehicles greater than 18 tonnes to turn left onto Cannon Street and right onto Gracechurch Street and Eastcheap (via Monument junction). The Traffic Order is being consulted upon and, subject to consultation responses, the Order is anticipated to come into force in January 2015. The traffic regulation provision in Schedule 9 Part 6 of the draft BSCU Order **[CD/A2]** which

provides for this suspension would not need to be exercised subject to the Traffic Order coming into force.

### 2.9 Advanced Works Planning Application

2.9.1 As discussed in section 2.1, powers to undertake works to protect and divert utility apparatus are provided for in the draft BSCU Order **[CD/A2]**.

2.9.2 On 29 October 2014, an application for planning permission for the Arthur Street Utilities Diversion Works was submitted to the City of London Corporation.

2.9.3 Consent for these works has been sought in advance of the BSCU Order being made to enable the main construction works for the BSCU to commence as soon as possible on the making of the Order. The ability to complete these works in advance of the Order being made means there will be increased certainty that the construction of the BSCU will be complete on time, thus enabling the delivery of the BSCU and its associated wide-ranging economic, environmental and social benefits as quickly as possible.

# 3. THE CASE FOR THE BANK STATION CAPACITY UPGRADE

## 3.1 Background

3.1.1 Bank Station is located in the heart of the City of London financial district. It is a major gateway to the City of London for employees and visitors. The station's name is synonymous with the area it serves, and it is of strategic importance to London and the UK's economy. It is a network-critical destination and interchange station on the Rail and London Underground Network, with over 337,000 passengers currently boarding, alighting or interchanging at the station daily. Approximately 50% of users at peak times are interchanging between lines. Its effective operation is therefore critical not just to maintain access to the City of London, but also for the effective operation of the London transport network as a whole.

3.1.2 Bank Station is an amalgamation of London Underground stations containing:

i. six lines – District, Circle, Waterloo & City, Central, Northern Lines and the DLR;

ii. five sets of platforms – District & Circle, Waterloo & City, Central, Northern Lines and the DLR terminus;

iii. three existing ticket halls – Central Line (under Bank Junction), Northern Line (under Lombard Street) and Monument (adjacent to Monument Junction) as well as the Bloomberg entrance for the Waterloo & City Line (currently under construction as part of the development of Bloomberg Place at the north end of Walbrook); and

iv. 15 entrance/exits.

3.1.3 Appendix 3, Figure 1 shows the current station layout.

3.1.4 The station has grown piecemeal since 1884 as additional lines have been constructed, and it reached its present form in 1991 when the DLR opened:

i. 1884: Metropolitan and District Railway (the District and Circle lines).

ii. 1890: Waterloo & City Line.

iii. 1900: City & South London Line (now partially the Northern Line).

iv. 1933: Bank to Monument stations escalator links – creating the combined complex.

v. 1991: the DLR.

3.1.5 The infrastructure was built to serve passenger numbers that are far fewer than the number that use the station today. As a result, passenger circulation space on platforms, ticket halls, connecting staircases and passageways can become extremely congested. The congestion is exacerbated by the complex layout of the station.

3.1.6 As a result of this complex layout, passenger way-finding is difficult, particularly for those interchanging between lines, as there is a lack of separation between interchanging and entering/exiting passengers which means intuitive routes around the station are difficult to manage. In addition, most of the platforms are at deep levels, and are therefore dependent upon escalators, stairs or lifts for passenger interchange, access and egress.

3.1.7 The current situation means that Bank Station provides a heavily congested and poor quality entrance to the heart of the City of London financial district. In April 2013, a YouGov Poll indicated that Bank Station was the most disliked station on the London Underground Network. In a 2012 poll by the Londonist website, Bank Station was rated the worst station on the network. It received more than twice as many votes as any other station and overcrowding was quoted as the “top nuisance”.

### 3.2 Current station design and access issues

3.2.1 There are a number of specific congestion and passenger access pressure points as a result of the station’s current design. These include:

i. A number of interchange routes converge on two passenger areas known as the Triplication and Cruciform (see Appendix 3, Figure 1), which passengers use to move between the Central/Waterloo & City Lines areas of the station and Northern Line/DLR areas of the station. This results in cross-flows, congestion and difficulties with wayfinding.

ii. The Northern Line platforms: These are narrow back to back platforms with no passenger circulation space. During peak periods almost 55% of all Bank passengers start or end their journeys at the Northern Line or the DLR.

iii. The DLR platforms, including the approach to the platforms and the central concourse where queuing and congestion are common, particularly at peak times when queues of exiting passengers do not clear between trains.

3.2.2 Appendix 3, Figure 2 shows the areas of key congestion within the station complex.

3.2.3 There are multiple additional physical difficulties as a result of the piecemeal way in which the station has developed over many years including:

i. Only the DLR is currently accessible via a step-free route, although even that route is time-consuming and indirect, requiring passengers to take a small lift from King William Street into the Northern Line Ticket Hall, a second lift down to the Triplication area and then a third lift down to the DLR level. The single lifts are also very small, lack resilience and are inadequate for future needs;

ii. narrow passageways throughout the station complex create busy and indirect routes and multiple cross-flows, adding to the length and complexity of journeys;

iii. conflicting cross-flows are partly caused by the absence of a direct exit to surface for the Waterloo and City Line and the DLR, meaning that passengers to and from these lines have to use the interchange routes to enter and exit Bank Station;

iv. access from street to Northern Line and DLR is possible via a number of routes (many of which are indirect) involving use of escalators, stairs and lifts;

v. many interchange options require multiple level changes, narrow stairs and doubling back, adding significantly both to journey times and to congestion; and

vi. the stairs at the Bank (north) end of the Northern Line platforms are narrow and their limited capacity makes it difficult to clear the platform of passengers between train arrivals.

3.2.4 Furthermore, the bulk of Bank Station was designed and built at a time when demand was not as high and fire safety measures and regulations had not been developed to the extent that they are today. Measures have been developed with London Fire Brigade to keep the station operating safely but it is essential that the station layout at Bank Station is brought into line with modern best practice for fire safety design to allow LUL to provide compliant fire and evacuation measures for the Northern Line and DLR passengers in particular.

### 3.3 The current operational situation

3.3.1 Since 2003 demand at Bank Station has risen by over 50% from 222,000 to 337,000 customers per day. Areas of the station are close to ‘saturation’ point, where day to day demand overwhelms capacity, even during ‘normal’ operations. When this happens even small incidents can have a disproportionate effect on services. Interventions in the form of operational controls then need to be implemented which vary depending on the severity and location of the situation. There is a regular need to deploy additional staff

on platforms to manage crowding and ensure safety. Other controls deployed at the station are described in the paragraphs below.

3.3.2 The station is currently operated under a prescribed set of complex operational and management procedures to maintain operations. The controls range from within station measures to closures and diversion of passenger movements from within the station to street. The measures within the station (listed from most commonly to least commonly used) are:

i. managing passenger movements within the station;

ii. delaying a train from departing until the platform has been cleared of passengers;

iii. non-stopping the Central and Northern Lines (running services through Bank Station without stopping because platforms are too crowded);

iv. suspension of the DLR service because Bank Station is too congested to receive further incoming passengers; and

v. imposing lengthy one way systems including on-street interchange between lines.

3.3.3 These are explained in the following sections.

***Managing passenger movements within the station***

3.3.4 To reduce overcrowding of the Northern Line ticket hall and platforms, movement within the station is controlled. Ticket hall entry gates are regularly reduced to control the flow of passengers accessing the escalators and platforms. In addition lifts and escalators which access the Northern Line are often reduced or in the case of lifts made exit only. Additional staff are also regularly deployed to manage passengers on the Northern Line platforms and the Triplication and Cruciform areas.

***Delayed Train Departure***

3.3.5 One type of operational control used is delaying a train from departing until the platform has been cleared of passengers. At times of excessive platform crowding the train may be delayed from departing for up to a minute. This can have a large knock on effect on the performance and capacity of the entire line. Currently Northern Line train services on the Bank branch operate around 20 trains per hour (tph) in each direction, meaning that there is only 3 minutes between arrivals and considerably less between the departure of one train and the arrival of the next. This means that a delay in one train departing delays the following train arriving. Delaying the departure of successive trains by only 30 seconds has a significant impact on the entire Northern Line, reducing capacity of the line by up to 15%.

***Non-stopping of the Central and Northern Lines***

3.3.6 Another type of control measure used is non-stopping the Central and Northern Lines at Bank Station. If congestion builds up in the interchange passages then, depending on where the congestion occurs, decisions are sometimes made not to stop either the Central or Northern Line trains – i.e. requiring them to run through Bank Station without stopping because platforms are too crowded. When this happens significant numbers of passengers are diverted to adjacent stations, a major inconvenience for them but also an inconvenience for those at adjacent stations. Moorgate and London Bridge Stations in particular are already capacity constrained, and the imposition of additional passengers alighting at these stations can add to congestion and affect their operation, leading to parts of those stations also having to close.

***Suspension of DLR services to and from Bank***

3.3.7 A further control measure which is used is the suspension of DLR services to and from Bank. Although the DLR is served by a second terminus at Tower Gateway, this does not have capacity to accommodate all of the DLR trains that operate into Tower Gateway and Bank Station and neither is it conveniently placed for those who wish to access Bank Station. If DLR services are suspended at Bank Station then some services from east London will be diverted away from Central London. The suspension of DLR services at Bank Station causes major disruption to the network and delays for hundreds of thousands of passengers using the DLR.

***Implementation of one-way systems***

3.3.8 The controls described above have a significant impact on the wider London transport network and can only be accommodated for a short period of time. If demand exceeds capacity at Bank Station for extended periods then LUL considers that it will become necessary to implement a more significant intervention which can be extended for a longer period of time. The crowding at the station has now reached levels where only a very small increase in the DLR or Northern Line entry exit or interchange passenger numbers will mean there is a significant risk of needing to implement this intervention.

3.3.9 The only option for this type of intervention is the imposition of a one-way system in the station. In this mode of operation, passengers wishing to interchange from the DLR to the Northern Line would be directed out of the Monument ticket hall exits to the street. They would then have to walk at street level to the Lombard Street entrance where they re-enter the station, mixing with passengers accessing the Northern Line and causing large queues to develop in Lombard Street. Modelling shows that passengers making this movement would suffer a significant disbenefit, for example with

over 1500 unable to re-enter the station within 15 minutes, although there would be some relief for some of those making other movements within the station. Furthermore, the scale of pedestrian movement is such that Lombard Street would become impassable to traffic. The potential one-way system is summarised in Appendix 3, Figure 3 and the scale of the projected crowding in Lombard Street forecast by the modelling is shown in Appendix 3, Figure 4.

3.3.10 The implementation of the one way system would also involve:

i. No underground access from Monument to Bank resulting in interchanging passengers re-routed above ground via King William Street and other nearby streets to Lombard Street.

ii. Access to the Northern Line from the street level would be via the Lombard Street entrance only and the connection with the Bullring ticket hall (see Appendix 3, Figure 1 and Figure 3) would be closed.

iii. Access from the Northern Line ticket hall to the Northern Line platforms would only be possible via emergency stairs. The lifts would not be in use and escalators 6 and 7 would be both operating upwards only.

iv. Interchange stairs between the DLR and the Northern Line would be for Northern Line to DLR interchange passengers only. Interchange from the DLR to the Northern Line would have to be via Monument with re-routing at street level.

v. In the morning 0700 to 1000 peak, the Triplication would be closed.

3.3.11 LUL has estimated that this one-way system will need to be implemented when the station demand in the 0700 to 1000 morning peak period exceeds 100,000 passengers. Current passenger figures are around 98,000. It is therefore highly likely that this one-way operation will be implemented on a daily basis before any upgrade is complete.

3.3.12 Given the current operational situation and the increased likelihood of the implementation of the one way system at the station, the BSCU needs to be delivered as soon as possible.

## 3.4 Future increases in demand

### *Future passenger growth at Bank Station*

3.4.1 As an example of the recent scale of passenger growth at the station, data collected as part of LUL's Rolling Origin Destination Survey shows that annual passenger entry and exit flows through Bank Station have increased steadily from 41 million in 2001 to 49 million in 2013 (+19%).

3.4.2 Table 3.1 presents TfL's forecast growth until 2026 (data generated by Railplan, TfL's strategic public transport forecasting tool). The table also shows a further 31% growth beyond 2026 as being indicative of the further growth which might occur over the 60 years after planned scheme completion, based on London Plan (2011) **[CD/C3]** growth projections.

**Table 3.1: Observed and forecast growth in passenger numbers at Bank Station**

| Bank Station | Observed demand, 2003 | Observed Demand, 2012 | % Growth 2003-2012 | Forecast demand, 2026 | Additional 31% growth beyond 2026 |
|---|---|---|---|---|---|
| AM Peak | 72,000 | 98,000 | 36% | 107,000 | 140,170 |
| PM Peak | 65,000 | 101,000 | 55% | 106,000 | 138,860 |
| All Day | 222,000 | 337,000 | 52% | N/A | N/A |

3.4.3 In the absence of additional capacity being provided within the station, further operational controls will be required on an ongoing and increasingly disruptive basis to manage congestion at safe operating levels.

3.4.4 Modelling shows that by 2026, without improvements, the level of demand at the station during the morning peak would be such that the severe control measures described in paragraphs 3.3.8-3.3.12 would need to be implemented.

***Northern Line investment***

3.4.5 In response to the growth in population and employment predicted, LUL is planning and undertaking significant investment in the London Underground network. This planned investment is set out in the Mayor's Transport Strategy (2010) **[CD/C8]** and *Fit for the Future: Our plan for modernising London Underground, London Overground, Trams and the DLR* **[CD/D35]** and includes a series of line upgrades designed to maximise capacity from the existing network.

3.4.6 This includes upgrades to the Northern Line in 2014 and 2021. The Northern Line currently carries 900,000 passengers a day. The Northern Line Upgrade (NLU) programme promotes the installation of a new, computerised signalling system and control centre which would result in an increased frequency of the Northern Line Bank branch to 24 trains per hour in 2014 (NLU1) and then again to 28/32 trains per hour in 2021 (NLU2). These upgrades are required to meet forecast demand across the whole of the underground network.

3.4.7 With the NLU1 upgrade completed in 2014, the line capacity increases by 20%. This is equivalent to an extra 11,000 passengers in peak hours. Journeys will also be 18% faster and off-peak services more frequent.

3.4.8 Failure to address the existing congestion on the Northern Line platforms at Bank Station would seriously compromise the effectiveness of these upgrades.

***Future economic growth***

3.4.9 London is the economic powerhouse of the country. Its prosperity and its ability to continue to grow are central to the national economy. London is a world centre for business, tourism, media and culture and home of the UK Government. Inner London alone contributes around 14% of the UK's Gross Domestic Product (GDP).

3.4.10 The London Plan (2011) **[CD/C3]** predicted an increase of 790,000 households in the capital by 2031 and a growth of 776,000 jobs over the same period. Those estimates have more recently been updated by the Greater London Authority (GLA) in its Draft Further Alterations to the London Plan (2014), **[CD/C5]** which predict that between 2012 and 2036 there will be 980,000 additional households in the capital and a growth of 861,000 jobs over the same period.

3.4.11 A focused strategy of growth has been at the heart of strategic planning for London since at least the publication of the Government's Strategic Guidance for London RPG3 in 1996 and it lies at the heart of the London Plan spatial strategies of 2004, 2008 and 2011.

3.4.12 The London Plan 2011**[CD/C3]** sets out the framework for growth and change over the next 20 years and establishes a clear link between growth and public transport capacity. It highlights the critical importance of this link.

3.4.13 London needs to be able maintain its competitive edge when compared to other major cities such as New York, Paris, Frankfurt, Hong Kong, and Singapore by retaining the highly productive businesses and industries which have chosen to locate here and by continuing to attract new economic opportunities and investment.

3.4.14 The City plays a pivotal role within London's economy and the UK as a whole. It is the most economically productive area in the UK, with an average output per worker of £121,900 compared to the London average of £74,600. The City's exceptional productivity is a direct function of the high density of employment hosted within the City, which itself is made possible by the quality and capacity of the City's transport links (both to deliver the necessary workforce and also to foster the necessary interaction between the City and other important concentrations of employment). These benefits of

agglomeration mean that, at present, the City contributes over £50 billion, or around a fifth of London's total output (in Gross Value Added terms) from jobs in the area – and almost half of all of London's output in financial and professional services. This is important in and of itself – but also because the City's economy supports a significant number of jobs, land value and development in surrounding areas through support services. The City must be able to continue to prosper and develop to avoid damaging the economy of London and the UK as a whole.

3.4.15 The main factors considered by businesses in choosing where to locate include good access to a high quality and large labour market, and fast and easy connections to their market/client base. Both these factors are ruled by the effectiveness of the transport infrastructure at a particular location. London must continue to invest in its transport infrastructure in order to remain competitive and attractive to business – especially the kind of sectors that rely on efficient processes to retain a competitive advantage.

3.4.16 The City of London's position as the world's leading international financial and business centre is highly dependent upon good transport accessibility. Planning policy is reviewed in more detail in the next Chapter of this Statement but the overall policy objectives are clear that London must fulfil its role as a "World City" and that the continued success of the City is of central importance.

3.4.17 Given its location in the heart of the City of London, if increased capacity and improvements to the quality of access at Bank Station are not provided, the productivity of existing businesses in the City of London would be impacted negatively as workers would be delayed for work. The expected need to operate Bank Station under severe operational control is also likely to constrain the City's and London's future economic growth as it could deter potential businesses from choosing to locate in the area.

### 3.5 Summary

3.5.1 Bank Station's piecemeal growth over the last 130 years and its location at the heart of London's financial district has created a heavily congested and poor quality station complex for passengers who use it to board and alight the underground and rail lines that serve it. It is a poor gateway to the City of London and a poor quality interchange for thousands of passengers who need to use it to connect between services.

3.5.2 Future passenger growth is forecast due to employment generation which is supported by planning policy and from the upgrading of the Northern Line which is proposed to support population and employment growth across London. These factors will lead to additional passenger demand at Bank Station, creating further pressure on the station itself. If capacity issues are

not addressed, the frequency of the operational controls currently used through the station will increase with the likelihood of a one way system becoming necessary during the morning and evening peak hours each day to ensure the station can operate safely. As such there is a compelling need for the BSCU to be delivered as soon as possible.

3.5.3 As a network-critical destination and interchange station at the heart of the City of London, it is also vital that the capacity of Bank Station is enhanced in order to support future employment growth in the City and across London, and to improve the quality and safety of access and interchange for passengers who use the station.

3.5.4 The case for significantly enhancing the capacity, quality and safety of Bank Station is compelling.

# 4. POLICY CONTEXT

## 4.1 Background

4.1.1 The project is consistent with, and supported by, all levels of planning policy – including national, regional and local planning policy. It is also supported by the Government's infrastructure policy and the Mayor of London's economic and transport strategies. This Chapter summarises the policy context relevant to the BSCU.

## 4.2 National Policy

### *The National Planning Policy Framework (NPPF) (2012)[CD/C1]*

4.2.1 The National Planning Policy Framework (NPPF) (2012) **[CD/C1]** is based upon a presumption in favour of sustainable development, requiring development proposals that accord with the development plan to be approved without delay. The thrust of the NPPF (2012)**[CD/C1]** is captured in paragraph 19, as follows: *"The Government is committed to ensuring that the planning system does everything it can to support sustainable economic growth. Planning should operate to encourage and not act as an impediment to sustainable growth. Therefore significant weight should be placed on the need to support economic growth through the planning system".*

4.2.2 Paragraph 17 requires plan making and decision taking to proactively drive and support sustainable economic development to deliver the homes, business and industrial units, infrastructure and thriving local places that the country needs. Planning authorities are encouraged to work closely with the business community to understand their needs and to identify and address barriers to investment, including a lack of infrastructure capacity (paragraph 160).

4.2.3 The NPPF (2012) **[CD/C1]** provides a strong positive framework for decision making. Major planned infrastructure investments which facilitate growth in the City of London qualify for the strongest national policy support.

### *National Infrastructure Plan (2014) [CD/C41]*

4.2.4 The National Infrastructure Plan 2014 **[CD/C41]** sets out the Government's vision for the investment and delivery of infrastructure and improving its quality and performance. A pipeline of over £460 billion of planned public and private investment is proposed. The upgrade of Bank Station is identified in the plan as one of the Government's top 40 priority investments.

***National Policy Statement for National Networks (2014) [CD/C43]***

4.2.5 The National Policy Statement (NPS) for National Networks **[CD/C43]** was presented to Parliament (pursuant to Section 9(8) and Section 5(4) of the Planning Act 2008) on 17 December 2014. The NPS sets out the Government's vision and policy for the future development of nationally significant infrastructure projects on the national road and rail networks.

