

Temple Quarter Development Framework

April 2023

Bristol City Council, Network Rail, Homes England,
West of England Combined Authority



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Bristol City Council

Our Partners

Deloitte. AWW AVISON YOUNG 3 ADAPT
WestonWilliamson+Partners

Client team



10 Temple Back
Bristol
BS1 6FL
United Kingdom

T +44 (0)117 906 9500
www.mottmac.com
bristol@mottmac.com

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PART 2

MASTERPLAN

Chapters 5-7 set out detailed masterplan proposals for Bristol Temple Meads, City Gateway and Friary North. This includes work undertaken up to RIBA 2 / GRIP 2 design stages. This work informs the Strategic Outline Business Case for a programme of railway station improvements and will form the basis for future detailed design and outline planning applications.



5 Bristol Temple Meads Railway Station

5.1 Area statement



Our vision for Bristol Temple Meads is to deliver a modern, safe and efficient passenger experience and multi-modal interchange, whilst celebrating the unique heritage of the station. Bristol Temple Meads will be fully accessible and inclusive for all passengers and will be future-proofed to accommodate anticipated growth. The station will provide an intuitive passenger circulation system which will be easily navigated and accessible for all.

Indicative Timeframe | Next 5 years

Figure 46 Aerial view of Bristol Temple Meads station



Figure 47 Station Approach illustrative view

5.2 Introduction

5.2.1 Bristol Temple Meads station today

Bristol Temple Meads station is a nationally significant transport interchange and the gateway to Bristol and the wider West of England. At the heart of the Bristol Temple Quarter Enterprise Zone, the station marks the transition between the city's modern commercial heart and its inner city industrial past.

Temple Meads is one of twenty stations managed by Network Rail, comprising some of Britain's busiest and biggest stations. Prior to Covid, over 11 million passengers passed through the station each year. As of July 2022, passenger demand is around 80% of pre-Covid levels, and anticipated to grow in future.

The station is situated at the eastern edge of Bristol City Centre, nestled between the River Avon New Cut and the Floating Harbour, with the railway extending north and south on viaducts and bridges over the two watercourses. There are two main entrances: the Station Approach Entrance (also referred to as the Digby Wyatt buildings) accessed via a ramp from the south west, and the northern entrance, accessed via the Friary and Temple Quay estate.

The key components of the existing station complex and its immediate surroundings are shown in Figure 4949.

5.2.2 Area history

The station has experienced numerous iterations since its original inception, briefly summarised below:

1830s: Brunel selected the site for his terminus station on what was then largely undeveloped land.

1840-1845: Construction of the 'Brunel Station', the terminus of Brunel's Great Western Railway from London. This included

the offices fronting Temple Gate, the Carriage Shed and the Passenger Shed. Construction of the separate Bristol & Exeter Station and Goods Shed.

1852: Construction of Bristol & Exeter House

1860s: Construction of the Harbour Railway and viaduct, linking the station to Bristol City Centre.

1871-1878: Construction of Matthew Digby Watt's Joint Station which includes the present day main entrance and forecourt buildings on either side, approached via a ramp. Construction of the Midland Shed, an extension of Brunel's Passenger Shed. Construction of the Main Shed, an arched truss roof over the through platforms. Demolition of the Bristol & Exeter Station.

1930-1935: The Culverhouse extension, creating additional platforms east of the Main Shed and the replacement of an original footbridge with a subway linking all platforms. Construction of Collett House.

1965-1982: Closure of the platforms in the Midland and Brunel sheds. Demolition of the Goods Shed and Harbour Railway, to be replaced with a signal box and surface car parking.

For more information on the history of the station and surrounding area, refer to the Bristol Temple Meads Conservation and Asset Management Strategy, listed in Appendix A.

