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Transport and Works Act 1992
London Underground (Bank Station Capacity Upgrade) Order

Design and Access Statement

September 2014



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Design and Access Statement

In support of London Underground's request for a direction from the Secretary of State under Section 90(2A) of the Town and Country Planning Act 1990

September 2014

Bank Station Capacity Upgrade Project
5th Floor
10 King William Street
London EC4N 7TW

LUL Document Reference:
LUL-8798-RPT-G-002205

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Abbreviations

BSCU - Bank Station Capacity Upgrade

DAS - Design and Access Statement

DLR - Docklands Light Railway

FFL - Finished Floor Level

GLA - Greater London Authority

PRM - Person of Restricted Mobility

HVM - Hostile Vehicle Mitigation

LUL - London Underground Limited

MEP - Mechanical and Electrical Plant

NPPF - National Planning Policy Framework

OSD - Over Site Development

SPG - Supplementary Planning Guidance

SPD - Supplementary Planning Document

PHP - Passenger Help Point

PPG - Planning Practice Guidance

TfL - Transport for London

TWAO - Transport Works Act Order

VVM - Verified View Montage

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Executive Summary

This Design and Access Statement accompanies a Transport and Works Act Order application for the Bank Station Capacity Upgrade. Major improvements are required at Bank-Monument station to address current levels of congestion, accommodate projected levels of growth and bring the complex up to the standard expected of a world class underground railway.

The Bank Station Capacity Upgrade Project has four key objectives:

- 1 Increasing the capacity of Bank Underground Station so that it is able to handle present and forecast demand, and thereby support the economic growth of the city;
- 2 Minimizing passenger journey time through the station, and thereby reduce crowding;
- 3 Improving the quality of access, interchange and ambience, including the provision of step-free access routes from street level to Northern line trains and provide step-free interchange between Northern line and Dockland Light Railway (DLR) trains; and
- 4 Improving emergency fire and evacuation protection measures

The proposals incorporate both above ground and below ground works and include the following key elements:

Above ground:

- A new station entrance on Cannon Street at the junction with Nicholas Lane providing direct access from the street to the Northern Line platforms;

Below ground:

- A new south bound running tunnel for the Northern Line freeing up additional circulation space within the station;
- A new direct link in between Northern and Central Line platforms incorporating two moving walkways;
- New banks of triple escalators between the Northern and Central Lines, the Northern Lines and the DLR and the Northern Line and street level; and
- Two new passenger lifts connecting the new station entrance to the Northern Line and one to DLR plus the upgrade of an existing lift.

The proposals are the result of an iterative design process which has been informed by a thorough understanding of the Bank Area and the existing station. This along with public and stakeholder consultation and pre-application meetings and dialogue with the City of London Corporation and other key stakeholders has informed the design.

The proposals generate substantial benefits for users of the station and those using the roads and streets in the area; in particular:

- Improved evacuation arrangements for all parts of the station;
- More direct and step free access from street to the Northern Line and DLR;
- More circulation and waiting space on the Northern Line level, reducing levels of congestion;
- More direct and quicker connections between the Northern Line and DLR and the Northern Line and the Central Line;

- Improved overall passenger experience for all passengers using the station;
- A stronger presence for Bank Station at street level; and
- Reduced pedestrian congestion on the footways around Bank and Monument Junctions.

This Statement presents the proposal in design and access terms, demonstrating how the development has been designed to meet the technical requirements associated with meeting project objectives whilst providing a world class station and enhancing the local area and supporting London's international competitiveness.



Figure 0.1: An existing Station Entrance on Cornhill

1.Introduction

1. Introduction

1.1 Purpose and scope of this document

- 1.1.1 The Bank Monument Station Complex is the fourth busiest interchange on the London Underground Network and one of the world's most complicated subterranean railway stations. It is also a key gateway into the City of London. Major improvements are essential to enable the station to accommodate the projected passenger demand and the growth expected in the area. Since 2003 demand at Bank Station has risen by over 50 percent 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 and operational interventions are commonly required.
- 1.1.2 London Underground Limited (LUL) and a team led by design and build contractor Dragados have developed a scheme that will reduce congestion and provide improved access. This project is known as the Bank Station Capacity Upgrade (BSCU) Project.
- 1.1.3 This Design and Access Statement presents the design and accessibility proposals for the BSCU Project, setting out how the design has evolved and what has informed the design. It explains the functional requirements of the station, the rationale for the location of the proposed new Station Entrance and layout of the below ground elements. It also explains how the designs have been informed by an understanding of the relevant planning policies.
- 1.1.4 This Statement sets out the need to improve accessibility and enhance the passenger experience throughout the station, and explains how this will be achieved. It describes how aspects of access to and within Bank Station have been considered and will be dealt with, specifically in relation to the key objectives outlined in Section 2.

- 1.1.5 The content of this Statement is based on guidance on the content of Design and Access Statements by the Greater London Authority (GLA), Commission of Architecture and the Built Environment (CABE), City of London Corporation and the Department for Communities and Local Government (CLG).
- 1.1.6 This statement is structured as follows:
- Section 2 summarises the key planning policies at national, regional and local levels;
 - Section 3 sets out the TfL and LUL Design Guidance including the emerging LUL Design Idiom;
 - Section 4 sets the context for the BSCU Project in terms of its location, history and surroundings;
 - Section 5 outlines works since 2003 and provides an overview of the stakeholder consultation and how it has informed design development;
 - Section 6 covers the design concept and vision for the below and above ground elements;
 - Section 7 describes the proposed BSCU Project and the new passenger routes, step-free access and evacuation arrangements;
 - Section 8 sets out the more detailed and technical elements of the works such as back of house facilities, safety and security, cleaning and maintenance, as well as covering the phasing of the works; and
 - Section 9 provides a conclusion to the document and summarises the benefits of the BSCU Project.



Figure 1.1: Existing station entrances on Bank Junction (top) Lombard Street (bottom)

1.2 Brief introduction to the BSCU Project and TWAO application

An overview of the BSCU Project

1.2.1 The BSCU Project involve.

- New southbound platform for the Northern Line;
- Conversion of the existing southbound Northern Line Platform into a passenger circulation space;
- New direct passenger link tunnel with moving walkways between Northern Line and Central Line;
- A new Station Entrance on Cannon Street providing direct access to the Northern Line and Docklands Light Railway (DLR);
- New direct triple escalator connection between Northern Line and DLR; and
- New direct step free access routes between Northern Line, DLR and the new Station Entrance.

1.2.2 It will also provide improved fire and evacuation protection measures for Northern Line and DLR passengers.

1.2.3 Further detail is provided in Section 8.

The TWAO Application

1.2.4 LUL is seeking powers to implement the BSCU Project under the Transport and Works Act 1992 (the TWA). This Design and Access Statement forms part of the TWA Order application to the Secretary of State.

1.2.5 Permission for demolition and a replacement Over Site Development (OSD) located on Cannon Street was granted via a separate planning application approved by the City of London Corporation under the Town and Country Planning Act 1990 in June 2014.

1.3 The BSCU Project

The LUL vision for the Bank Monument Station Complex is to create a world class, operationally efficient underground rail interchange, fit for purpose and in line with the Mayor's aspiration for London to be the greatest city in the world.

1.3.1 The Bank Station Capacity Upgrade Project has four key objectives:

- 1 Increasing the capacity of Bank Underground Station so that it is able to handle present and forecast demand, and thereby support the economic growth of the city;
- 2 Minimizing passenger journey time through the station, and thereby reduce crowding;
- 3 Improving the quality of access, interchange and ambience, including the provision of step-free access routes from street level to Northern line trains and provide step-free interchange between Northern line and DLR trains together with enhancing the step-free access route between street level and DLR; and
- 4 Improving emergency fire and evacuation protection measures.

1.3.2 It also supports London's growth and economic development and improves connectivity and journey experiences, all specific challenges identified in the *Mayor's Transport Strategy* (GLA, 2010) (see Section 3).

1.4 Project team

1.4.1 LUL engaged the design and build team following an Innovative Contractor Engagement (ICE) tender process in 2012/13. Four shortlisted bidders were invited to submit detailed proposals for the BSCU Project. This process allowed LUL to select the scheme that scored the highest against the Project Requirements (see Section 5).

1.4.2 Dragados, the successful bidder, provided distinct station and OSD design teams from the same organisations. This enabled an integrated and co-ordinated approach to the design of each element with expertise from:

- Planning, environment and engineering - URS;
- Architecture and design - Wilkinson Eyre Architects; and
- Tunnelling - The Dr Sauer Group.

1.5 The Whole Block Site

1.5.1 The location of the new Station Entrance on Cannon Street at the junction with Nicholas Lane together with other above ground station infrastructure is shown on Figure 1.2. It is bounded by King William Street to the north, Nicholas Lane to the east and Cannon Street to the south and is referred to as the Whole Block Site.

1.5.2 At ground floor, the remainder of the block bounded by Abchurch Lane to the west, will be redeveloped for offices and retail as part of an OSD. A planning application for this was approved in June 2014.

1.5.3 The construction of the BSCU requires demolition of existing buildings within the Whole Block Site as shown in Figure 1.3. These buildings are:

- 10 King William Street;
- 135-141 Cannon Street;
- 143-149 Cannon Street;
- 12 Nicholas Lane;
- 14 Nicholas Lane; and
- 20 Abchurch Lane (rear portion only).

1.5.4 These buildings will be replaced with the Station Entrance, associated above ground station infrastructure and an OSD following the BSCU Project. This replacement building would be located over and around the new station infrastructure, with the station entrance occupying part of the Cannon Street facade.



Figure 1.2: Proposed Station Entrance site plan



Figure 1.3: Existing buildings within the Whole Block Site

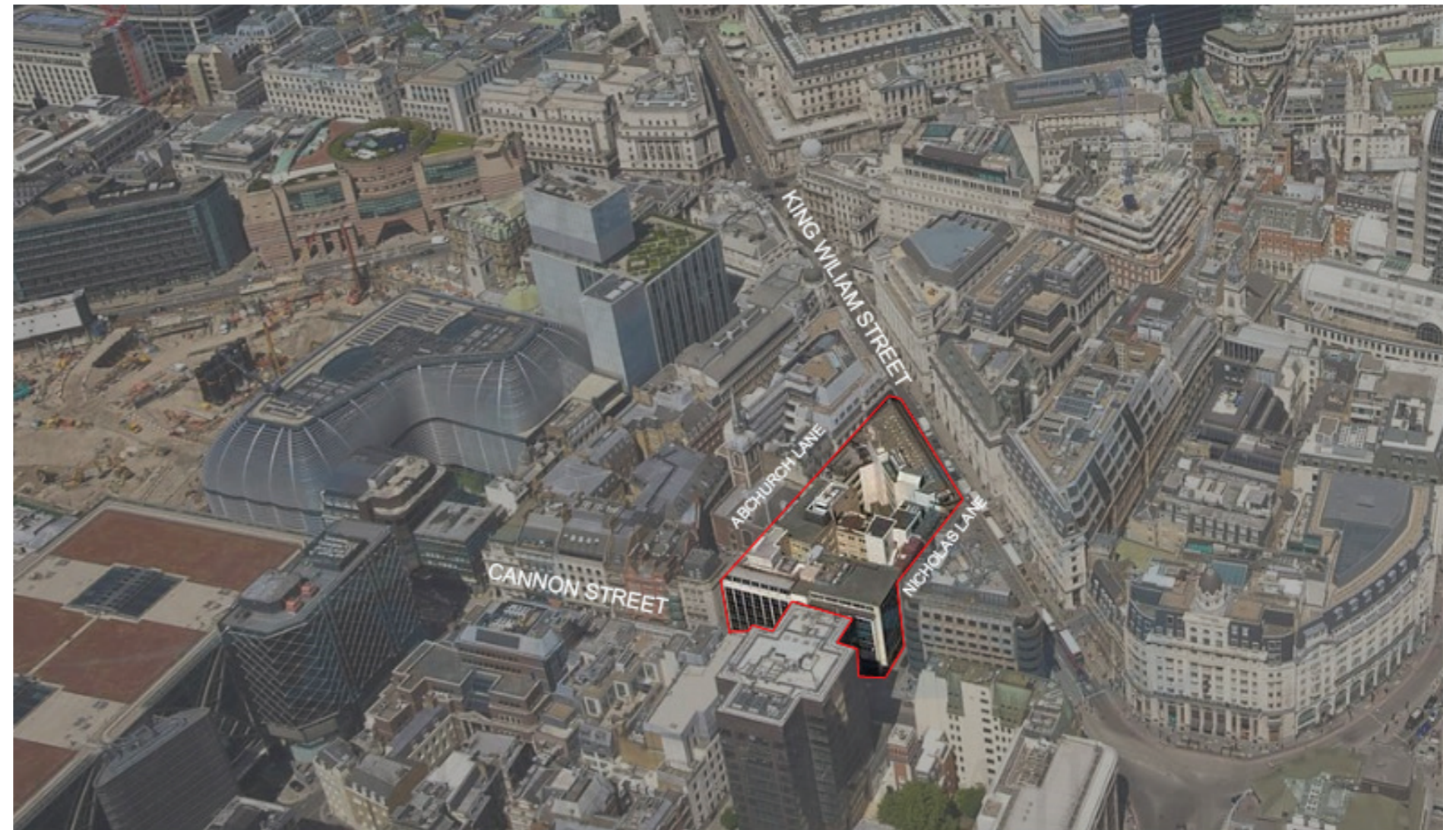


Figure 1.4: Aerial view of the Bank area highlighting the Whole Block Site

2.Planning Policy

2.Planning Policy

The need for the BSCU Project is identified by a number of policies in key planning policy documents such as the *London Plan*, the *Mayor’s Transport Strategy* and the City of London Corporation’s *Core Strategy* and *Bank Area Enhancement Strategy*.

This section provides an overview of the national, regional and local planning policies most relevant to the design and access aspects of the BSCU Project. Relevant LUL guidance is set out separately in Section 3.

2.1 National policy

- 2.1.1 The following national planning policies have been considered.
- 2.1.2 The *National Planning Policy Framework* (NPPF) published in March 2012 sets out the Government’s planning policies for England.
- 2.1.3 The NPPF promotes schemes which improve ‘the conditions in which people...travel’ (Paragraph 9), ‘solutions which support reductions in greenhouse gas emissions’ (Paragraph 30) and the importance of ‘high quality and inclusive design’ (Paragraphs 56 and 57) – all aspirations of the BSCU Project.
- 2.1.4 The national *Planning Practice Guidance* (PPG) (March 2014) provides guidance on the key points to take into account on design and some additional context for NPPF policies. The PPG provides information on the importance of good design and how good design can help to deliver planning objectives.
- 2.1.5 *The Department of Transport’s Traffic Advisory Leaflet 6/02 on Inclusive Mobility* (March 2012) is also relevant to the consideration of design and access.
- 2.1.6 The design of the above ground elements of the BSCU Project includes crime prevention measures as recommended in *Safer Places* and the Department of Transport guidance on inclusive design.

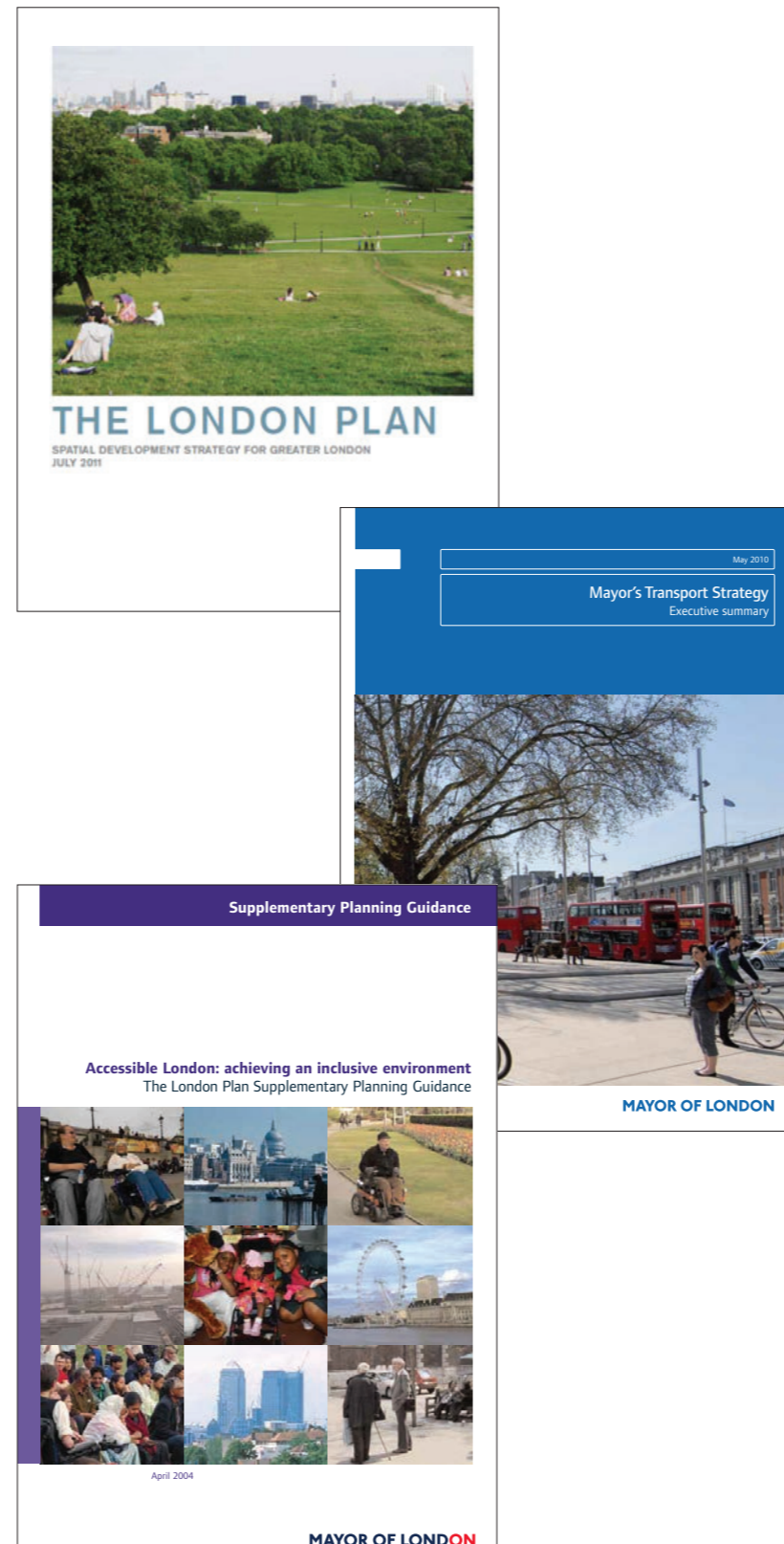


2.2 Regional policy

- 2.2.1 The BSCU Project is directly supported by a number of policies in the *London Plan* (GLA, 2011).
- 2.2.2 Policies 6.2 and 6.4 of the *London Plan* state that the Mayor will work with strategic partners to ‘increase the capacity of public transport in London over the Plan period’ including upgrades to the London Underground Network.
- 2.2.3 The *London Plan* states that development proposals should:
 - Be accessible and inclusive, particularly for older and disabled people (Policy 7.2);
 - Be safe and secure with legible routes and spaces which allow for convenient movement without compromising security (Policy 7.3); and
 - Contribute to the minimisation of potential physical risks from fire or flood and deter terrorism (Policy 7.13).
- 2.2.4 Further guidance on inclusive design is provided by the London Plan Supplementary Planning Guidance (SPG) *Accessible London: Achieving an inclusive environment*, which was published in 2004 and has been taken into consideration in the design of the BSCU Project.
- 2.2.5 In April 2014 the Mayor for London issued for consultation a revised draft supplementary planning guidance on *Accessible London Achieving and Inclusive Environment*, which provides guidance on the implementation of London Plan Policy 7.2. The SPG implementation point relating to public transport essentially remains unchanged from the 2004 version.

Figure 2.1: National planning policy documents

- 2.2.6 A Draft *Further Alterations to the London Plan* (GLA, 2014) was released for public consultation between January 2014 and April 2014. None of the alterations proposed in the draft document are applicable to the design of the scheme.
- 2.2.7 The Mayor's Town Centres SPG (July 2014) includes guidance on the public realm and accessibility and connectivity.
- 2.2.8 The BSCU Project directly responds to a number of key challenges identified in the *Mayor's Transport Strategy* (GLA, 2010):
- 'Supporting economic development and population growth' and 'improving transport connectivity' (Paragraphs E11 and E13) – the project will increase capacity at Bank Monument Station Complex.
 - 'Improving journey experience' (Paragraph E23) – the project will achieve this by allowing more people to pass through the station at peak periods without long delays and/ or diversions.
 - 'Improving public transport safety' (Paragraph E31) – this will be achieved by enhancing emergency fire and evacuation protection measures at Bank Monument Station Complex and reducing congestion.
 - 'Improving accessibility' (Paragraph E33) – the project will provide step free access between the street, Northern Line and DLR levels.