4.2.6 Whilst the BSCU is not considered to be a nationally significant infrastructure project as defined by the Planning Act 2008 (as amended), paragraph 1.4 of the NPS states that the NPS **[CD/C43]** may be a material consideration in decision making on applications that fall under the Town and Country Planning Act 1990 or any successor legislation. The BSCU is a major underground rail infrastructure project and therefore the policies and aims of the NPS **[CD/C43]** are a material consideration.

4.2.7 The BSCU supports the Government's policy for rail, as set out at paragraph 2.37 **[CD/C43]**, which is to "*improve the capacity, capability, reliability and resilience of the rail network at key locations for both passenger and freight movements to reflect growth in demand, reduce crowding, improve journey times, maintain or improve operational performance and facilitate modal shift from road to rail*".

## 4.3 Regional Policy

***The London Plan (Spatial Development Strategy for Greater London) (2011) [CD/C3]***

4.3.1 The London Plan (2011) **[CD/C3]** is concerned with ensuring that London's status as a world city within the global economy, which continues to attract international investment, is maintained and enhanced. Policy 2.1 makes clear that *"London supports the spatial, economic, environmental and social development of Europe and the United Kingdom"*.

4.3.2 While all parts of London have a role to play, Policy 2.10 recognises the "*globally iconic core of one of the world's most attractive business locations*" that the Central Activities Zone (CAZ), including the City of London provides. It specifically requires that "*The Mayor will, and boroughs and other strategic partners should: … sustain and enhance the City of London... as a strategically important, globally-oriented financial and business services centre."*

4.3.3 Policy 2.11 sets out the strategic functions for the CAZ, with transport identified as one of nine strategic functions necessary for the CAZ. Planning policies must: *"h) secure completion of essential new transport schemes necessary to support the roles of CAZ... maintain and enhance its transport*

*and other essential infrastructure and services; realise resultant uplifts in development capacity to extend and improve the attractions of the Zone..."*

4.3.4 The London Plan (2011) **[CD/C3]** is a spatial development strategy; it recognises that transport plays a fundamental role in addressing a whole range of spatial planning, environmental, economic and social policy priorities. Policy 6.1 encourages close integration between transport and development by *"b) seeking to improve the capacity and accessibility of public transport, walking and cycling, particularly in areas of greatest demand".*

4.3.5 Policy 6.2 is the most scheme specific policy. It sets out the need to *"increase the capacity of public transport in London over the Plan period by securing funding for and implementing the schemes and improvements set out in Table 6.1"*. The BSCU is specifically listed under the heading 'Tube station congestion relief schemes'. In other words, the BSCU has direct policy support in the strategic plan for London **[CD/C3]**.

4.3.6 Policy 6.4 continues in this theme in section B, requiring *authorities "...to improve the public transport system in London... and increase public transport capacity by: completing upgrades to, and extending, the London Underground network"*.

***The Draft Further Alterations to the London Plan (2014) [CD/C5]***

4.3.7 Consultation was carried out from January to April 2014 on the Draft Further Alterations to the London Plan (2014) **[CD/C5]** to reflect the fact that the population has grown to a significantly greater extent than that anticipated in the London Plan (2011) **[CD/C3]**. The Draft Further Alterations to the London Plan (2014) **[CD/C5]** seek to take account of the anticipated population growth from 8.2 million in 2011 to 10.1 million in 2036 and the forecast growth of 861,000 jobs over the same period.

4.3.8 As a result, if possible, the emphasis on the need for infrastructure investment is even stronger. Paragraph 4.4A identifies how investment in new infrastructure is *"critical to securing sustainable growth and development. This Plan seeks to maximise the economic, social and environmental benefits from such investment in London. For the London economy, these benefits include economic output, employment, productivity, business opportunities, regeneration and the capital's contribution to the wider UK economy*". This is further expressed in the amended Policy 4.1, which sets out the objective to: *"maximise the benefits from new infrastructure to secure sustainable growth and development".*

***The Mayor's Transport Strategy (2010) [CD/C8]***

4.3.9 The Mayor's Transport Strategy (MTS) (2010) **[CD/C8]** was adopted in May 2010 and was developed alongside the London Plan (2011) **[CD/C3]** and the

Mayor's Economic Development Strategy (2010) **[CD/C9]**, forming a strategic policy framework to support and shape the economic and social development of London. The MTS (2010) **[CD/C8]** sets out the Mayor's vision for transport and identifies the transport investment needed to support London's growth over the next 20 years.

4.3.10 The BSCU is specifically identified as part of Proposal 19, which lists *"Congestion relief schemes to complement Tube line upgrades and/or integrate with Crossrail at the key central London interchanges of... Bank."* The MTS (2010) **[CD/C8]** refers directly to Bank Station and the role its operation can play in bringing benefits to the economy through ensuring that the transport network is accessible to all.

4.3.11 The BSCU is consistent with several policies, including the policies quoted below:

i. *"Policy 5: The Mayor, through TfL, and working with the DfT (Department for Transport)... will seek to ensure efficient and effective access for people and goods within central London through providing improved central London connectivity and appropriate capacity. This will include improving access to major public transport interchanges for pedestrians, cyclists and by public transport."*

ii. *"Policy 20: The Mayor, through TfL, and working with the DfT... will implement measures that seek to improve operational safety and security on public transport."*

iii. *"Policy 21: The Mayor, through TfL, and working with the DfT... will seek to increase accessibility for all Londoners by promoting measures to improve: a) The physical accessibility of the transport system, including... stations and vehicles".*

***The Mayor's Economic Development Strategy for London (2010) [CD/C9]***

4.3.12 In May 2010 the Mayor published the Economic Development Strategy for London **[CD/C9].** The Mayor's Economic Development Strategy (2010) **[CD/C9]** sits alongside the MTS (2010) **[CD/C8]** and supports the strategic direction and growth ambitions set out in the London Plan (2011) **[CD/C3]**. Underlying the Mayor's Economic Development Strategy (2010) **[CD/C9]** is a projection of continuing growth in London's economy and population to 2031 and beyond. To support this, the Strategy sets out that sustained investment in infrastructure, including transport, housing, energy, waste, water, and communications will be essential if London's competitiveness and innovation are to be maintained.

***2020 Vision: the Greatest City on Earth (2013) [CD/C6]***

4.3.13 In June 2013 the Mayor of London published the 2020 Vision document **[CD/C6]**. It signals London's determination to meet the connected challenges of rapid population growth and economic success. On page 17 it states the Mayor's transport agenda includes *"[Securing] a stable 10 year funding settlement for TfL to: ... rebuild Bank and Holborn stations to increase capacity".*

4.3.14 The Funding Statement **[CD/A8]** which accompanies the BSCU Order application sets out the commitment that exists between TfL and the Department for Transport to deliver the BSCU.

***London Infrastructure Plan 2050: A Consultation (2014) [CD/C7]***

4.3.15 The Mayor of London is consulting on a 2050 Infrastructure Investment Plan for London (2014) **[CD/C7]**. This sets out the case for sustained investment across a range of sectors including transport within the context of a central population projection of 11.3 million by 2050 (from 8.5 million today) and an employment projection of 6.3 million (from 4.9 million in 2011). The draft plan (2014) **[CD/C7]** identifies key transport challenges and opportunities including a set that relate to ensuring the foundations for London's continued global city success. A main element of this is making the case for growing the CAZ, where high employment densities support economies of agglomeration and very high average productivity levels that generate benefits for the wider economy. Growing these agglomeration benefits in the future is critically dependent on enhancing the rail systems that link the CAZ to its large employment catchment in and around London. The BSCU is fully consistent with this objective.

## 4.4 Local Policy

***City of London Local Development Framework: Core Strategy Development Plan Document: Delivering a World Class City (2011) [CD/C13]***

4.4.1 The City of London Corporation's Core Strategy (2011) **[CD/C13]** sets a number of key objectives for the City, including that it will "*remain the world's leading international financial and business centre and a driver of the national economy"* (Strategic Objective 1).

4.4.2 Policy CS16 of the Core Strategy (2011) **[CD/C13]** provides direct, up to date development plan support for the proposed development and, in particular supports proposals: *"To build on the City's strategic central London position and good transport infrastructure to further improve the sustainability and efficiency of travel in, to, from and through the City by:... Facilitating further*

*improvements to public transport capacity and step-free access at existing mainline rail and London Underground stations including... Bank."*

4.4.3 The BSCU is consistent with a number of important policies of the Core Strategy (2011) **[CD/C13]**, including:

i. Policy CS3 which requires that the City has safe systems of transport which are designed to satisfactorily accommodate large numbers of people;

ii. Policy CS10 which seeks high standards of design to meet the needs, amongst other matters, of disabled people; and

iii. Policy CS16 which is an area specific policy for the City which includes Bank Station and which requires an enhanced environment for public transport users and others.

***City of London Draft Local Plan (November 2014) [CD/C17]***

4.4.4 The same policy support is apparent in the emerging City of London Local Plan (2014) **[CD/C17]**. This underwent a public examination on 7 October 2014 and the plan with proposed modifications is expected to be adopted on 15 January 2015), Policy CS16 of the draft Local Plan (2014) **[CD/C17]** is however amended to include even more direct reference to the BSCU: "*1. Securing increased public transport capacity through support for Crossrail and the Northern Line/Bank Station upgrade..."*

***The City of London's Rail Strategy (2009) [CD/C25]***

4.4.5 The City of London's Rail Strategy (2009) **[CD/C25]** outlines the position of the City of London Corporation on railway issues that both directly and indirectly affect the City. The document updates the previous version which was published in 2003, to take account of significant progress on a number of key projects. The overall purpose of the document is to ensure that the City's position as the world's leading international financial and business centre is not undermined by an inadequate transport system. To do this it sets out a range of investment priorities it considers necessary to support the existing and planned growth in the area.

4.4.6 During the peak periods, the strategy identifies that the majority of services are operating at or above the intended levels of capacity, especially when arriving or departing at the main termini. It recognises that trains and stations operating beyond their intended capacity can result in service disruption and unreliability and that closure during busy periods may be required for safety reasons. The Rail Strategy (2009) **[CD/C25]** therefore identifies the key priorities for rail investment that are required to support the City, with BSCU directly identified as a key project. Page 13 of the Rail Strategy (2009)

**[CD/C25]** notes: *"The City is particularly keen to see new capacity proposals for Bank, and maintains regular contact with London Underground to investigate options for improving passenger provision. Increasing capacity within the station without causing significant disruption to passenger services is a major logistical and engineering challenge which will require continued liaison."*

***Bank Area Enhancement Strategy (2013)[CD/C29]***

4.4.7 In March 2013 the Bank Area Enhancement Strategy (2013) **[CD/C29]** was published. This document sets out the City of London's vision for transport and urban realm improvements to be delivered in the Bank area over the next 10 years. The Strategy (2013) **[CD/C29]** seeks "*to maintain the Bank area's prominence as an internationally renowned destination by creating a safe and attractive environment. By improving integration, reducing conflict between modes of transport, enhancing the current pedestrian environment and the area's public spaces, the Bank area will continue to be a dynamic and desirable place to work and visit."* The document recognises the issues associated with growth at Bank Station and the need to upgrade the station (**[CD/C29]** page 63, 3.5 Future Pressures).

***City of London Planning Obligations Supplementary Planning Document (2014) [CD/C18]***

4.4.8 To assist with the implementation of policy and in recognition of the fact that new development places extra demands on the transport system, the City of London Corporation's Planning Obligations Supplementary Planning Document (2014) **[CD/C18]** allocated an average of 15% of Section 106 (S106) planning obligation contributions towards transport improvements, and recognised that the upgrading of Bank Station is a key priority. The primary justification for requiring S106 contributions for transport improvements at Bank Station is to assist with securing an increase in the capacity of the station, along with a need to upgrade the station and provide new entrances.

4.4.9 This position is also apparent in the evidence base supporting the Core Strategy (2011) **[CD/C13]** and the emerging Local Plan (2014) **[CD/C17]**, and within the Infrastructure Delivery Plan (2013) **[CD/C23]** supporting the City of London Corporation's Community Infrastructure Levy Charging Schedule (2013) **[CD/C20]** and draft Local Plan (2014) **[CD/C17]**, which notes that *"Continued investment in public transport capacity and improvements are therefore critical to ensure that the City can continue to grow and accommodate the projected significant increase in employment".*

4.4.10 As a result, the City of London Corporation has been collecting S106 contributions towards planned improvements in public transport in the City as it has granted consent for large scale development. A number of obligations

have been entered into by developers in recognition of the need for capacity improvements and of the policy support for those initiatives, both to improve public transport generally and Bank Station specifically. Developments where such obligations have been agreed have included the development at 20 Fenchurch Street (the Walkie-Talkie building); The Pinnacle/Bishopgate Tower; and Mondial House.

4.4.11 The City of London Corporation has previously transferred to TfL a S106 contribution of £2 million for the purpose of upgrading the Bank Station control room which is necessary for the opening of the new Waterloo and City Line entrance on Walbrook. In addition, TfL expects to receive a S106 contribution from the OSD permission from the City of London Corporation towards the BSCU.

### 4.5 Policy conclusions

4.5.1 The BSCU is not only directly and specifically supported by comprehensive, up-to-date planning policy, but is also key to the delivery of national, London wide and local planning, transport and economic objectives. Collectively, this amounts to an exceptional level of policy support.

# 5. SCHEME DEVELOPMENT

## 5.1 Background

5.1.1 As set out in Chapter 3, the levels of current usage and forecast future growth demonstrate major change is necessary at Bank Station to keep the station operating. Conversely, in the absence of a major enhancement at Bank Station, growth in the City of London could be constrained resulting in wider disbenefits for the UK economy.

5.1.2 Over the course of the past 12 years many options have been developed and tested for addressing the problems at Bank Station. This reflects the complexity of constructing additional capacity in a location that is constrained by complex structures underground and above the surface. It has taken LUL a considerable period to develop a solution that is capable of meeting the wider project aims, whilst addressing the complex constraints that exist in the area. The volume of work undertaken and the time taken to complete it is a reflection of how challenging and thorough the work on option development has been.

## 5.2 Option Assessment

5.2.1 The scheme proposals have been developed through four main stages over the last 12 years:

i. Strategic need studies, 2002 to 2005 – identification of the scale and scope of intervention needed to address current issues and to meet future aspirations for Bank Station;

ii. development of options to enhance Bank Station, 2005 to 2009 – addressing the key issues of platform and circulation space congestion, entrance/exit capacity, improving interchanges within the station and the provision of step-free access to establish the RIBA D design;

iii. development of the Base Case concept and Reference Case, 2009 to 2013 – option development, assessment and engagement/consultation work looking at the most appropriate technical and value for money solutions to meet the project aims; and

iv. the Innovative Contractor Engagement tender process and development of the BSCU Order scheme, 2013 onwards – development, refinement and assessment of the scheme design variants and consideration of alternatives put forward through an innovative contractor tender process.

5.2.2 Developing solutions for the issues with the current Bank Station is complex – the below ground infrastructure is tightly constrained, the existing LUL services carry a very high number of passengers accessing the City of London area daily and the station is surrounded by historically important buildings. The development work has therefore had a clear focus on overall deliverability whilst minimising adverse impacts.

5.2.3 In this context, throughout the scheme's development, work has been undertaken following several overarching principles:

i. an iterative design and assessment process at increasing levels of detail as the scheme has developed through the different stages;

ii. engagement with stakeholders and consultees at key stages in the scheme design and assessment process, particularly at stages where there was an opportunity to influence the scheme proposals;

iii. an approach which has sought to avoid, reduce or mitigate the scheme's temporary and permanent adverse impacts as far as practicable; and

iv. a thorough assessment of options.

5.2.4 In the development of the scheme both operational solutions and physical or infrastructure solutions have been continually assessed against the project aims set out in section 1.6.

### 5.3 Consultation

5.3.1 LUL's approach to consultation on the BSCU has fully complied with the requirements of the Transport and Works Act 1992 **[CD/E2]** and associated guidance including the Department for Transport's Transport and Works Act Guide to Procedures.

5.3.2 A wide range of stakeholders was identified at the outset of the project as likely to be affected or have an interest in the proposed upgrade of Bank Station. These included: governmental and statutory bodies; transport, travel and equalities groups; the travelling public; business and community groups and organisations and those potentially directly affected by the proposed works.

5.3.3 Four phases of public consultation took place in Autumn 2011, Spring 2012, Autumn 2013 and Summer 2014. These were undertaken to help publicise the proposal and generate feedback to inform development of the scheme design.

5.3.4 In addition, from 2011 particular efforts were made to establish and maintain dialogue with the owners and occupiers of properties likely to be directly

affected and to engage technical and professional consultees in the evolving design.

5.3.5 From May 2012 to October 2013 LUL engaged the expertise of four major contractors to bring their experience and expertise to the design for the BSCU.

5.3.6 In December 2013, the project consulted on proposals to develop over and around the new station infrastructure on the Whole Block Site.

5.3.7 Further details of the consultation undertaken and the feedback received are set out in Chapter 8 of this Statement of Case and also the Statement of Consultation **[CD/A5]** which accompanied the BSCU Order application.

### 5.4 Environmental assessment

5.4.1 As set out in Chapter 6, most of the work to develop the BSCU will be below ground, with two main work sites required at surface level. The main elements of the above ground works include:

i. Demolition of the existing buildings within the block bounded by King William Street, Nicholas Lane, Cannon Street and Abchurch Lane (referred to as the Whole Block Site) to establish a main work site. This will allow escalator and lift shafts to be created, leading to a new station entrance hall at the junction of Nicholas Lane and Cannon Street.

ii. A second work site, including a shaft to enable the underground works, will be established in Arthur Street approximately 130m to the south of the Whole Block Site.

iii. Works to divert and protect utilities affected by construction including diversion of utilities at Arthur Street to allow construction of the shaft described above; and diversion of utilities and protective works to the Low Level 2 Sewer (an west-east sewer between Cannon Street and King William Street) and to the London Bridge Sewer (a north-south sewer running beneath King William Street).

5.4.2 The consideration of environmental effects has been part of the overall assessment of options through the development of the project along with delivery of the project aims, limiting property impacts, obtaining value for money and affordability. Through development of the design for the BSCU scheme environmental design considerations included:

i. Establishing the minimum amount of ground works that enable the project aims to be met whilst minimising the impact on surface occupiers and users.

ii. Minimising the amount of surface land required for construction.

iii. Locating structures and ground works to minimise operational noise and vibration.

iv. Minimising the number of vehicle movements for construction and locating those movements away from sensitive receptors.

v. Minimising the impact of construction on users of the station.

vi. Designing above ground infrastructure to meet the broader planning policy aspirations for the surrounding area.

5.4.3 A full Environmental Impact Assessment of the BSCU was undertaken and is reported in the Environmental Statement (ES) **[CD/A16**] and supporting figures **[CD/A17]** and appendices **[CD/A18- CD/A22]**. In compliance with Rule 11 (1.d) of the Transport and Works (Applications and Objections Procedure) (England and Wales) Rules (2006) **[CD/E9**] the ES, in Chapter 5 **[CD/A16]**, outlines the main alternatives to the proposed works studied by LUL.

## 5.5 Identifying the scope and scale of intervention required

5.5.1 The first studies to look at increasing capacity at Bank Station started in 2002 in response to a proposal to increase the capacity of the DLR system by 50%. As a result of this work it quickly became apparent that unlocking individual bottlenecks within the station would merely shift the congestion elsewhere. Further studies undertaken from 2003 to 2005 developed more holistic approaches to solving the problem by developing station wide masterplans that could be developed in a phased manner, as opportunities and funding became available.

5.5.2 Many options were developed and tested in the period to 2005 and assessed in terms of cost, constructability and potential benefits. The options that were developed focused on the key constraints at the station which are reflected in the project aims - congestion relief, accessibility and emergency evacuation – set out in section 1.6.

5.5.3 An integrated approach for the station as a whole, with capacity improvements targeting the Northern Line, the DLR and interchange between other lines was considered to represent the most effective long term solution to improving congestion relief, while also enhancing step-free access and fire evacuation.

5.5.4 The work concluded that improvements focused on the Central Line and District and Circle Lines would not address the key constraints at the station and instances of non-compliance, and that implementation of improvements to the key problems of the Northern Line and the DLR would not preclude separate schemes to address those other lines at a later stage.

***Congestion Relief***

5.5.5 A critical area for congestion within the station is the Northern Line and the DLR platforms and the connections between them. Options for providing more capacity to Northern Line tunnels are limited and include variations of on-line options (where the existing platform is widened) and off-line options (where a new passenger platform linked by a new railway tunnel is constructed).

5.5.6 Two on-line options (where the existing platform is widened) were developed to either open more passenger space between the platforms, or expand the existing tunnels to realign the tracks to provide a larger platform cavern. Design development confirmed that these options would not provide sufficient congestion relief and their construction would require substantial closure of the station and lengthy disruption to the Northern Line service over a period of years, with wider secondary impacts to the network.