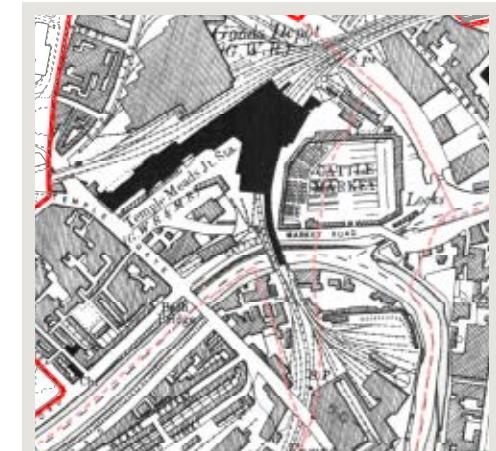


Figure 48 Historic map (1930) © [Groundsure](#)

5.2.3 Heritage assets and significance

Bristol Temple Meads is a complex of station buildings of the highest national significance, comprising:

- Grade I listed Bristol Old Station, including the original Brunel station of 1839-41 (list entry no. 1209622)
- Grade I listed 'Temple Meads Station', including the Digby Wyatt Joint Station of 1865-78, the Main Shed and the Culverhouse Extension of 1930-35 (list entry no. 1282106)

In addition, the nearby Bristol & Exeter House is Grade II* listed (list entry no. 1209608).

Within these buildings there are smaller components of varying significance, as outlined in the BTM Conservation & Asset Management Strategy (Alan Baxter, 2013).

The historic character of the station should be used as a positive force in the development and implementation of this masterplan, helping to create a successful future identity that draws on the site's past, its character and distinctive sense of place. Proposals to address the station's operational and capacity shortcomings should avoid or minimise harm to the historic significance of the site and, wherever possible, enhance appreciation of it.

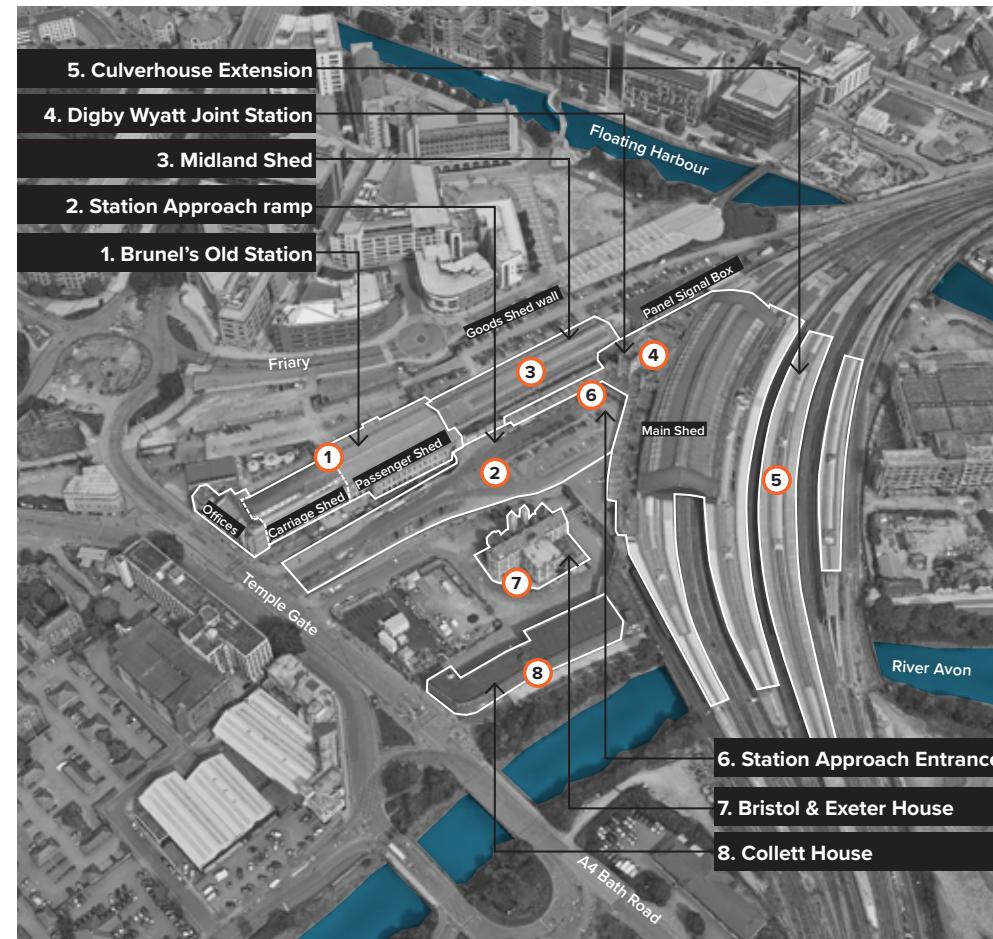


Figure 49 Bristol Temple Meads station overview

5.2.4 Buildings condition

The station buildings have undergone several refurbishment projects, including the Station Regeneration Project in 1998 which included stonework repair and renewal. However, the building structures, fabric and finishes are in varying condition. Most notably:

- The Midland Shed is in poor condition. The roof was re-clad in 1986. Network Rail are developing a proposal to refurbish the roof by the end of March 2024 (subject to funding).
- The currently unoccupied Midland Shed rooms, located on the Midland Shed side of the forecourt, are in very poor condition. Network Rail are progressing a scheme to redevelop these rooms for retail and passenger toilets by March 2024.
- The Main Shed roof is currently being refurbished and is anticipated to complete by March 2024.
- Since Network Rail acquired the Passenger Shed in March 2020, it has been extensively surveyed with the drainage guttering requiring significant rectification work.
- Current leaking platform canopies are to be repaired as part of the Main Shed roof refurbishment project.

5.2.5 Proposed development context

Site allocations

Bristol Temple Meads station is within Bristol City Centre and the Bristol Central Area Plan. It is part of the Bristol Temple Quarter Enterprise Zone, designated as a key area in the Bristol Central Area Plan (Policy BCAP35) and covered by the BTQEZ Spatial Framework.

Approved developments

Bristol Temple Meads and the surrounding rail network are undergoing a sustained programme of investment to enhance capacity, reliability and passenger experience.

Committed schemes at the station include:

- Bristol East Junction Remodelling (now complete)
- Station Main Shed Roof Refurbishment and Station Rewire (to be completed by March 2024)
- Construction of a new Eastern Entrance

Additional railway schemes planned for the wider network include:

- MetroWest, including re-opening of the lines to Portishead and Henbury and increased services to Severn Beach
- Bristol West Junction track renewal
- An aspiration to remove the signal box at Temple Meads and relocate its functionality, not yet committed

Recently completed developments

Several passenger enhancements have recently been completed, with more planned across the station. Passenger toilets have been refurbished in the subway, as have the disabled toilets on platforms 3 and 13. The long-disused toilets on platform 10/12 were also refurbished and reopened in late Spring 2022. Accessibility has been improved with the installation of platform edge tactiles across all platforms. There are further plans to reduce the number of slips and

falls on platform 3's terrazzo paving with resurfacing works to start once the temporary scaffolding for the Main Shed Roof Refurbishment is complete. Further surface improvements will complete across the station by Spring 2023. The introduction of a one-way passenger flow system on the platform 3 staircase and subway has greatly improved circulation, especially at peak times. Finally, a new Help Desk will be opening within the former station travel centre in late 2022. This facility will include a fully accessible counter with a hearing induction loop and automatic doors, further making the station more inclusive to all passengers.

5.2.6 Land ownership

Bristol Temple Meads station is owned by Network Rail. However, it is worth noting that Network Rail-owned land surrounding the station is limited, with most areas falling under the ownership of other parties.

The Brunel Station and Offices are owned by Bristol City Council, whilst the The Passenger Shed and Engine Shed were acquired by Network Rail in March 2020.

The Bristol & Exeter House and surrounding yard, Collett House and Skanska site are currently in private ownership, whilst Network Rail have agreements to access the arches beneath the forecourt (British Transport Police area) for servicing the station and trains. Some spaces are let for commercial uses.

5.2.7 Rail capacity

Tracks and platforms

The current station has 14 platforms ranging in length from 96m to 295m, as well as two non-platformed through lines and a number of sidings which remain in frequent use.

The station was fully resignalled as part of the Bristol Area Signalling Renewal & Enhancement (BASRE) project, completed in 2019, which included the introduction of mid-platform signals.

The electrification of the Great Western Main Line and the implementation of the Intercity Express Programme (IEP) in December 2019 reduced journey times between Bristol and London to 1 hour 20 minutes.

Planned service improvements

Bristol Temple Meads Station has seen significant increase in train services in the last ten years.

The Western Route Study (2015) set out the strategic vision for the future of the rail system in the west of England up to 2043. The dominant issue identified within the study is the need to provide sufficient capacity in the peak periods for key centres such as Bristol. It recognises the difficulties of seasonal variation in demand, station capacity requirements for pedestrian throughput and the need to improve resilience of the railway in order to maintain connectivity. The strategy identifies future opportunities for improving capacity, connectivity, journey times and optimising the delivery of interventions to achieve the best industry cost.