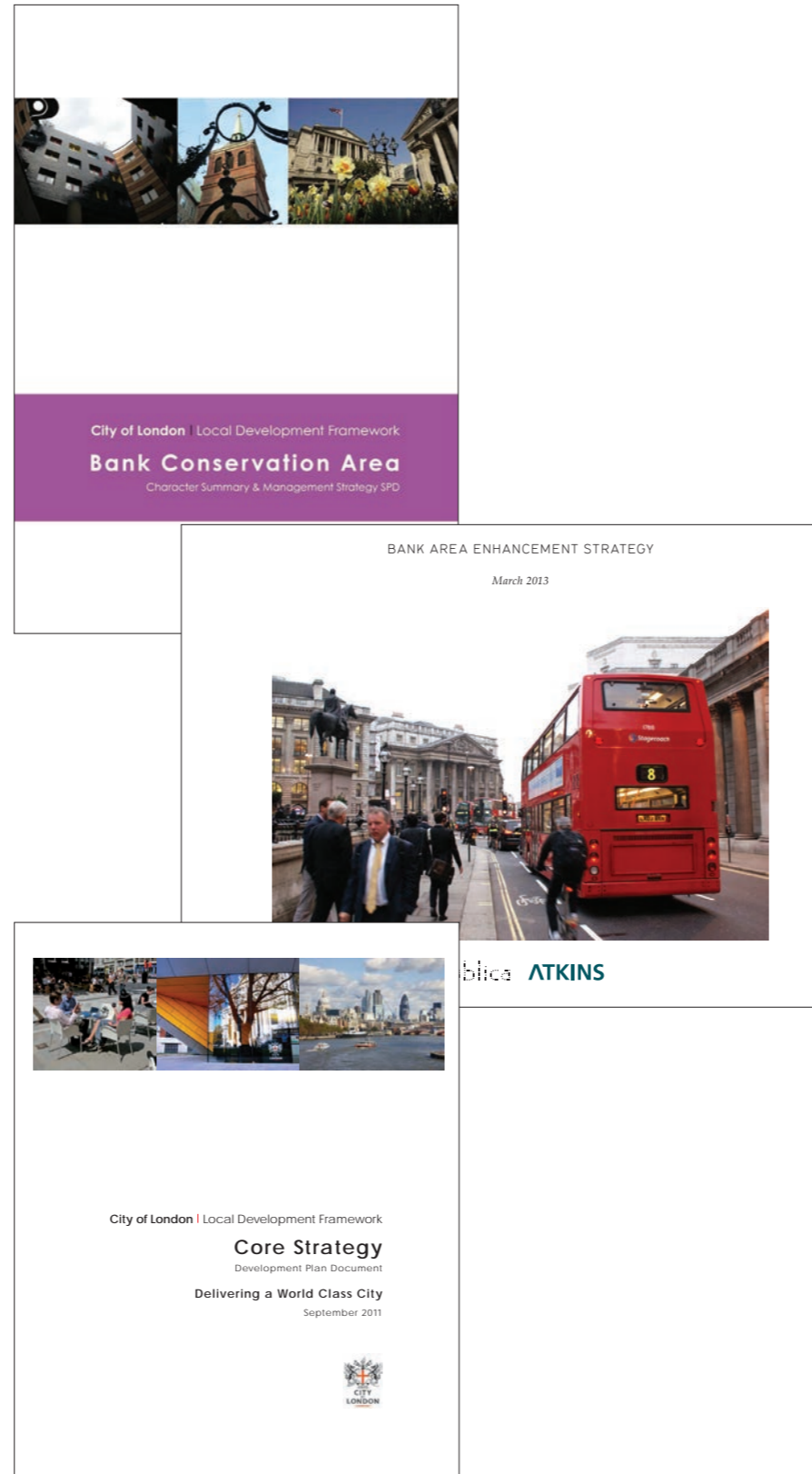


- 2.2.9 A number of policies in the *Mayor's Transport Strategy* are relevant to the BSCU Project, in particular the Strategy commits the Mayor, through TfL, to work with stakeholders to:
- Expand the capacity and quality of public transport services, improve passenger comfort and customer satisfaction and reduce overcrowding (Policy 13);
 - Seek to reduce the noise impacts from transport (Policy 16);
 - Promote healthy travel options such as walking and cycling (Policy 17); and
 - Implement measures to improve operational safety and security on public transport (Policy 20).
- 2.2.10 Proposal 19 in the *Mayor's Transport Strategy* focuses on delivering station capacity and accessibility enhancements at London's most congested Underground stations, including Bank, and Proposal 40 focuses on improving the physical accessibility of the transport system and prioritising step-free access at strategic interchanges.
- 2.2.11 The *Mayor's Transport Strategy* also promotes the need to improve 'the quality and experience' of the central area of London (in which Bank Station is located) 'and its public realm...particularly for pedestrians' (Paragraph 129).

Figure 2.2: GLA planning policy documents

2.3 Local Policy

- 2.3.1 The City of London Corporation's *Core Strategy* was adopted in September 2011 and has a vision for the City to be a 'leading international and business centre...that meets the needs of its diverse communities and neighbours.'
- 2.3.2 The BSCU Project supports a number of policies in the *Core Strategy* by:
- Ensuring that 'the City...has safe systems of transport and is designed and managed to satisfactorily accommodate large numbers of people' (Policy CS3);
 - Promoting a high standard of design management of buildings and spaces to provide for the access needs of all communities including the particular needs of disabled people (Policy CS10); and
 - Enhancing the 'sustainability and efficiency of travel in, to, from and through the City of London by facilitating further improvements to public transport capacity and step-free access at London Underground stations including Bank' and 'improving access routes and the streetscape around stations with particular focus on Bank' (Policy CS16).
- 2.3.3 The *Core Strategy* identifies 'Key City Places' including the Cheapside and St Paul's area in which the Bank area is located. Policy CS6 for Cheapside and St Paul's promotes 'enhancing the environment for pedestrians, shoppers, public transport users and where, appropriate, motor vehicle users'.
- 2.3.4 The BSCU Project also adheres to emerging policy in the City of London Corporation's draft *Local Plan*, which was released for consultation in December 2013 and when adopted in early 2015, will supersede the *Core Strategy*.



- 2.3.5 The draft *Local Plan* specifically states that it is 'working with TfL to deliver substantial improvements in transportation movements and public realm at Bank Junction and significant increases in the capacity of Bank Underground Station' (Paragraph 3.6.4) and this is supported by Policy CS16 where the Corporation seeks to secure 'increased public transport capacity through support for...the Northern Line/Bank Station upgrade.' Safeguarded land for this purpose is identified in the *Local Plan Policies Map*.
- 2.3.6 The main site for the BSCU Project is within the Bank Conservation Area. Two City of London Corporation documents guide proposals in the designated area: the *Bank Area Enhancement Strategy* (2013) and the *Bank Conservation Area Character Summary and Management Strategy Supplementary Planning Document (SPD)* (2012).
- 2.3.7 The *Bank Area Enhancement Strategy* seeks to preserve and enhance the area's unique character and maintain its status as a leading global financial centre, whilst meeting the needs of its users. Its vision is to create 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'. Nicholas Lane and Abchurch Lane are identified for enhancement as parts of the important north-south walking routes through the City of London.
- 2.3.8 The *Bank Conservation Area - Character Summary and Management Strategy SPD* (January 2012) provides an understanding of the significance of the Bank Conservation Area by identifying and analysing its principal characteristics. The area is characterised by large-scale commercial buildings set on principal thoroughfares within a network of historic streets, courtyards and alleyways, which creates a distinctive and dense urban environment. The character summary identifies a number of distant and local views that contribute to the character of the conservation area.

Figure 2.3: City of London Corporation planning policy documents



Figure 2.4 The Wellington Memorial at Bank Junction outside the Royal Exchange (right) and the Bank of England (left)

3.TfL & LUL Design Guidance

3. TfL & LUL Design Guidance

In addition to the planning policy, TfL and LUL has a number of key functional and operational requirements as well as their own design guidance, which have informed the design of the BSCU Project.

This section provides an overview of the relevant TfL and LUL policies, guidance and standards covering station and public realm design.

3.1 LUL standards & guidance

3.1.1 LUL has standards and guidance which include mandatory and advisory functional and operational requirements for stations covering all aspects of design, construction and operation, including:

- Premises;
- Access and interchange;
- Interior design and ambience of stations;
- Escalators and lifts;
- Systems;
- Fire;
- Communications systems;
- Civil engineering and tunnels;
- Electrical and mechanical engineering; and
- Track and signals.

3.2 Emerging LUL Design Idiom

3.2.1 LUL is currently developing a new Station Design Idiom. When complete, the Idiom will be gradually applied to all 260 stations on the network, focusing initially on any new stations, new parts of stations and stations in need of renewal.

3.2.2 The Idiom will focus on internal design, ambience and decor as well as the external appearance of the station, it's situation and response to the streetscape. This is closely allied to the developing TfL Station Public Realm Design Guidance.

The Design Idiom will:

- Create a more contemporary, practical and iconic design for all stations;
- Build upon the already strong LUL brand;
- Be applicable across the LUL estate;
- Be mindful of LUL's design heritage;
- Offer the correct 'weight' to customer touch points;
- Improve station ambience; and
- Take the LUL 'look and feel' to the next level.



Figure 3.1: LUL Design Idiom information signage concept - Cannon Street

3.2.3 The Idiom is expected to be complete by the end of 2014; however the BSCU design team have worked closely with the Design Idiom team to incorporate the following key principles:

- Achieve balance across the network;
- Look beyond the Bostwick gates;
- Consider wholeness;
- Prioritise comfort for staff and customers;
- Delight and surprise;
- Work with a family of materials to create atmospheres;
- Create ambience with lighting;
- Integrate products and services; and
- Prepare for the future.

3.2.4 The Design Idiom will set a palette of colours, materials and styles for each of a number of station types based on their existing architecture. The proposed new entrance to Bank station is classed as a “New Opportunity” and therefore appropriate for the creation of a new architectural approach, rooted in the Idiom.

3.2.5 The Design Idiom will continue to develop and will further inform the detailed design of the BSCU Project.

3.3 Station public realm design guidance

3.3.1 TfL Urban Design is developing a new set of best practice guidance focused on the design of the public realm outside of all TfL stations. The guidance promotes the use of public realm to help stations to fulfil their potential as essential components of their local area and optimise the way that a station integrates with its surrounding neighbourhood.

3.3.2 The guidance does not take a prescriptive approach but emphasises a way of thinking which identifies the role of the public realm in integrating the station into its context and provides four key objectives for the public realm outside of stations. The balance of these objectives will vary from station to station and will depend on a careful analysis of the location, the users and the station itself.

The four potential objectives of station public realm are:

- Enabling the efficient functioning of the transport system;
- Unlocking the station as a community asset;
- Supporting the development of commercial opportunities and the local economy; and
- Creating a sense of identity and place.

3.3.3 In identifying the balance of these objectives for any piece of station public realm, the guidance recommends the consideration of the following key elements in order:

- 1 The station as a destination – why people travel to that station, what type of people they are and what their specific requirements are;
- 2 The spatial and physical context – the spatial and physical relationship between the station and its surroundings including other transport nodes;

3 The physical nature and layout of the transport infrastructure – the relationship between the station and its immediate surroundings including the impact of rail lines and the types and location of entrances; and

4 The key pedestrian spaces and their required character – what spaces are available, what should be the balance of place vs. movement and how they integrate with both the station interior and the wider context.

3.3.4 While the Station Public Realm Design Guidance is not due to be launched until later in 2014, the thinking behind the guidance has been integrated into the BSCU proposals.

3.4 Principles specific to Bank Station

3.4.1 Based on the above guidance, City of London Corporation guidance and an understanding of the local context, guiding principles were developed between LUL, TfL and City of London Corporation. The principles focused on the design of the station entrance and its relationship with the context, public realm and proposed OSD. The principles have provided direction and guidance for the design team as the design for BSCU has developed.

4. Project Context

4. Project Context

The design of the BSCU Project has been informed by a detailed understanding of the wider Bank area.

This section covers the historical development of both the Bank area and Bank station up to the present day, before providing analysis of the Station in its present context.

4.1 The Bank area

History

- 4.1.1 The Bank area is the site of one of the earliest Roman settlements in London, built around the Wallbrook River and forming a Basilica and Forum around what is now Gracechurch Street to the east of the Whole Block site.
- 4.1.2 In the 10th and 11th Centuries, the medieval street patterns and grains that are still evident today were established. During and shortly after this time, local government in the City formed the first ward boundaries.
- 4.1.3 The area became a focus for trade and commerce from the 11th century onwards, particularly the Bank area which was further established in the medieval period with many street names being descriptive of the trades associated with them.
- 4.1.4 Links to the church and monastic houses resulted in numerous churches being founded in the area from as early as 1055 through to the 13th Century.
- 4.1.5 In the 16th Century, the Royal Exchange was established by Sir Thomas Gresham at the centre of what became the financial district that we know today. The area developed as a densely packed area comprising predominantly timber-framed buildings within the City walls. The area was largely destroyed through a combination of the plague of 1665 and the Great Fire of London in 1666.

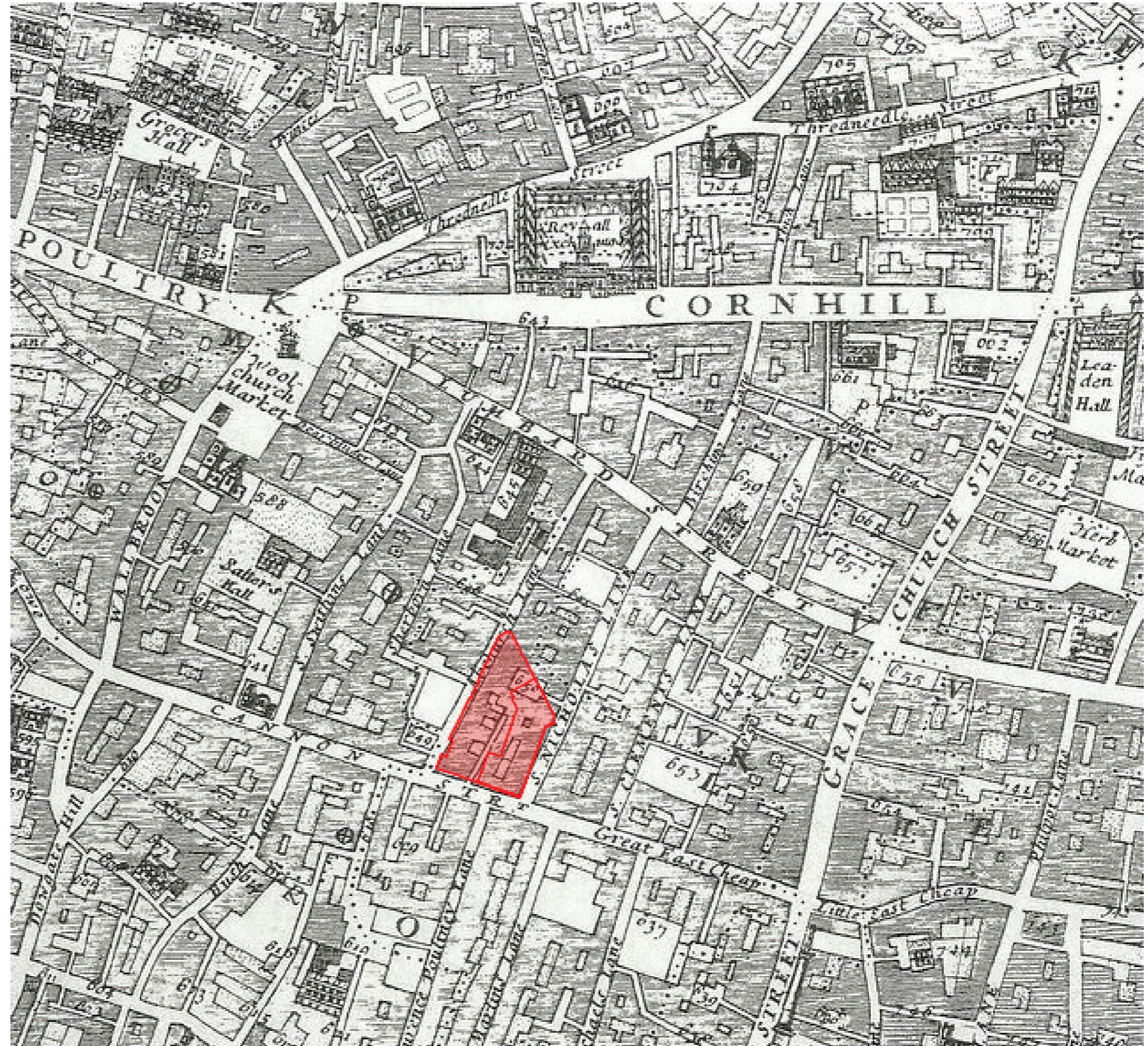


Figure 4.1: Morgan's map of 1682 (source: William Morgan, London Actually Surveyed, 1681-2)

4.1.6 These events significantly changed the way that development in the City was planned and regulated. The earlier medieval street patterns were largely retained, with significant new roads such as King William Street and Queen Street introduced as well as the widening of principal roads. The Rebuilding of London Act of 1666 required all new properties to be built in brick and stone with only the door cases and window frames to be made of timber.

4.1.7 This rebuilding underpins the character of the Bank Conservation Area as it is today. The hierarchy of streets was reinforced with new regulations requiring the use of stone on principal buildings and streets, and brick on secondary routes, again still very much in evidence today. The pace with which the City of London was rebuilt after the Great Fire is shown on William Morgan's map of 1682 (Figure 4.1).

4.1.8 In the 18th Century private banks began to appear with development generally rebuilding on pre-existing plots with notable exceptions being the Bank of England (1732-34) and the Mansion House (1739-53). London's position as a main financial centre was enhanced by the French invasion of the Netherlands in 1794 which resulted in many investors leaving the continent and relocating to the City. This also drove improvements and development across the City, including the removal of the City Wall to allow growth beyond its historic limits and to improve traffic circulation.

4.1.9 In the 19th Century, the City continued to develop as the United Kingdom emerged as the world's dominant power following the Napoleonic Wars in 1815. It was at this time that King William Street was superimposed over the medieval street pattern (1829-1835) connecting (the new) London Bridge to Bank and Moorgate. In the 1840s, Cannon Street was widened and extended to St Paul's Cathedral. Stanford's map of 1862 shows a streetscape that is familiar today (Figure 4.2).



Figure 4.2: Stanford's map of 1862 (source: Stanford's Library Map of London and its Suburbs, 1862)

4.1.10 During the boom of the late 19th Century, London's residential population migrated to fashionable new residential areas such as Bloomsbury which rendered old houses and smaller offices in the City obsolete. As a result, many plots were combined and redeveloped, creating larger commercial premises which fuelled the City's growth as the country's main financial centre, clustering around the Bank of England and Royal Exchange.