5.5.7 Two off-line options (where a new passenger platform is constructed) were considered involving construction of a new tunnel adjacent to the existing tunnel. This is an approach that has been adopted at London Bridge as part of the construction of the Jubilee Line Extension.

5.5.8 A new running tunnel aligned to the east of the existing tunnel was not considered feasible because an alignment that both met LUL design standards for track curvature and avoided tunnelling under the Bank of England (as to which there were associated security issues) and LUL's existing infrastructure (the existing Lombard Street lift shaft which is needed for step-free access resilience) could not be identified.

5.5.9 It was therefore concluded that constructing a new running tunnel to the west of the existing Northern Line tunnel would be taken forward for further design and assessment.

5.5.10 Options were considered for the joining of the new railway tunnel to the existing Northern Line tunnels. Connection to the existing tunnel via a step-plate junction, where two running tunnels are joined by enclosing them in a stabilising encased structure, was originally considered as it could potentially be constructed during extended weekend or holiday period possessions of the Northern Line, and therefore reduce the duration of any closure. However, at the northern end, due to the arrangement of the existing Northern Line tunnels directly over each other and given the close proximity of the Bank of England vaults, this solution was not considered feasible in engineering terms. Whilst the approach would be feasible at the southern end, it was considered that there would be no benefit in adopting this approach unless it could be applied to both connections.

5.5.11 It was concluded that the joining of the new running tunnel by breaking into the existing tunnel and connecting the tracks would be preferable but would require extended closure, referred to as the Blockade, of services on the Northern Line City Branch. Additional information regarding the timing of the Blockade can be found in section 6.8.

5.5.12 The impact on users of the Northern Line has been assessed in the Transport Assessment (**[CD/A19]** A8.1) and Chapter 8 Transport and Movement of the ES **[CD/A16]** and is discussed further in Chapter 7 of this Statement of Case.

***Development of Station Entrance, Step-Free Access and Evacuation Measures Options***

5.5.13 Studies looking at the main passenger movements and pressure points within the station demonstrated that the congestion within the station is largely due to exiting passengers from the Northern Line and DLR. The existing exits to Bank Station represent lengthy convoluted journeys through already congested passageways. A new station entrance designed to predominantly and directly serve the DLR and the Northern Line movements was therefore considered to provide significant improvement to access for those passengers and also improved interchange for other passengers moving within the station.

A new station entrance would also provide improved evacuation times for DLR and Northern Line passengers and introduce an access point between surface level and the below ground infrastructure that could be used to provide fire-fighting and passenger lifts which would also deliver step-free access to the Northern Line and DLR platforms.

5.5.14 Given the sensitive townscape, with numerous listed buildings located within a conservation area and consequent design requirements of City of London Corporation, as well as the need to ensure connectivity to existing LUL infrastructure, the selection of a suitable site was severely constrained.

5.5.15 The area between King William Street and Cannon Street was identified in conjunction with the City of London Corporation as being ideally placed in relation to both the existing station and the proposed below ground works as well as good for providing access at street level during construction. It also is centrally located within the area of known destinations of current Northern Line passengers.

5.5.16 Two options were identified, Phoenix House (18 King William Street) and 10 King William Street, both requiring the demolition of existing buildings.

5.5.17 The Phoenix House location, unlike 10 King William Street, is not above the below ground DLR infrastructure. Therefore it would not be able to facilitate a direct access from this location to the DLR or between the DLR and the

Northern Line levels. This would constrain the potential capacity increase from the DLR to the surface level and would not ease congestion or reduce journey times within the station. In relation to the use of the location as a construction work site, the Phoenix House location would be very constrained (it is approximately 830m$^2$ compared with 10 King William Street which is 1048m$^2$). Being on the corner of King William Street and Cannon Street (Monument Junction) a work site there would also cause congestion on the junction for existing traffic movements from construction and delivery access traffic.

5.5.18 The 10 King William Street location was, at this stage, selected as the preferred station entrance location site and endorsed by the City of London Corporation.

***Improving Interchange within the station***

5.5.19 Congestion within Bank Station for people interchanging between different lines is a major problem, particularly for those moving between the DLR and the Northern Line and Central Line. Improving the interchange capacity between the DLR and the Northern Line, by providing additional stairs or escalators, would reduce journey times within the station and alleviate the congestion that is currently experienced. Escalators are preferred because they provide greater capacity than stairs and are normally required where the vertical travel distance exceeds 5m (the vertical distance between Northern Line and DLR is approximately 10m)..

***Summary***

5.5.20 The work between 2002 and 2009 enabled well-defined project aims for Bank Station to be identified and developed. It also identified the potential design approaches to meeting these aims. The scheme design current at this stage became known as the RIBA D design.

## 5.6 Development of the Base Case Concept and Reference Case

5.6.1 The feasibility design and development work up to 2009 led to the preparation of the RIBA D design, which included a new Northern Line running tunnel west of the existing southbound tunnel with a new station entrance at 10 King William Street.

5.6.2 In Autumn 2010, the Department for Transport confirmed TfL's funding agreement from 2015/2016 to 2020/21. This would provide the capital funding for the BSCU in the period from 2015/16 to 2020/21. Although it acknowledged that capital projects could extend beyond this spending review period there was no funding identified for the project beyond 2020/21. This therefore became a key consideration for the project programme.

5.6.3 The RIBA D design met the overall aims of the project but needed further work in relation to cost, programme and constructability. Further work was undertaken to consider the options for building the station including the location of work sites and how these could be integrated with locations for station entrances.

5.6.4 Different options for work sites were considered involving varying degrees of land take within the site bounded by King William Street, Nicholas Lane, Cannon Street and Abchurch Lane (the Whole Block Site). The work site options studied included 10 King William Street only, the Whole Block Site, and various options of partial site acquisition. This work was undertaken in conjunction with the City of London Corporation.

5.6.5 The conclusion of this appraisal was that the use of the Whole Block Site would give significant benefits to the constructability of the BSCU. This was also endorsed by bidders as part of the Innovative Contractor Engagement process (See section 5.7). This further development of the RIBA D design so as to utilise the Whole Block Site became known as the Base Case concept.

5.6.6 Public consultations took place in Autumn 2011 and Spring 2012. The majority of the responses received expressed support for the project. However, the feedback highlighted the need for the project to address the following issues:

i. the importance of reducing project risks, particularly the date for delivering the project benefits (congestion relief) due to the worsening situation at the station during peaks;

ii. the need to pursue opportunities to improve the business case by maximising benefits, extending congestion relief beyond just the Northern Line platforms to include interchange routes to the DLR and Central Line; and

iii. the need to continue to explore all opportunities to reduce disruption during construction and maintain normal services as far as possible.

5.6.7 Further work identified that the use of the Whole Block Site would allow for the use of escalators from the new station entrance hall. In addition, passenger demand modelling using Legion identified a need for escalators because in a modelling scenario of +20% passenger growth, passengers started to build up in lift lobbies with all lifts in use.

5.6.8 Escalators were not originally incorporated in to the design due to cost constraints and a concern that sufficient land may not be available, and having regard to the fact that lifts had been proposed for vertical access. However the potential use of the Whole Block Site enabled a sufficient site area to be available for escalators and would bring a number of additional

advantages for construction, as well as facilitating the provision of a coherent and high quality development above the station that was better able to meet the planning requirements of the City of London Corporation.

5.6.9 In addition to the use of the Whole Block Site, the need for a second work site to support construction at the Whole Block Site was explored and it was identified that this would bring benefits in terms of construction logistics. The need for the second work site was further supported by the requirement to retain the 20 Abchurch Lane facade at the Whole Block Site (see paragraph 5.6.11).

5.6.10 Passenger modelling undertaken around this time as part of the continued development of the Base Case concept indicated that the pavement at King William Street was too narrow for the forecast level of passengers exiting the station entrance at this location. The City of London Corporation also expressed a preference for an entrance on Cannon Street, which would be able to better accommodate forecast pedestrian levels. LUL therefore developed, in consultation with the City of London Corporation, a development brief for the new station entrance on Cannon Street and an OSD for the Whole Block Site. The BSCU scheme design which was then developed incorporated escalators in addition to lifts and provided a station entrance onto Cannon Street at the junction of Abchurch Lane. This was referred to as the Reference Case and also utilised the Whole Block Site for construction.

5.6.11 The second phase of consultation during May and June 2012 specifically sought feedback on options for the proposed station entrance. Responses identified a preference for the new station entrance to include escalators with lifts to provide a step-free route to both King William Street and Cannon Street, and for the retention of the façade of 20 Abchurch Lane where there was strong opinion that this façade was of historic value. The majority of respondents expressed a preference for the project to acquire all six properties within the Whole Site Block to provide a site from which to undertake the scheme.

***Summary***

5.6.12 The development of the Base Case concept and Reference Case design established a design for the scheme which aimed to reduce construction impacts, optimise the construction programme; and reduce vibration and other impacts during operation. It also identified the potential benefits of a second construction work site; and notwithstanding that the public consultation explained the link between the escalator options and the need for TfL to acquire private property, the options for escalators were still supported

by respondents, along with the need to alleviate congestion as soon as possible.

5.6.13 Furthermore, Cannon Street was identified as the preferred location for the station entrance. This entrance location was supported by the City of London Corporation. The work also established that the Whole Block Site would enable the provision of a coherent and high quality development above and around the station that was better able to meet the planning requirements of the City of London Corporation, and that the whole site was needed in order to manage construction logistics.

5.6.14 The potential to achieve a cohesive improvement to the townscape through the use of the Whole Block Site was also recently further endorsed by the decision of the City of London Corporation to grant conditional planning permission **[CD/B1]** for an OSD to be constructed above and around the new station entrance on Cannon Street.

### 5.7 Innovative Contractor Engagement Tender Process

5.7.1 Given the complexity of constructing new infrastructure at Bank Station in a highly constrained environment, it was essential that the scheme design work (RIBA D design, Base Case concept and Reference Case) was properly tested in terms of its deliverability and cost. An Innovative Contractor Engagement (ICE) process was adopted as the most appropriate procurement approach for the project. The process was designed to enable bidders to propose and discuss innovative ideas to deliver cost, risk and programme benefits.

5.7.2 Under this process, four pre-qualified bidders entered into a confidential dialogue with LUL. This enabled bidders to formulate proposals which would demonstrate delivery of the core requirements of the scheme, either by improvements to the Base Case concept or Reference Case; or through any other proposals they felt met the aims and requirements of the project, and thereby improve the design by reducing risk, cost and programme, and develop ways to address any negative impacts of building the project.

5.7.3 The four bidders submitted different proposals which were then assessed by LUL against the project aims and design requirements.

5.7.4 Section 5.2 of the Design and Access Statement **[CD/A24]** submitted with the BSCU Order application summarises the features of each bid and the ICE process. Section 4.5 of the Options Report **[CD/D19]** also explains the process further.

5.7.5 The winning bid by Dragados SA was assessed as providing the solution which best met the project aims of easing congestion and enhancing capacity overall. Key features included a moving walkway for passengers

interchanging between the Central Line and Northern Line; escalators and lifts for access from the new Station Entrance Hall to the Northern Line and DLR platforms; a second work site as an independent tunnel access point and a reduction in programme and cost. The decision to appoint Dragados SA was approved by the TfL Board in July 2013.

## 5.8 Development of the BSCU Order scheme

### *Refining the design*

5.8.1 Following the contract award, LUL and Dragados SA continued to focus on progressing the bid design in a way that sought to minimise impacts both on users of the station and the London Underground network and landowners and stakeholders in the City, identifying further areas to provide local improvements to the constructability and operation of the station. This included engagement with stakeholders, landowners and the public on the proposals which led to changes to the design. Refinements included:

i. improving lines of sight within the new station entrance hall for users. This involved reconfiguration of the ticket hall to allow the lifts to be seen more easily;

ii. locating substantial plant and equipment to below ground locations while maintaining suitable access for maintenance and replacement, as well as maximising active frontages at street level; and

iii. optimising the route alignment of the new tunnel to minimise pile interfaces with existing buildings and reducing risk and magnitude of settlement to structures and utilities. LUL estimate that around half of potential pile interceptions were able to be designed out at this stage.

### *Constructability options assessed for the Dragados Scheme*

5.8.2 The Dragados SA scheme confirmed the need for a second work site and proposed its use as a tunnel construction access point, which would also lead to substantial benefits in terms of the construction programme and reducing impacts overall. The second work site would decouple the construction of the station entrance box and escalator box from the construction of the new running tunnel and would also allow for the most intensive construction traffic (for removal of excavated material) to be kept away from the Bank Conservation Area, a location already heavily used by pedestrians, cyclists and vehicles. To be effective, the second site would need to have direct access to the new running tunnel and allow sufficient space to maintain a safe system of working, including construction plant, storage and welfare facilities.

5.8.3 A number of alternative locations for a second work site were considered. These sites were assessed in terms of their ability to meet the overall

requirements and to limit potential impacts. In summary, Arthur Street was selected as the location of the second work site because it is located directly over the new tunnel alignment and is also located above the disused King William Street platform tunnel. The existing below ground infrastructure therefore provides a suitable storage facility for construction operations. Furthermore, the location of the chosen access work site is adjacent to the strategic road network thereby reducing local disruption from construction traffic and meaning that removal of excavated material via road could be conducted on a 24 hour basis in line with tunnel excavation.

5.8.4 The use of Arthur Street does not require the demolition of any buildings, but would require the carriageway to be shut to through vehicle access (with service access provided for local occupants) for the duration of the construction programme. All other options were considered less capable of meeting the overall requirements for the construction of the project.

5.8.5 Three main transportation options for the removal of excavated material resulting from tunnel construction from the Arthur Street Work Site were considered; river, rail and road.

5.8.6 Transportation by river would require double handling, quayside storage, and would be likely to be subject to tidal constraints. The rail option would require additional excavation at the work site to construct loading facilities underground and the need for back-up provision for the removal of material by road in case removal during engineering hours was constrained in the event of train unavailability. The location of the chosen access work site is adjacent to the strategic road network thereby reducing local disruption from construction traffic and enabling the removal of material by road on a 24 hour basis in line with tunnel excavation. Whilst there is the potential for secondary noise and air quality impacts, the advantages over the other modes make removal of the excavated material by road the preferred option.

5.8.7 Chapter 5 of the ES **[CD/A16]** and section 4.6 of the Options Report **[CD/D19]** also explain how the abovementioned options were assessed.

***Consultation during the development of the BSCU Order scheme***

5.8.8 Consultation carried out in the Autumn of 2013 generated a total of 621 written responses. 459 were supportive of the project, while 21 expressed some opposition and 141 comments did not state clear support or opposition. Comments were received on a wide variety of themes, the most common of which were about the timescale for the project, expressing a desire for the works to be completed early (63 comments); the need to improve access to the DLR platforms (45 comments) or the general need to improve interchange access (44 comments).

5.8.9 Specific concerns were raised about:

i. construction work sites and construction activities including the use of Arthur Street as a construction site, the impact this could have on neighbouring properties and the effect closure could have on traffic;

ii. impact of the works in relation to noise, vibration and settlement;

iii. timescale of the proposed works, suggesting that construction should be completed quicker;

iv. improving interchange and accessibility; and

v. potential disruption to the station during construction.

5.8.10 The Summer 2014 consultation generated a total of 708 written responses. The majority of these came from people who use Bank station regularly (443 responses (47%)) or work near Bank (305 responses (32%)). Comments were received on a wide variety of themes. Most responses were supportive of the proposal and concerns were again raised by owners and occupiers of properties in the vicinity of the proposed works about the potential impact of construction activities. 347 responses were also received about the potential impact of the proposed Blockade of the Northern Line City branch.

**5.9 Scheme refinement following submission of the BSCU Order application**

5.9.1 A number of modifications are proposed either as a result of advanced works being permitted through alternative consents or project refinement.

5.9.2 There is no longer a requirement to undertake works to provide alternative access for fire service vehicles when Arthur Street is closed. Works to remove bollards at the junction of Suffolk Lane with Upper Thames Street and remove and relocate motorcycle parking at this location to allow fire service vehicles to access Cannon Street via Suffolk Lane and Bush Lane have already been undertaken under an agreement with the City of London Corporation in accordance with Section 8 of the Highways Act 1980.

5.9.3 As a result of further engineering design work there is no longer a requirement for a construction shaft on Walbrook for the purposes of accessing the Low Level 2 Sewer to undertake the protective works. Access will be secured through the Whole Block Site and an existing access point on Walbrook.

5.9.4 In response to a representation from the City of London Corporation, it is proposed that the provision in the draft BSCU Order **[CD/A2]** which allows for the disapplication of the London Permit Scheme is removed. In addition, a separate Traffic Order under Section 6 of the Road Traffic Regulation Act 1984 is proposed by TfL to vary the vehicle weight restriction. The Traffic

Order is currently being consulted upon and, subject to consultation responses, the Order is anticipated to come into force in January 2015.The traffic regulation provision set out in Part 6 of Schedule 9 to the draft BSCU Order, which provides for the suspension of the 18 tonne vehicle weight restriction on the northbound carriageway of King William Street at Monument Junction, would not need to be exercised subject to the Traffic Order coming into force.

**5.10 Summary of the Scheme Development**

5.10.1 The project aims for the BSCU were derived from a series of robust technical assessments between 2002 and 2012 based on a clear understanding of how the station operates today and how this is going to change in the future. An iterative design and assessment process at increasing levels of detail has been undertaken as the scheme has developed through the different stages. The project aims have been used in the scheme assessment and development process.

5.10.2 This enabled an innovative procurement process to be run, which focussed on delivering these requirements and further improving the scheme design. This resulted in an improved station design being procured from Dragados SA which included a moving walkway for passengers interchanging between the Central Line and Northern Line; escalators and lifts for access from the new Station Entrance Hall; a reduction in the construction programme and cost facilitated by a second work site as an independent tunnel access point. .

5.10.3 The subsequent development of the BSCU Order scheme with the input of LUL’s contractor Dragados SA at this early stage represents best practice and has provided greater confidence that the overall aims of the project can be delivered.

## 6. SCHEME DESCRIPTION, CONSTRUCTION AND OPERATION

### 6.1 Overview

6.1.1 The BSCU includes provision for a new passenger entrance with lifts and escalator connections; a new Northern Line passenger concourse using the existing southbound platform tunnel; a new Northern Line southbound running and platform tunnel; and new internal passenger connections between the Northern Line, the DLR and the Central Line.

6.1.2 The following sections describe the various parts of the BSCU and how these will be constructed. Appendix 3, Figure 5 illustrates the proposed improvements.

### 6.2 A new Station Entrance Hall

6.2.1 A new Station Entrance Hall will be constructed within the footprint of the site bounded by King William Street, Nicholas Lane, Cannon Street and Abchurch Lane. Appendix 3, Figures 6 and 7 show the general arrangement and how the new Station Entrance Hall might look on Cannon Street. Figure 9 also illustrates examples of existing entrances into Bank Station.

6.2.2 The new entrance will open on to Cannon Street at the junction with Nicholas Lane. The entrance will have a canopy extending over the pavement for weather protection as well as to advertise the station. Bollards at the pavement boundary will be provided for security and to protect passengers at the entrance. Nicholas Lane will feature a level surface for pedestrians and vehicles. The new entrance will include a ticket gateline, ticket machines, passenger information and circulation space as well as staff facilities, plant rooms and associated retail space. The Nicholas Lane façade will include louvers to ventilate the plant rooms. A new pedestrian crossing will also be provided across Cannon Street.

6.2.3 From the Station Entrance Hall, a set of triple escalators will take passengers to the Northern Line concourse via an intermediate level. Two 17-person passenger lifts (which also double as fire-fighting and evacuation lifts) will be provided to access the Northern Line, one of which will also continue down to the DLR level. An emergency intervention/escape staircase will be provided within the lift shaft.

### 6.3 Northern Line Improvements

6.3.1 To improve circulation at the Northern Line platform level, the existing southbound platform will be converted into a new central passenger interchange and access concourse. A new platform and running tunnel, to

accommodate the southbound Northern Line, will be constructed west of the existing platform. The new tunnel will be approximately 700m long. It will diverge from the existing southbound track beneath a point approximately 14m north of the junction of Gresham Street with Lothbury and it will link back into the existing Northern Line tunnel south of Lower Thames Street.

6.3.2 Four new cross-passages will be constructed which will link the platforms and concourse, with three also connecting with new interchange routes. These comprise (see Appendix 3, Figure 5):

i. the northernmost cross passage (CP1) which will link with a new tunnelled passageway that will provide improved passenger interchange between the Northern and Central Lines via a pair of moving walkways (see section 6.4 below);

ii. cross passage two (CP2) which will connect to a of set of triple escalators that will allow improved interchange between the Northern Line and DLR;

iii. cross passage three (CP3) which will provide access to the escalators up to the Station Entrance Hall; and

iv. the southernmost cross passage (CP4) which will link to the north and southbound platforms.