The Western Route Study includes a range of projects to be implemented across that timescale. Incremental improvements in frequency and journey time are projected to continue in the coming years, as set out in the Indicative Train Service Specifications (ITSS). The total number of passenger services was anticipated to progressively increase from 14 to 22 per hour, mostly made up of additional terminating Bristol Suburban, Welsh Inter-regional and London Intercity services.

Substantial improvements to local services are planned through the MetroWest train network which will reopen the lines to Portishead and Henbury and provide increased services to Severn Beach. This will provide a significant increase in rail capacity within the Greater Bristol area to help serve the city and the Temple Quarter.

Current forecasting suggests passenger revenue returning to pre-pandemic levels by the mid-2020s. Rail patronage on the Western route has shown a strong recovery, with station footfall at some stations already exceeding pre-pandemic levels. There is therefore every reason to expect that passenger numbers and associated levels of train service will still reach the levels previously envisaged in the 2015 Western Route Study.



Drivers for change

The forecast increase in train services will significantly alter the nature of station operations, with Temple Meads' principal focus moving towards that of a terminating point for services, while maintaining a lesser number of through and reversing services. Considering this shift in focus, the continued efficacy of the current double-length platforms is likely to be reduced, and some level of intervention/re-modelling can be anticipated.

5.2.8 Passenger capacity

Passenger growth

Passenger numbers at Bristol Temple Meads have grown significantly over the last few years from about 7.5 million in 2008 to over 11 million entries and exits in 2018-19. Growth is projected to be 6% per annum up to 2023 followed by 3.2% between 2024 and 2043, as forecast by Network Rail Economic Analysts using the Passenger Demand Forecasting Handbook (Rail Delivery Group, 2018).

Passenger growth at Bristol Temple Meads is due to a combination of factors including population growth and economic growth in the city. In addition, the cost of private car travel and highway congestion are inducing modal shift, supported by a positive feedback loop of rail investment to increase the capacity and convenience of train travel in the region.

Internal station circulation routes

The station is currently served by a single passenger circulation route between the platforms in the form of the 9m wide passenger subway, which runs around 4.5m below platform level. Two sets of stairs and one passenger lift connect from the subway up to each island platform.

The existing platform stairs are all 3m wide, with the exception of the platform 13/15 stairs which are only 2.75m wide. All staircases have a central handrail and are kinked around mid-height landings to avoid lift shaft and structural foundations.

Within the station, two new gatelines were brought into operation in December 2018: one adjacent to Bonapartes Cafe and another providing access through the Queen Anne Gate. These have been successful in encouraging

greater use of the second (southern) staircase from the subway to Platform 3, and in alleviating flow through the existing gateline and ticket hall.

Congestion

The station experiences frequently congested passenger flow, particularly due to the high volume of passengers alighting from individual trains in the peak hours. This is exacerbated by non-central train stopping positions which bias passenger flows towards a single platform staircase, whilst the other stairs are largely unused.

By contrast, entry/boarder flows are more dispersed and do not usually cause congestion issues, although it can be difficult to access the platforms via the subway against the predominant flow of alighters.

This study has undertaken dynamic passenger modelling to better understand the internal circulation at Bristol Temple Meads. It was confirmed that the arrival flows exiting the station in the AM peak present the principal operational challenge.

This modelling identified various non-compliances with the Station Capacity Planning Guidance (Network Rail, 2016). In particular, the stairs to/from all platforms have inadequate capacity. As a result, the platforms suffer significant congestion around the top of the stairs leading down to the subway. The inadequate width of the stairs up to platforms 3/4 also causes congestion in the subway. This can be worsened by the simultaneous arrival of a train on platforms 1, 3 and 4 with high numbers of interchanging passengers creating counterflow surges on these stairs and crowding in the subway.

Accessibility

The high volume of passenger flows reduces accessibility for passengers with reduced mobility, other disabilities and encumbered passengers. For example, the platform 3/4 lifts are directly adjacent to the top of the subway stairs which can make access difficult during peak flows.

Passenger safety

Bristol Temple Meads has the highest rate of public and passenger accidents of Network Rail's managed stations, with an average of 12.74 accidents per 100,000 footfall between April 2017 and March 2019 (Network Rail, 2019). The majority of those accidents will be slips trips and falls, and it is typically on stairs where most such incidents occur. It is acknowledged by Network Rail that crowding on stairs is a contributory factor leading to these incidents. Thus, alleviating crowding by enhanced provision for safe passenger movement, or by other control measures, should be a priority and may support a case for early intervention in critical locations.