4.1.11 Railways increased accessibility to the City which gave it access to a significant daytime workforce. In 1898 the Waterloo and City Line opened City Station. In 1900 the City & South London Railway station opened at Bank, with

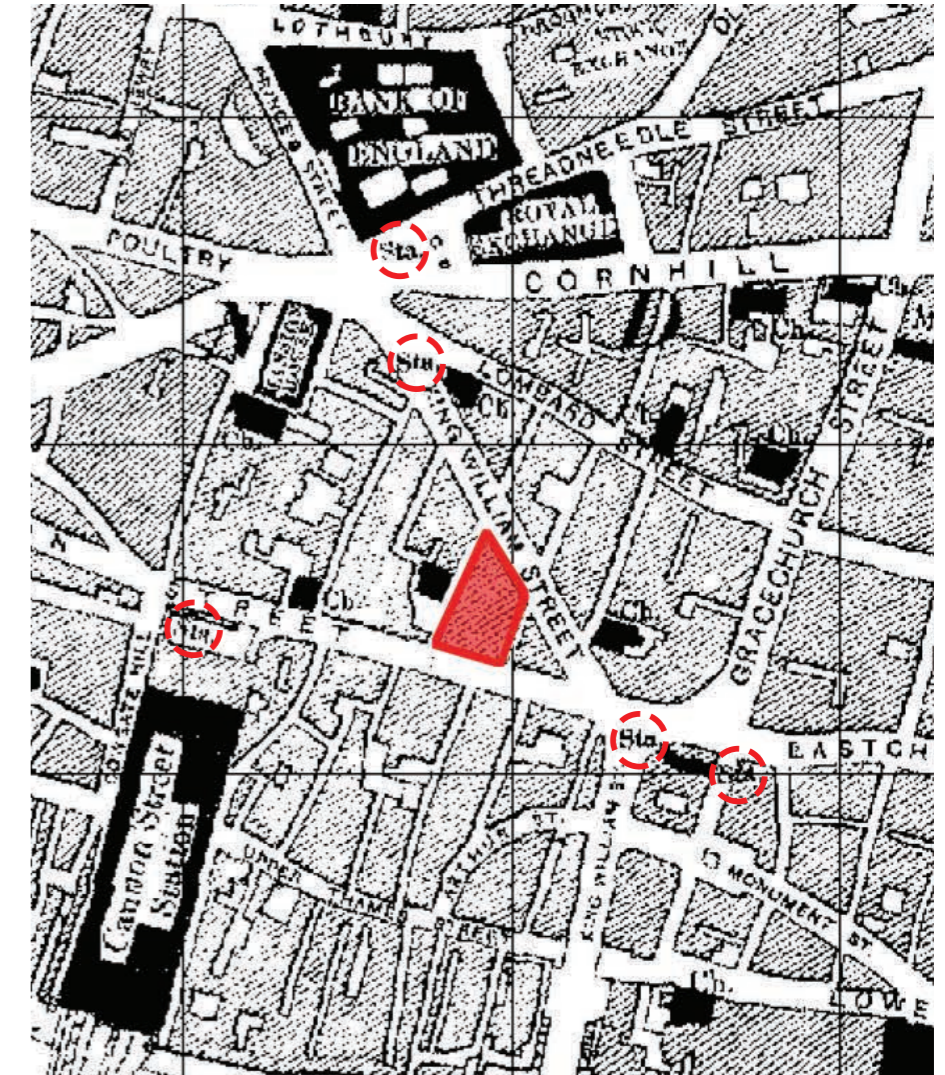


Figure 4.3: Ordinance Survey. London, 1920. (© Crown Copy Right and Landmark Information Group Limited 2013. All Rights Reserved)

the Central London Railway's eastern terminus opening a few months later with lift access between the ticket hall and platforms. As the three railway companies operated different routes and were not in direct competition, they connected their ticket halls shortly after. This, combined with the station being the only underground station within the heart of the City's financial centre, Bank Station rapidly became one of London's busiest underground interchanges (Figure 4.3).

4.1.12 Direct access between the Central and Northern Line by was achieved during the 1920s the installation of escalators. The escalator link between Bank and Monument stations was opened in 1933.

Bank area today

- 4.1.13 The Bank area today is at the heart of the City of London, London’s financial and business centre. It plays a vital role in the economic development of London and the country as a whole.
- 4.1.14 The character of the area clearly reflects an amalgamation of the old and the new with its medieval street pattern, historic churches, impressive civic buildings and bold new developments reflecting the growth of the financial sector over recent decades.
- 4.1.15 Whilst the local area is firmly established as a largely single use commercial centre, in recent years it has seen a growth in the retail sector as well as its night-time and weekend economies. For example, Cheapside has recently been re-established as a busy high street with shops, cafés, bars and restaurants, increasing the number of visitors to the area. In addition, many historic banking halls have been converted into bars and restaurants. International trading hours mean that offices are in use for longer hours beyond the traditional ‘nine to five’. Increased usage of major destinations such as London City Airport, ExCel and The O2 arena means more visitors passing through the Bank area to use the DLR to reach those destinations throughout the day and weekends.
- 4.1.16 This area is again experiencing significant development with a number of recently completed buildings and a number of others proposed or under construction. (Figures 4.4 and 4.5 opposite)
- 4.1.17 Currently, the footways around existing station entrances experience severe overcrowding at peak times.



Figure 4.4: Recent developments in the Bank area, new developments at Cheapside (top left), Walbrook building (top right), 40 Gracechurch Street (bottom right), 125 Old Broad Street from Bank Junction (bottom left)

Bank area in the future

- 4.1.18 The City of London is likely to see continued growth in the medium to long term with its working population expected to increase by 60,000 people to 428,000 by 2026 (City of London, 2011). There are major redevelopment projects under construction or planned in the Bank area and in the area known as the Eastern Cluster bounded by Fenchurch Street, Old Broad Street, Devonshire Row and Aldgate.
- 4.1.19 The Bank area is also likely to see a further rise in visitor numbers as a result of the opening of the new Crossrail station at Liverpool Street/Moorgate in 2018.
- 4.1.20 The combination of all of the above will result in an increase in pedestrian flows in the area.

Implications for the station

- 4.1.21 The expected level of growth in the Bank area’s working population and visitor numbers in and outside of peak periods will place increasing pressure on the already congested Bank Monument Station Complex. The BSCU Project must address existing issues with the Station’s current layout and provide sufficient capacity in the new layout to accommodate projected passenger numbers.
- 4.1.22 The architectural heritage of the area provides a unique context for the Project. The Bank Conservation Area is focused around Bank junction and has the greatest concentration of Grade I, Grade II* and Grade II listed buildings in the City of London. There are also many unlisted historic buildings of high architectural quality and heritage value. This historic context influences the below and above ground elements of the scheme. Below ground works involving tunnelling will need to carefully consider and mitigate the impact on existing historic buildings, whilst the design of the new Station Entrance on Cannon Street at the junction with Nicholas Lane will need to be sympathetic with the surrounding area.

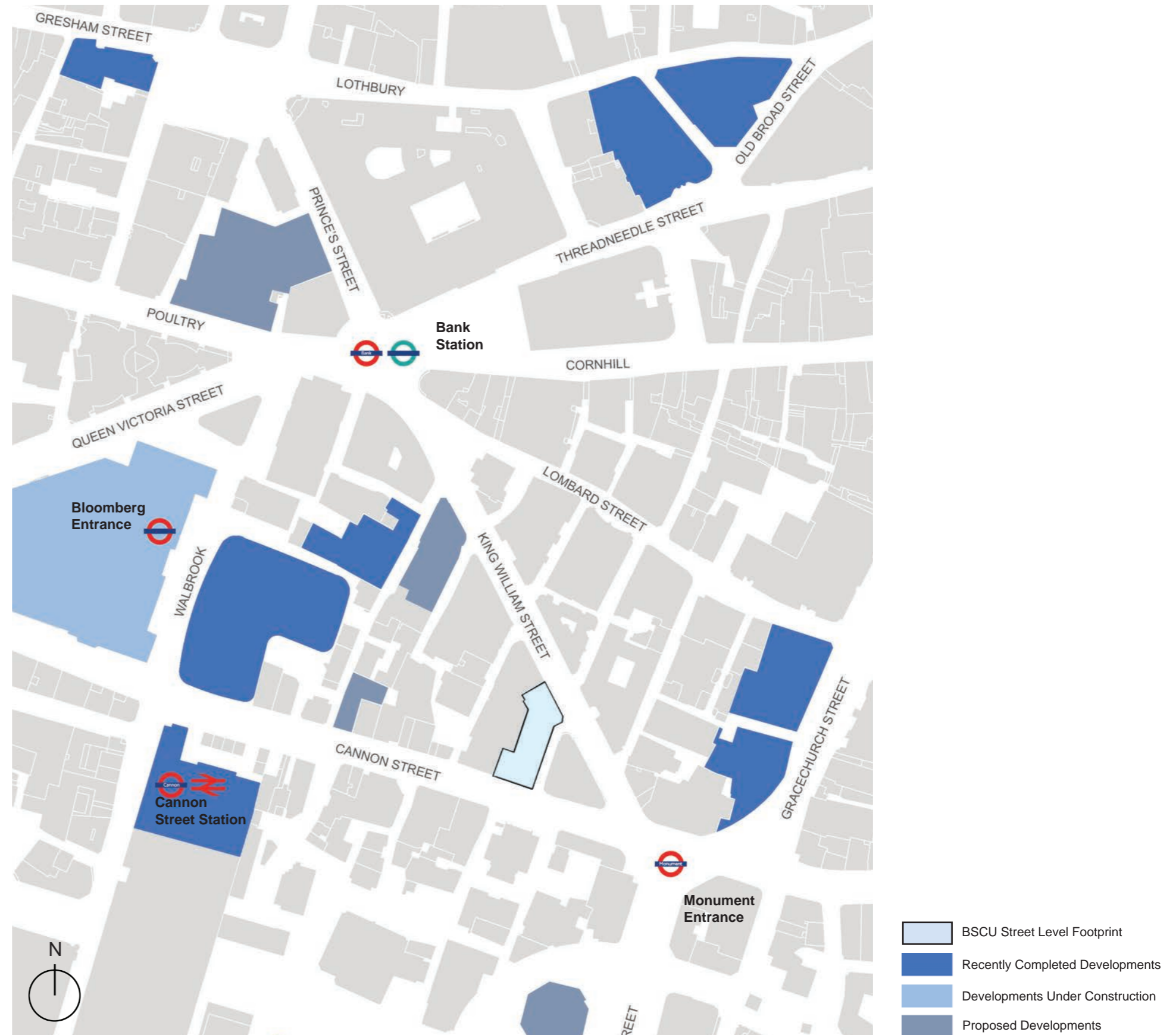


Figure 4.5: Recent and future developments in the Bank area

4.2 Bank Station

Bank Station history

- 4.2.1 The Bank Monument Station Complex is the result of the amalgamation of a number of Underground Stations over the last 130 years.

Eastcheap Station, 1884

- 4.2.2 The first underground station in the area was Eastcheap which opened in 1884 and was renamed Monument shortly after.

King William Street Station, 1890

- 4.2.3 The City of London and Southwark Subway Act received Royal Assent in 1884. The Act provided for a 'subway' to be built from the City to Stockwell. In 1890 the City and South London Railway opened as the world's first deep level underground railway and the first to use electric locomotives. It included six stations between the City and Stockwell, the City terminus being in King William Street.
- 4.2.4 Though popular, the City end of the line was not free from problems. The King William Street station had only one platform and the gradient from the river proved difficult for the locomotives to negotiate. When a north-south extension to the line was planned, both the station and its east-west aligned tunnels were abandoned and the new tunnels bored at a lower level. On completion of the work, London Bridge, Bank and Moorgate Stations were opened in 1900.

City Station, 1898

- 4.2.5 Before Bank Station opened another Underground Station opened nearby. This was the City end of the Waterloo and City line, built by the London and South Western Railway to link its terminus at Waterloo to the City. The line opened in 1898, the City terminus having platforms under Queen Victoria Street close to Mansion House. The terminus was named City and continued to be called that until the name

was changed to Bank in 1940. The City station was not provided with lifts and passengers had to climb 60 feet from the platforms to the surface.

Bank Station– the City and South London Railway station, 1900

- 4.2.6 The first station to be known as Bank Station opened in February 1900 as part of the City and South London Railway extension. The railway had applied for and obtained permission to demolish Nicholas Hawksmoor's Church of St Mary Woolnoth for the site of the station but a public outcry resulted in a redesign to retain the church.
- 4.2.7 Entrances to the station were built in a classical style either side of the west end of the church, the main entrance being in King William Street. An underground booking hall was built in the crypt of the church with the roof supported by heavy iron columns.

Bank Station – the Central London Railway station, 1900

- 4.2.8 Approval for the Central London Railway from Shepherd's Bush to Cornhill was gained in 1891 and soon extended to Liverpool Street via Bank. The company opened its Bank Station in June 1900. Permission was granted by the City of London Corporation for the Central London Railway station below Bank Junction on the understanding that public subways would be built as part of the scheme to ease pedestrian congestion at street level. In addition, a number of utilities were moved as a result of the works and placed in a specially dug tunnel.
- 4.2.9 By June 1900 Bank Station had become the first interchange on the network with three sets of sub-surface booking halls and platforms, one each for the Waterloo and City, the City and South London and the Central Railway stations. The booking halls were connected soon after the completion of the Central London Railway platforms but the Central London Railway and Central and South London Railway platforms were not connected until the 1920's.



Figure 4.6: World War II bomb damage to Bank Station

- 4.2.10 The Central London Railway was extended to Liverpool Street in 1912 and in 1924 escalators were added to Bank Station. This was the first bank of three escalators side by side on the network and connected the Central London Railway and Central and South London Railway platforms. The Central London Railway station was reconstructed during the major rebuilding of the Bank of England which began in 1925. The booking hall was redecorated and a new subway entrance built into the corner of the Bank itself.

Connecting Bank Station to Monument Station, 1933

- 4.2.11 In 1933 London's underground railways, tramways and bus operators were merged to form the London Passenger Transport Board known as London Transport. In the same year an escalator link was built from the City and South London platforms to Monument Station on the District Railway.
- 4.2.12 Bank Station received a direct hit on the 11th of January 1941 when a bomb exploded in an escalator machine room (Figure 4.6). A train was arriving at the station at the time and 56 people were killed and a further 69 injured. The station was closed for two months and the crater covered by a Bailey bridge to keep the roadway open.

Connecting the Docklands Light Railway to Bank Station, 1991

- 4.2.13 In 1991 the Dockland Light Railway (DLR) was extended to Bank Station. The DLR platforms are parallel to but deeper than those of the Northern Line and were linked to the Central line at one end and Monument Station at the other. A new link was excavated between the Waterloo and City line and the Central Line and the opportunity was taken to refurbish the station. The resultant Bank Monument Station Complex is shown in Figure 4.7.

Key external architectural features

- 4.2.14 Although there are currently 14 entrances to the Bank Monument Station complex due to their size and nature, their street presence is limited. However they include some distinctive features, for instance, the entrance built within the Bank of England facade forms part of the Grade I Listing of that building. The subway entrances adjacent to the Bank junction feature original illuminated box 'tombstone' roundels that are now few in number and these were carefully restored in 2000.

The entrances to Monument include the City of London owned subway system under Monument junction. These were constructed in 1932 and are finished in faience and ceramic tiles identical to LUL station finishes of that time and include distinctive subway entrances, with portal frame roundels, to Charles Holden's designs.

- 4.2.15 Following damage to the south-eastern entrance by a bus crash in 2010, extensive works to the subway and entrances were undertaken by TfL in collaboration with City of London Corporation (using Section 106 funds). This included large scale works to deal with water ingress and stress cracking of the interior finishes. The complete replication of the faience, tiles and light fittings, along with the restoration of the subway portals, won the 2013 National Railway Heritage Award for craftsmanship.

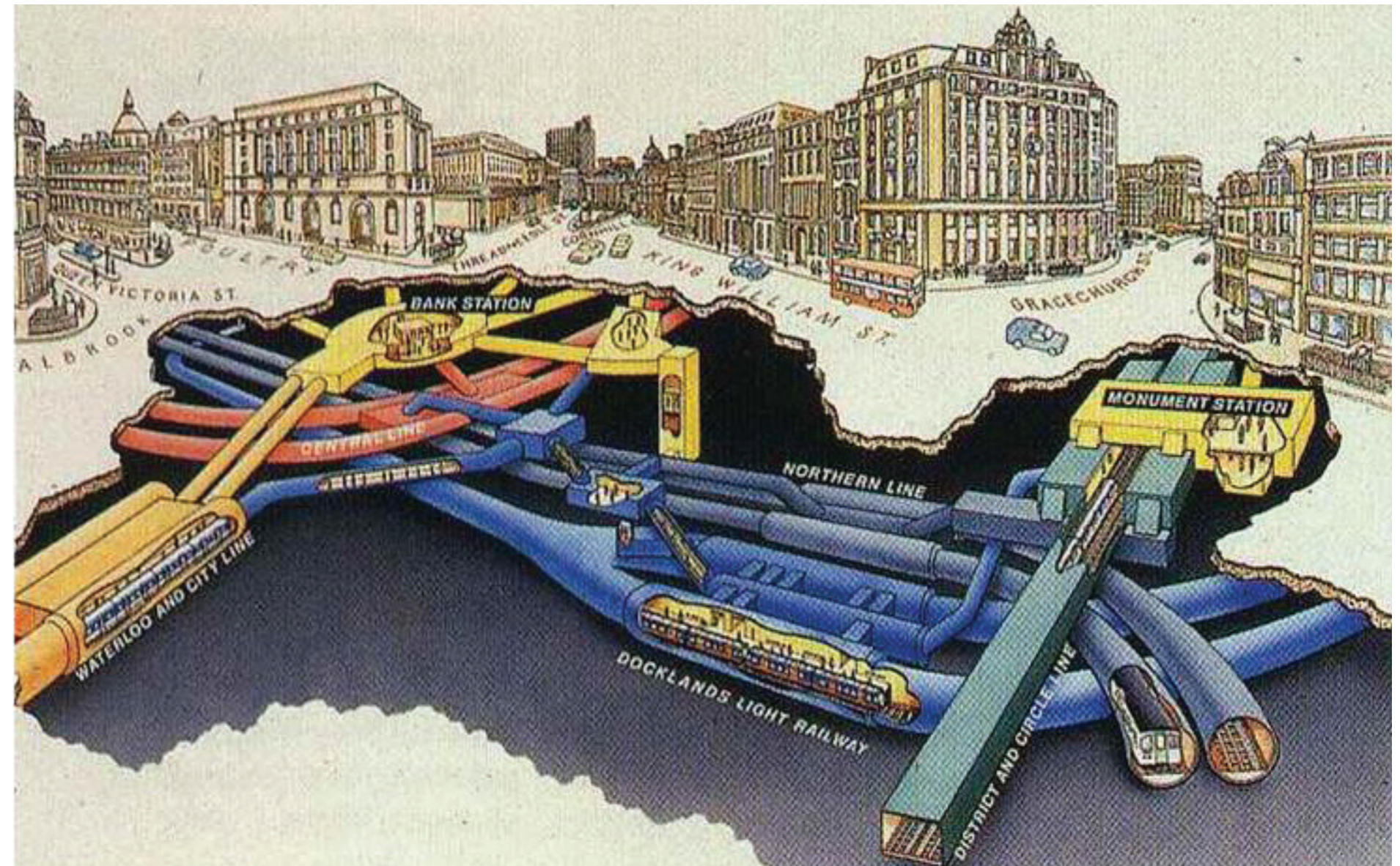


Figure 4.7: The Bank Monument Station Complex today after the connection to the DLR in 1991

Design of interior spaces

- 4.2.16 Due to the additive nature of the station's development many parts of the station have a very different feel. To address this and the generally poor condition of the decorative finishes a refurbishment was approved in 1986. Works started that year to designs by Duncan Lamb, LUL Architect, but took many years to complete. The works, based on a large profile grey ceramic tile, with decorative

panels based on the City's heraldic imagery, forming the supports to the station's roundels, covered the District/ Circle, Northern & Central line platforms as associated passageways. The Bank Station ticket hall had additional features added, partially funded by the City of London. The works did not cover the new DLR areas, nor the ex-BR Waterloo & City line platforms. The latter were subsequently redecorated following the LUL takeover of the line.

Bank Station today

4.2.17 In relation to the streets above, the Northern and DLR tunnels run below King William Street, the Central Line below Poultry and Threadneedle Street, and the District and Circle Lines below Cannon Street (Figure 4.8).