6.3.3 Three new adits (openings) will be created linking the new passenger concourse and the existing northbound platform.

6.3.4 The existing passenger lift linking the Triplication with the DLR will be upgraded to allow additional connection with the Northern Line. A walkway will be provided from this lift to the Northern Line concourse and platforms.

**6.4 Central Line Improvements**

6.4.1 A new tunnelled passageway (Central Line Link) from the Northern Line concourse, with moving walkways approximately 95m long, will provide access to a set of triple escalators which will take passengers up to the Central Line platforms via an existing cross passage which is to be reconstructed and enlarged (see Appendix 3, Figure 5). A second cross passage at the far (western) end will provide improved access between the eastbound and westbound platforms of the Central Line.

6.4.2 Supporting infrastructure will include a cable tunnel between the Central Line Link and the existing Central Line ticket hall, and new electrical and communications rooms for the operation of the station.

### 6.5 DLR Improvements

6.5.1 A new set of triple escalators connecting the Northern Line and the DLR will be provided. Two new cross passages will link the DLR arrival and departure platforms with the existing DLR passenger concourse and a third will link the DLR arrival platform to the existing passenger concourse.

### 6.6 Construction of the BSCU

6.6.1 Appendix 3, Figure 8 shows how the BSCU will be constructed from two work sites. The first work site will be at the site bounded by King William Street, Nicholas Lane, Cannon Street and Abchurch Lane (the Whole Block Site). The Whole Block Site will be used to construct the escalators, cross passages and new Northern Line passenger concourse. A second smaller work site will be located on Arthur Street (see Appendix 3, Figure 8). A shaft will be sunk at Arthur Street and used to excavate the new Northern Line southbound train tunnel. The disused King William Street underground station (comprising the former platform and running tunnel) located beneath the junction of King William Street and Arthur Street will be used for logistics purposes during construction.

6.6.2 Construction is anticipated to commence in 2016 with the diversion of utilities within Arthur Street prior to construction of the Arthur Street shaft. The tunnelling and below ground excavation will start towards the end of 2016 and will take approximately four years (completing late 2020) with peak tunnelling activity occurring in 2017. Construction of the Station Entrance Hall is programmed for 2021.The Whole Block Site currently comprises six buildings. The majority of these buildings will be demolished during 2016 –2017. The rear extension of 20 Abchurch Lane will also be demolished and the rear of the building made good. The main building and associated façade will be retained and used for project offices and site welfare facilities during construction works.

6.6.3 In demolishing the Whole Block Site to construct the BSCU there is a need for a replacement development. As discussed in Chapter 2, planning permission for an OSD located over and around the new station entrance was granted by the City of London Corporation on 27 June 2014 **[CD/B1]**. It is expected that construction of an OSD is likely to be undertaken between 2021-22 and 2023-25. Demolition of the remainder of 20 Abchurch Lane, including dismantling and replacement of its façade, will be undertaken as part of the OSD construction works.

### 6.7 Tunnelling

6.7.1 The construction of the new southbound Northern Line tunnel, cross passages, openings, walkways and escalator barrels will be carried out using

the sprayed concrete lining technique. This involves excavating the ground and spraying excavated surfaces with steel fibre reinforced concrete. This has been used extensively in a number of recent projects including construction of the Crossrail stations.

6.7.2 During the construction of the new running tunnel works to remove, modify, reconstruct, alter, replace or interfere with piles, caissons, foundations and other subterranean structures of existing buildings will be carried out where required at locations where these are intercepted by the new tunnels

6.7.3 The preferred solution for these works will be to break out the affected section of the existing pile (or other structure described above) so that it remains structurally independent of the new tunnel. Where such independence is not possible then a temporary tunnel enlargement will be constructed into which is built a reinforced concrete tunnel lining which shall provide the necessary support to the pile load. In this circumstance particular consideration will be given to the track form and the pile connection in order that the transmission of noise and vibration from the operational railway to the structure remain below identified acceptable levels.

### 6.8 Northern Line Blockade

6.8.1 During the final phases of construction when the new tunnels and infrastructure are connected to the existing network, a period of closure (referred to as the Blockade) of the Northern Line will be required between specified points. The Blockade will comprise the following:

***Full closure***

i. Northern Line both northbound and southbound – 40 days track closure between Kennington and Moorgate (April- May 2020).

***Partial closure***

ii. Northern Line northbound – trains non-stopping at Bank Station for 77 days (May -August 2020).

iii. Northern Line southbound – 77 days track closure between Kennington and Moorgate (May -August 2020).

6.8.2 Alternative transport routes and additional services will be implemented during this time to maintain commuter services. These are discussed further in section 7.2.

### 6.9 Utilities, Protective Measures and Other Works

6.9.1 Works to divert and protect utilities affected by construction are also proposed. The main utility works for the BSCU comprise:

i. diversion of utilities at Arthur Street to allow construction of the shaft;

ii. diversion of utilities and protective works to the Low Level 2 Sewer (an west-east sewer between Cannon Street and King William Street) and to the London Bridge Sewer (a north-south sewer running beneath King William Street); and

iii. minor protective works to utilities to ensure there are no impacts from settlement.

6.9.2 Tunnelling and shaft excavations during the construction phase can generate varying amounts of movement in the overlying and surrounding ground. Monitoring and surveying structures and roads both prior to and during the construction works will be undertaken to provide data to:

iv. inform the need to protect existing assets or their operation; and

v. inform decisions for construction activities.

6.9.3 Protective works to buildings (including listed buildings) and roads will be carried out where the ground movements and damage analysis indicates this is required. This may include grouting works which need to be carried out via excavated shafts. The location of the potential compensation grouting shafts and the main utilities work sites is shown in Appendix 3, Figure 8.

6.9.4 Protective works will be identified and carried out in accordance with Chapter 14 of the Code of Construction Practice(CoCP) (**[CD/A18]** A4.1)**.** Consideration will be given to existing building operations when determining the programme for protective works.

### 6.10 Access, Servicing and Highway Management

6.10.1 During construction, access to the Whole Block Site will be provided from Cannon Street, with an entrance in the southwest corner of the site and egress from the southeast corner. Site access will be protected with secure gates and security staff will be present. Hoardings of 3.6m high will be provided around the site boundary. They will be externally lit and painted and maintained in good condition at all times. Access to the Whole Block Site during demolition will also be provided from Nicholas Lane. Tunnel scaffold gantries will be erected on King William Street and Cannon Street to protect pedestrians.

6.10.2 The northern section of Nicholas Lane adjacent to the Whole Block Site will be closed during demolition, so that demolition waste can be loaded into vehicles on Nicholas Lane. Some short term intermittent closures of Nicholas Lane during normal working hours may also be needed during the piling phase of construction. During demolition the site hoarding will also extend to

the curb of the eastern pavement along Abchurch Lane; it will extend further across the highway during the roof demolition works. Closure of the roads to traffic is expected to be required on approximately four occasions, each for up to 48 hours. The closure of Nicholas Lane and Abchurch Lane will not occur concurrently.

6.10.3 The Arthur Street Work Site will temporarily occupy the road between Upper Thames Street and King William Street (see Appendix 3, Figure 8). It will require closure of the carriageway of Arthur Street for the duration of the construction works. Hoarding 3.6m high, similar to the Whole Block Site, will be provided around the site and a tunnel scaffold gantry will be erected on King William Street in the vicinity of Arthur Street to protect pedestrians. Arthur Street will also be used as a regulating area for construction vehicles needing to access the Whole Block Site, 130m to the north.

6.10.4 Alternative access to Cannon Street for fire and other emergency service vehicles when Arthur Street is closed will be provided via Suffolk Lane, Bush Lane or Gophir Lane.

6.10.5 During road closures pedestrian access and access for servicing and deliveries to affected buildings will be maintained.

6.10.6 There will also be a requirement for closure and part closure of a number of roads to undertake works to divert and protect utilities affected by construction. Appropriate phasing of these works will ensure that only one lane of any strategic road will need to be closed at a time and access to affected buildings for servicing and deliveries and pedestrians will be maintained.

### 6.11 Programme

6.11.1 The anticipated programme for the BSCU is as follows:

i. BSCU Order granted - expected in 2016;

ii. Demolition of existing buildings (including the rear extension of 20 Abchurch Lane) in approximately 2016/17;

iii. Construction of the BSCU during 2016 – 2021; and

iv. Construction of an OSD is likely to be undertaken between 2021/22 and 2023/25.

# 7. ENVIRONMENTAL ISSUES

## 7.1 Introduction

7.1.1 The BSCU Order application is supported by detailed assessments of all principal effects of the project, drawn from extensive experience of tunnelling in London on Crossrail, the Jubilee Line Extension, and the DLR and Northern Line Extensions. These are set out in the Environmental Statement (ES) accompanying the application **[CD/A16]** and its supporting figures **[CD/A17]** and appendices **[CD/A18-CD/A22]**. The application also includes a comprehensive Transport Assessment (**[CD/A19]** A8.1) The ES **[CD/A16]** describes the environmental effects arising from the construction (including demolition) and operation of the BSCU.

7.1.2 Independent reviews of the draft ES **[CD/D28, CD/D29 and CD/D30]** were undertaken in June and July 2014 and considered whether the assessment complied with each relevant requirement of the Transport and Works (Applications and Objections Procedure) (England and Wales) Rules (2006) **[CD/E9]**, along with relevant best practice. The reviews confirmed that the ES is adequate and contains no important omissions.

7.1.3 Overall, the ES **[CD/A16]** identifies relatively limited adverse environmental effects from the development of the BSCU with only a limited number of significant adverse effects likely to arise for a temporary period during its construction. This is partly due to the fact that the scheme is predominantly underground but also, importantly, due to the care that has been taken in the design of the BSCU and the site selection. This has been supported by close engagement with the City of London Corporation, the public, landowners and other interested parties. This approach has made the most significant contribution to maximising the practical benefits of the project, whilst limiting the likely adverse effects on the local environment.

7.1.4 In addition, mitigation measures and strategies have been incorporated into the design of the scheme and form part of the management of the construction phase. These will be implemented to avoid or limit potentially adverse environmental effects. These include:

i. Compliance with a Code of Construction Practice (CoCP) and Construction Logistics Plan (CLP)**.** The CoCP details the work site controls and environmental monitoring that will be implemented at each work site to protect the environment and limit disturbance, and the CLP presents the measures to manage the movement of construction traffic within and between the work sites to minimise impacts on the surrounding road network, including on cyclists and pedestrians. Final

versions of both documents will be submitted to, and agreed with, the City of London Corporation taking into account other stakeholders concerns. This is a draft condition of the deemed planning consent **[CD/A10]** for the BSCU. A draft CoCP (**[CD/A18],** A4.1) and a draft CLP (**[CD/A19]** A8.2) were submitted with the BSCU Order application.

ii. Undertaking defect surveys prior to any tunnelling activities taking place so that any effects of settlement to buildings can be monitored and addressed as appropriate. This will be undertaken on properties predicted to experience 10mm or more of settlement as result of tunnelling.

iii. A design objective for the new running tunnel to achieve, in all reasonably foreseeable circumstances, a level of operational ground borne noise of no more than 40 decibels (dB) LAFmax within a habitable room in a residential property and reasonable endeavours will be used to achieve 35 dB LAFmax. A design objective of no more than 40dB LAFmax will be used for offices. The use of the 'Fast' time period results in this being a more stringent criterion than has been committed to by other contemporary large scale UK rail projects (with the exception of LUL's own Northern Line Extension where a similarly stringent criterion was applied).

iv. LUL will comply with a set of planning conditions submitted as part of the request for deemed planning permission.

## 7.2 Summary of Environmental Effects

7.2.1 The scope of the EIA was established by considering the likely significant effects of the BSCU without effective mitigation. An EIA scoping opinion was sought from the Department for Transport and the City of London Corporation and other statutory bodies were consulted. The following sections provide a summary of the topics assessed and the residual environmental effects, including in-combination effects, of the BSCU, taking into account measures proposed to avoid or reduce adverse effects where these have been identified and those proposed to maximise beneficial effects. In addition, the summary, where relevant, considers the effects of the changes to the BSCU following the submission of the BSCU Order application.

***Townscape and visual amenity***

7.2.2 The townscape of the area around Bank Station is of great sensitivity to change given the proximity of historic buildings that comprise the Bank Conservation Area. Although much of the above ground demolition and construction activity at the Whole Block Site and Arthur Street Work Site will be screened from view, adverse effects on the townscape during the five year

construction period are predicted. Visual impacts from the features and activities of demolition and construction are also predicted to detract from the views of people living and working in the area, especially from more valued views, for example, from Abchurch Yard or The Monument. These effects are considered to be significant for tourists, visitors and other recreational users. Compliance with Chapter 12 of the CoCP (**[CD/A18],** A4.1), which requires the provision of appropriate site hoarding and lighting and maintaining clean and tidy work sites as far as is reasonable, will limit these effects.

7.2.3 During operation, the new Station Entrance Hall, which has been designed to reflect and enhance the historic context within which it is located, will result in overall benefits to the local townscape.

***Transport and movement***

7.2.4 Potential adverse effects of road and footway closures and diversions, and the additional traffic during demolition and construction of the BSCU upon drivers, pedestrians and cyclists, as well as users of local properties are expected. These will be minimised through implementing measures including the provision of a traffic management plan for construction traffic and maintaining access as set out in the CoCP (**[CD/A18],** A4.1)and the outline CLP(**[CD/A19],** A8.2).

7.2.5 Delivery routes to the work sites have been selected to minimise disruption to other road users. Vehicles making deliveries or removing excavated material will travel via designated routes which will be agreed with the City of London Corporation, TfL and the City of London Police as required. Designated routes will be stipulated within the contracts of the suppliers to the project.

7.2.6 The closure of Arthur Street means that vehicles that currently use this route will be redirected including bus services. Utility works will require the closure of other local roads. The diversion routes and timing of these works will be programmed so as to minimise impacts.

7.2.7 During the Blockade (discussed in section 6.8) when the new Northern Line southbound running tunnel is joined to the existing tunnels, there may be significant adverse effects during this time on passengers' comfort through increased crowding on some routes, and increased journey times. Advice will be provided to passengers on using alternative routes and other London Underground lines. In addition, bus services will take up some of the diverted passengers. For example, many will use the Northern Line Charing Cross branch, and more trains will be run to help cope with this. Other travellers will opt to take buses across Waterloo Bridge, Blackfriars Bridge and London Bridge, and extra bus services will be provided on routes past these points. The closure is also expected to increase the number of people walking

between Moorgate, Bank and London Bridge. Measures such as decluttering to increase walking space will be considered.

7.2.8 In the long term, during operation, the BSCU will have significant benefits for passengers using Bank Station in terms of access, journey time and general comfort. These benefits are discussed further in Chapter 10.

***Noise and Vibration***

7.2.9 For the assessment of noise and vibration effects of the BSCU, baseline surveys were carried out to identify sensitive receptors and to establish the existing levels of noise and vibration. Computer modelling was then used to predict future noise levels.

7.2.10 The very close proximity of some properties to the Whole Block Site and other work sites means some significant temporary noise effects are predicted to occur on people and property as a result of certain demolition and construction activities above ground. This is expected to affect five properties adjacent to the Whole Block Site and the compensation grout shaft proposed in Walbrook. The significant adverse effect at St Stephen Walbrook Church, as a result of airborne noise from the shaft which was originally proposed at Walbrook for the Low Level 2 sewer works, is no longer expected. Significant adverse effects at the majority of properties close to the work sites will be avoided by using the techniques set out in the CoCP (**[CD/A18],** A4.1)such as the use of quiet and low vibration equipment, appropriate screening and positioning of noisy equipment. Monitoring will be undertaken at locations agreed with City of London Corporation to ensure that the mitigation measures are effective.

7.2.11 Groundborne noise from below ground construction activities is expected to affect properties temporarily. Best practicable means will be employed to reduce the time and number of locations where percussive breakers will be required. Works may need to be undertaken out of normal office hours when the potential to disturb office workers is minimised. At locations where the new running tunnel will intercept existing piles, where there is connectivity between the pile and the tunnel, alternative breakout techniques or agreed timings with the affected properties will be employed such that significant effects are considered unlikely.

7.2.12 In terms of operational noise and vibration from trains using the new running tunnel, the new tunnel and railway have been designed to minimise noise and vibration and avoid significant adverse effects. The design objective proposed to be achieved is discussed in paragraph 7.1.3. Significant adverse effects of groundborne noise and vibration during operation are not anticipated.

***Built Heritage***

7.2.13 In the Bank area there are numerous listed buildings (including the Grade I St Mary Abchurch and Mansion House), scheduled monuments and conservation areas in close proximity to the BSCU below and above ground works.

7.2.14 During construction, there is the potential for adverse effects on the physical integrity of built heritage assets such as listed buildings arising from settlement generated by tunnelling. Significant adverse effects on these assets are unlikely as, in accordance with the CoCP, protective works to buildings will be carried out where necessary, with specific measures agreed for each building affected. Works could comprise small cosmetic repairs, providing additional support, or temporarily removing vulnerable features. Injection of grout into the ground to reduce ground movement may be used if required. Settlement will be monitored before, during and after construction to detect if and when controls or protective measures could be needed.

7.2.15 The construction of the BSCU from the various work sites proposed also has the potential to affect the setting of listed buildings and the Bank Conservation Area as well as the historic fabric of the disused King William Street Station. These effects are unlikely to be significant and will be regulated through the implementation of the CoCP (**[CD/A18],** A4.1), which requires LUL's contractor to carry out the works in such a way as to minimise the risk of damage to listed buildings and to implement a programme of historic building recording in respect of the disused King William Street station.

***Archaeology***

7.2.16 There is potential for archaeological remains of various importance and sensitivity in the shallower ground beneath the Whole Block Site, Arthur Street Work Site and utility works and grouting shaft sites in Walbrook to be disturbed during construction. An appropriate programme of archaeological investigation, recording, analysis and publication will be agreed with the City of London Corporation's Historic Environment Advisor and implemented at each site. Significant adverse effects on archaeological remains are not considered likely.

***Air Quality***

7.2.17 Dust emissions and emissions from on site vehicles and plant during the demolition and construction phases of the BSCU have the potential to affect the amenity or health of receptors in the area. A range of measures for the control of these effects at the work sites are proposed in the CoCP (**[CD/A18],** A4.1) and will be adhered to by LUL's contractor Dragados. These are set out in Chapter 7 of the CoCP (**[CD/A18],** A4.1) and include the specification and

use of construction vehicles and equipment, site maintenance and the appropriate storage and handling of materials. No significant adverse effects are therefore likely.

7.2.18 Lorry movements associated with construction and traffic diversions as a result of the closure of Arthur Street and utility works have the potential to adversely affect local air quality. Modelling of these effects indicates that significant air quality effects could be triggered at two locations (on Cannon Street and near Upper Thames Street) during the peak period of construction in 2017. However, the assessment considers a worst case scenario in terms of the routes drivers may take immediately following the temporary closure of Arthur Street. This scenario is only likely to occur for a short duration (days) after which awareness of the road closure will disperse traffic across other routes. The effects are not therefore likely to be significant.

***Water Resources and Flood Risk***

7.2.19 Potential impacts upon the water environment (aquifers, buried rivers, and Thames Water water supply and drainage infrastructure) during demolition, construction and operation of the BSCU have been assessed.

7.2.20 Dewatering during the construction of shafts/below ground structures in Arthur Street, Walbrook and the Whole Block Site has the potential to reduce the quantity of water available, therefore affecting the shallow aquifer present. To minimise adverse effects upon the aquifer, a waterproofing strategy has been developed which includes the use of secant pile walls and the management of groundwater inflows.

7.2.21 Pollution of the water environment during the construction of shafts and tunnels could also occur. Measures set out in the CoCP (**[CD/A18],** A4.1)include the appropriate management and disposal of wastewater and storage of site materials.

7.2.22 There is also potential for increased flood risk from the River Thames or from damage to existing water pipes as a result of the construction of the Arthur Street shaft and the connection to existing and proposed underground infrastructure. A permanent capping slab in the Arthur Street Shaft is to be constructed between the disused King William Street Station and the new running tunnel. In addition, the City and South London tunnels will be isolated from the disused King William Street Station.

7.2.23 Significant adverse effects on the water environment during demolition, construction and operation of the BSCU are not considered to be likely.

***Land Contamination***

7.2.24 Research and a review of nearby intrusive ground surveys have indicated that during construction, no major areas of contaminated land are expected to be disturbed and groundwater contamination is unlikely.

7.2.25 The measures proposed in the CoCP(**[CD/A18],** A4.1) are however sufficient to protect construction workers, the public and the water environment if any contamination is encountered, and to deliver appropriate storage and disposal of contaminated material.