Looking forward

As outlined above, the current stairs and subway link is non-compliant with the Station Capacity Planning Guidance and poses a risk to passenger safety.

Dynamic passenger modelling has been undertaken to explore how an un-enhanced station would cope with forecast passenger growth and additional train services to 2025. Prior to Covid, the subway and stairs down into it were seriously congested. Recovery towards these demand levels will cause the congestion to return and further growth will

worsen it. In addition, the platform areas around the top of the undersized stairs will experience increasingly severe queuing, extending out towards the platform edges.

To relieve congestion and accommodate increased demand from additional train services, more circulation capacity would be required. This would enable passengers to leave the platforms and then the station quickly and comfortably. Given existing levels of platform congestion, the modelling also makes it clear that the existing stairs cannot be safely widened whilst maintaining the full operation of the station. In light of this, it is concluded that it will be necessary to provide an additional platform access route (i.e. a new subway or bridge) at the earliest opportunity.



Drivers for change

The key driver for action is the worsening situation on station platforms which will continue to deteriorate. These present significant risks to passenger safety and have a negative impact on passenger experience and accessibility.

5.2.9 Passenger experience and facilities

84 years on from its last significant upgrade, the station is currently out of step with expectations of the 21st Century rail passenger. Station facilities are a key component of passenger experience and a recurring theme in satisfaction ratings. At Bristol Temple Meads there are several inadequate or absent passenger facilities which hinder overall passenger experience.

In May 2018, Bristol Temple Meads was ranked as 41st in the country for passenger satisfaction, with an overall rating of 81% (Transport Focus, 2018). However, in January 2020 it was announced that this had increased to 83%, the biggest improvement of any Network Rail managed station in the country (Network Rail, 2020). This reflects high investment in Western Route over the last five years. Network Rail's route managing director for Western noted that, *“Although these results are encouraging, we recognise that there is still a lot more that can be done to make the railway more reliable and better for everyone that uses this vital public service.”*

Toilets

The station is served by a single set of passenger toilets located in the subway which have inadequate capacity and are in poor condition. The station has no toilets on platforms.

Waiting Rooms

The station has limited platform waiting rooms: one on platforms 5/7 and another on platforms 13/15. In addition, there is a small waiting room inside the ticket office.

Canopies

The platforms canopies stop short of train car lengths on most platforms and leak during rainfall.

Platforms

Platforms have several non-compliances with design standards, including:

- Inconsistent tactile paving and danger area (yellow line) markings at platform edges
- High stepping distances between platform and trains, particularly those with high curvature
- Poor slip-resistance of floors, particularly platforms 3/4, and slip and trip hazards

Obstructed progress

Subway congestion is one of the most common complaints in passenger satisfaction surveys due to inadequate capacity of circulation routes, as outlined above.

Wayfinding and onward travel

The station suffers from poor and inconsistent wayfinding signage, particularly the interface between the rail and external environment for onward travel. In addition, there is inadequate provision of disabled parking spaces and non-compliant access routes from these spaces to the platforms.

Issues related to wayfinding and onward travel are explored in more detail in Chapter 6 City Gateway.

Accessibility and inclusivity

There are 13.9 million people with disabilities in the UK and inaccessible public infrastructure is a factor in social exclusion. Many of the known issues at Bristol Temple Meads are non-compliant with the Design Standards for Accessible Railway Stations (DfT, March 2015) and dissuade people from choosing to travel by train.

It should be noted that the impact of poor infrastructure and facilities is not confined to people with disabilities. A truly inclusive station recognises the intersection with other protected characteristics under the Equality Act 2010, such as age, pregnancy and religion. This approach goes beyond accessibility to considerations such as security and staffing, which disproportionately affect a range of social groups.

Living Stations

The Tomorrow's Living Station publication (Network Rail, 2019) highlights the role of train stations within their wider context and the communities they serve. It notes that stations should recognise the value of people's time, the value of health and wellbeing and the quality of transactions. This document proposes three responses to future challenges:

1. Stations as the centre of movement of people
2. Stations supporting inclusive growth
3. Stations as the heart of a healthy community

These all highlight that the role of stations is larger than simply train services, and re-emphasises the need for 'internal' works to be holistically designed in tandem with 'external' works, as outlined in Chapter 6, to meet the challenges of tomorrow.