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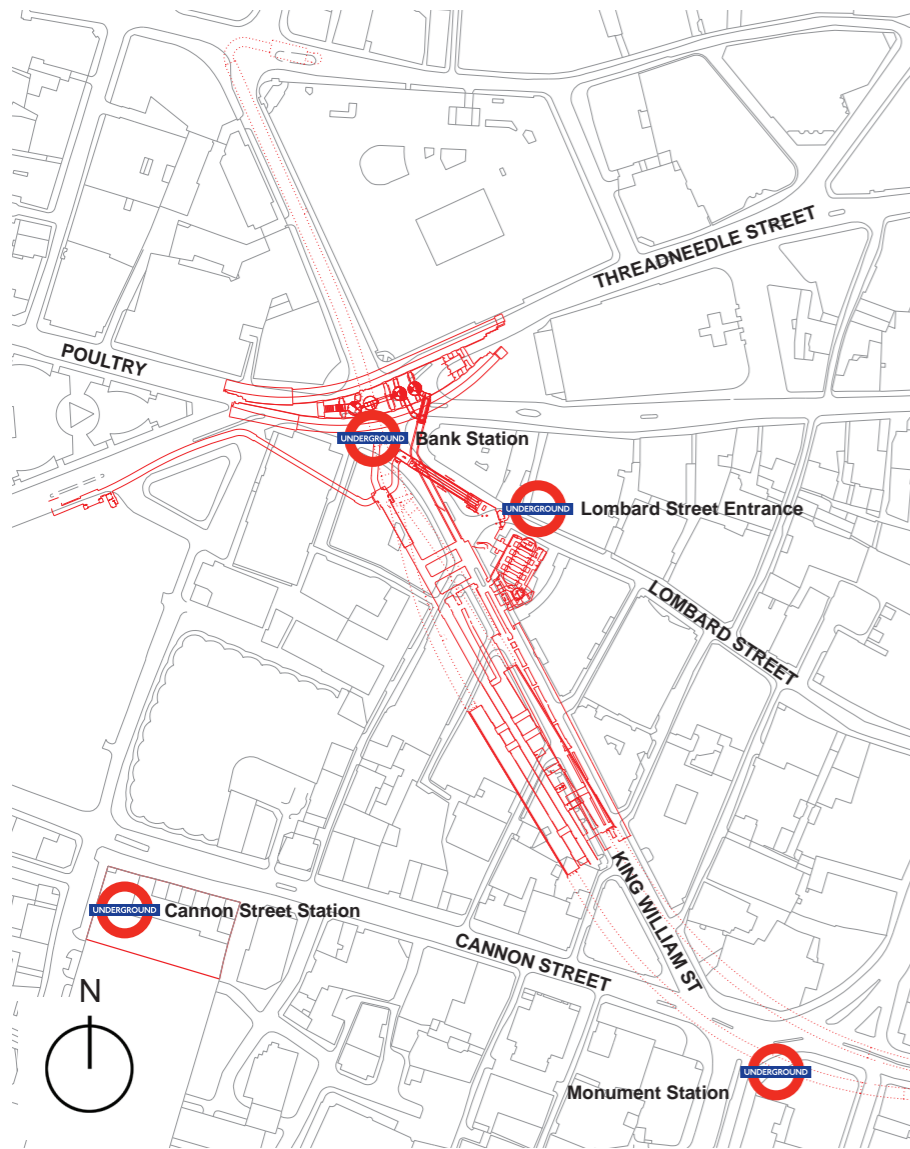


Figure 4.8: Contextual plan showing existing station (shown in red) in relation to the street network

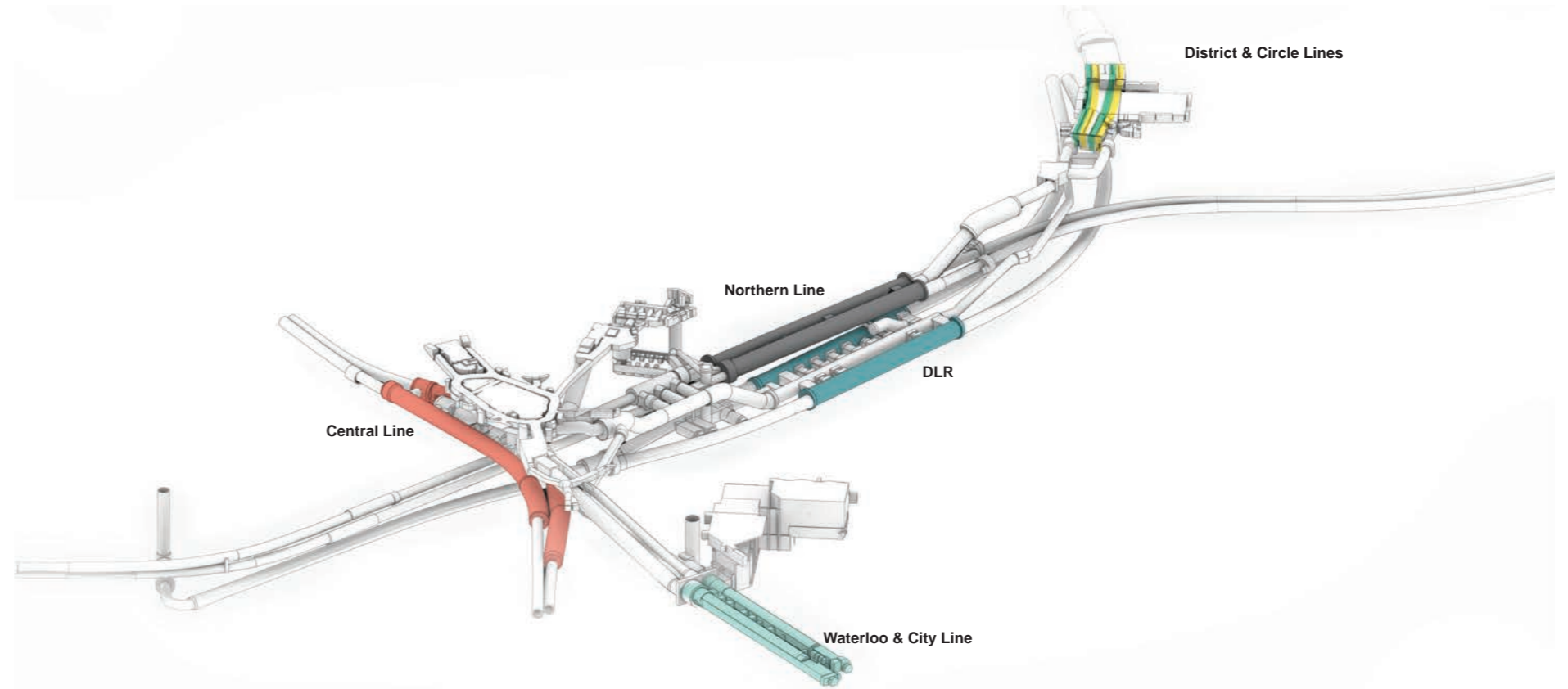


Figure 4.9: Existing platforms

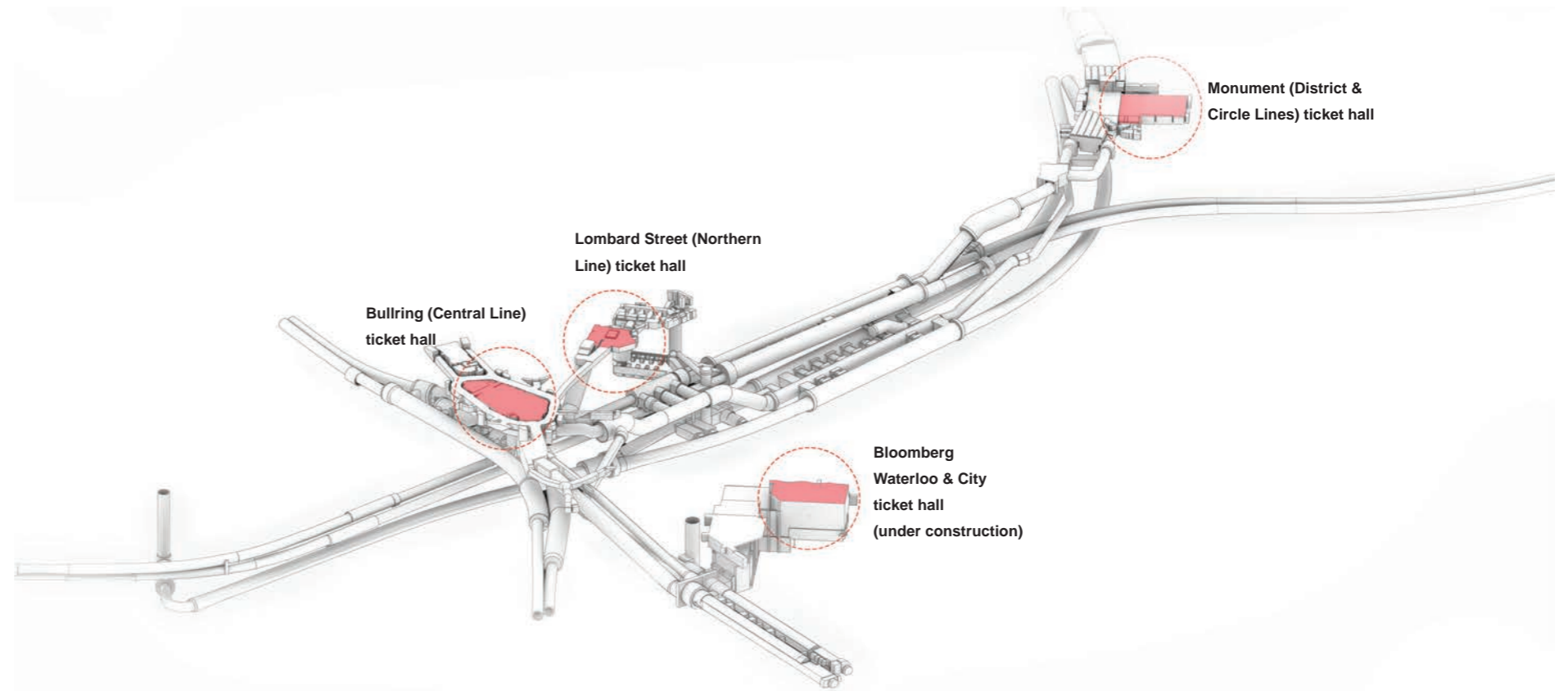


Figure 4.10: Existing ticket halls

4.2.18 Bank Monument is one of the world's most complex subterranean railway stations and contains:

- six lines – District, Circle, Waterloo & City, Central, Northern Lines and the DLR;
- five sets of platforms – District & Circle, Waterloo & City, Central, Northern Lines and the DLR terminus (Figure 4.9);
- three existing ticket halls – Central Line (under Bank junction), Northern Line (under Lombard Street) and Monument (under Monument junction) (Figure 4.10) as well as the Bloomberg entrance currently under construction for the Waterloo & City Line; and
- 14 entrance/exits (Figure 4.11).

Demand has significantly risen since 2003 (when TfL began exploring options for upgrading the station) with:

- over 40 percent growth in those interchanging at Bank between 2003 and 2012;
- a 33 percent increase in those leaving the station; and
- a 37 percent increase in passengers entering the station.

4.2.20 By 2026 LUL predicts that over 107,000 passengers will use the station during the morning peak period.

4.2.19 The Bank Monument Station Complex is the fourth busiest interchange on the London Underground Network. Currently 98,000 passengers either board or alight at the Station during the morning peak period (07:00 to 10:00).

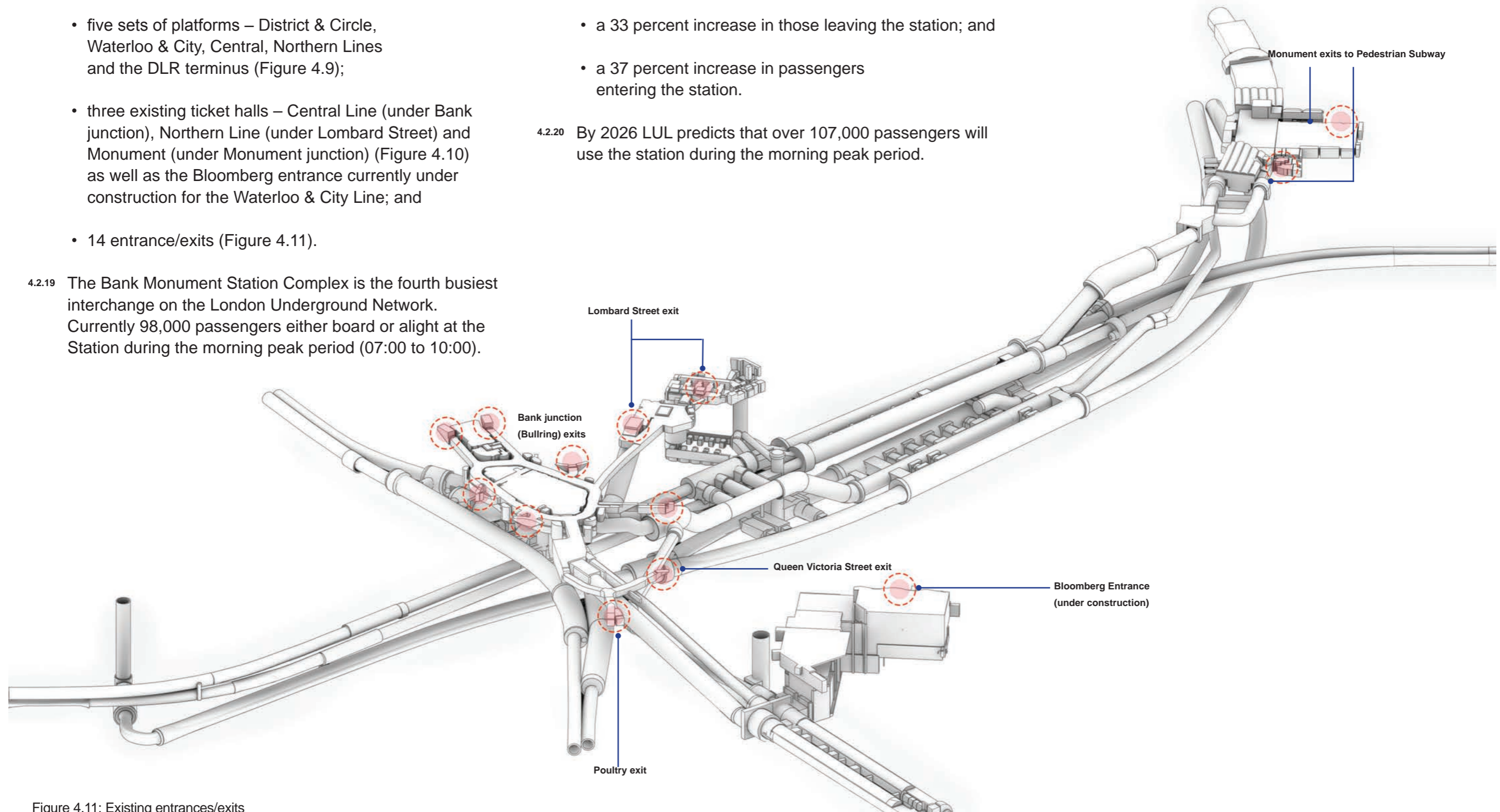


Figure 4.11: Existing entrances/exits

4.2.21 At present, Bank Station suffers from sustained overcrowding, congestion and passenger delay in the Northern Line and DLR areas. Station staff regularly need to implement manual crowd control measures to enable the station to operate safely. These measures include restricting access to the station and even fully closing the station. These measures have a wide-ranging effect on the transport network. With the projected demand, these measures will be required more often along with additional staffing requirements and safety considerations.

4.2.22 The piecemeal development of the station has led to a number of significant issues which affect its operation today.

Below ground challenges

i) High levels of congestion and lack of capacity leading to increasing journey times

4.2.23 In a typical weekday morning peak period, of all passenger movements:

- 50 percent are interchanging between lines;
- 45 percent are exiting the station; and
- 5 percent are entering the station.

4.2.24 As a significant number of passengers interchange at Bank Station, it poses particular problems for crowd control as passengers cannot simply be held back at entrances.

4.2.25 A number of interchange routes converge upon two passengers areas known as the Triplication and Cruciform Concourses, which passengers use to move between the Central and Northern Lines (Figure 4.12). For example, of 20 possible interchange routes within Bank Station, 12 of these pass through the Triplication area (approximately 25,500 people in the evening peak period) and 10 through the Cruciform (approximately 15,300 people). This results in cross-flows, congestion and difficult way-finding.

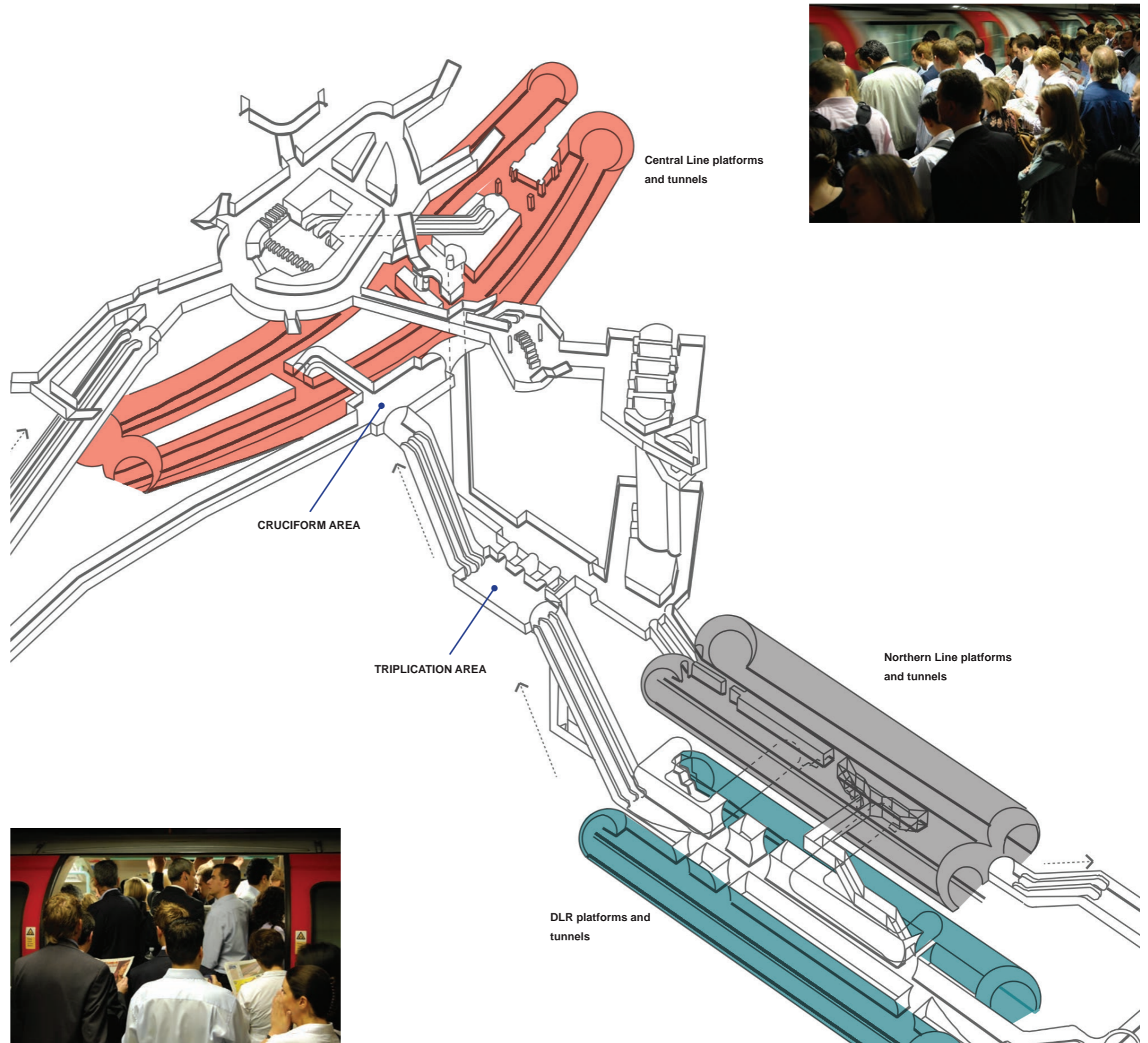


Figure 4.12: The existing Triplication and Cruciform areas with images of the current congestion on Northern line platforms

Narrow passageways throughout Bank Station create indirect routes and multiple cross-flows, adding to the length and complexity of passenger journeys.

4.2.26 Figure 4.14 (next page) shows three sets of ‘pinch points’ in the station during the morning and evening peak periods, which cause congestion and affect the frequency of trains as they have to be held back to allow platforms to clear. The three pinch points are:

- the TriPLICATION and Cruciform areas;
- Northern Line Platforms; and
- DLR Platforms and approach to escalators and central concourse.

ii) Limited step-free access

4.2.27 Only the DLR is currently accessible via a step-free route. This route is a time-consuming and indirect from street level. Passengers take a small remote lift from King William Street into the Northern Line (Lombard Street) ticket hall, a second lift down to the busy TriPLICATION area and then a third lift which is not compliant with current LUL standards, down to the DLR level.

iii) Complicated and indirect routes within the Bank Monument Station Complex

4.2.28 There are complicated and indirect routes within the station complex as a result of different parts of the complex being added gradually over time. These routes make it difficult for passengers to find their way easily around the station and create conflict between different flows of passengers, particularly in the TriPLICATION area. This results in congestion during peak periods. A number of these are described and illustrated in Section 7.

iv) Lack of resilience

4.2.29 Surges in demand can occur in one particular area if, for example, a lift or an escalator is out of service or a platform is closed. This can result in more congestion problems elsewhere within the Station and at other nearby stations such as London Bridge or Liverpool Street Station. As the station is already at critical capacity, any incident can have a disproportionate impact.