***Waste Management and Resource Use***

7.2.26 Waste will be generated during the demolition, construction and operational phases of the BSCU. Effects of operational waste upon waste management in London will be negligible.

7.2.27 During demolition and construction a target of 95%recovery for beneficial reuse or recycling has been set for the approximate 200,000 tonnes of construction, excavation and demolition material anticipated to be generated. Waste materials will be transported off the work sites for segregation, recycling or reprocessing and use at other sites. This is predicted to have a negligible effect on waste management provision in London.

***Socio-economics***

7.2.28 The assessment of socio economic effects considered potential effects on the local economy and community in the context of the existing characteristics of the area.

7.2.29 During demolition and construction phases, approximately 200 jobs will be created. Although businesses will be displaced from the Whole Block Site as a result of demolition of the buildings there, this will not be significant as they will be expected to relocate easily within the area given the availability of local office space.

7.2.30 As the main transport interchange for the City of London and East London financial districts the effective operation of Bank Station is critical for the City of London to function successfully and to enable further growth in its economic base. The BSCU will deliver reduced station closures and disruption, reduced journey times, an enhanced environment and better access to the City for commuters and will therefore significantly benefit businesses and the London economy. The long term and wider economic benefits of the BSCU are discussed further in Chapter 10 of this Statement.

***In combination effects***

7.2.31 In addition to the topic-based assessments, the ES considered how effects from the BSCU could combine with one another (inter-relationships); and/or with those from other proposed development projects (cumulative effects).

7.2.32 Inter-relationships of construction effects (e.g. the potential combined impacts of noise, dust and visual impacts on a single receptor) will be reduced by the implementation of mitigation measures described in the CoCP (**[CD/A18]** A4.1) and, considering their relatively temporary nature, it is not considered likely that they will be significant.

7.2.33 As set out in Chapter 17 of the Environmental Statement **[CD/A16]** the assessment of cumulative impacts of the BSCU with nearby development projects considered schemes which were:

i. within 500m of the BSCU;

ii. had been submitted for planning, have permission or resolution to grant or are under construction; and

iii. are regarded as major applications – of a significant scale or importance and thus are over 10,000$m^2$ uplift in Gross External Area and/or are referable to the Greater London Authority (Mayor of London).

7.2.34 This included, amongst other developments, the proposed redevelopment of 33 King William Street. The assessment concludes that the BSCU with nearby development projects is not expected to lead to additional significant adverse cumulative effects.

7.2.35 In combination with the new Station Entrance Hall, the completed OSD is likely to significantly benefit the local townscape, as well as local views along King William Street and Cannon Street.

# 8. CONSULTATION AND ENGAGEMENT

## 8.1 Consultation phases

8.1.1 Consultation with stakeholders who are likely to be affected by the proposals or have an interest in the scheme has taken place at key stages of the BSCU. Four phases of public consultation have been carried out to help publicise the project and inform the design of the BSCU. Table 8.1 provides a summary of these phases.

**Table 8.1: Consultation phases**

| Phase | Consultation period | Consultation objectives |
|---|---|---|
| 1 | Autumn 2011 | • Communicate the concept of the BSCU Works and proposed tunnel alignments.<br>• Seek early feedback on the proposal from the public. |
| 2 | Spring 2012 | • Seek feedback on two proposed property acquisition options.<br>• Seek feedback on three proposed station entrance options. |
| 3 | Autumn 2013 | • Seek feedback on the evolving proposals and understand the level of support or opposition on proposals overall.<br>• To understand any issues that might affect the proposal which the project team were not already aware of |
| 4 | Summer 2014 | • Seek feedback on proposals overall.<br>• Seek feedback on the assessment of the potential environmental effects of the construction and operation of the proposed scheme.<br>• Seek feedback on the approach to mitigating impacts.<br>• Seek feedback on the assessment of the implications of the temporary closure of the Northern Line in 2020 and |

## 8.2 Approach to pre-application consultation

8.2.1 Stakeholders consulted have included: Government bodies; statutory bodies; transport, travel and equalities groups; the travelling public; local businesses and guilds; the media; sensitive community receptors; and those directly affected by the project through pile interception, access, land and property acquisition or potential settlement issues.

8.2.2 Recognising the diverse range of stakeholders with different interests in the project, consultation has been carried out using a variety of communication and engagement activities.

8.2.3 Information about the BSCU has been produced in different formats and with different levels of detail. A series of websites were developed to support each phase of the public consultation. These websites have provided up-to-date information on the BSCU as the proposed scheme developed and enabled stakeholders to provide feedback direct to the project team via a dedicated email address. Project information was also included on the main TfL website in the context of material about the Tube Upgrade Programme. Factsheets and briefing notes providing general project information; details of key project impacts and their mitigation were also made available.

8.2.4 Public exhibitions have been held to enable interested parties to review details of the scheme, speak to members of the project team and provide feedback. Exhibitions were held over several days in accessible locations in the Bank area during each consultation phase. A model, animated presentation and images were provided at these exhibitions to help illustrate key elements of the scheme design.

8.2.5 Written communication has included letters and emails sent directly to key stakeholders to provide updates on the proposals, advertise consultation exhibitions and encourage feedback. In addition, leaflets were sent to property owners and occupiers in the vicinity of the BSCU area on four separate occasions to provide information on the project and publicise the exhibitions. Furthermore, leaflets providing an overview of the project were distributed to the travelling public at Bank Station during each of the four consultation phases.

8.2.6 Publicity for the project and the consultation phases was also delivered through adverts in the Metro; emails to Oyster Card users who use Bank Station (and in phase four, users of the Northern Line); and posters displayed at stations potentially affected by the BSCU.

8.2.7 Communication and engagement with Government and statutory bodies, local businesses and guilds, local residents and community facilities and those directly affected by the project has included face-to-face meetings and briefing sessions. Consultation with stakeholders, including City of London Corporation, English Heritage, London TravelWatch, Diocese of London and the Greater London Authority has also been maintained to identify and agree suitable design principles and mitigation requirements associated with the BSCU. LUL has sought to develop ongoing dialogue with these stakeholders since the start of the project. LUL has also signed Memorandums of Understanding (MoU) with the City of London Corporation and the Diocese of London. The MoU set out the principles of working together. Additional briefing sessions were offered to 140 interested parties.

### 8.3 Feedback received

8.3.1 From the start of the first consultation in Autumn 2011 stakeholders have had the opportunity to respond to the proposal in a number of ways, specifically:

i. written representation via the feedback forms available at the public exhibitions;

ii. electronic submissions via the dedicated email address on the project's consultation websites;

iii. direct contact with members of the project team following meetings or briefing sessions; and

iv. written submissions to the Bank project office.

8.3.2 Table 8.2 summarises the level of written feedback received during each consultation phase and the number of people attending the exhibitions.

**Table 8.2: Responses to consultation phases**

| Consultation Phase | Written responses received | Exhibition visitors |
|---|---|---|
| 1 | 185 | 254 |
| 2 | 288 | 221 |
| 3 | 621 | 430 |
| 4 | 708 | 261 |

8.3.3 Strong support for the BSCU was expressed during all consultation phases. Respondents cited the current issues of overcrowding and interchange difficulties experienced at the station as reasons why they supported the scheme.

8.3.4 Themes emerging during the first phase of consultation included requests to accelerate the programme for the works so the benefits for passengers could be delivered sooner. Concerns were raised regarding the disruption to services during the construction. The need for more congestion relief for the Central Line and Waterloo and City Lines was also raised.

8.3.5 During the second phase of consultation of the options presented the majority of respondents expressed support for the acquisition of all the buildings on the Whole Block Site and the provision of escalators with lifts to provide a step-free route to both King William Street and Cannon Street.

8.3.6 At the third phase of consultation, the main themes which emerged were the need for improvements to circulation space and interchange for the Northern

Line, DLR, Central Line and Waterloo and City Line; step-free access throughout the station; improved passenger comfort (e.g. temperature); and also shorter timescales for project completion. Concerns were also expressed about the temporary closure of the Northern Line City branch and disruption to the station during construction.

8.3.7 Concerns were also raised regarding the potential disruption caused by the proposed above ground works on the Whole Block Site and in Arthur Street.

8.3.8 At phase four, there was again strong support for and recognition of the need for the project. Other key themes expressed in the feedback received were the need for better interchange and accessibility throughout the station, and shorter timescales for project completion. Concerns were expressed about disruption to the station during construction, and the inconvenience caused by the temporary closure of the Northern Line City branch in 2020, particularly the ability of alternative routes to provide sufficient capacity. Local businesses and property owners raised concerns about the effect of the proposed Whole Block and Arthur Street construction sites.

8.3.9 All feedback received by the project team has been recorded, reviewed, taken into consideration and, where appropriate and practicable, incorporated into the iterative development of the BSCU. The Statement of Consultation **[CD/A5]** accompanying the application provides further detail regarding the project's response to the feedback received at the pre-application stage.

## 8.4 Post-application engagement

### *Drop-in session*

8.4.1 Following the submission of the BSCU Order application and prior to the closure of the formal representation and objection period, LUL held a drop in session at St Mary Abchurch, on Thursday 16 October 2014 between 2pm and 5pm, for stakeholders to view the application documents and speak to the project team.

8.4.2 Invitations were sent to all parties listed in the Book of Reference and other statutory bodies. A total of 84 people attended the session. The majority of those in attendance were local property owners and occupiers within the BSCU Order application area. Elected representatives and London TravelWatch also attended.

8.4.3 Questions and concerns raised related to:

i. the scheme in general;

ii. provision of access during road closures;

iii. the impacts of tunnelling on properties and the protective works required; and

iv. compulsory purchase aspects of the scheme.

***Ongoing engagement with stakeholders***

8.4.4 Engagement with the project's stakeholders has continued following the submission of the application and is currently ongoing. A 'relationship manager' has been appointed for each organisation or individual who has raised an objection or representation in relation to the Order application. These relationship managers provide a consistent and direct point of contact to the project team and enables questions and concerns to be promptly considered and addressed. Regular meetings have been held and correspondence exchanged thereby maintaining an ongoing dialogue with parties. This is discussed further in Chapter 12 of this Statement of Case.

## 9. COST AND FUNDING

9.1.1 The anticipated costs of the BSCU are identified in the Estimate of Costs **[CD/A9]** submitted with the BSCU Order application and are £563 million.

9.1.2 The current TfL investment programme covers the period from 2012 to 2021. The investment for BSCU was included as part of the Treasury's Comprehensive Spending Review of 2012 (as well as previously in 2009). This spending review provides the capital grant for funding major capital spending such as this scheme. The BSCU has been included in TfL's 10 year business plans and yearly budgets. Incremental approval for spending on the scheme has been approved at TfL's Board, most recently in July 2013 for the approval to enter into a design and build contract with Dragados SA, including procurement authority for the full contract. The structure of this contract provides a level of price certainty not usually found on projects at this stage given the early engagement with contractors within the design development as described in Chapter 5.

9.1.3 As a measure of LUL's commitment to the BSCU, LUL has spent over £100 million since 2003, the majority of this being the acquisition of property on the Whole Block Site.

9.1.4 Funding for the scheme is provided by the Department for Transport, as set out in the 2010 spending review letter to the Mayor of London, dated 20 October 2010 **[CD/D13]**.

9.1.5 On 3 July 2014, the TfL Board approved the submission of the BSCU Order application. The Mayor of London also gave his consent on 15 August 2014 to submit the BSCU Order application.

## 10. BENEFITS OF THE BSCU

### 10.1 Background

10.1.1 The BSCU will generate significant long term benefits for passengers who will use the station and the City of London and London more widely.

10.1.2 These benefits along with other social and environmental benefits which the BSCU is expected to deliver are discussed further in the following sections.

### 10.2 Passenger Congestion Relief and Journey Time benefits

10.2.1 The primary benefit of the BSCU is reduced congestion and improved journey times through Bank Station, delivered through improved capacity.

10.2.2 The assessment of the benefits related to the improved capacity being provided by the BSCU is based on a comparison between the journey times for passengers within the station with and without the scheme as assessed using Legion dynamic computer modelling. This is detailed in the Transport Assessment (**[CD/A19]** A8.1) and Chapter 8 of the ES **[CD/A16]** which accompanied the BSCU Order application.

10.2.3 The dynamic pedestrian modelling of movement through the station using Legion involves computer simulations and is an iterative process in which different scenarios can be modelled and the simulation refined and improved in each iteration. Usual practice would assess the benefits between a 'do-nothing' scenario and a 'do-something' scenario with the scheme implemented. However, a "do-minimum" scenario case with the implementation of the one-way system described in Chapter 3 and illustrated in Appendix 3, Figure 3 has been assumed because a "do-nothing" Legion model fails. The existing infrastructure cannot accommodate the predicted future passenger numbers and therefore Legion is unable to complete the simulation.

10.2.4 The modelling with the addition of the BSCU has then also been assessed assuming both forecast 2026 demand and a further 31% growth as a sensitivity test.

10.2.5 Under the 2026 with BSCU and 2026+31% with BSCU scenarios the BSCU is shown to operate effectively and will deliver significant improvements to the level of service and journey time savings..

10.2.6 As discussed in the Design and Access Statement **[CD/A24]** submitted with the BSCU Order application, there are approximately 81 possible interchange journeys within Bank Station between the different lines and street level. Of these:

i. 22 routes will directly benefit from the BSCU Project;

ii. 26 routes will indirectly benefit with reduced congestion and journey times;

iii. 15 routes are not logical or typically used routes; and

iv. 18 routes fall outside the reach of the BSCU Project (e.g. Central Line to Waterloo & City Line routes).

10.2.7 There are three key interchange routes between lines that will experience a reduction in travel time in excess of 20%:

i. passengers transferring from the DLR to the Northern Line in both the morning and evening peaks;

ii. passengers transferring from the Central Line to the DLR in the morning peak; and

iii. passengers transferring from the Central Line to the Northern Line in the evening peak.

10.2.8 With the exception of passengers transferring between the Northern Line and the Central Line in both peak periods and passengers transferring from the Northern Line to the DLR in the morning peak, interchanging passengers will experience an improvement in the connection time. The average time saving in the morning peak is predicted to be 197 seconds and 37 seconds in the evening peak.

10.2.9 In addition to the time saving stated above, there will also be quicker journey times for passengers for whom the new Station Entrance Hall on Cannon Street will be more conveniently located for the origin or destination of their trip.

### 10.3 Step-free access benefits

10.3.1 In line with the Mayor's Transport Strategy (2010) **[CD/C8]** which seeks to improve social inclusion by improving the ability for all to access London's opportunities and services, passengers will benefit from step-free access between the street and the Northern Line trains, and improved step-free access between street and the DLR trains.

10.3.2 The lifts to/from the new Station Entrance Hall will land at the southern end of the Northern Line platforms off a new cross-passage connecting the north and southbound platforms. The new southbound platform will be designed to achieve direct level access on to the train whilst the existing northbound platform will be modified with a raised section of platform to achieve direct level access on to the train. This raised section of platform will be located in

line with a prescribed train carriage that matches other Northern Line platform humps at adjacent stations. The raised section will be clearly signed from the lifts towards the southern end of the platform.

10.3.3 For passengers requiring step-free access to the DLR from the new Station Entrance, as with the Northern Line passengers, a lift will be provided from street level, which will stop at the Northern Line level before proceeding down to the DLR. The lift will land at the southern end of the platforms on the central DLR concourse and passengers will see the departures platform directly ahead of them. This step-free route is direct and deliberately located away from the busy area around the triple escalators which lead up to the Northern Line and the new Station Entrance.

10.3.4 An existing lift linking the Triplication area and DLR level will be upgraded with an additional stop at the Northern Line level to provide secondary step-free access to both the Northern Line and DLR.

10.3.5 The two new lifts and the upgrade of the existing lift will provide improved resilience for step-free access on to Northern Line and DLR trains from street level. These improvements will give passengers with a mobility impairment, including wheelchair users and those with heavy luggage who are not able to use stairs or escalators greater independent access to the station. In addition, they will provide additional operational resilience for emergency evacuation of the station.

### 10.4 Cost Benefit Assessment

10.4.1 A quantified assessment of benefits has considered the improvements described in section 10.2 and 10.3 as well as an estimate for additional secondary revenue generated by the BSCU; improved journey time for passengers travelling southbound on the Northern Line due to the removal of a speed restriction; and forecasts of demand. It has also taken into account the disruption to passengers of the Blockade as well as the other planned weekend closures in the construction programme

10.4.2 The business case for the BSCU **[CD/D32]**, in short, compares the benefits derived from the scheme with both capital and operating costs. The economic evaluation set out in the business case concludes that the scheme has a benefit to cost ratio of 4:1 predominantly from congestion relief and journey time savings. For a major project with the level of capital investment proposed this is considered high value for money. This ratio is based on a conservative methodology as result of difficulties in modelling major congestion relief projects and also does not include a number of non-quantified benefits.

### 10.5 Other social and environmental benefits

10.5.1 In addition to the quantified benefits discussed in sections 10.2 and 10.3, there are other social and environmental benefits of the BSCU which have not been quantified and included in the cost benefit assessment. These include:

i. **Benefits to passengers at Bank station outside of the peak periods**: Bank station experiences high levels of congestion outside of peak periods, particularly at weekends. The BSCU would benefit those using the station outside peak hours

ii. **London Bridge, Moorgate, Liverpool station closure and overcrowding avoidance:** The conditions at Bank station cause nearby stations (including London Bridge, Moorgate and Liverpool stations) to become vulnerable to closure due to overcrowding. These stations have limited spare capacity to cope with large numbers of additional passengers. Station control measures at nearby stations have been documented as a direct result of a station closure at Bank. The future scheme will reduce the occurrence of station closures at Bank and consequent station control measures at these nearby stations.

iii. **Northern Line train upgrade realised:** As discussed in section 3.4 congestion relief provided by the BSCU will mean that the planned Northern Line Upgrade programme would be able to realise the targeted train frequency and realise its full passenger benefits.

iv. **Reliability benefits:** Congestion relief will provide a more regular service and reduce the dwell times of the trains.

v. **DLR service disruption avoidance:** Additional vertical capacity from the DLR to the Northern Line and to street level will reduce the effect of station congestion on the DLR service pattern.

vi. **Safety Benefits**: The BSCU greatly enhances fire and evacuation protection measures. Evacuation lifts, smoke extraction and fire-doors which provide a place of safety for Northern Line/DLR within six minutes. As an example of an improvement at the station, the new lift lobby area at the Northern Line level can be enclosed by fire doors in the event of an emergency and could hold approximately 600 people.

vii. **Security Benefits:** A new comprehensive colour digital CCTV integrated with the station system and interfaced at the Communications Equipment Rooms at platform and basement levels will improve the security at Bank station.

viii. **Ambience Benefits:** The aged, congested and confusing internal network of the complex would be dramatically enhanced to provide a modern, high quality station with a quality of environment consistent with the design standards that TfL has demonstrated in other recent station upgrades

ix. **Station Reputation:** With the improvements provided by the BSCU Bank Station would become a station fit for its place at the heart of the City. The quality of that transformation is nationally important given the pivotal role which Bank Station plays in London's role as a world city.

x. **Avoidance of Station Closures:** The scheme delivers increased capacity that will enable the station to remain open under normal operating conditions, rather than relying on operational controls to manage high levels of congestion. Passengers will therefore benefit from undisrupted journeys.

xi. **Local townscape benefits:** The new station entrance has been designed to reflect and enhance the historic context, which will result in overall benefits to the local townscape especially in combination with the OSD with which it is integrated. In conjunction with the station entrance hall, the completed OSD is likely to significantly enhance the local townscape, as well as local views along King William Street and Cannon Street. The station design also includes provision for improvements to Nicholas Lane by providing a level surface and active frontage.

xii. **Reduction in climate change impacts:** The use of passive and energy efficient measures will cut the amount of operational carbon dioxide emissions generated by the station by an estimated 23 %.

10.5.2 The ES **[CD/A16]** submitted with the BSCU Order application includes a Sustainability Statement (**[CD/A19]** A6.2) which demonstrates how the BSCU meets the requirements of national policy, regional and local policy and identifies a number of these abovementioned sustainability benefits. A number of tools have been used to assess this, including CEEQUAL (an industry accepted method for assessing the sustainability performance of infrastructure projects) against which an 'Excellent' rating has been obtained for the Interim Client and Outline Design stage. An excellent rating is also targeted, and expected to be achieved, for the Whole Team Award which will be applied for upon completion of construction.

10.5.3 In addition, a Health Impact Assessment (HIA) (**[CD/A19]** A6.1) was submitted with the BSCU Order application and sets out the potential consequences for health and well-being from the construction and operation of the BSCU. The assessment concluded that the main direct influences on

health and wellbeing of the BSCU during operation include improved accessibility; improved travel experience; enhanced safety and reduced opportunity for crime and the fear of crime. In addition, it identifies that there are opportunities for physical activity during construction as a result of the need for alternative pedestrian routes. Although there may be some adverse health impacts during construction, these will be temporary only and are expected to be reduced as far as reasonably practicable through the implementation of measures set out in the CoCP (**[CD/A18]** A4.1).