Drivers for change

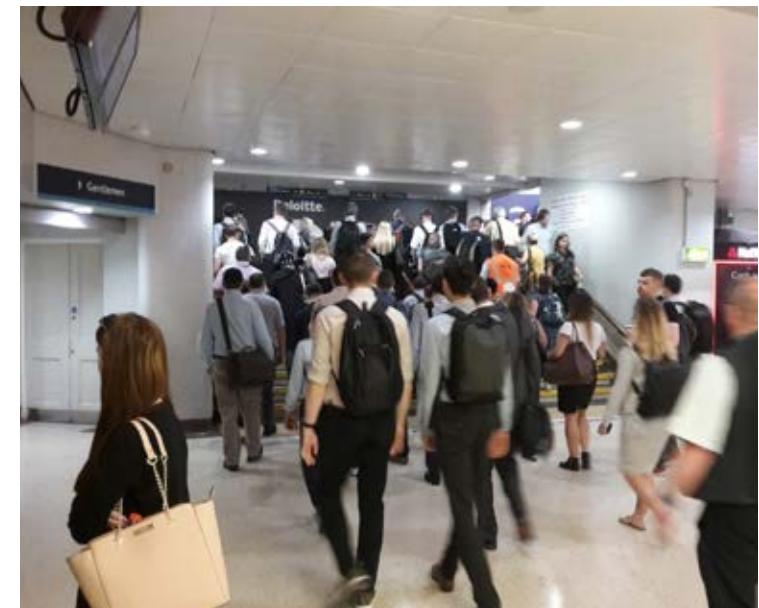
When altering stations, it is Network Rail's responsibility to identify any potential negative impacts on people with protected characteristics and mitigate these wherever possible and practical by reasonable adjustments.

The opportunities presented in this masterplan present a clear driver to improve the accessibility, inclusivity and overall passenger experience at Bristol Temple Meads.

5.3 Constraints and opportunities summary

The principal constraints at Bristol Temple Meads are related to the existing station and its continued operation. Bristol Temple Meads is a gateway to the city and an important interchange to the South West and Wales. Minimising disruption to rail operation during construction is a significant factor when considering the feasibility of different solutions. The station is also an iconic, Grade I listed asset, providing opportunities to refurbish and repurpose the historic architecture, but also places constraints on designing sensitive alterations.

From the preceding analysis, Bristol Temple Meads station offers significant opportunities for physical interventions that will encourage and accommodate high growth in railway travel. This includes capacity for new train services and passenger flow throughout the station, as well as overdue improvements to accessibility and user facilities.



5.4 Guiding principles

Opportunities and recommendations for application of the five guiding principles to achieve placemaking outcomes in Bristol Temple Meads.



Integrated and Connected

Our vision for Bristol Temple Meads is to deliver a modern, safe and efficient station, with improvements that celebrate its unique heritage. This will be complemented by a revitalised multi-modal interchange in the surrounding area, providing a seamless interface between train travel and other modes. The station capacity will be expanded to accommodate growing numbers of passengers and rail services. The success of these upgrades will be demonstrated through safe and compliant circulation routes and an improved National Rail Passenger Survey score. The station will be easily navigated and accessible for all, including wider routes between the platforms, enhanced step-free access and intuitive wayfinding for those entering/exiting and interchanging. Best practice and compliance with standards will be followed throughout to achieve a step-change at the station.



Inclusive Economic Growth

Efficient and reliable transport infrastructure is a key component of economic development, and Bristol Temple Meads will continue to serve economic growth in Bristol and the wider West of England. Substantial improvements to station capacity will make Bristol more accessible for businesses, visitors, tourists and leisure travellers alike. Renewal of the Northern Entrance will cement the relationship between the station, the Enterprise Zone and the City Centre. Similarly, a new Eastern Entrance and Southern Gateway will play an important role in reorienting the station towards the south, acting as a catalyst for future development in this direction. Recognising the importance of continued operation, no ‘big bang’ scheme will be promoted that risks significant disruption or failure. Instead, intelligent phasing will be employed to introduce incremental improvements when necessary.



Quality places

84 years on from its last significant upgrade, the station is currently out of step with the expectations of the 21st century rail passenger. Bristol Temple Meads will be reimagined as a gateway station which celebrates its rich history and heritage whilst delivering required capacity. Opportunities will be grasped to enhance passenger experience by improving passenger facilities, such as toilets, waiting rooms, ticket purchasing and assistance. All of these improvements will be designed with sensitivity to the historic station spaces and architecture. In addition, servicing and maintenance of the station will be integrated into the masterplan to ensure smooth operation for years to come.