4.2.30 In addition, it is not possible to do scheduled maintenance without causing severe disruption to users.

v) Need to enhance fire and evacuation protection measures

4.2.31 The bulk of Bank Station was designed and built at a time when fire safety measures and regulations had not been developed to the extent that they are today, particularly for underground railways. This is compounded by the very significant growth in passenger numbers since the station was opened. Interim measures keep the station operating safely but it is essential that Bank Station layout is brought into line with the modern best practice for fire safety design to allow LUL to provide compliant fire and evacuation protection measures for Northern Line and DLR passengers in particular.

Above ground challenges

i) Lack of a single, strong visual presence for Bank Station at street level

4.2.32 Bank Station’s street presence is limited to numerous roundels indicating small, narrow entrances with stairs leading down to the Bullring subway and Central Line ticket hall. This lack of a main focal point for Bank Station creates street level way-finding and legibility issues for passengers and pedestrians, particularly for those unfamiliar with the local area.

4.2.33 In addition, street level signage and way-finding is varied and inconsistent with a mixture of City of London Corporation and TfL/LUL signage (including Legible London totems).

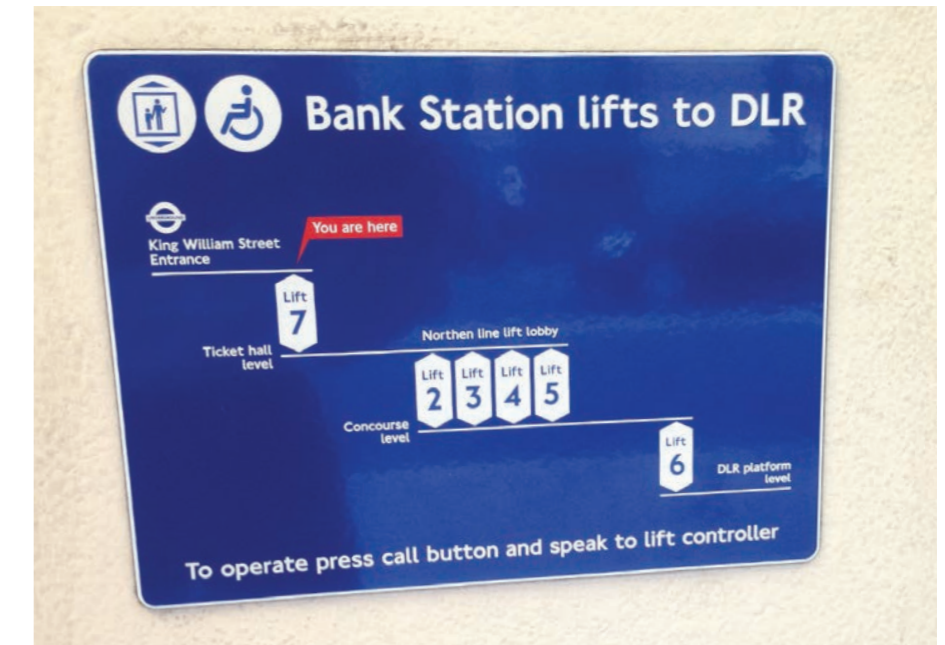


Figure 4.13: Existing Step Free Access signage



Northern Line platform congestion



Triplication congestion

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

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

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

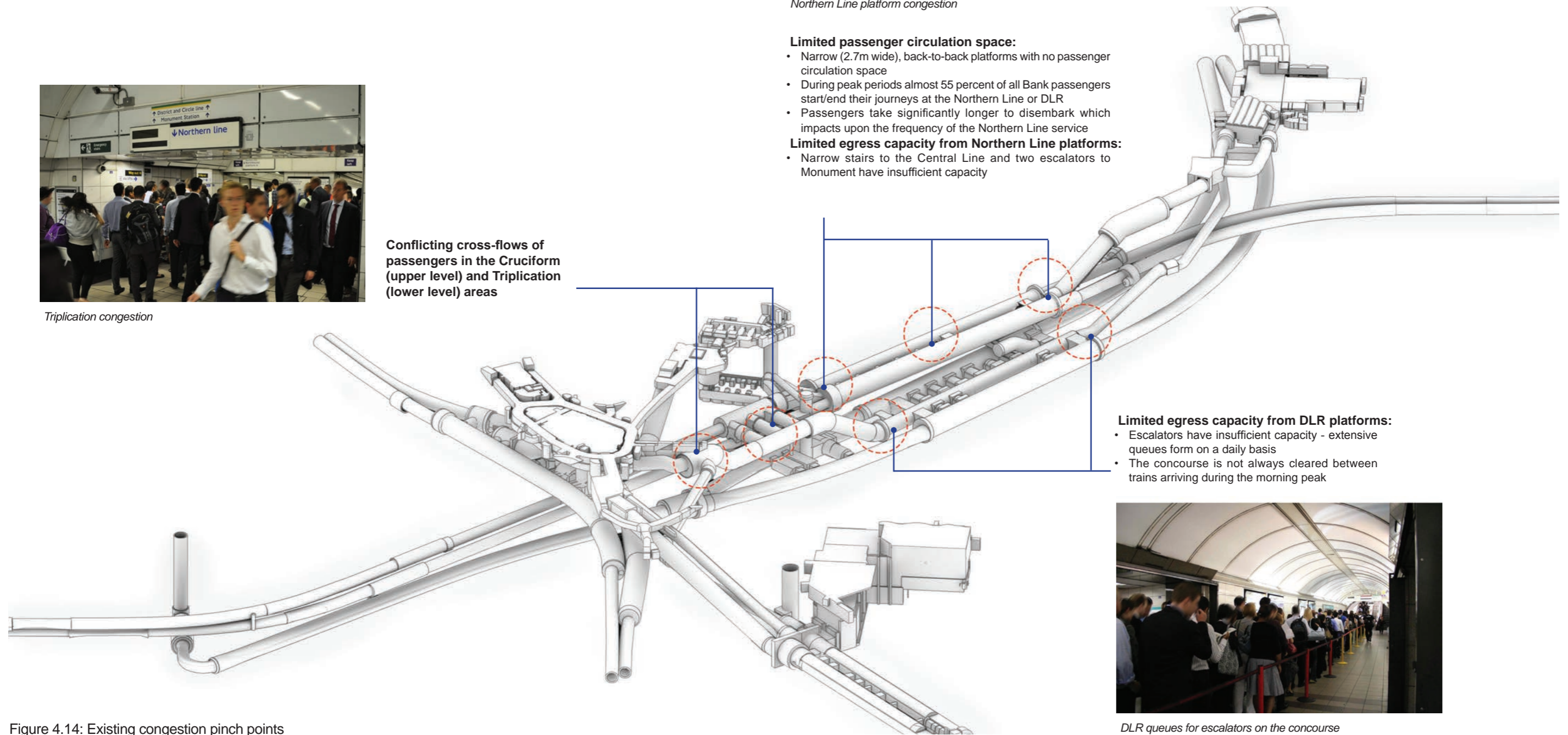


Figure 4.14: Existing congestion pinch points

Bank Station in the future

- 4.2.34 Alongside the BSCU Project, there are two further projects which are currently being implemented to enhance Bank Monument Station Complex. The first is a £16million investment to improve the station's operation systems, which includes the provision of a new Station Operation Room and staff accommodation at Monument Station, Closed Circuit Television (CCTV) system and a Passenger Help Point system, as well as integration of systems across the whole station (including future proofing for the BSCU Project).
- 4.2.35 The second project is the new Bloomberg Development Station Entrance at street level on Walbrook (Figure 4.15) which will include a Station Entrance with passenger lifts and escalators providing step-free access to the Waterloo & City Line. This is currently under construction as part of a major new Bloomberg Place office development south-west of the historic Mansion House. This is designed to relieve congestion within the station as passengers from the Waterloo & City Line will exit from this new Station Entrance and travel at street level rather than going through the station to the exit nearest to their final destination.
- 4.2.36 Bank Station currently suffers from a range of issues relating to congestion, lack of capacity and resilience, poor step-free access, complex way-finding and a need for enhanced fire and evacuation protection measures. It also lacks a single focal point at street level. With the forecast growth in passenger demand, improvements at Bank Station are vital to enable it to accommodate these passengers.



Figure 4.15: Proposed interior of intermediate level on Walbrook & Station Entrance currently under construction as part of the Bloomberg development

4.3 Bank Station and its context

Station Entrances

4.3.1 Today there are 14 entrances (Figure 4.16) which are grouped around:





- Bank junction portal entrances leading off the Bullring subway beneath the junction (six);
- Lombard Street portal entrances (one);
- King William Street lift (one);
- Poultry/Queen Victoria Street portal entrances (two); and
- Monument Station portal entrances and ticket hall (four).

4.3.2 An additional street level Entrance Hall is under construction on Walbrook as part of the Bloomberg Place development.

4.3.3 Due to the size and style of entrances the resultant street level presence of Bank Station is therefore highly dependent on signage.

4.3.4 The only step-free access point is via a King William Street entrance with an indirect route using three different passenger lifts down to the DLR level.

Key

-  Existing London Underground Entrances
-  Proposed London Underground Entrances
-  Street Level Footprint
-  National Rail Entrance

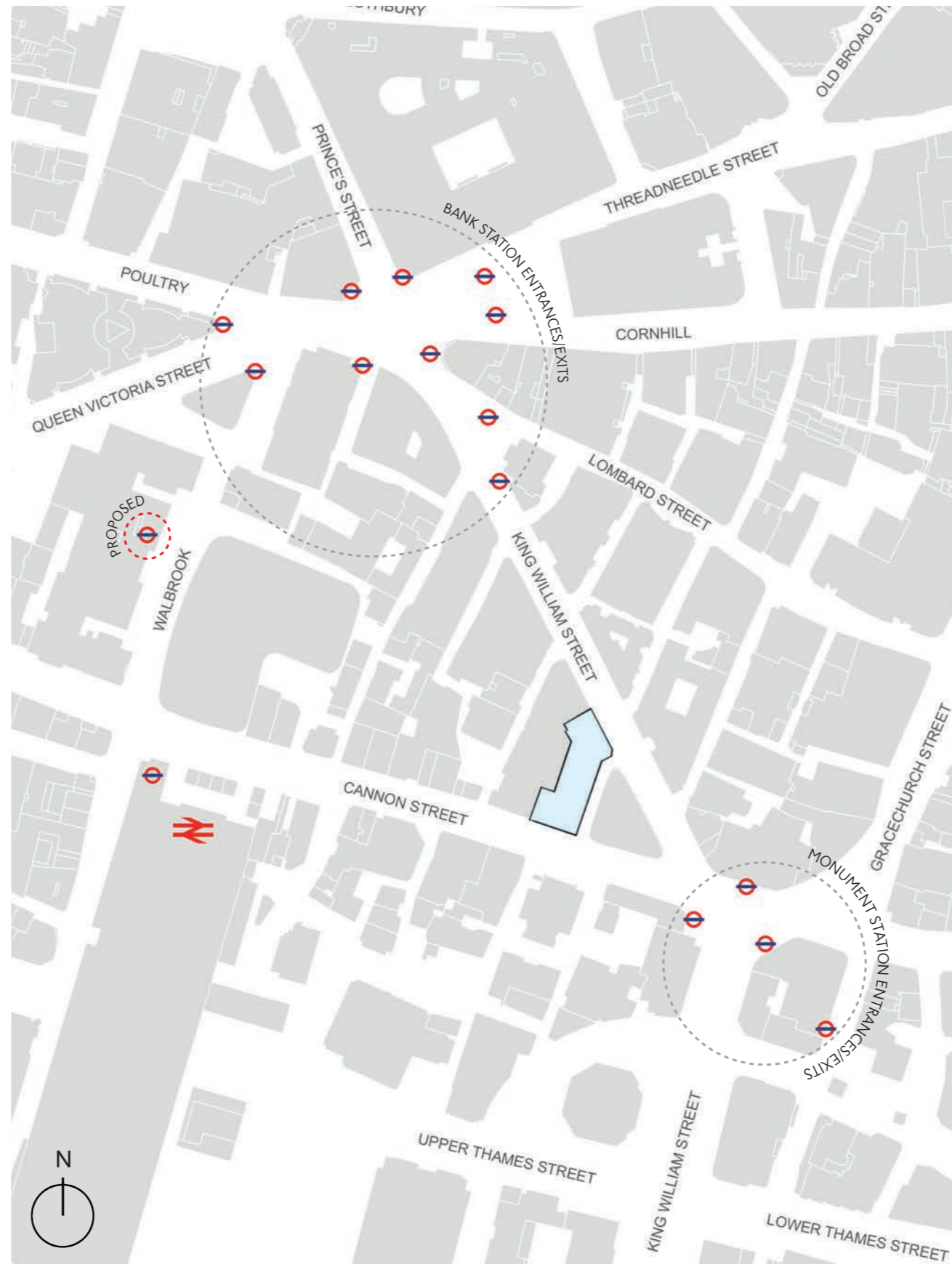


Figure 4.16: Plan of existing entrances to the Bank-Monument Station Complex

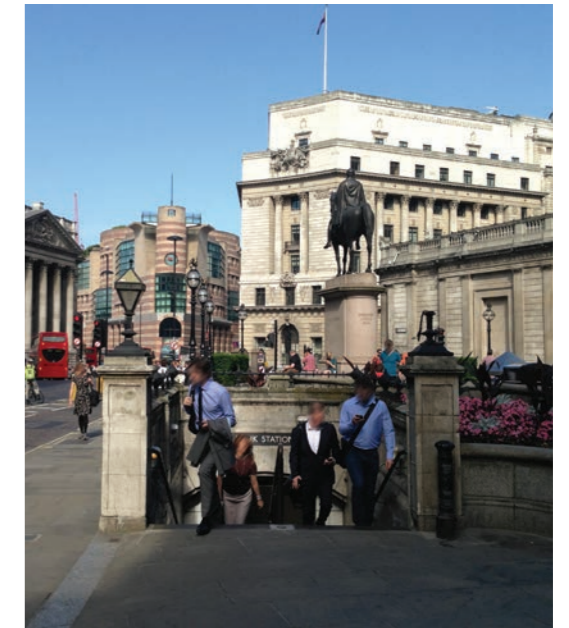


Figure 4.17: Existing entrances to the Bank-Monument Station Complex

Transport interchange and pedestrian movement

London Underground

4.3.5 The next closest Underground Station is Cannon Street Station, which may be used for interchange to services on the District and Circle Lines.

National Rail

4.3.6 Cannon Street, Liverpool Street, Fenchurch Street, Moorgate and London Bridge Stations are all within reasonable walking distance and provide access to mainline rail services. Blackfriars and City Thameslink Stations are also available with a slightly longer walk time.

London Buses

4.3.7 Figure 4.18 shows the location of bus stops around Cannon Street and Bank junctions for 21 different routes, connecting directly with 19 of London's 33 Boroughs. The location of bus stops, coupled with the wide range and frequency of services offers an excellent provision and opportunity for interchange between London Underground and bus services.



Figure 4.18: Existing local public transport facilities around the proposed Station Entrance

Cycling

- 4.3.8 There is a dense network of cycle routes around Bank Station as shown in Figure 4.19 and three docking stations for the Barclays Cycle Hire scheme are located within approximately 400m of the proposed Station Entrance site.
- 4.3.9 Barclays Cycle Superhighway routes CS2 and CS3 pass close to the site from the east along the Whitechapel Road (A11) and The Highway (A1203) and connect Central London with outer London for cycle journeys. An additional Cycle Superhighway is proposed to run East-West along Upper Thames street.

Walking

- 4.3.10 Immediately around the proposed Station Entrance to the South of the Whole Block Site, Cannon Street provides a wide footway (approximately 5m along the north side of the carriageway tapering to approximately 3.5m at its narrowest point). Footway widths will be slightly reduced by Hostile Vehicle Mitigation measures in the form of bollards in front of the station entrance area only.
- 4.3.11 The footway to the North of the Whole Block Site, on the southern side of King William Street, is less accommodating (approximately 2m along the south side of the carriageway) in providing for connections between Monument and Bank Stations. The footway on the northern side of King William Street is wider, at approximately 3.5m. High levels of footway congestion are experienced on King William Street.
- 4.3.12 Abchurch Lane provides narrow footways on either side of the carriageway at a maximum of approximately 1.5m. Abchurch Lane allows access onto Abchurch Yard. Nicholas Lane footways are 2m at the widest point but restricted to 1m pinchpoints for much of its length. Most pedestrians tend to treat these lanes as shared spaces. Views along Nicholas Lane are currently severed by the existing buildings, dramatically reducing legibility in this area.

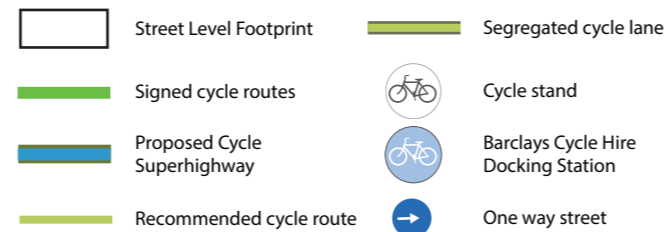
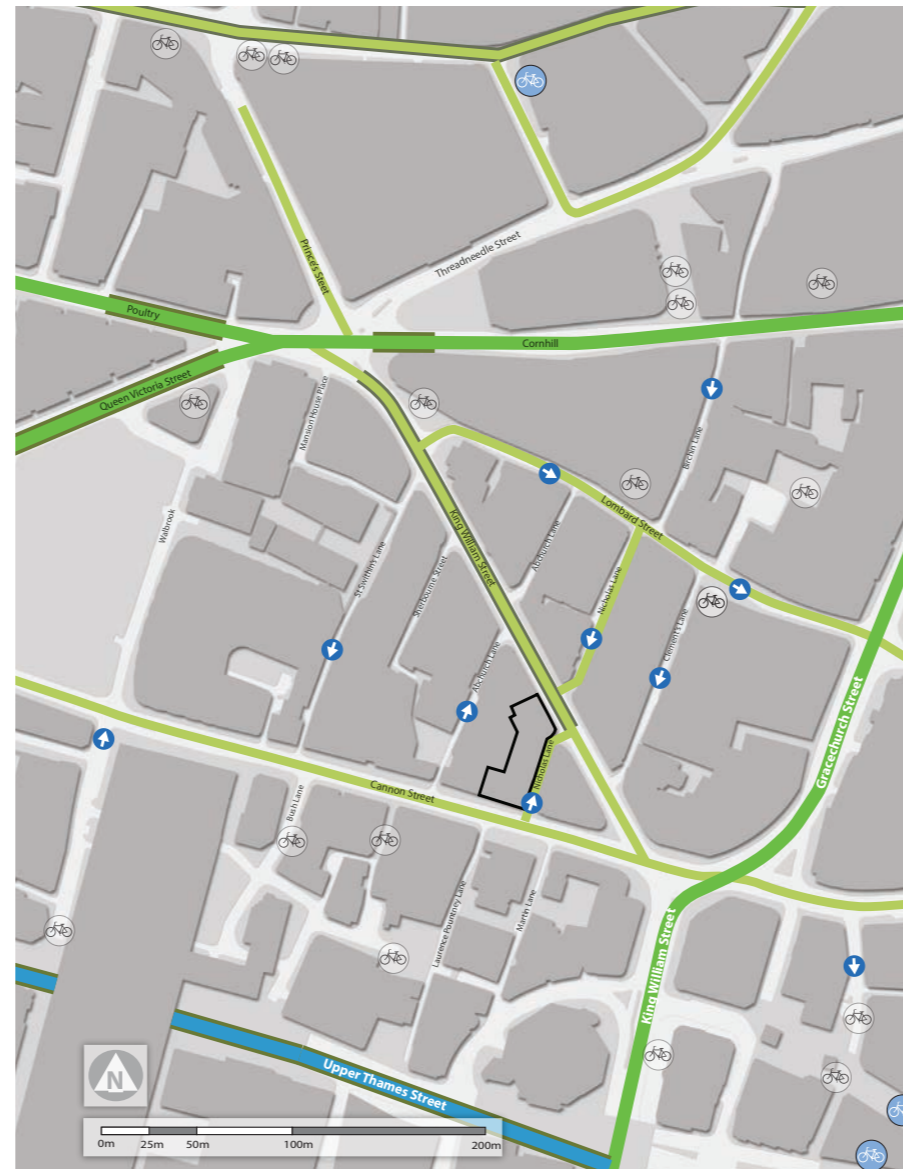