10.5.4 More significantly, it concluded that the BSCU will lead to better access to the City of London for all commuters, which will support business and the London economy, particularly in terms of employment. Supporting employment will increase people's self-esteem and improve wellbeing, as well as helping to tackle poverty and deprivation.

10.5.5 An Equalities Impact Assessment (EqIA) **[CD/D20]** has been carried out in order to help inform on-going design development and construction planning for the BSCU. The EqIA sets out construction and operational action plans for implementation and monitoring of agreed design and management measures (over and above incorporated design measures). These measures will minimise adverse effects identified for equality target groups as well as enhance the equality benefits of the completed project.

### 10.6 Long term economic benefits

10.6.1 Long term economic benefits of the BSCU are also expected. Employment growth within the City is facilitated by three main factors: new office development; increased intensification of that development (including increased building heights); and changes to the way offices work and function with increased employment densities achieved through advancing technology, modern design and flexible/alternative working patterns. In order to underpin this growth London's transport network needs to respond to allow for additional demand.

10.6.2 The London Plan (2011) **[CD/C3]** set out employment growth projections for each London Borough. This estimated that employment in the City would grow significantly from 339,000 jobs in 2007 to 435,000 in 2031, which represents a growth of 28.1%. The Draft Further Alterations to the London Plan (2014) **[CD/C5]** have revised these projections from 418,000 in 2011 to 475,000 in 2036 which represents growth of a further 13.6%.

10.6.3 An assessment even of the known planned office pipeline developments within the City which have gained planning consent and are either under construction or soon to be under-construction estimates that this new office floor space could accommodate around 40,000 jobs based on standard job densities. A number of these developments stalled following consent due to

the downturn in the office market, including iconic developments such as the 20 Fenchurch Street, the Pinnacle and the Leadenhall Building (the Cheese Grater), but these are now all being brought forward. The infrastructure in the City must respond to meet the coming demand.

10.6.4 Bank Station also plays a pivotal role in connecting the City of London with Canary Wharf and the Isle of Dogs. Since the 1980's Canary Wharf has become a global financial centre. The DLR provides a key link between the City and Canary Wharf. In order to remain an attractive global financial centre and continue to attract business to locate here, this transport link needs to function efficiently and reliably.

10.6.5 London's economic function continues to evolve and change. The financial sector remains one of the main drivers of London's economy; however other emerging sectors are increasing the diversity of the capital's economic base. Not only does Bank Station provide a link to Canary Wharf and the Isle of Dogs, but the station also links to other key employment and economic hubs throughout London. This includes the traditional business sectors in Mayfair and the West End as well as new areas such as Kings Cross, Stratford City, Old Street and Shoreditch. Significant levels of growth are expected in these areas in particular, with increased demand for high quality office space, which will lead to the generation of new employment in London. The City of London plays a key role in supporting all business sectors by providing financing and other professional services such as legal and accountancy services.

10.6.6 Wider Economic Impacts (WEIs) reflect links between transport, employment density and productivity. The approach to assessing these was first developed for Crossrail in 2003 where the additional rail capacity provided by Crossrail was shown to enable an increase in central London employment. The essence of WEIs is the positive link between employment density and productivity: higher densities of employment are associated with higher levels of productivity. Transport is not generally a creator of economic growth but a lack of transport can constrain growth. If there is high demand from employers to locate in particular locations but no available transport capacity then they will have to locate elsewhere. If additional transport capacity enables higher density of employment it can add to productivity and output.

10.6.7 Conventional economic thinking suggests that the congestion at Bank Station imposes costs on its users, and adversely affects the economic activity that occurs in the area around the station. This cost will continue to mount as the congestion increases, driven by Bank Station users demanding higher wages because of the discomfort and unreliability or simply refusing to put up with those conditions. Alternatively, the costs may come from developers refusing to invest in more new developments in an area which is clearly transport capacity constrained or they may come from businesses choosing to locate in

areas where there is less crowding and unreliability for their staff journeys to work (in the UK or even overseas). Whatever the mechanism, the outcome could be lower growth around Bank and potentially in other areas affected such as the major interchange movement at Bank Station to Canary Wharf and the Isle of Dogs.

10.6.8 The effect could also be a dilution of the benefits that flow from the clustering of activity which creates enhanced employment densities. Even if business decisions are made such that economic activity occurs in a different location to avoid these costs, the relocation of economic activity has the potential to directly affect UK economic output due to the significant productivity differential between the City and the rest of the UK. It is widely accepted that capacity constraints do impact on land use and a capacity constraint at a key destination and interchange station in the centre of the City, which is growing rapidly, should be expected to impact upon future growth.

10.6.9 Therefore, the impact of BSCU is wider than the important direct benefits to passengers at Bank Station. The scheme forms part of a wider package which will allow for the continued success of the City of London and London as a whole, which in turn will have a major beneficial impact on the London and UK economy.

### 10.7 Summary

10.7.1 As discussed in section 1.6, the overarching aim of the BSCU project is to ensure that TfL continues to provide a fit-for-purpose public transport station complex to support the City of London.

10.7.2 The BSCU will deliver this by increasing the capacity of Bank Station so that it is able to handle present and forecast demand and thereby support economic growth. This will be achieved by improving access to the Northern Line and DLR areas of the station via a new passenger entrance and providing additional capacity as a result of a new Northern Line southbound running and platform tunnel, with new internal passenger connections and a new passenger concourse. Additional escalators and passenger connections between the Northern Line and the DLR and the Northern Line and the Central Line will also increase circulation space and improve interchange between these lines. This will minimise passenger journey time through the station and reduce crowding currently experienced.

10.7.3 Economic evaluation of the BSCU has concluded that the scheme's congestion relief and passenger journey time benefits result in a high value for money for a major project given the level of capital investment proposed. In addition, the BSCU will have wider economic benefits as the scheme will allow future economic growth in the City of London and other economic hubs

within London, such as Canary Wharf and the Isle of Dogs which in turn will have a major beneficial impact on the London and UK economy.

10.7.4 The new Station Entrance Hall, escalator and lift provision will also significantly improve the quality of access interchange and ambience at the station, including the provision of step-free access routes between street level and Northern Line trains and Northern Line and DLR trains. In addition, the existing step-free access between the street level and DLR trains will be improved and will provide additional operational resilience.

10.7.5 The increased capacity and access improvements the BSCU will provide, including two new lifts from street level which will also serve as fire fighting and evacuation lifts, will reduce passenger evacuation times. This will improve the emergency fire and evacuation protection measures at the station.

10.7.6 Furthermore, the scheme will deliver many other important social and environmental benefits including reliability, sustainability and reputational benefits at the station in addition to the congestion relief, passenger journey time savings and the long term economic benefits expected.

## 11. LAND AND PROPERTY REQUIRED FOR THE BSCU

### 11.1 Overview

11.1.1 The land which is intended to be acquired or used for the construction, operation and maintenance of the BSCU is shown on the deposited land plan (see Drawing BSCU-DRA-MAC-N133_Z-DR-T-0050 in **[CD/A12]**).

11.1.2 The limits of land to be acquired or used have been defined by identifying land that is required for the construction, operation, maintenance and protective works to take place, together with working space; and the land which will need to be acquired for the permanent structures associated with the BSCU, or over which rights are to be acquired to protect the operation of the BSCU and enable its maintenance.

11.1.3 Powers are sought in the draft BSCU Order **[CD/A2]** to acquire and use land and property in a number of different ways including:

i. permanent acquisition of land and property;

ii. permanent acquisition of rights over land and property;

iii. temporary use or possession of land; and

iv. access to land and property to carry out surveys and protective works.

### 11.2 Justification for the acquisition and use of land and property

11.2.1 The permanent acquisition of land and property is required for the purposes of the construction, retention and maintenance of the new station entrance onto Cannon Street and the underground railway tunnels proposed. The majority of the permanent acquisition is limited to subsoil (9m below the surface of the ground) where no surface acquisition is required. This is where tunnels pass through the land but more than 9m below the surface of the ground.

11.2.2 Powers to permanently acquire the buildings within the site bounded by King William Street, Nicholas Lane, Cannon Street and Abchurch Lane, known as the Whole Block Site, are proposed to enable LUL to construct the works and provide the permanent Station Entrance Hall in the eastern section of this site. The permanent acquisition of rights over land and property is required to give access and protection to permanent structures, so as to safeguard the operation of the BSCU. LUL has already sought to acquire property at the Whole Block Site and has acquired the head lease for 10 King William Street.

11.2.3 Temporary use of land is required to enable the construction of the BSCU where that land will not be required for the future operation of the BSCU. Temporary possession of land at the surface is necessary for some land

parcels to enable protective works to be carried out, crane oversailing near the Whole Block Site and to provide temporary means of access for vehicles.

11.2.4 The access to land and property to carry out surveys and protective works is also required to enable LUL to minimise the effects of the construction of the BSCU on existing land and property.

11.2.5 The only demolition of buildings and/or structures associated with the construction of the BSCU is the buildings within the Whole Block Site except for part of 20 Abchurch Lane. As discussed in Chapter 6, part of 20 Abchurch Lane will be retained and used for project offices and site welfare facilities during construction and would then be demolished as part of the OSD construction with its existing historic façade removed and reconstructed as part of the OSD. There is no demolition of private residential property.

11.2.6 In accordance with rule 15 of the Transport and Works Application Rules 2006 **[CD/E9]**, notices have been served by LUL on the owners, lessees and occupiers of land affected by the BSCU.

11.2.7 LUL's aim is to minimise the use of compulsory purchase and, in an effort to achieve that aim, in respect of surface land it is continuing to negotiate with landowners concerning the effect of the BSCU on their land. In many cases discussions with landowners regarding the project began well before the BSCU Order application was made and will continue to be given priority by LUL.

11.2.8 Through the use of the CoCP(**[CD/A18]** A4.1) and the CLP(**[CD/A19]** A8.2) , LUL will minimise the impact of the works on owners, lessees and occupiers of land affected, for instance by maintaining access or providing alternative access in situations where existing access is compromised.

11.2.9 The rights of property owners under the Human Rights Act 1998, particularly Article 6, Article 8, Article 14 and Article 1 of the First Protocol have been taken into account. Acquisition of the properties would not constitute an unlawful interference with any of these rights as it is in accordance with the law, is being done in the public interest, is proportionate to the public benefit achieved) and the payment of compensation. Any interference is therefore justified.

## 11.3 Summary

**11.3.1** The powers over land and proprietary rights sought in the draft BSCU Order **[CD/A2]** are for the construction, operation and maintenance of the BSCU and have been limited as far as possible to ensure that they are only those necessary for the requirements of the BSCU. LUL considers that there is a compelling and justified case in the public interest for these powers and proprietary rights to be granted as part of the proposed BSCU Order **[CD/A2]**.

# 12. OBJECTIONS, REPRESENTATIONS AND LETTERS OF SUPPORT AND NO OBJECTION

## 12.1 Overview

12.1.1 At the time of printing, 37 objections, six representations and eight letters in support have been received in response to the BSCU Order application. One objection has subsequently been withdrawn.

12.1.2 One letter of no objection has been received with regard to the seven Listed Building Consent applications **[CD/A25-CD/A31]**. In addition, one objection to the BSCU Order application also objects to the Listed Building Consent application at 1 King William Street **[CD/A28]**.

12.1.3 As discussed in Chapter 8, LUL is engaging with all those who have submitted objections or representations through correspondence and meetings with the aim of providing reassurance about the proposals and their potential impact and, if necessary, reaching a mutually acceptable agreement or undertaking, which will allow the objection to be withdrawn. This process will continue up to the public inquiry.

12.1.4 The majority of the objections received include statements of qualified support for the scheme, with only one objector stating an opposition to the scheme as a whole. The following section summarises the principal issues raised in objections and outlines LUL's overall position and response to them where appropriate. Where necessary, a more detailed response to remaining objections will be included in LUL's evidence to the public inquiry.

## 12.2 Issues raised in objections

### *Protection of utility assets*

12.2.1 Objections have been received from Thames Water Utilities and National Grid Gas with regard to the protection of their assets during construction and operation of the BSCU. Protective provisions for/agreements with these statutory undertakers are currently being negotiated.

### *Selection and acquisition of the Whole Block Site*

12.2.2 Five objectors question the identification of the Whole Block Site as the most suitable location for the construction of the BSCU and location of the new station entrance. LUL's rationale for choosing the Whole Block Site and the consideration of other locations (for example Phoenix House which has been suggested as a more suitable location by some objectors) for the BSCU is summarised in Chapter 5 of this Statement of Case and is further detailed in the Options Report **[CD/D19]**. LUL's approach to the acquisition of property

is set out in Chapter 11. The planning application for the OSD also considered alternatives to the Whole Block Site identifying the site as the preferred location for a new station entrance and from which to construct the BSCU. The use of the Whole Block Site for the station entrance and as a construction work site was endorsed by the City of London Corporation when the OSD was granted conditional planning permission on 27 June 2014 **[CD/B1]**.

***The need for a secondary work site and its location***

12.2.3 The need for a secondary work site and the identification of Arthur Street as the most suitable location has been questioned by three objectors. LUL's justification for the need for a secondary work site and its identification of a site in Arthur Street as the most suitable site, including the consideration of alternatives, is summarised in Chapter 5 of this Statement of Case and is further detailed in the Options Report **[CD/D19]**.

***Access, servicing and highway management***

12.2.4 Ten of the objections received identify concerns with the potential impact of the proposed construction works on access and servicing. These predominantly relate to properties on Arthur Street but also other streets which will be temporarily closed to vehicle traffic to allow utility works to be undertaken. Section 6.10 details the proposed access and servicing arrangements for properties affected by the work sites.

12.2.5 In addition, concern has been raised regarding the management of highway works as a result of the disapplication of the London Permit Scheme. LUL is proposing to remove the provision in the draft BSCU Order which would have allowed the disapplication of the London Permit Scheme.

***Pile interceptions***

12.2.6 Objections have been received from four parties raising concerns about the impact of pile interceptions which may occur when constructing the BSCU. Section 6.7 of this Statement of Case summarises LUL's approach to managing pile interceptions during tunnelling.

***Procedural matters***

12.2.7 Seven objections include concerns related to procedural matters have been received. These include an alleged failure to engage adequately and prematurity with regards to the acquisition of land and property. LUL's approach to the acquisition and use of land and property is summarised in Chapter 11 and the consultation undertaken with stakeholders affected by the BSCU is summarised in Chapter 8 of this Statement of Case.

***Acquisition of property and land***

12.2.8 Twelve of the objections are from property owners and relate to the unnecessary acquisition of subsoil and the temporary possession of land. LUL's approach to the acquisition and use of property and land is set out in Chapter 11.

***Adequacy of the Environmental Statement***

12.2.9 Three objectors have raised concerns related to the adequacy of the Environmental Statement, including how in combination effects have been assessed. These raise concerns that the assessment has not considered the potential impacts of the BSCU construction upon nearby permitted developments at 108 Cannon Street and 33 King William Street and provide insufficient information to consider the effect of these impacts. Section 7.2 of this Statement of Case summarises the approach taken to considering in combination effects of the BSCU with other nearby developments. The BSCU was assessed in combination with the development of 33 King William Street and other developments and as set out in Chapter 7 it was found that it will not result in any significant adverse environmental effects. The development of 108 Cannon Street was not assessed as this is for the refurbishment of the building including a part extension at its fourth and fifth floors. The nature and scale of these works is such that the development therefore did not meet the criteria for selecting developments to assess in combination effects (See paragraph 7.2.31-7.2.35) and would not be likely to give rise to any significant effects in combination with the BSCU.

***Lack of step-free access to the Central Line***

12.2.10 The lack of step-free access provision for the Central Line has been raised as a concern by one objector. Step-free access to the Central Line trains at Bank Station is constrained due to the curvature of the platform and the large gap this creates between the train and the platform edge. Further design work since the BSCU Order application was submitted has however identified a potential solution within the demise of LUL's existing station infrastructure to provide step-free access for entering/exiting and interchange passengers to the Central Line platforms. LUL is continuing to look at this solution in consultation with the London Fire Brigade and other key stakeholders. The Bank area is accessible step-free via TfL's bus service network .

***Noise, vibration and other environmental impacts during construction and operation***

12.2.11 The effect of noise, vibration and other construction related impacts were identified by 13 objectors. These relate to the noise, vibration, dust and the effect of construction traffic movements generated above ground from the

work sites but also noise and vibration effects below ground during tunnelling. The loss of amenity as a result of operational noise and vibration has also been raised. Chapter 7 of this Statement of Case details LUL's position with regards to noise and vibration and sets out a design objective for the new running tunnel to achieve for operational ground borne noise.

***Disruption due to protective works***

12.2.12 Concerns regarding the disruption to businesses operating in buildings requiring protective works have been raised in three objections to the BSCU Order application and also the listed building consent application for 1 King William Street. LUL's approach to carrying out protective works is set out in section 6.9 of this Statement of Case.

## 12.3 Representations

12.3.1 Six representations have been received in response to the BSCU. These have come from the City of London Corporation, Environment Agency, three organisations with property interests in the vicinity of the scheme and a member of the public.

12.3.2 These representations raise no specific objections to the scheme. The City of London Corporation states that *"it supports the construction of the Bank Station Capacity Upgrade in principle".* The representations do however raise a number of questions in relation to the BSCU Order application. These include comments on specific Articles in the draft Order **[CD/A2]**; requests for reassurances that the BSCU will not impact on specific properties and requests to work towards legal agreements as well as comments related to the provision of step-free access to the Central Line.

## 12.4 Letters of support

12.4.1 Eight letters of support have been received for the BSCU. These have come from four London Boroughs (Wandsworth; Lambeth, Haringey and Merton), London First, the London Chamber of Commerce, the Canary Wharf Group and a business owner in the vicinity of Bank Station. These support the scheme and cite the benefits for those working in the Bank area and at Canary Wharf that the increased capacity and new station entrance will provide.

12.4.2 In addition, a letter in respect of the seven listed building applications was received from English Heritage. This states that English Heritage 'do not wish to raise any objections to these proposals and recommends they should be determined in accordance with national and local policy guidance'. They also support the conditions proposed in the applications and recommend they are attached to the listed building consents

## 13. CONCLUSIONS

13.1.1 There is a clear and compelling case for the BSCU. The scheme is strongly supported by the Government, the Mayor of London and the City of London Corporation as well as major stakeholders and LUL's passengers.

13.1.2 The levels of current usage and the growth that is forecast for the future support a case for major change at the station. The station is at critical capacity, requiring special measures to maintain operations and even small incidents having a disproportionate effect on service and capacity. Interventions in the form of operational controls are commonly implemented due to passenger congestion. Given the level of growth planned, major change is necessary at Bank Station to keep the station operating. Bank Station is a major gateway to the City and its constraints and obvious shortcomings should be addressed through the delivery of a comprehensive enhancement scheme as soon as possible. The proposal is in accordance with all levels of planning policy which affect the area, in particular the NPPF **[CD/C1],** the London Plan (2011) **[CD/C3],** the Draft Further Alterations to the London Plan (2014) **[CD/C5],** and the City of London Core Strategy (2011) **[CD/C13],** as well as The Mayor's Transport Strategy (2010) **[CD/C8]** and The Mayor's Economic Development Strategy (2010) **[CD/C9].**

13.1.3 The extensive public and stakeholder consultation undertaken has provided an important input into the overall scheme and comments raised during the consultation in relation to construction impacts on adjoining sites and the Blockade are all being considered through the development of the draft CoCP (**[CD/A18]** A4.1) and other documents that will control the construction of the project.

13.1.4 The environmental effects of the BSCU have been comprehensively assessed through an EIA presented in the ES **[CD/A16]**. Although some adverse effects will be experienced during the demolition/construction phase of the BSCU, these would be temporary and are to be expected for a project of this scale and complexity. Furthermore, the adverse effects anticipated to arise during demolition/construction and operation will be managed through the implementation of mitigation measures, some of which have been incorporated into the design of the BSCU. With the benefit of this mitigation, most of the anticipated effects have been reduced so as to be of negligible or minor significance.

13.1.5 The BSCU has been designed in a way that will maximise the beneficial effects, whilst responsibly limiting and mitigating its impacts.

13.1.6 In order to underpin the growth London requires, its transport network must respond to allow for additional demand. The BSCU forms an important part of a wider package of improvements which will allow for the continued success of the City of London, which in turn will have a major beneficial impact on the London and UK economy. LUL believes that there are no alternative options other than to implement physical works which improve the infrastructure at Bank Station in order to meet the project's aims.

13.1.7 The powers sought by the BSCU Order **[CD/A2]** are necessary, reasonable, proportionate and justified.

13.1.8 In all circumstances, the BSCU Order **[CD/A2]** should be made and the planning permission and listed building consents should be granted as sought.