Figure 4.19: Existing cycling facilities around the proposed Station Entrance

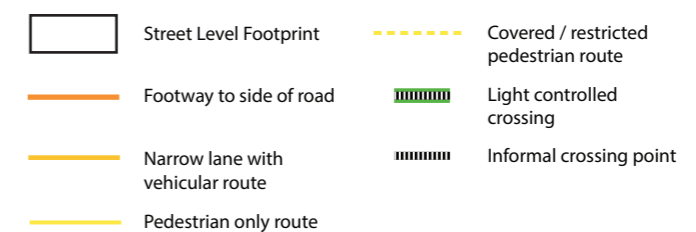
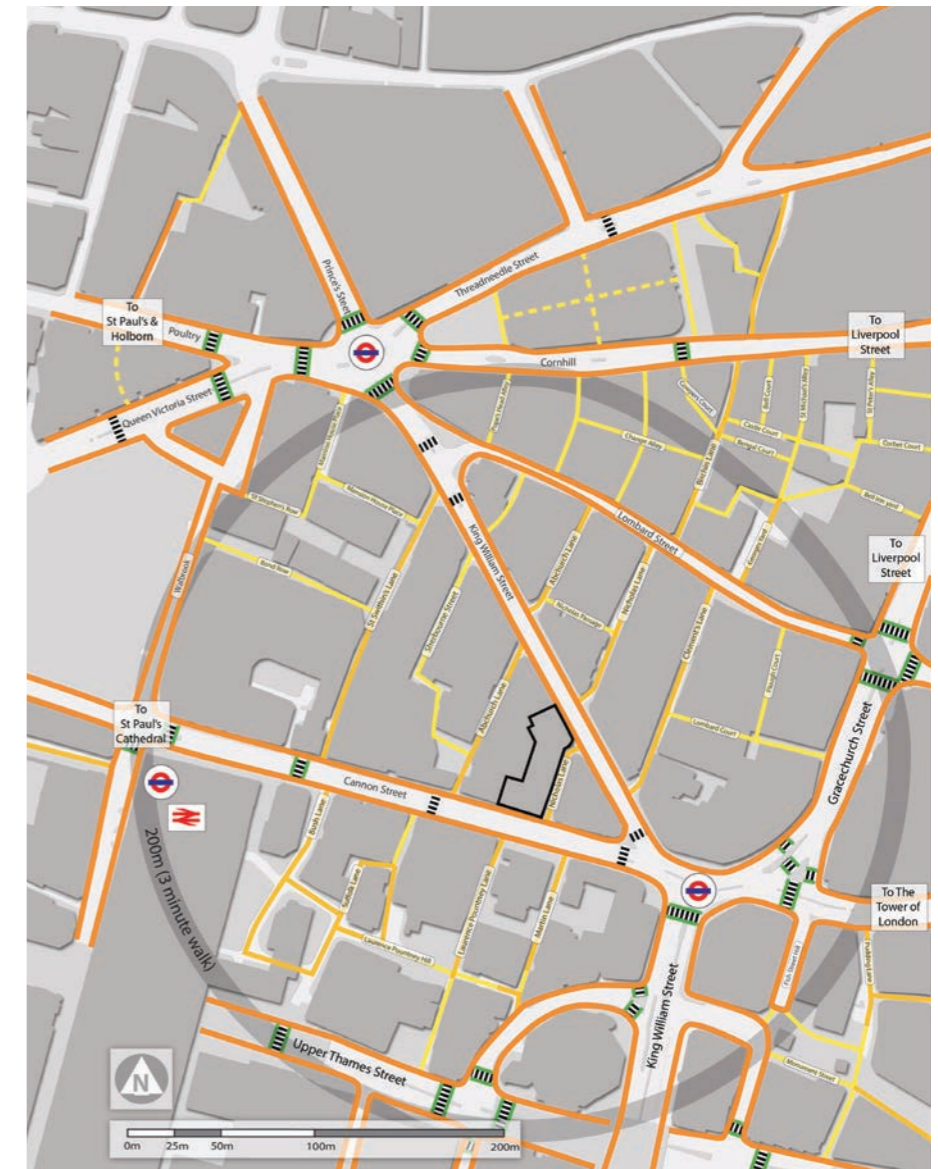


Figure 4.20: Existing pedestrian movement around the proposed Station Entrance

4.3.13 As part of the *Bank Area Enhancement Strategy*, the City of London Corporation intends to review and revise their existing way-finding strategy in this part of the City of London by 2021 to take advantage of routes provided by lanes that can alleviate routes with a heavy footfall. This will complement TfL's Legible London wayfinding system.

Station catchment

- 4.3.14 Figure 4.21 illustrates the relative density and distribution of end destinations for Northern Line and DLR passengers leaving Bank station (based on 2008 LUL Rolling Origin Destination Survey data). These passengers are the primary source of congestion emanating from the centre of the station and a key driver in the design concept as set out in Section 6. This congestion exists both within the station and on the narrow footways around Bank junction.
- 4.3.15 As shown in Figure 4.21, the highest concentration of end destinations at present (shown in red) is focused on two areas in between the Bank and Monument junctions.

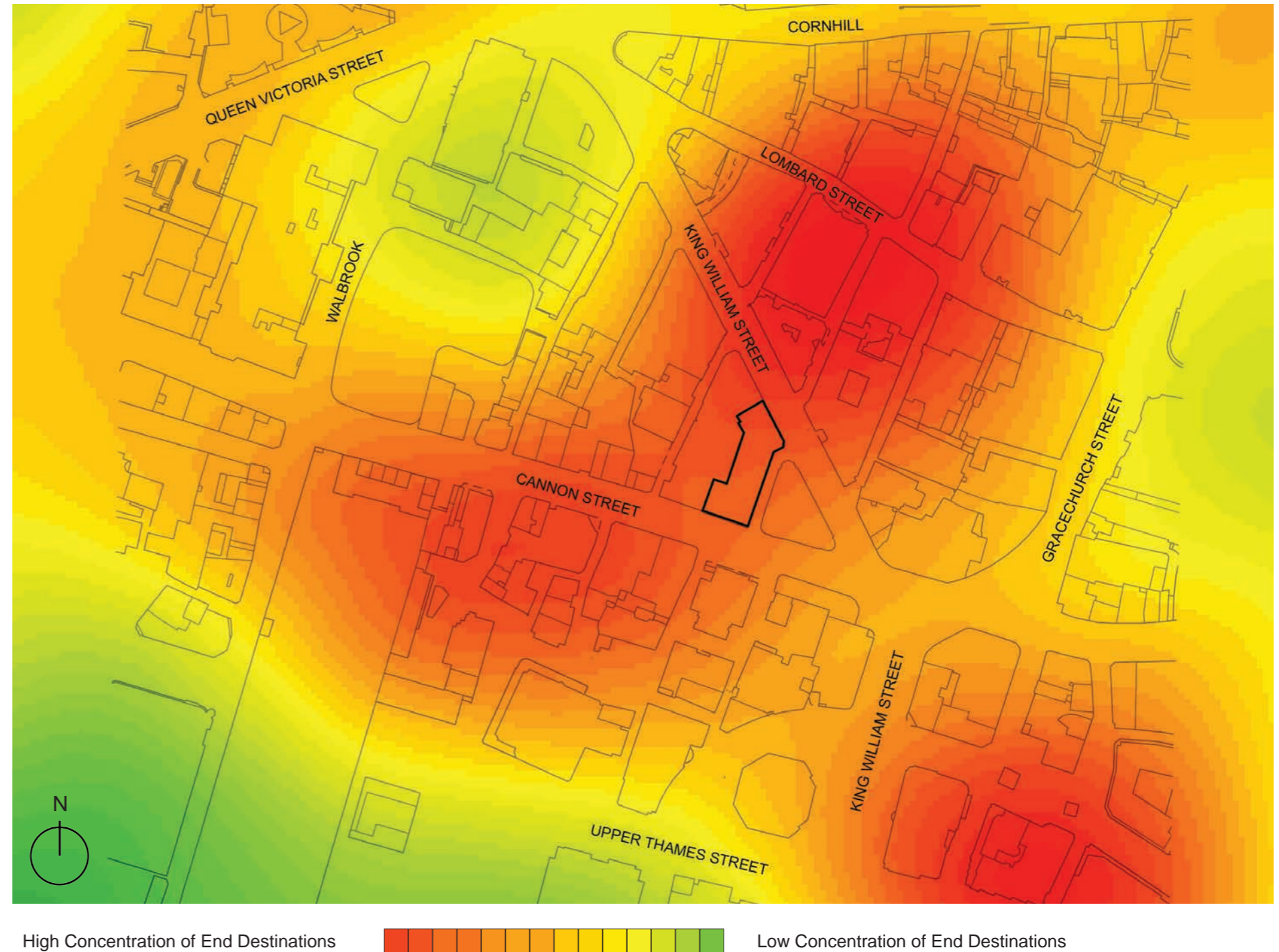


Figure 4.21: Postcode study showing existing passenger destinations for those exiting the station from the Northern Line & DLR (based on 2008 LUL data)

Use, character and heritage

Uses

- 4.3.16 While most of the streets in the area experience high levels of activity during the day, the greatest activity and pedestrian footfall occurs around the junctions near Bank and Monument and along Cannon Street (Figure 4.22).
- 4.3.17 Much of the activity at Bank and Monument is generated by the entrances to the London Underground Stations in addition to a range of ground floor uses. In the case of the junction near Monument, the area also acts as a street level 'gateway' to the City for those approaching from the south. Cannon Street has much more of a 'high street' feel, with a diverse mix of uses along its length, acting as a destination in its own right. Any new uses on Cannon Street could utilise the higher levels of footfall in this area.
- 4.3.18 The predominant use in the area is offices, with almost all upper floor space used for this purpose. A large amount of ground floor space is also used for office accommodation or entrances to offices (Figure 4.23).
- 4.3.19 Cannon Street has a mix of uses including a range of retail and food and drink premises mixed in with entrances to offices on both sides of the road. The grain of use and unit size is also much finer here with several units per block along the street frontage.
- 4.3.20 Nicholas Lane has office entrances on the west side and on the opposite side to the rear of Phoenix House. The recent refurbishment of Phoenix House includes the provision of new active frontages on the corners.
- 4.3.21 Ground floor uses on King William Street are predominantly offices, with some food and drink outlets. Abchurch Lane and Abchurch Yard contain a mix of office, food and drink and St Mary Abchurch itself.

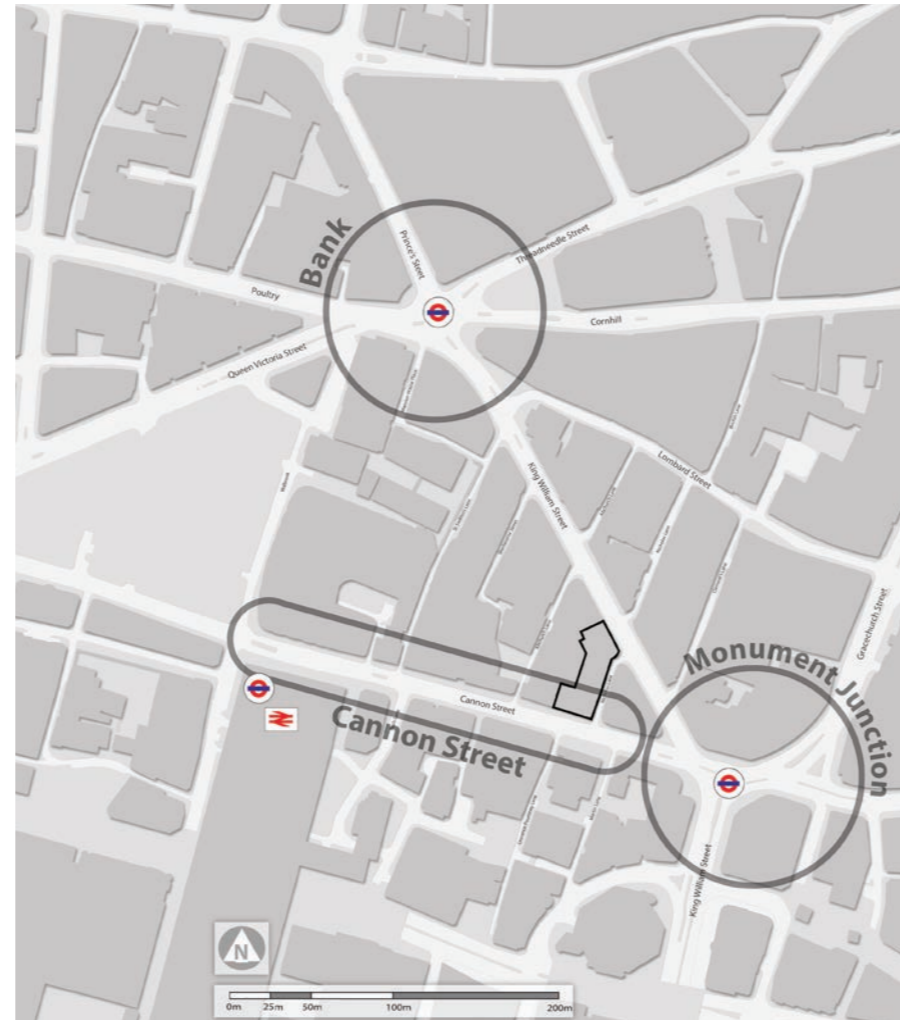


Figure 4.22: Existing pedestrian focal points

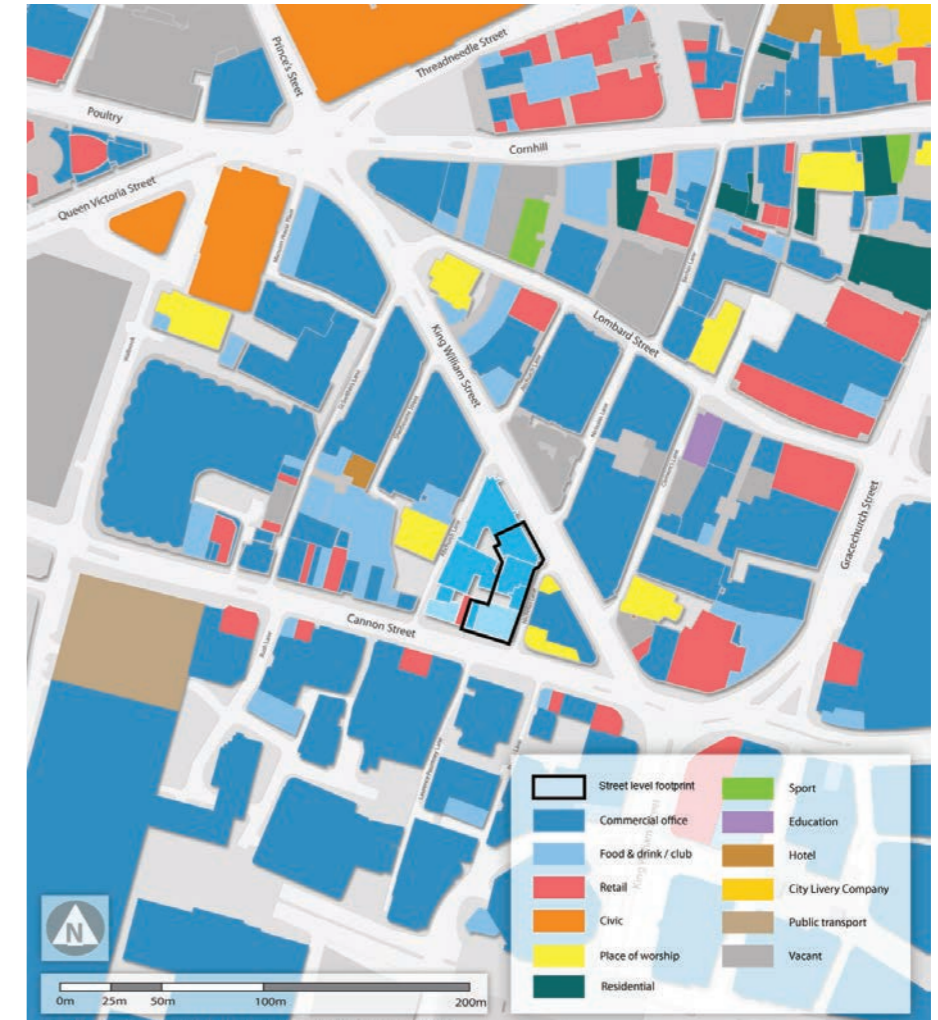


Figure 4.23: Existing ground floor uses around the proposed Station Entrance

Character

- 4.3.22 Cannon Street is visually eclectic, evident through the vertical expression of the historic plot divisions which give a greater variety of architectural styles than King William Street. The material palette, fenestration and colour are particularly diverse.
- 4.3.23 The buildings along Cannon Street typically consist of four to seven storeys. The scale of the buildings on the application site and Phoenix House are substantially larger than the buildings on the north side of Cannon Street. The principal datum is the ground floor where the retail units create a uniform “high street” streetscape and provides active frontage.
- 4.3.24 The boundary of the Bank Conservation Area runs along Cannon Street, with the application site and adjoining buildings to the east and west falling within this historic catchment. Cannon Street has Roman origins and retains the language of narrow plots which have been developed and redeveloped from the Medieval period to present day. Mid to late 20th Century buildings dominate the street at its eastern end.
- 4.3.25 Nicholas Lane is bounded by Phoenix House to the east and the office buildings on the application site to the west, with its narrow footways and carriageway in between. Nicholas Lane is visually blocked at the northern end by the corner column of the existing 10 King William Street building.
- 4.3.26 In the Bank Area Enhancement Strategy, Nicholas Lane is identified as an important walking and cycle route in the north-south movement network. Nicholas Lane has traditionally been dominated by service access to adjacent buildings (see Figure 4.25), however retail has recently been incorporated at either end.



Figure 4.24: Cannon Street looking East at Laurence Pountney Hill



Figure 4.25: Nicholas Lane view towards junction with King William Street from south

4.3.27 King William Street is a Georgian street which bisects a number of surviving Medieval lanes which run north-south in and around the Whole Block site. The street is dominated by neoclassical stone buildings mostly dating from the early 1900's. Ground floor levels are given increased height in keeping with the street's classical character. The existing buildings are typically between five to seven storeys high. At street level, the frontages consist mostly of windows and entrances to office and banking halls with a limited number of retail units.

4.3.28 The character of King William Street changes at its eastern end, with 10 King William Street and Phoenix House setting a different architectural precedent, being more framed, modern and having a higher level of transparency.

4.3.29 King William Street (see Figure 4.26) also experiences high volumes of pedestrian traffic at peak times and provides an alternative ground level interchange route between Bank and Monument Stations.

4.3.30 Abchurch Lane has been identified as part of the network of north-south lanes which should function as part of an alternative pedestrian movement network in the Bank Area Enhancement Strategy. There is potential for the public realm to work for vehicles and pedestrians alike as well as providing a positive setting for the surrounding listed buildings.

4.3.31 Abchurch Lane has a side street feel which is reinforced by the proximity and scale of the adjacent block, the narrow footway and the presence of servicing access to both sides of the highway. Where the lane opens out into Abchurch Yard, the space becomes more pedestrian friendly. The street level frontages along Abchurch Lane are dominated by office uses and two service yard entrances (see Figure 4.27).

4.3.32 The buildings along Abchurch Lane are typically between five to seven storeys high. The existing buildings along Abchurch Lane are predominantly stone or red brick.



Fig 4.26: King William Street view towards the application site from the north west



Fig 4.27: Abchurch Yard, looking towards Abchurch Lane from west

Heritage

4.3.33 There are many listed buildings in the area including the Grade I listed St Mary Abchurch, Grade II listed 14 and 15 Abchurch Lane and 3-7 King William Street to the west of the site (Figure 4.28-30).

4.3.34 The *Bank Conservation Area SPD* identifies a number of characteristics particular to the Bank area, which contribute to its historic status, including:

- An area where buildings and streets are harmonised by their predominant use of solid masonry facades with regular punched openings and enriched by abundant classical modelling;
- King William Street is composed of imposing largely classical stone fronted buildings, which share a very consistent scale, height (five to six storeys), massing and vertical emphasis;
- Cannon Street is more eclectic in character than King William Street as the storey heights differ along the street;
- A number of nationally significant and well-known buildings, the headquarters of major corporations and internationally significant churches;
- An area of large-scale commercial buildings set on principal thoroughfares within a network of historic streets, courtyards and alleyways, which creates a distinctive and dense urban environment; and
- A visual character and groundscape that is enriched by a wealth of materials, features, monuments, public sculpture, signs, plaques, statuary and other structures.

4.3.35 The Station Entrance shall respect and enhance the settings of adjacent listed and other historic buildings and also preserve and enhance this part of the Bank Conservation Area.