## Appendix 1 List of Core Documents

| Ref No. | Document |
|---|---|
| **Category A Documents - Application Documents** | |
| CD/A1 | Transport and Works Acts Order Application, September 2014 |
| CD/A2 | Draft Order, September 2014 |
| CD/A3 | Explanatory Memorandum, September 2014 |
| CD/A4 | Statement of Aims, September 2014 |
| CD/A5 | Statement of Consultation, September 2014 |
| CD/A6 | Declaration as to the status of the Applicant, September 2014 |
| CD/A7 | List of all consents, permissions or licenses required, September 2014 |
| CD/A8 | Funding Statement, September 2014 |
| CD/A9 | Estimate of Costs, September 2014 |
| CD/A10 | Request for Direction as to Deemed Planning Permission, September 2014 |
| CD/A11 | Supporting Statement, September 2014 |
| CD/A12 | Works Plans, Land Plan, Sections and Other Order Plans, September 2014 |
| CD/A13 | Planning Direction Drawings, September 2014 |
| CD/A14 | Planning Direction Drawings and Other Illustrative Material, September 2014 |
| CD/A15 | Environmental Statement: Non-Technical Summary, September 2014 |
| CD/A16 | Environmental statement: Main report, September 2014 |
| CD/A17 | Environmental statement: Figures, September 2014 |
| CD/A18 | Environmental statement: Appendices Part 1, September 2014 |
| CD/A19 | Environmental statement: Appendices: Part 2, September 2014 |
| CD/A20 | Environmental statement: Appendices: Part 3, September 2014 |
| CD/A21 | Environmental statement: Appendices: Part 4, September 2014 |
| CD/A22 | Environmental statement: Appendices: Part 5, September 2014 |
| CD/A23 | Book of Reference, September 2014 |
| CD/A24 | Design and Access Statement, September 2014 |
| CD/A25 | Listed building consent application: Mansion House, September 2014 |
| CD/A26 | Listed building consent application: 1 Princes Street, September 2014 |
| CD/A27 | Listed building consent application: 1 - 6 Lombard Street, September 2014 |
| CD/A28 | Listed building consent application: 1 King William Street, September 2014 |
| CD/A29 | Listed building consent application: 5 King William Street, September 2014 |
| CD/A30 | Listed building consent application: 15 Abchurch Lane, September 2014 |
| CD/A31 | Listed building consent application: 29 Martin Lane, September 2014 |
| **Category B - Associated consents** | |
| CD/B1 | City of London Corporation, Planning Permission for (Conditional) Application Reference 14/00178/FULEIA and approved plans, June 2014 |
| CD/B2 | London Underground Limited,10 King William Street Over Site Development Approved Drawings (LPA Ref: 14/00178/FULEIA), September 2014 |
| **Category C - National, Regional, Local Policy Documents and Government Guidance** | |
| CD/C1 | National Planning Policy Framework, Communities and Local Government, March 2012 |
| CD/C2 | Noise Policy Statement for England, Department for Environment Food and Rural Affairs, 2010 |
| CD/C3 | The London Plan, Greater London Authority, 2011 |
| CD/C4 | The London Plan - Revised early minor alterations to the London Plan, Greater London Authority, 2013 |
| CD/C5 | The London Plan - Draft Further Alterations, Greater London Authority, 2014 |
| CD/C6 | 2020 Vision The Greatest City on Earth Ambitions for London by Boris Johnson, Greater London Authority June 2013 |
| CD/C7 | London Infrastructure Plan 2050: A Consultation, Greater London Authority, 2014 |
| CD/C8 | The Mayor's Transport Strategy, Greater London Authority, 2010 |
| CD/C9 | The Mayor's Economic Development Strategy for London, Greater London Authority, 2010 |
| CD/C10 | The Mayor's Vision for Cycling, Greater London Authority, March 2013 |
| CD/C11 | London Planning Statement, Supplementary Planning Guidance, Greater London Authority, May 2014 |
| CD/C12 | Central London Sub-regional Transport Plan 2014 Update, Transport for London, 2014 |
| CD/C13 | City of London Core Strategy, City of London Corporation, 2011 (Extract - Chapter 1. Introduction, Chapter 2. Spatial Strategy Vision and Strategic Objectives; Chapter 3. Delivery Strategy - A World Financial and Business Centre; Key City Places - Policy CS6 Cheapside and St Paul's; City Culture and Heritage; Environmental Sustainability; Appendix 2 Infrastructure Delivery Plan - Summary; Appendix 3: Unitary Development Plan Policies) |
| CD/C14 | City of London Proposals Map A, City of London Corporation, 2011 |
| CD/C15 | City of London Proposals Map B, City of London Corporation, 2011 |
| CD/C16 | City of London Unitary Development Plan Saved Policies, City of London Corporation, 2002 (Extract - Chapter 9 Transport and Movement; Chapter 10 Environmental Quality; and Chapter 11 Archaeology) |
| CD/C17 | City of London Draft Local Plan, City of London Corporation, November 2014 (Extract - Chapter 1. Introduction; Chapter 2.Spatial Strategy Vision and Strategic Objectives and Chapter 3. Deliver Strategy: A World Financial and Business Centre; Key City Places: 3.6 Cheapside and St Pauls; City Culture and Heritage; Environmental Sustainability) |
| CD/C18 | City of London Planning Obligations Supplementary Planning Document, City of London Corporation, April 2014 (amended June 2014) |
| CD/C19 | City of London Community Infrastructure Levy Regulation 123 List, City of London Corporation, May 2014 |
| CD/C20 | City of London Community Infrastructure Levy Charging Schedule, City of London Corporation, May 2014 |
| CD/C21 | City of London Protected Views Supplementary Planning Document, City of London Corporation, April 2013 |
| CD/C22 | City of London Planning Advice Note 3, Archaeology in the City of London, City of London Corporation, 2004 |
| CD/C23 | City of London Infrastructure Delivery Plan, City of London Corporation, 2013 |
| CD/C24 | City of London Local Implementation Plan 2011, City of London Corporation, 2012 |
| CD/C25 | City of London Rail Strategy, City of London Corporation, 2009 |
| CD/C26 | City of London Noise Strategy, 2012-2016, City of London Corporation, 2012 |
| CD/C27 | City of London Air Quality Strategy 2011-2015, City of London Corporation, 2011 |
| CD/C28 | Bank Conservation Area Character Summary and Management Strategy Supplementary Planning Document, City of London, 2012 |
| CD/C29 | Bank Area Enhancement Strategy, City of London Corporation and Publica, 2013 |
| CD/C30 | Conservation Area Character Summary Laurence Pountney Hill, City of London Corporation, 2007 |
| CD/C31 | Laurence Pountney Hill Conservation Area: Management Strategy, City of London Corporation, n.d |
| CD/C32 | Calculation of Road Traffic Noise, Department of Transport/Welsh Office,1988 |
| CD/C33 | Conservation Principles, Policies and Guidance: Sustainable Management of the Historic Environment, English Heritage, 2008 |

| Ref No. | Document |
|---|---|
| CD/C34 | PPS5 Practice Guide, English Heritage, 2010 |
| CD/C35 | Seeing the History in the View, English Heritage, 2011 |
| CD/C36 | The Setting of Heritage Assets, English Heritage, 2011 |
| CD/C37 | Understanding Place: Conservation Area Designation, Appraisal and Management, English Heritage, 2011 |
| CD/C38 | Design Manual for Road and Bridges, Highways Agency, 2011, (Extract - Volume 11 Section 3 Part 7- Noise and Vibration). |
| CD/C39 | Circular 06/2004,Compulsory Purchase and The Crichel Down Rules, Office of the Deputy Prime Minister, October 2004 |
| CD/C40 | Investing in Britain's future, HM Treasury, June 2013 (Extract - Foreword; Chapter 1 Introduction: planning for the long term; Chapter 3 Rail) |
| CD/C41 | National Infrastructure Plan 2014, HM Treasury, December 2014 (Extract - Chapter 5 Local Transport - pages 51-53; Chapter 16 Top 40 priority infrastructure investments - page 136) |
| CD/C42 | National Planning Policy Framework Planning Practice Guidance, 2014, (Extract - Conserving and enhancing the historic environment; Design; Environmental Impact Assessment; Noise; Use of planning conditions) |
| CD/C43 | National Policy Statement for National Networks: Presented to Parliament pursuant to Section 9(8) and Section 5(4) of the Planning Act 2008, Department for Transport, December 2014 |
| **Category D - Supporting Documents** | |
| CD/D1 | British Standards Institution (BSI), BS7385-1:1990 - Evaluation and measurement for vibration in buildings — Part 1: Guide for measurement of vibrations and valuation of their effects on buildings, BSI, London,1990. |
| CD/D2 | British Standards Institution (BSI),BS7385-2:1993 Evaluation and Measurement from Vibration in Buildings - Part 2: Guide to damage levels from groundborne vibration, BSI, London, 1993 |
| CD/D3 | British Standards Institution (BSI), BS7445-1: 2003 Description and Measurement of Environmental Noise - Part 1: Guide to quantities and procedures, BSI, London, 2003 |
| CD/D4 | British Standards Institution (BSI), B4142:2014 - Methods for rating and assessing industrial and commercial sound, BSI, London, 2014 |
| CD/D5 | British Standards Institution (BSI),BS14837-1: 2005 - Mechanical vibration — Ground-borne noise and vibration arising from rail systems — Part 1: General guidance , BSI, London, 2005 |
| CD/D6 | British Standards Institution (BSI),BS6472-1:2008 - Guide to Evaluation of Human Exposure to Vibration in Buildings: Part 1: Vibration sources other than blasting BSI, London, 2008 |
| CD/D7 | British Standards Institution (BSI) BS8233:2014 - Guidance on sound insulation and noise reduction for buildings, BSI, London |
| CD/D8 | British Standards Institution (BSI), BS 5228-1: 2009+A1:2014: Code of practice for noise and vibration control on construction and open sites: Part 1: Noise, BSI London, 2014 |
| CD/D9 | British Standards Institution (BSI),BS 5228-2:2009+A1:2014: Code of practice for noise and vibration control on construction and open sites: Part 2: Vibration, BSI, London, 2014 |
| CD/D10 | Church Care,Guidance Note Statements of Significance and Statements of Needs: Major Projects, n.d, |
| CD/D11 | City of London Corporation, Report - Planning and Transportation Committee Bank Area Transport Funding, July 2011 |
| CD/D12 | City of London Corporation, Code of Practice for Deconstruction and Construction Sites, Seventh edition, 2013 |
| CD/D13 | Department for Transport, Spending Review Letter - 20 October 2010 |
| CD/D14 | H.M. Stationery Office, Final Report of the Wilson Committee on the Problem of Noise, Cmnd 2056, 1963 |
| CD/D15 | Institute of Environmental Management and Assessment, Guidelines for Environmental Impact Assessment, 2004 |
| CD/D16 | International Organization for Standardization, ISO 9613 Acoustics -- Attenuation of sound during propagation outdoors,1996 |
| CD/D17 | International Organization for Standardization,ISO 4866 Mechanical vibration and shock — Vibration of fixed structures — Guidelines for the measurement of vibrations and evaluation of their effects on structures, 2010 |
| CD/D18 | London Underground Limited,Bank Station Capacity Upgrade Factsheets 1-17, 2014 |
| CD/D19 | London Underground Limited,Bank Station Capacity Upgrade - Options Report, 2014 |
| CD/D20 | London Underground Limited, Bank Station Capacity Upgrade - Equalities Impact Assessment, 2014 |
| CD/D21 | London Underground Limited, Category 1 Standard S1371 Station Planning (Issue A5),June 2011 |
| CD/D22 | London Underground Limited, Category 1 Standard: S1050 Civil Engineering - Common Requirements (Issue A7), November 2013 |
| CD/D23 | London Underground Limited, Guidance Document G0058 Civil Engineering - Technical Advice Notes (Issue A20), March 2014 |
| CD/D24 | London Underground Limited, King William Street Station Heritage Statement, November 2014 |
| CD/D25 | London Underground Limited, Guidance Document G1323 Noise and Vibration Asset Design Guidance (Issue A1), April 2012 |
| CD/D26 | London Underground Limited,Guidance Document G371A, Station Planning Standards and Guidelines (Issue A3), July 2012 |
| CD/D27 | Noise Advisory Council, A guide to measurement and prediction of the equivalent continuous sound level Leq: report by a working party for the Technical SubCommittee of the Council, H.M. Stationery Office, 1978 |
| CD/D28 | Oxford Brookes University, Independent Peer Review of the Bank Station Capacity Upgrade Project Draft Environmental Statement, June 2014 |
| CD/D29 | Oxford Brookes University,Independent Peer Review of the Bank Station Capacity Upgrade Project Draft Environmental Statement Consideration of LUL responses to review outcomes given in Oxford Brookes report 24-6-14, July 2014 |
| CD/D30 | Oxford Brookes University,Independent Peer Review of the Bank Station Capacity Upgrade Project Draft Environmental Statement: Review of revised Non Technical Summary, July 2014 |
| CD/D31 | Pevsner N and Bradley S,The Buildings of England: London 1: City of London. London, 2002 (Extract - Introduction - pages 122-125;St Mary Abchurch - pages 238-241; Mansion House - pages 316-321; Streets - pages 412-413;524-529;536-537;554-555;578-581;and plates 53-56; 75-77; 98-101;145-148) |
| CD/D32 | Transport for London, Bank Station Capacity Upgrade Business Case, 2014 |
| CD/D33 | Transport for London, Business Plan: Transport for London's plans for the next decade, 2014 |
| CD/D34 | Transport for London. London Cycling Design Standards : Draft for consultation – June 2014 (Extract - Appendix: Cyclists at Roadworks) |
| CD/D35 | Transport for London.Fit for the Future - Our plan for modernising London Underground, London Overground, Trams and the DLR, June 2014 |
| CD/D36 | Transport for London,Pedestrian Comfort Guidance for London: Guidance Document, 2010 |
| CD/D37 | Transport for London,Taking forward the Mayor's Transport Strategy: Accessibility Implementation Plan, 2012 |
| CD/D38 | Transport for London,Transport Assessment Best Practice, Guidance Document, April 2010 |
| CD/D39 | Transport for London, Travel in London. Report 7, 2014 |
| CD/D40 | URS,Bank Station Capacity Upgrade, Stage 2 Building Damage Assessment for Building A2: 6-8 Princes Street, 2014 |
| CD/D41 | URS,Bank Station Capacity Upgrade, Stage 2 Building Damage Assessment for Building A8: 8-10 Mansion House, 2014 |
| CD/D42 | URS,Bank Station Capacity Upgrade, Stage 2 Building Damage Assessment for Building A38: 33 King William Street, 2014 |
| CD/D43 | World Health Organisation,Night Noise Guidelines for Europe, 2009 |
| **Category E - Legislation** | |
| CD/E1 | Town and Country Planning Act 1990 (Section 90) |
| CD/E2 | Transport and Works Act 1992 |
| CD/E3 | Planning and Compulsory Purchase Act 2004 (Part 3, Sections 38 and 39; and Part 8) |

| Ref No. | Document |
|---|---|
| CD/E4 | Planning (Listed Buildings and Conservation Areas) Act 1990 |
| CD/E5 | Faculty Jurisdiction Rules 2013 |
| CD/E6 | Care of Churches and Ecclesiastical Jurisdiction Measure 1991 |
| CD/E7 | The Control of Pollution Act 1974 |
| CD/E8 | Environmental Protection Act 1990 (Part II A) |
| CD/E9 | Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006. |
| CD/E10 | Transport and Works (Inquiries Procedure) (England and Wales) Rules 2004 |
| CD/E11 | Planning (Listed Buildings and Conservation Areas) Regulations 1990 |
| CD/E12 | Transport and Works Application (Listed Buildings, Conservation Areas and Ancient Monuments Procedure) Regulations 1992 |
| CD/E13 | European Commission Directive, 2000/14/EC, The Noise Emission in the Environment by Equipment for Use Outdoors Regulations |
| **Category F - Pre-Inquiry Documents** | |
| CD/F1 | London Underground Limited ,Statement of Case of London Underground Limited, January 2015 |

## Appendix 2 Inspection Locations

This Statement of Case and the core documents which support it are for public inspection at the following locations and times:

| ADDRESS | TIME FOR INSPECTION |
|---|---|
| London Underground Bank Station Capacity Upgrade Project Office<br><br>5th Floor, 10 King William Street, London, EC4N 7TW | Monday to Friday – 09:00-17:30<br><br>Viewing of these documents outside these hours is available by appointment. Please call 0203 0543802to arrange an appointment |
| Shoe Lane Library, Little Hill House, Little New Street, London EC4A 3JR | Monday, Wednesday, Thursday and Friday: 09:00-17:30<br>Tuesday 09:00-18:30 |

## Appendix 3 Figures

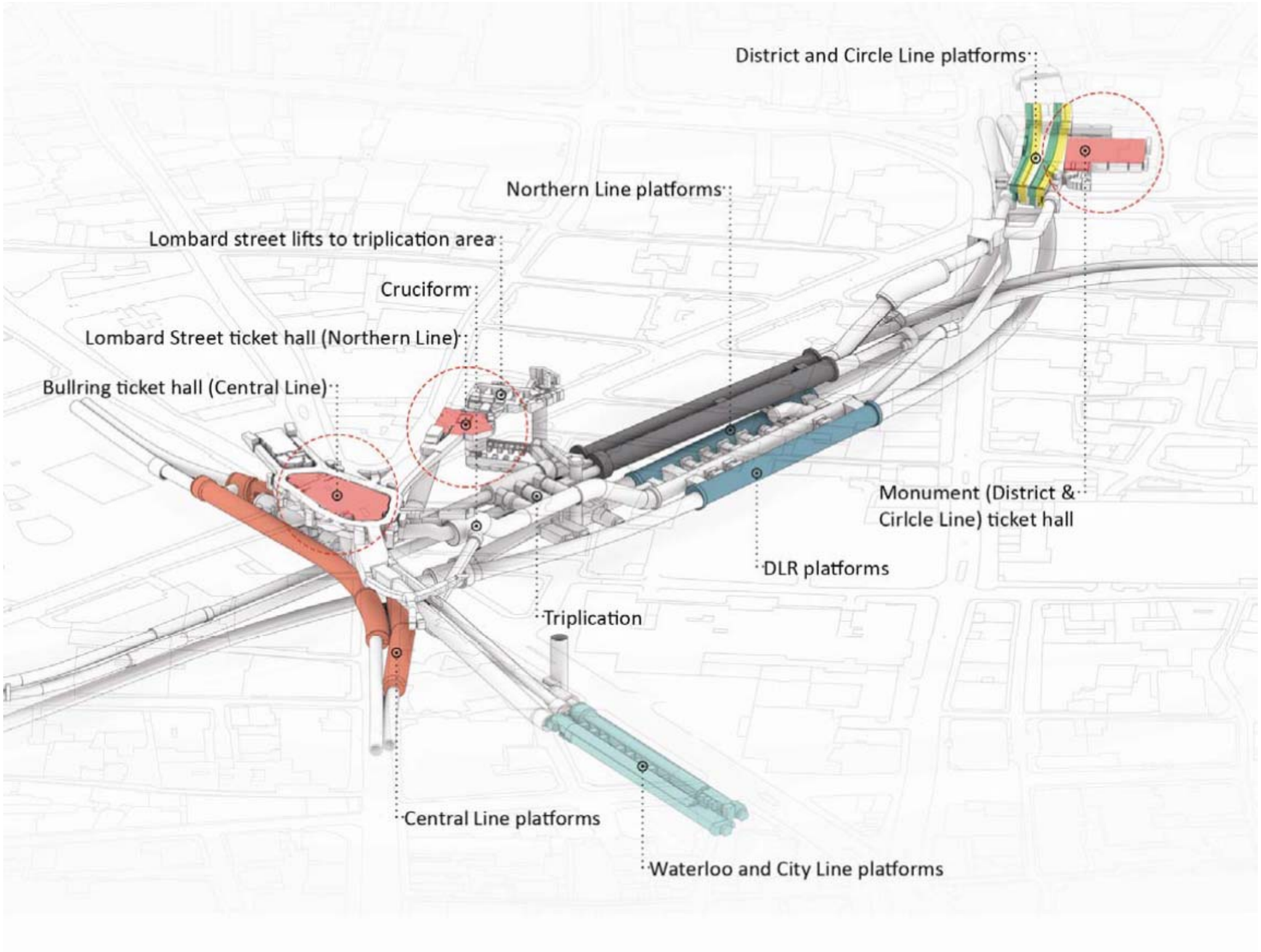



**Figure 1 The Bank Monument Station Complex Current Station Layout**

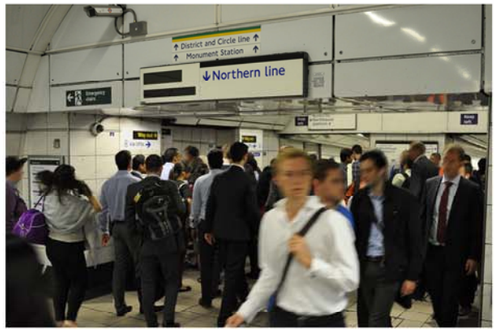
*Northern Line platform congestion*

**Limited passenger circulation space:**

- Narrow (2.7m wide), back-to-back platforms with no passenger circulation space
- During peak periods almost 55 percent of all Bank passengers start/end their journeys at the Northern Line or DLR
- Passengers take significantly longer to disembark which impacts upon the frequency of the Northern Line service