Fig 4.28: Conservation Area and existing Listed Buildings around the proposed Station Entrance



Fig 4.29: St Mary Abchurch

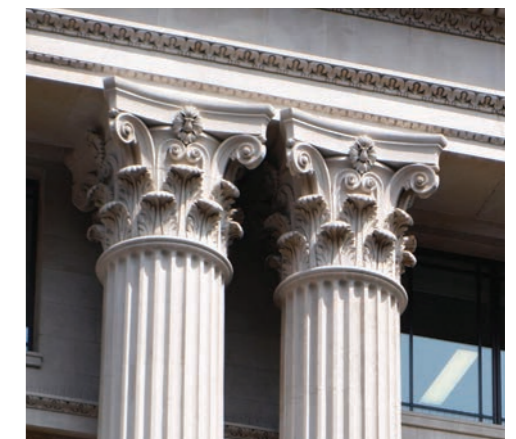


Fig 4.30: 3-7 King William Street

5.Design Process & Stakeholder Consultation

5. Design Process & Stakeholder Consultation

LUL first began looking at congestion and operation issues at Bank Station in 2002. Since then an extensive programme of design development has led to the preferred scheme.

This section sets out a brief history of the design process since 2002 and the key design developments. It also covers the development of the above ground elements of the BSCU Project and outlines the key stakeholder consultations which have informed the development of the design.

5.1 Brief History of the project

5.1.1 Following a review of station capacity related to the introduction of DLR three car services to Bank Station, LUL began exploring options for enhancing the station in 2003, focusing on the key objectives of:

- increasing capacity (and therefore relieving congestion);
- reducing passenger journey times;
- improving step-free access; and
- improving emergency evacuation.

5.1.2 This resulted in the production of the first Masterplan for Bank Station and the creation of the Bank Station Capacity Upgrade project in 2004.

5.1.3 A series of technical feasibility studies and options were prepared looking at potential platform, interchange and tunnel alignments and new Station Entrances. All of the options were assessed for cost, constructability and anticipated benefits before two potentially viable options (shown as Option 6 and Option 7b in Figure 5.1) were

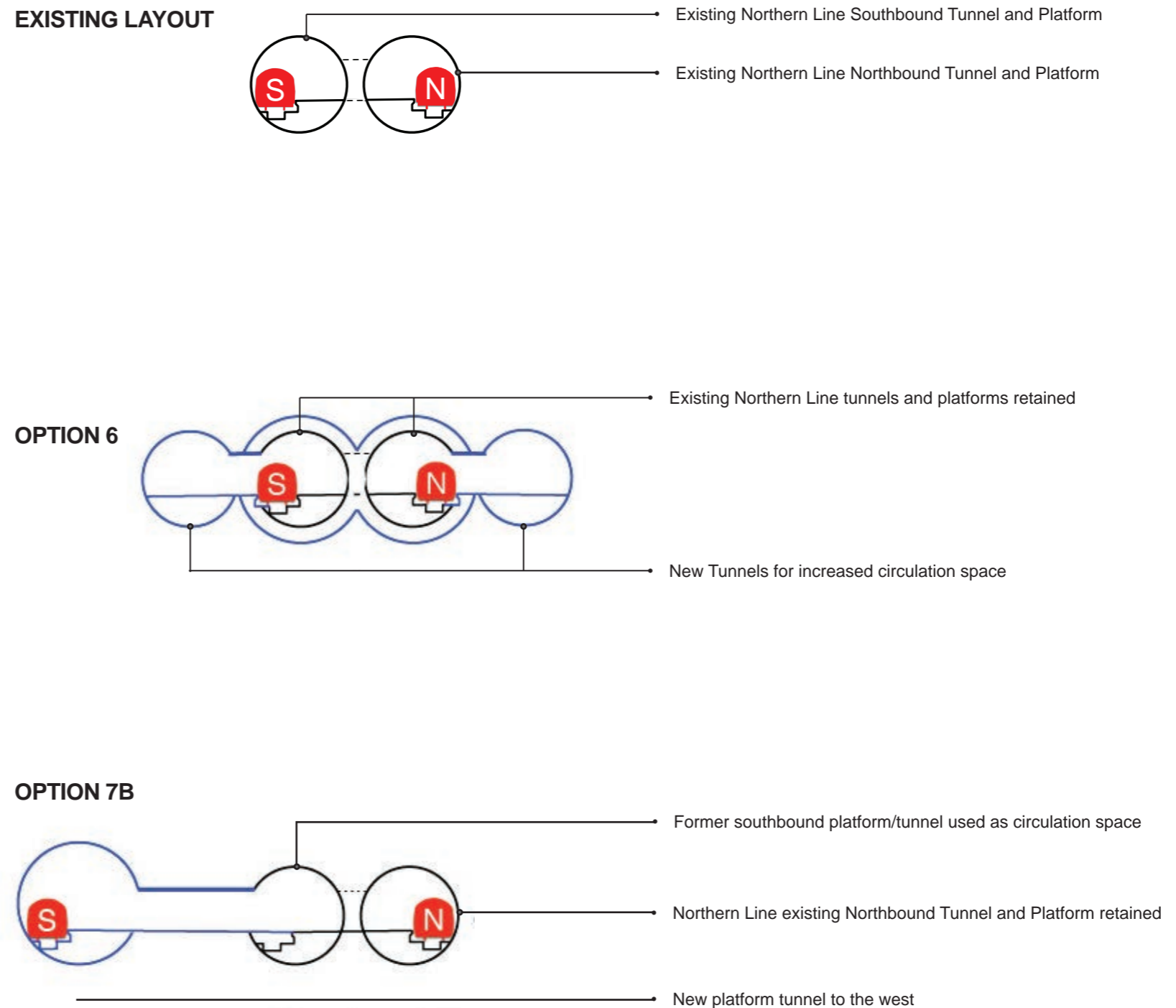


Figure 5.1: Earlier options for the Northern Line tunnel and platform alignments shown as schematic diagrams looking north (Options 6 and 7b)

shortlisted in 2008. These looked primarily at relieving congestion on the Northern Line platforms.

In 2009, LUL concluded that Option 7b - which focused on a new Southbound Northern Line tunnel and a new station entrance at 10 King William Street - was the preferred option. Option 7b was developed by LUL in further detail to cover the general approach to its layout, design and construction and later included a link to the Central line to recognise updated passenger projections. This scheme became known as RIBA D. (Figure 5.2)

5.1.4 The Station Entrance in the RIBA D was located equidistant between Bank Station and Monument Station, and adjacent to the Northern Line Platforms below King William Street. However, developing a solution from just the 10 King William Street plot was highly compromised.

5.1.5 Recognising these constraints, two further variants to the RIBA D design were developed known as the Base Case and the Reference Case:

- Base Case: a development of the RIBA D which utilised the Whole Block site. It retained the four lifts for platform access, but recognised the significant logistical and business case benefits of using the whole block over the 10 King William Street site only.
- Reference Case: A viable escalator solution with associated fire fighter and PRM lifts, built on the whole block, with an entrance on the Cannon Street side of the block.

5.1.6 The Base Case and the Reference Case had not been fully developed into a workable design that fully met the project requirements. This was addressed by going to the market via an Innovative Contractor Engagement process.

KEY

- Existing tunnels
- Proposed Base Case works
- Existing sewers

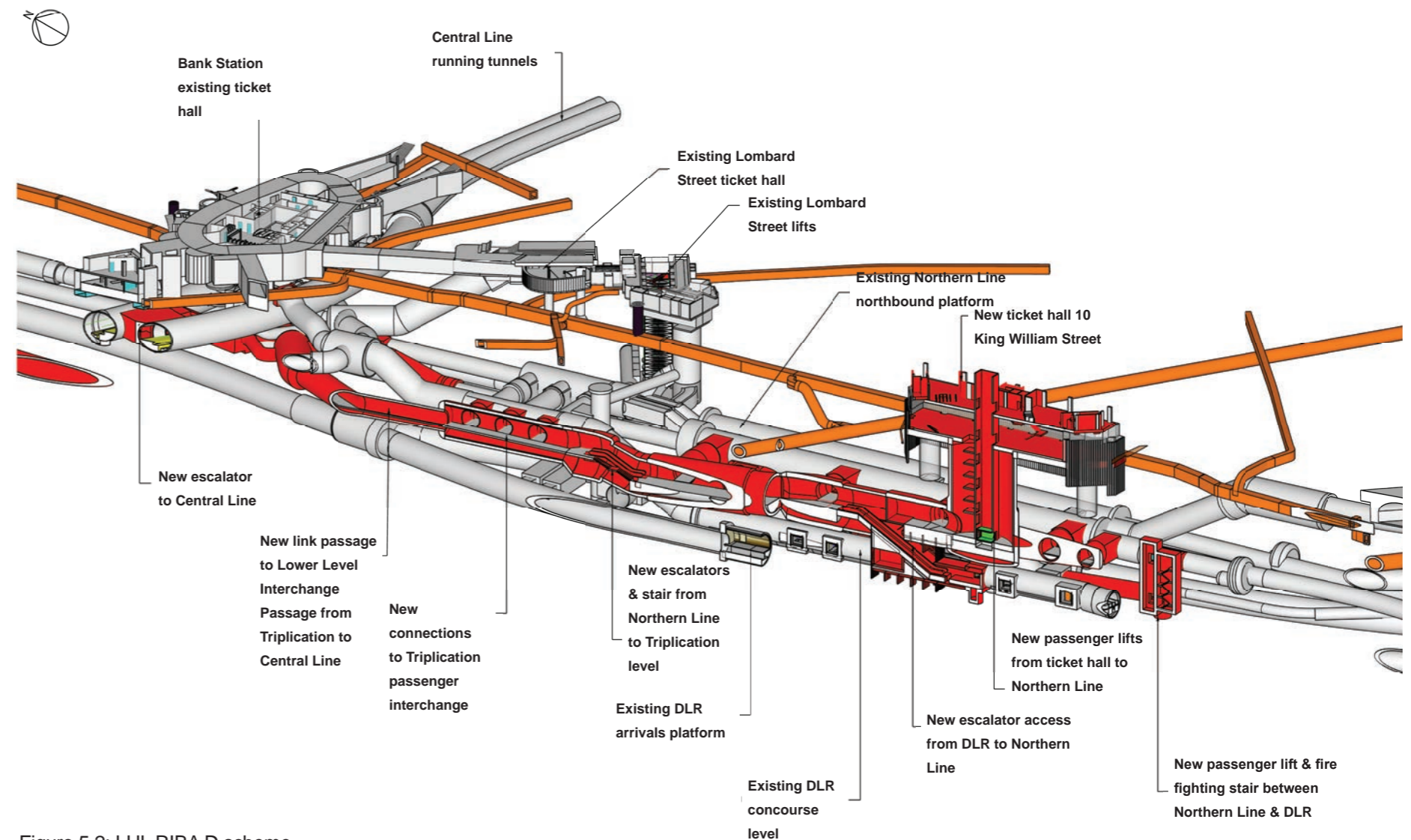


Figure 5.2: LUL RIBA D scheme

5.2 Innovative Contractor Engagement

5.2.1 The LUL Bank Station Capacity Upgrade Project Team pioneered a new procurement approach, Innovative Contractor Engagement (ICE). ICE incorporates a key industry lesson - that innovative ideas have to be captured early in the project life cycle to maximise their potential benefits. But this is contrary to current industry practice, where contractors would not normally divulge their best ideas until the procurement process was nearing completion or until they had won the contract.

5.2.2 All bidders were issued with the following project requirements:

- Increase capacity to account for future forecast demand at Bank/Monument Station, principally for the Northern line and DLR area (including interchange routes);
- Maximise savings in journey time reductions by reducing both delay due to congestion and walk time for access/egress and interchange routes;
- Provision of Step-Free Access (SFA) from street to both Northern line and DLR and interchange between Northern line and DLR;
- Emergency fire and evacuation measures for Northern line and DLR passengers;
- The works are to be completed by end of 2021;
- The Contractor shall support the Employer in the preparation of all documents to deposit a successful application for a Transport and Works Act Order (TWAO) with the Secretary of State; and
- The Contractor shall design to maximum Estimated Final Cost (EFC) and meet or improve the current Benefit to Cost ratio.

Feature	Base Case	Bidder 1	Bidder 2	Winning Scheme	Bidder 4
Ticket Hall	Ground Level access from 10 King William Street and Cannon Street. Restricted to 10 King William Street footprint.	Ground Level access from 10 King William Street. Restricted to 10 King William Street footprint.	Ground level access from 10 King William Street with colonnade to Cannon Street. Whole site footprint.	Ground level access from Cannon Street adjacent to Nicholas Lane. Whole site footprint.	Ground level access from Cannon Street and Abchurch Lane. Whole site footprint.
PRM Access	Use main lifts to Northern Line then single 17 person lift to DLR Level	1 x 40 Person Lift to Northern Line/DLR 2 x 40 Person Lift to Northern Line 1 x 17 Person Lift from Northern Line to DLR	1 x 21 Person Lift to Northern Line 1 x 21 Person Lift to DLR	1 x 17 Person Lift to Northern Line 1 x 17 Person Lift to Northern Line & DLR 1 x Refurbished existing lift	4 x 40 Person Lifts to Northern Line 1 x 17 Person Lift from Northern Line to DLR
Access to NL	4 x 40 Person Lifts	3 x 40 Person Lifts	2 banks of 3 Escalators	2 banks of 3 Escalators	4 x 40 Person Lifts
Access from NL to DLR	2 Escalators in bored pile wall; 2 stairs	3 escalators	As Base Case	3 Escalators in barrel; no stair	3 Escalators
Access from NL to CL	Bypass tunnel linked to Triplication; 2 then 3 new Escalators, Central Line barrel in square works	Similar to Base Case, 2 Escalators - barrel into Central Line in square works	Similar to Base Case, 2 Escalators SCL with temporary construction adit.	Direct tunnel with moving walkway and triple escalator	Similar to Base Case except barrel into Central Line and SCL.

Table 5.1: Brief summary of ICE bids

5.2.3 The key principles of ICE are:

- Pre-qualification of bidders demonstrating competency and the ability to innovate;
- Confidential dialogue between bidders team and client to understand scheme and develop innovative ideas, prior to invitation to tender;
- Bidders were scored against meeting Project Requirements measurements against the Base Case; and
- Client acknowledges the value of innovative ideas from unsuccessful bidders with the option to buy.

5.2.4 Through ICE the successful bidder achieved a 45 percent improvement on the business case benefit to cost ratio, outperforming the original target of 15 percent. Improvements include:

- A 9.8 percent reduction in the Estimated Final Cost together with a lower risk provision;
- A 5 week reduction in closure duration of the Northern line, to 17 weeks;
- A Step Free Access solution direct from street to platform on both the Northern & DLR lines; and
- A compliant fire and evacuation strategy.

5.2.5 The winning scheme was shown to best meet the project requirements.

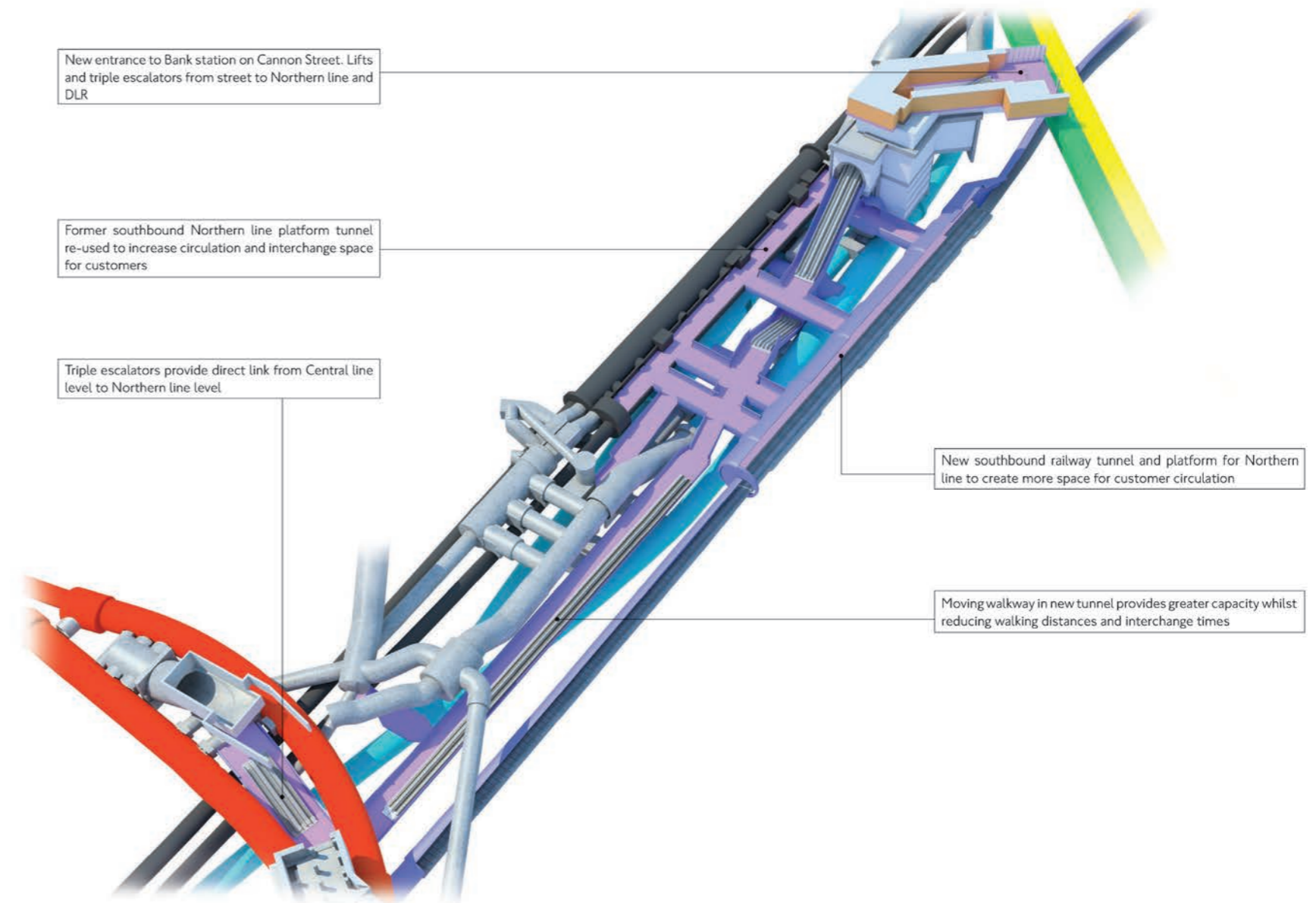


Figure 5.3: Winning Scheme

5.3 ICE on Bank Station

- 5.3.1 LUL began the Innovative Contractor Engagement (ICE) process in April 2012 by issuing formal invitations to four pre-qualified contracting consortia to improve upon the Base Case design as part of their tender proposal.
- 5.3.2 All bidders were given the scheme previously developed by LUL (the Base Case), together with the LUL evaluation highlighting where the Project Requirements were met but not optimised. The bidders could assume that the Whole Block Site (not just 10 King William Street) was available as a construction site, but if it was used, the Invitation to Tender required the scheme to include a new Station Entrance on the site. The four teams were invited to propose innovations in both permanent design and construction & logistics over the Base Case and were encouraged to consider escalators. How successful each team was in improving upon the Base Case was a key part of the selection process.
- 5.3.3 One bidder determined that the southeast corner of the Whole Block Site at the junction of Cannon Street and Nicholas Lane provided the optimum configuration, linking the street to the midpoint of the Northern Line platforms via two banks of triple escalators. Two lifts, one linking to the Northern Line, and one linking to the Northern Line and DLR from ground level provide step-free access.
- 5.3.4 This scheme achieved a significant improvement in both congestion relief and journey time reductions, as well as providing direct step-free access to the Northern Line and DLR, and improved emergency evacuation. Cannon Street also provides significantly more pavement width to accommodate the resulting increased pedestrian flows.
- 5.3.5 The winning scheme offered significant benefits for passengers interchanging between Northern Line, Central Line and DLR. A moving walkway in a new connection tunnel and a bank of triple escalators links the Central Line to the Northern Line. A new bank of triple escalators improves the connection between the Northern Line and the DLR.



Figure 5.4: Visualisation of above ground design at tender stage

- 5.3.6 Following contract award, the design team has continued to work closely with the LUL BSCU Project team and the design has evolved as further detailed work and consultation with stakeholders has been undertaken. The resultant BSCU Project proposal is set out in detail in Section 7.

5.4 Above ground design development

- 5.4.1 Tenderers were required to meet the requirements of LUL's development brief for a coherent and high quality development above ground and meet TfL and LUL's legal duties to deliver best value by optimising commercial viability of the Over Site Development.
- 5.4.2 The requirements of the development brief were a key factor in the safeguarding of the site against negative impacts on the surrounding environment and a key planning consideration in the design of the above ground station infrastructure.

5.5 Consultation and engagement

Public Consultation

5.5.1 Since 2011 (RIBA D) there have been four main phases of consultation on the BSCU Project. This section provides an overview of this process and key elements with further detail covered in the Consultation Report which forms part of the TWA Order application.

Phase 1: November 2011

5.5.2 This first phase sought to communicate the idea and need for the BSCU Project and to gather feedback from the public on the emerging proposals. The leaflet (extract shown in Figure 5.5) set out the emerging proposals covering:

- increased capacity on the Northern Line Platforms by constructing a new running tunnel and platform for southbound trains;
- a wider circulation area for the Northern Line by using the existing southbound platform and tunnel space;
- a new Station Entrance on King William Street; and
- step-free access between the Northern Line platforms and street level and from the Northern Line to the DLR.

5.5.3 There was strong support for BSCU Project. However the feedback highlighted the need for the project to:

- deliver the project benefits (congestion relief) as soon as possible due to the worsening situation at the station during peaks; and
- extend the congestion relief beyond just the Northern line platforms to include interchange routes to the DLR and Central line.

These issues were central to the ongoing development of the design proposals.



Figure 5.5: Consultation Phase 1 - leaflet (extract)

Phase 2: Spring 2012

- 5.5.4 This phase of consultation sought views on the proposed property acquisition options and Station Entrance layout options. These options are shown in Figure 5.6 and show three possible Station Entrance locations and two property acquisition options.
- 5.5.5 The bottom right hand plan shows the property options. 10 King William Street is outlined with the solid line and the Whole Block Site with the dashed line. Locations 2 and 3 required the acquisition of the Whole Block Site.
- 5.5.6 The key findings from this phase of consultation indicated that:
 - 75 percent of respondents expressed a preference for the extended property option;
 - 71 percent expressed a preference for the Station Entrance Location 3 with escalators to King William Street and Cannon Street. The preference was strongly linked to the extended property option as this Station Entrance option was the only one to feature escalators. In addition, escalators were frequently mentioned in the comments provided by respondents; and
 - Of those who preferred Option 1 (10 King William Street only) and Location 1 for the proposed station entrance, the most frequently cited reasons were the desire to reduce project cost and preserve existing buildings.
- 5.5.7 This consultation phase framed the tone of the LUL presentation at the ICE launch.



Figure 5.6: Consultation Phase 2 - possible Station Entrance locations and property options
 Location 1 - The **RIBA D** Scheme
 Location 2 - The **Base Case**
 Location 3 - The **Reference Case**

Phase 3: Autumn 2013

- 5.5.8 This phase of consultation took place after the contract for design and construction of the station was awarded following the ICE process. One objective was to provide information about the proposals and provide opportunities for people to make comment. Most feedback relating to the design proposals concerned the need to improve access to the DLR platforms and the general need to improve step free access to and interchange with the Central line and District & Circle lines.
- 5.5.9 The scheme provides direct access from street to the DLR platforms and trains, the consultation verified this aspect of the proposals. The merits of step free access for the Central and District & Circle lines are also acknowledged, there is however no funding for this at present.
- 5.5.10 The proposals for the OSD were the subject of a separate consultation event in December 2013 with respondents being supportive of the height, bulk and massing of the proposed development and the retention of the historic facade.

Phase 4: Summer 2014

- 5.5.11 This consultation shared the work undertaken to develop the design over the intervening eight months, reflecting the detailed consultation with key stakeholders on design matters (summarised in the following section). Responses were very supportive of the scheme and the design was widely welcomed.
- 5.5.12 A small number commented on the need for the station to have a more direct and simple exit and entrance and/or wider platforms. The need to preserve historic sites and buildings near the station was also mentioned. These features are incorporated.



Figure 5.7: October 2013 consultation event at St Mary Abchurch

Transport for London

BANK STATION
CAPACITY UPGRADE

Have your say

Public consultation
2 June to 6 July 2014

BETTER ACCESS

MORE SPACE

MAYOR OF LONDON

TRANSPORT FOR LONDON
EVERY JOURNEY MATTERS

Stakeholder Consultation and Engagement

- 5.5.13 In addition to the four phases of public consultation, there has been ongoing engagement with other key stakeholders, including freeholders and long leaseholders of the properties that might potentially be acquired depending on the preferred option, a process that began in March 2011 and is continuing.
- 5.5.14 The City of London is a key stakeholder who LUL has consulted at every stage of the development of the BSCU from its conception in 2004. A joint working group was set up in April 2010 with representatives from both LUL and the City's transport, property and planning departments. As a result, the City of London Corporation's emerging policy documents provided strong policy support for the Project
- 5.5.15 Following contract award, formal pre-application meetings with City of London officers were held in 2013 to discuss the design development of the OSD and above ground elements of the scheme. These identified the need to achieve a unified façade treatment between the Station and OSD, to ensure that the station entrance would be the most prominent architectural feature of the building on Cannon Street and Nicholas Lane and to provide an appropriate bookend to the building on the Cannon Street/ Nicholas Lane corner.
- 5.5.16 Additionally, the north end of Nicholas Lane was opened up and the building line on Nicholas Lane rationalised to improve sight lines to the Station Entrance. The first floor of the OSD was raised to create a more spacious double height entrance hall and a significant street presence.
- 5.5.17 Further meetings addressed the emerging Station Entrance design and public realm matters.
- 5.5.18 Feedback led to rationalisation and relocation of some plant and back of house functions to optimise station layout and maximise active frontages at street level, particularly on Nicholas Lane. A retail unit ancillary to the station has been provided on the corner of King William Street.

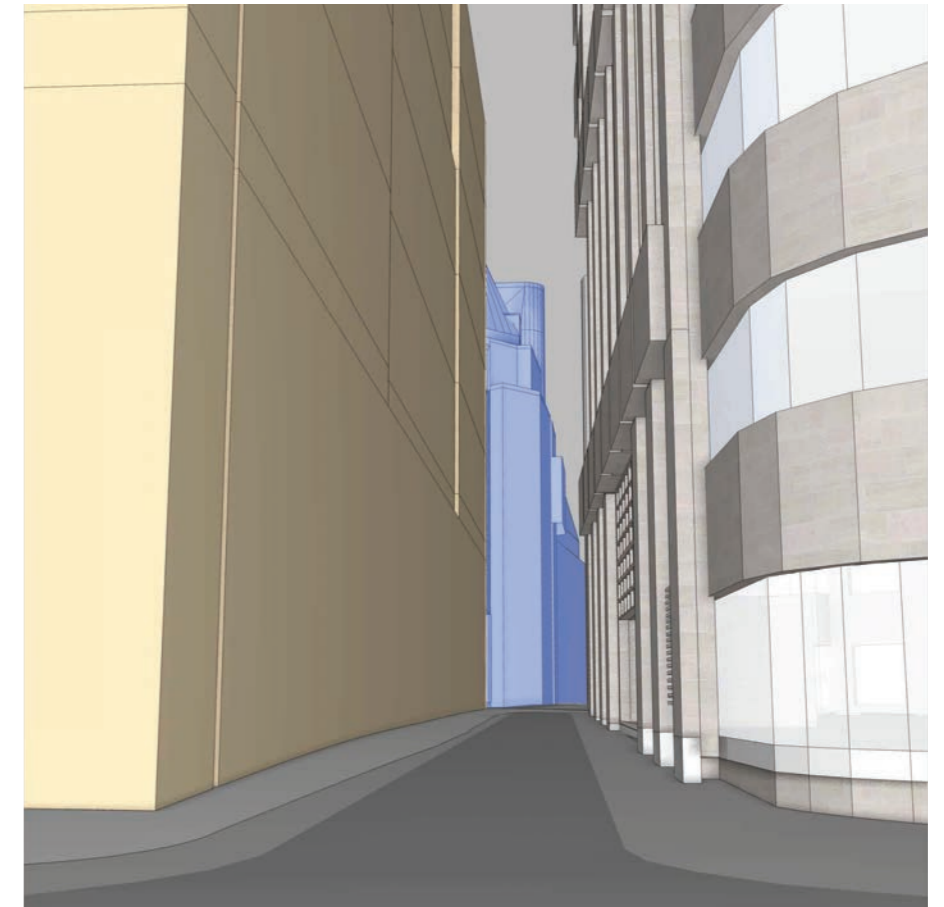
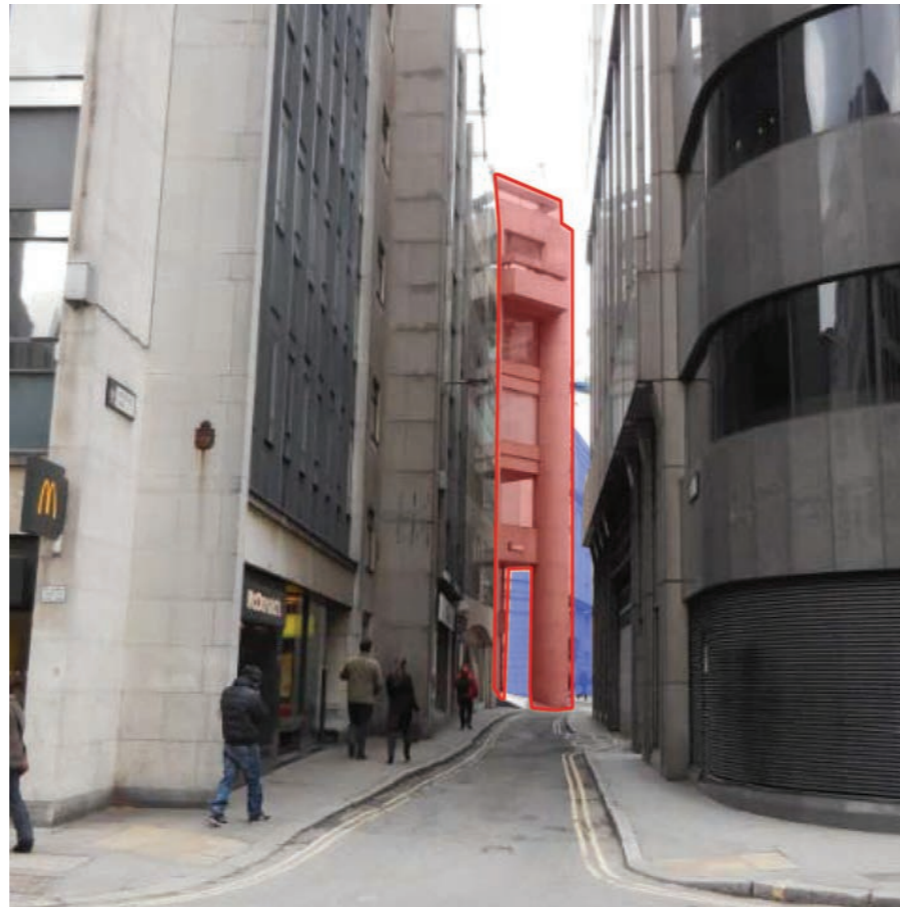


Figure 5.8: Nicholas Lane realignment maximising sight lines to the north

- 5.5.19 Hostile Vehicle Mitigation (HVM) was integrated into the façade on the Nicholas Lane and King William Street frontages. It was agreed that the carriageway of Nicholas Lane would be raised to improve circulation in and around the station entrance.
- 5.5.20 A pedestrian crossing would be provided on Cannon Street unless an alternative arrangement emerges as a result of area-wide initiatives.
- 5.5.21 The English Heritage Inspector was consulted twice during the OSD pre-application consultation phase and was supportive of the proposals for the OSD and above-ground station infrastructure.
- 5.5.22 Meetings with the City of London's Access Officer and the Access Group, along with a meeting with TfL's own Independent Disability Advisory Group highlighted the need to improve visibility to the lifts which resulted in redesign of that part of the station to provide a more spacious route and an improved passenger experience.
- 5.5.23 The need for additional dropped kerbs and tactile paving on Nicholas Lane and additional considerations for the signage strategy were highlighted. Comments about the presentation of the access element of this document were incorporated.
- 5.5.24 Consultation with City of London Police and security advisors led to the enhanced separation of the OSD and the Station Entrance to underpin operational and security independence and validated the hostile vehicle mitigation provided.
- 5.5.25 A number of the improvements to the above ground design of the Station Entrance hall resulting from consultation with these stakeholders are shown on Figure 5.9.

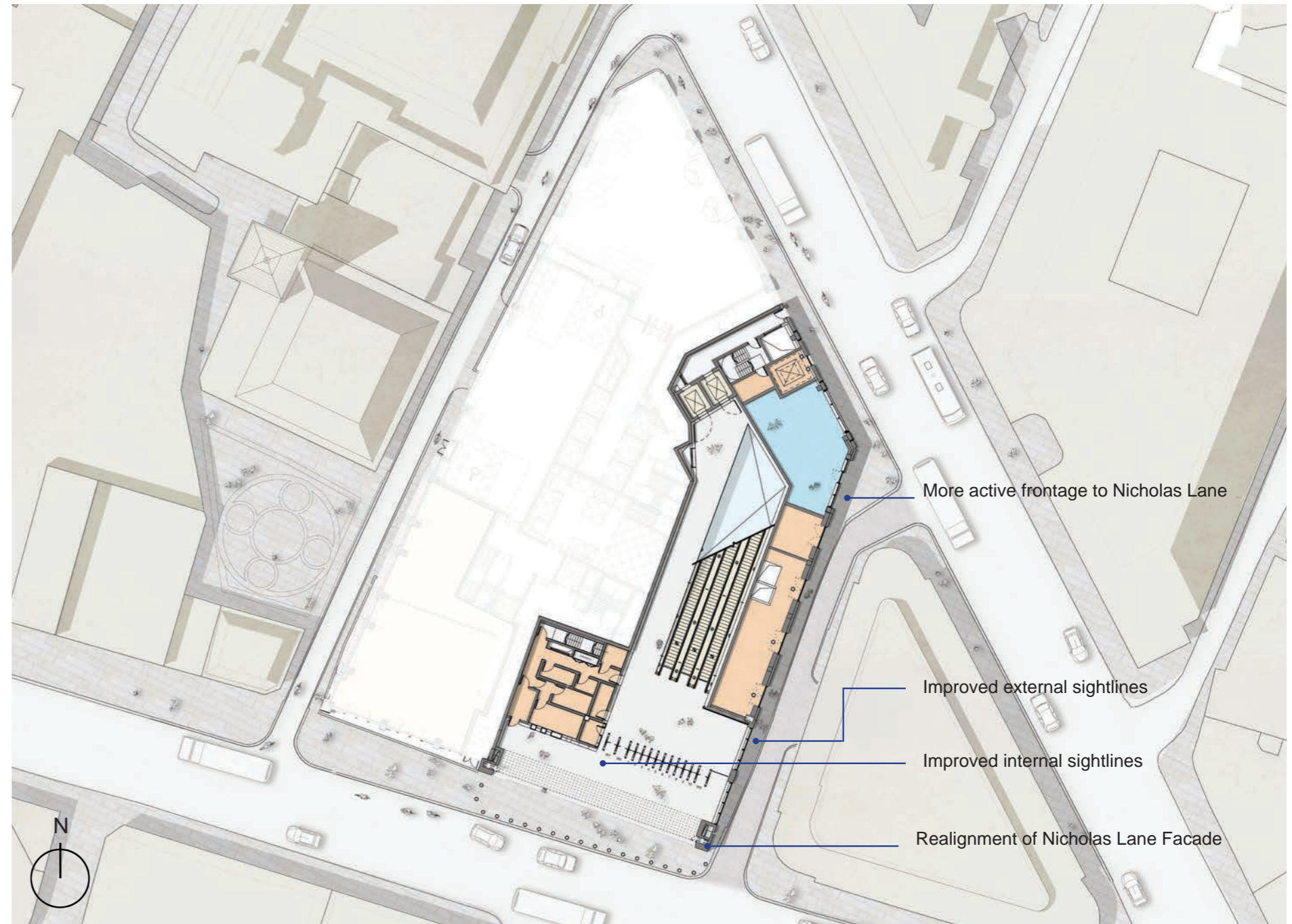


Figure 5.9: Post tender award changes to the above ground layout

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6.Design Concept

6. Design Concept

The Bank Monument Station Complex is one of the historic gateways into and out of the City of London and its efficient functioning is essential to the growth of London as an international financial and business centre. The new Bank Station infrastructure will be of a high standard of design to enable it to contribute positively to the Bank area and City of London as a whole.

This section provides an overview of the design concept and describes how this has influenced the above ground and below ground components of the station. The detailed proposals are set out in Section 7.

6.1 Challenges and opportunities

6.1.1 There are a number of challenges and opportunities presented by the site and its context. These are set out in relation to the wider Bank area, the station itself and the station within its local context below. Opportunities focus on how the station can better serve the area immediately surrounding it and those who work, live and visit the area, whilst the constraints vary from the physical constraints of the site to the relationship with the rich heritage of the built environment.

Wider Bank Area

6.1.2 There is an opportunity to support economic development and population growth in the Bank area by creating a more operationally efficient and attractive interchange station to better serve the workers, visitors and residents of the area.

Bank Station

- 6.1.3 Above ground, the BSCU Project will create a new, highly visible and attractive Station Entrance on Cannon Street at the junction with Nicholas Lane, set in a reinvigorated public realm that seamlessly links to the surrounding context. Below ground, new infrastructure will relieve the pressure on a congested existing station and improve step free access.
- 6.1.4 One of the key challenges in developing the design vision is the need to recognise, respect and respond appropriately to the existing station areas whilst developing an upgraded station appropriate for London Underground in the 21st century and the wider growth expected in the City of London.

Station in Context

6.1.5 The vision for Bank Station is that it should be contemporary and elegant, with a “timeless” quality that persists throughout its life. Its architecture seeks to express and complement the civil engineering solutions required to provide the various volumes and spaces that comprise the station design. From the street level accommodation through to the below ground tunnels, the design responds to the brief, engineering and its pragmatic requirements. The design vision uses this sequence of spaces to create a rational, uplifting and dramatic environment both for the passengers using the station and LUL staff.



Figure 6.1: Proposed Station Entrance on Cannon Street

6.2 Design vision

6.2.1 In developing the design, Dragados and LUL have been guided by the design principles set out in Section 3. The proposal therefore aims to enhance both the above and below ground presence of Bank Station whilst meeting the future demands of passengers using the station.

6.2.2 The design vision for the **above ground works** will:

1. Support Bank's public realm

The new Station Entrance will better connect the Northern Line and DLR platforms with passengers end destinations, relieving congestion on footways at Bank junction and on King William Street. It will support the revitalisation of the public realm by activating ground floor frontages and responding to the specific character of the surrounding streets.

2. Create a new city block appropriate to the context

The above ground infrastructure will occupy part of the ground floor of the Whole Block Site and will enable the provision of an OSD. The development will reflect and enhance its historic context whilst providing high quality office and retail space to meet the City's aspirations. The materials palette will be contemporary but respectful to the context.

3. Develop a street presence for Bank Station

The Station Entrance will develop a strong above ground presence on Cannon Street, providing a new focal point for Bank Station. The architectural approach will deliver a station for the 21st century that continues London Underground's tradition of design excellence.

4. Improve passenger experience through station design

The double height new Station Entrance Hall will enhance the passenger experience by creating a sense of space and light. It will seamlessly integrate the above and below ground passenger spaces with the external public realm.

6.2.3 The design vision for the **below ground works** will:

1. Maximise benefits to as many passengers as possible

The BCSU Project will create a more operationally efficient station which benefits passengers using Bank Station and the wider network by focusing on improving the most sensitive areas. Operational resilience is aided by triple escalators throughout to offer greater capacity to accommodate passenger flows.

2. Provide clear and direct passenger routes

The proposals will reduce passenger journey times through the provision of clear and direct routes. The Project focuses on improving interchange routes between the Northern Line, DLR and Central Line. The new Station Entrance and below ground passenger routes will improve journeys to and from the Northern Line, DLR and street levels and alleviate the existing heavily congested areas. Over 40 percent of the interchanging passengers benefit from the Central line link and moving walkways.

3. Improve the Passenger Environment

The proposals will create new and spacious passenger areas below ground. In line with the LUL Design Idiom, these spaces will create an improved ambience and character.

4. Enhance Accessibility

New lifts will provide direct step-free access from the Station Entrance to the Northern Line and DLR. There has been an increased demand for step-free access due to the DLR extension to London City Airport and major retail developments accessed via Bank.

5 Improve Emergency Evacuation

The introduction of a new fire fighting lift and associated stair and other measures will result in improved evacuation times.



Figure 6.2: The BCSU project aims to accommodate the needs of all passengers