**Limited egress capacity from Northern Line platforms:**

- Narrow stairs to the Central Line and two escalators to Monument have insufficient capacity




*Triplication congestion*

**Conflicting cross-flows of passengers in the Cruciform (upper level) and Triplication (lower level) areas**



**Limited egress capacity from DLR platforms:**

- Escalators have insufficient capacity - extensive queues form on a daily basis
- The concourse is not always cleared between trains arriving during the morning peak



*DLR queues for escalators on the concourse*

**Figure 2 The Areas of Key Congestion within the Station Complex**

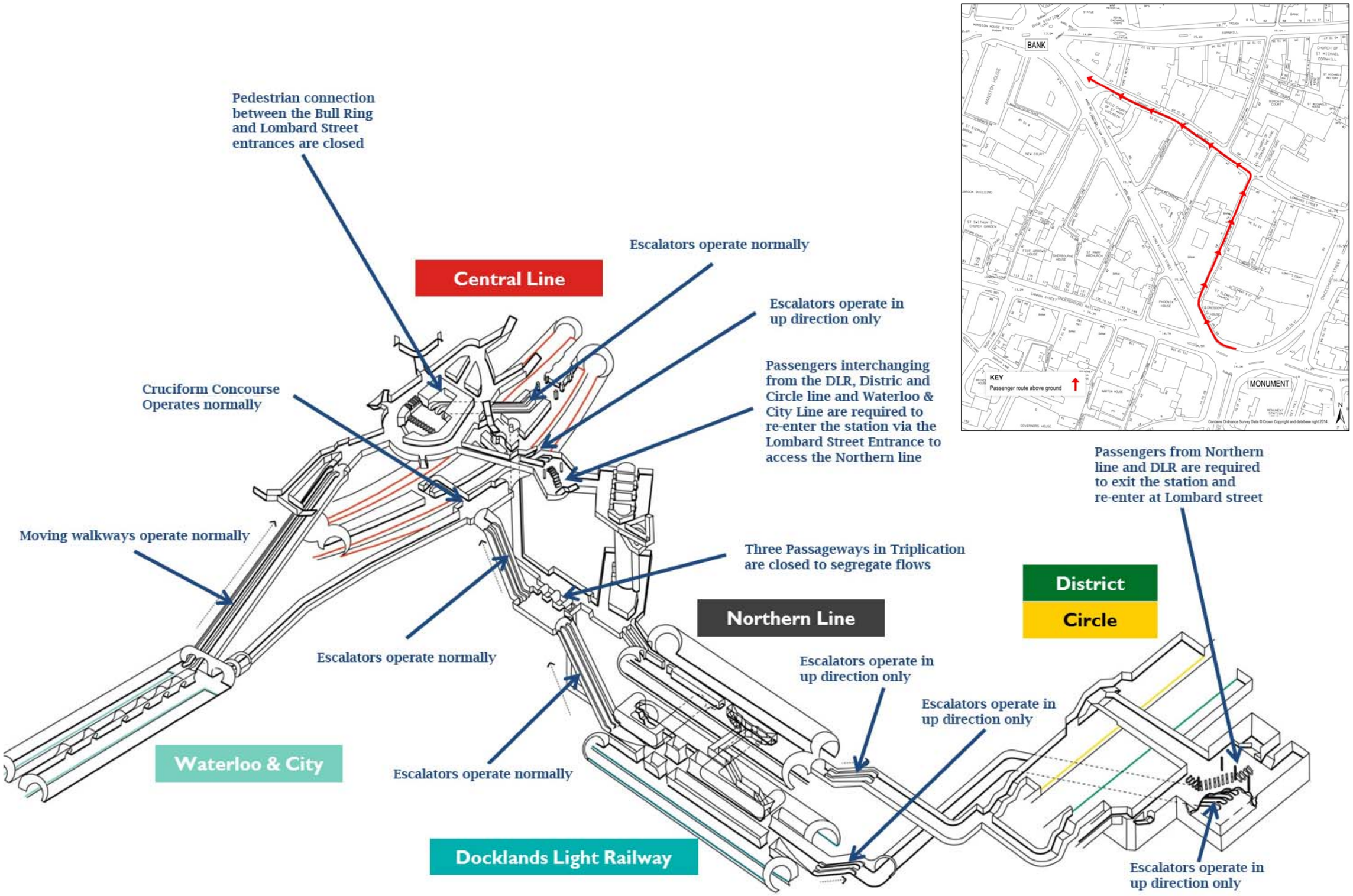



**Figure 3 One-way system to enable operation**

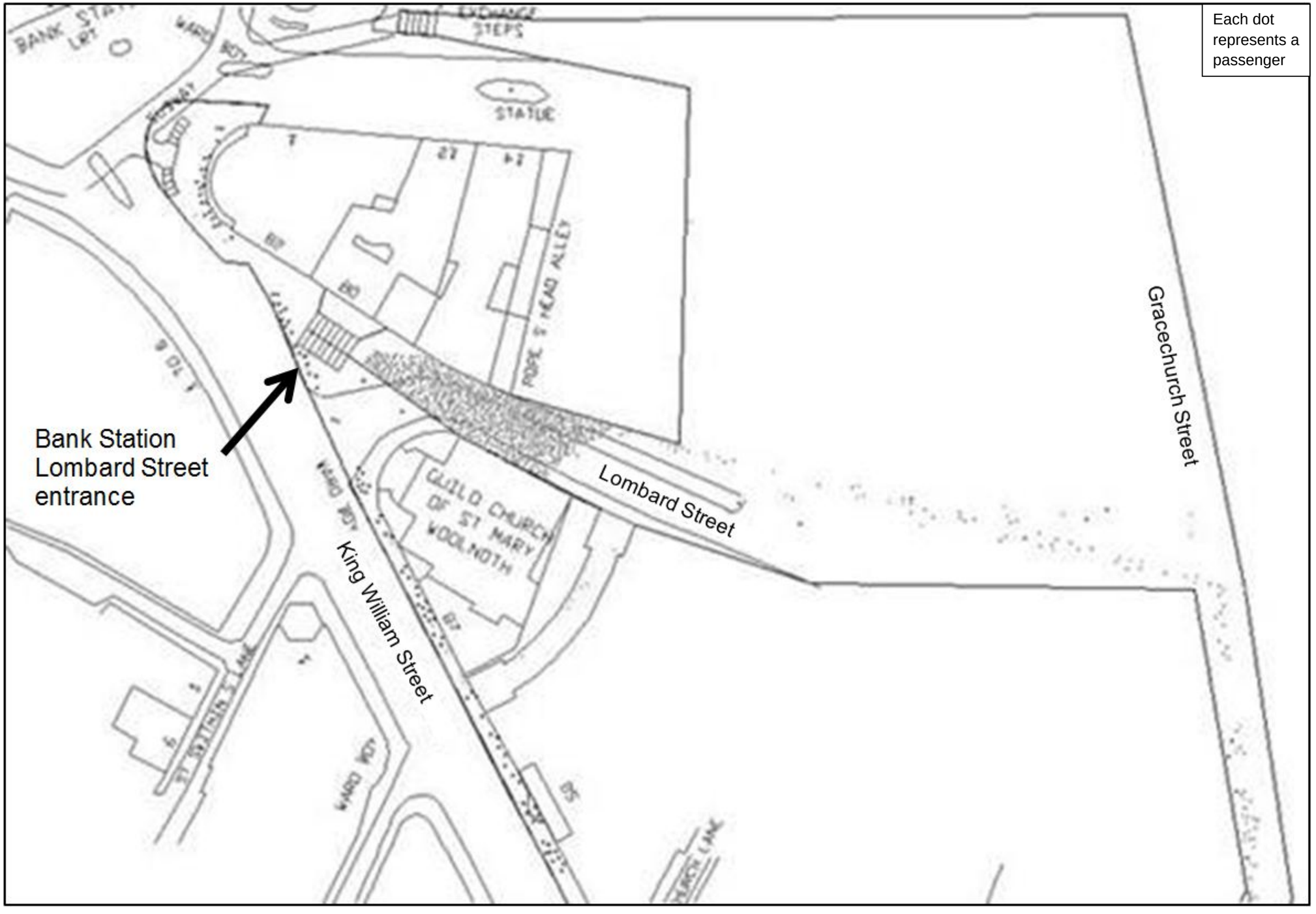



**Figure 4 Legion Modelling: Crowding at Lombard Street in 2026 if the station is not upgraded**

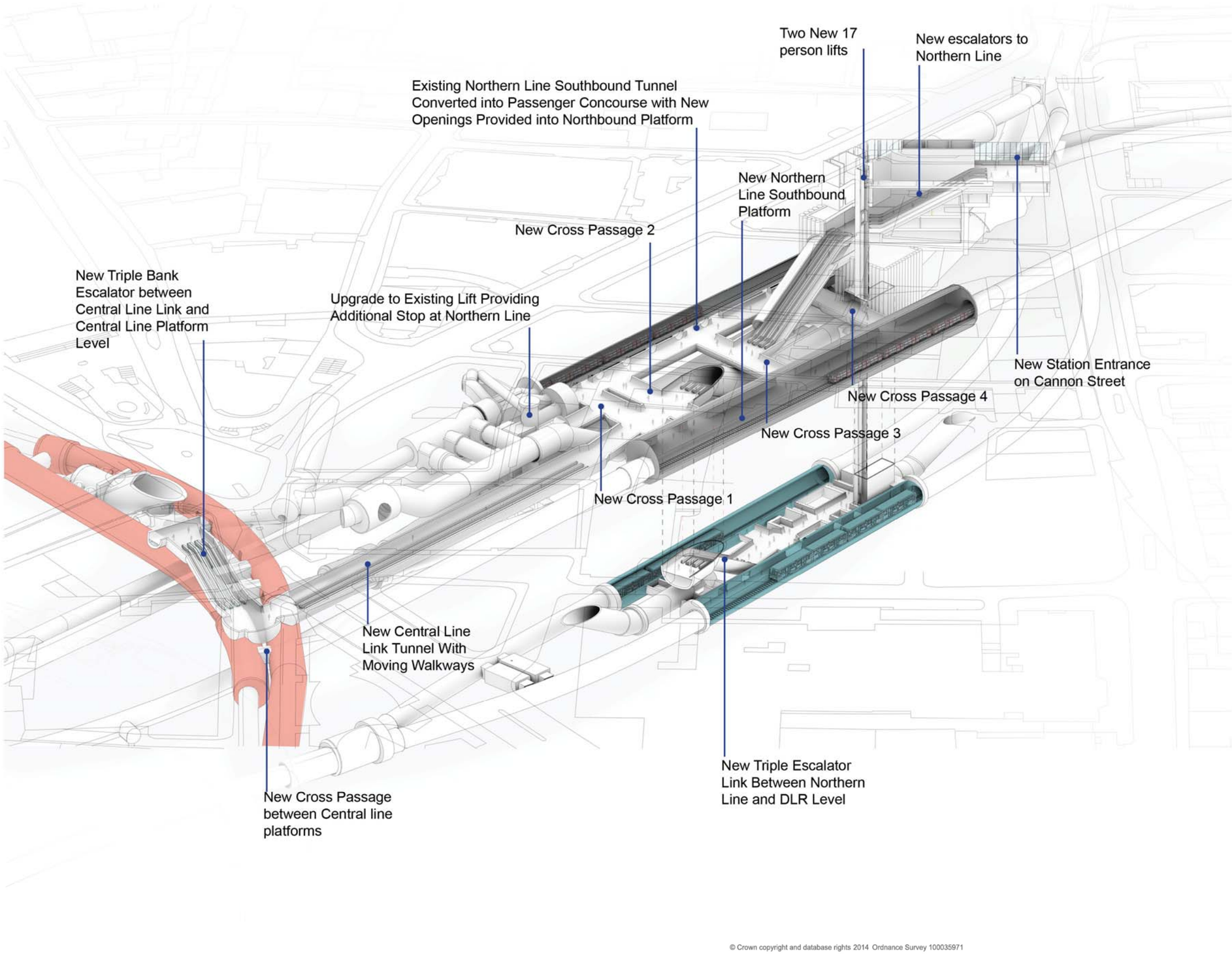



**Figure 5 Main elements of proposed improvements**

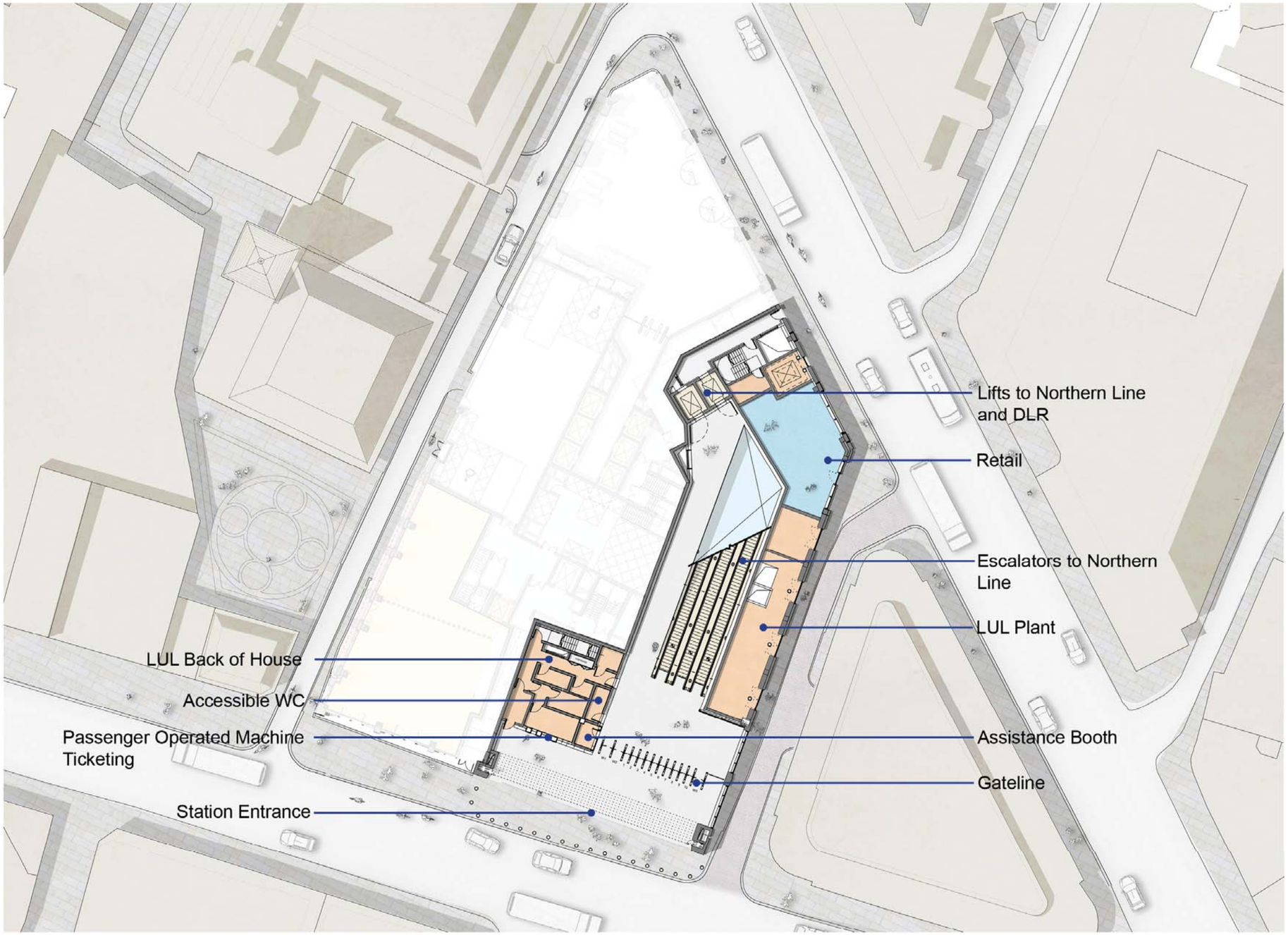



**Figure 6 General arrangement of new Station Entrance Hall**


**Figure 7 Proposed Station Entrance onto Cannon Street**

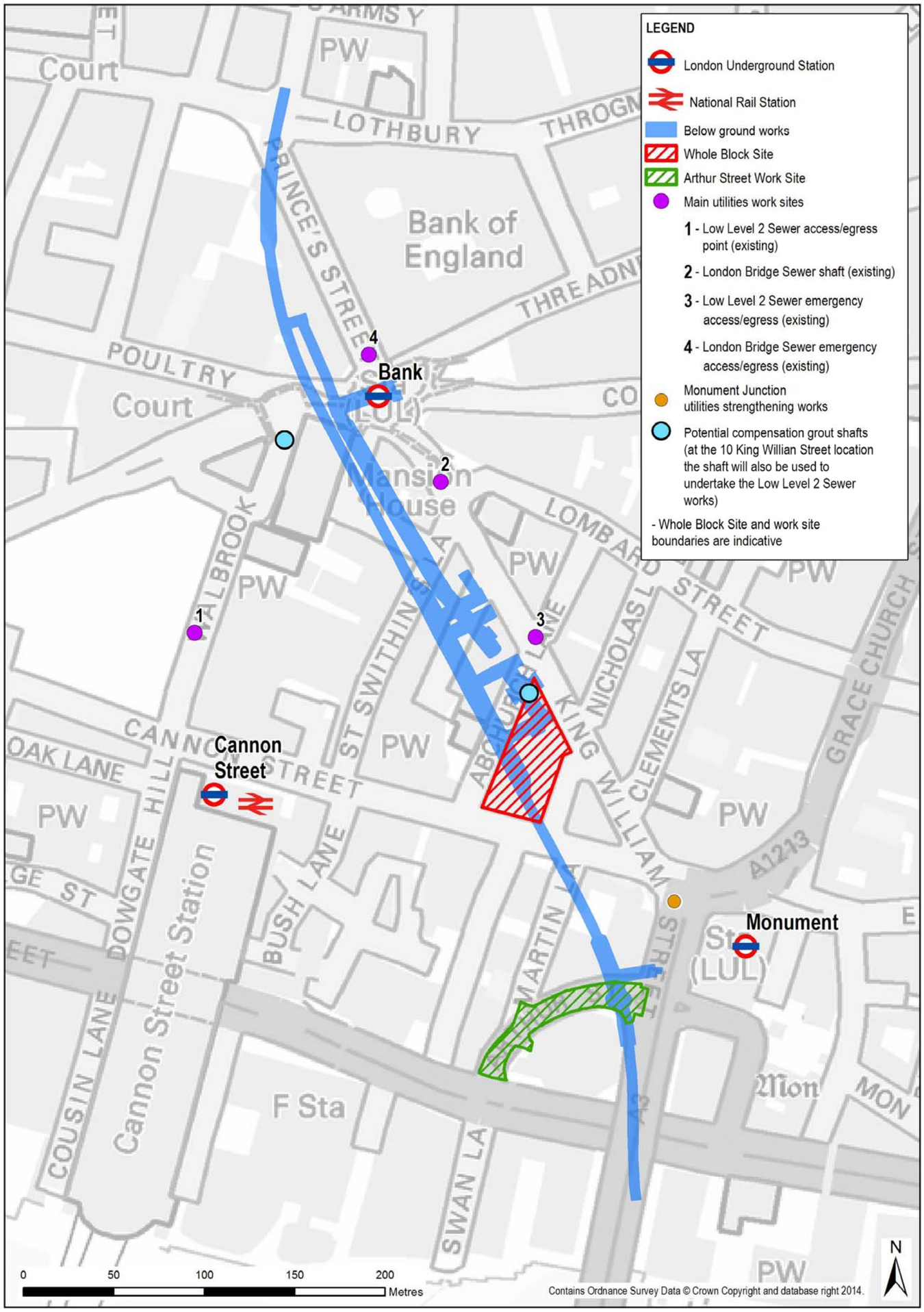



**Figure 8 Overview of BSCU showing main construction work sites**


Existing entrance on Lombard Street

Existing entrance on Cornhill

Proposed station entrance on Cannon Street

**Figure 9 Examples of existing entrances to Bank Station and the proposed station entrance onto Cannon Street**