Quality spaces

The journey through Bristol Temple Meads will create a true sense of arrival in the city. A clear hierarchy of public spaces around the station will utilise landscaping, intuitive wayfinding and open space to give passengers a chance to dwell and make decisions. The Northern Entrance presents an opportunity for a new terrace, complemented by the nearby Goods Yard development and opportunities on the Friary. The interface between these three spaces will be designed for integration and permeability, while maintaining a distinct crossing point between the city environment and the station environment. Similarly, the new Eastern Entrance and renewed Station Approach will each provide space to breathe and improve the setting of the historic station.



Vibrant and Creative Communities

Bristol Temple Meads will continue to be an important part of Bristol's heritage and a transport interchange that quietly enables a vibrant city. A programme of station improvements will be aligned with wider network aspirations to provide rail access to poorly served communities, such as lines to Portishead and Henbury, as well as further south and into Wales. The new Eastern Entrance and Southern Gateway will shift the orientation of the station, currently perceived as a physical barrier by communities in south and east Bristol. Accessible, inclusive design will be employed to raise the profile of rail travel for all.

5.5 Bristol Temple Meads station masterplan

This masterplan for Bristol Temple Meads station identifies feasible approaches for the future development of the station, fulfilling the requirements and needs for rail service capacity, passenger capacity and station facilities. These are complemented by proposed improvements to the surrounding transport interchange, presented in Chapter 6 City Gateway.

In order to deliver the vision for Bristol Temple Meads Station, a series of improvements have been proposed. Following guidance from Network Rail, these have been grouped into the following packages, each with their own funding and delivery mechanism.

- Package 1a: Platform Improvement Works
- Package 1b: West Junction Remodelling
- Package 2: Circulation Enhancements 0
- Package 3: Circulation Enhancements 1
- Package 4: New Platforms 0/1

The proposed interventions have been developed as part of an extensive feasibility study against the ITSS for the station. Solutions have emerged in response to the constraints and opportunities at the station, including heritage considerations and potential phasing of delivery.

A summary of the proposed phasing for these interventions, together with other planned schemes and interdependencies, is presented in Section 5.6.

5.5.1 Package 1a: Platform improvement works

This package comprises platform improvements, canopy alterations and passenger facility improvement. This would improve compliance with the Design Standards for Accessible Railway Stations (DfT, 2015). In addition, signal moves are proposed to improve operational flexibility.

Platform improvements

Tactile paving will be provided along the full length of platforms 3, 4, 5, 6, 7, 8, 9, 10, 11 and 12. Measures to address large stepping distances between platforms and trains and to improve poor slip resistance of some platform and circulation surfaces will also be explored during the further development of the schemes.

Canopy alterations

Platform canopies could be extended to cover the full length of platforms 3, 4, 8/10 and 9/11. Platforms 13/15 will be addressed in Package 2.

Passenger facilities

New passenger toilets and waiting rooms could be provided at the southern end of platforms 4, 6/8 and 10/12.

Signal alterations

Two platform signal moves are proposed to optimise operational flexibility in anticipation of longer trains.

- The movement of mid-platform 3/4 signal by approximately 37m in the UP direction
- The movement of platform 8 end signal by approximately 13m in the DOWN direction

It is not expected that the physical length of the platform islands would need to be extended in relation to this enhancement.

5.5.2 Package 1b: West Junction remodelling

This package comprises track and signalling works to remodel Bristol West Junction on the approach to the station. This would improve rail capacity and operational flexibility.

Track and signal alterations

Modest track layout changes are proposed to reintroduce through-running to Platform 13, and to provide additional down relief and down through lines through Bristol West Junction to Bedminster. This would include reconfiguration of the Old West Carriage Line and West Carriage Washing Sidings into extended down through and additional down relief lines through to the west of Bedminster station. This includes partial realignment and re-gauging to Platforms 13/15. These track modifications could potentially be undertaken in conjunction with Package 2.

It is understood that a similar remodelling scheme is proposed as a freight service loop, as part of the MetroWest Phase 1b scheme for the reintroduction of train services between Portishead and Bristol Temple Meads, and the proposed configuration for passenger service use should either be provided for, or safeguarded, within these works.

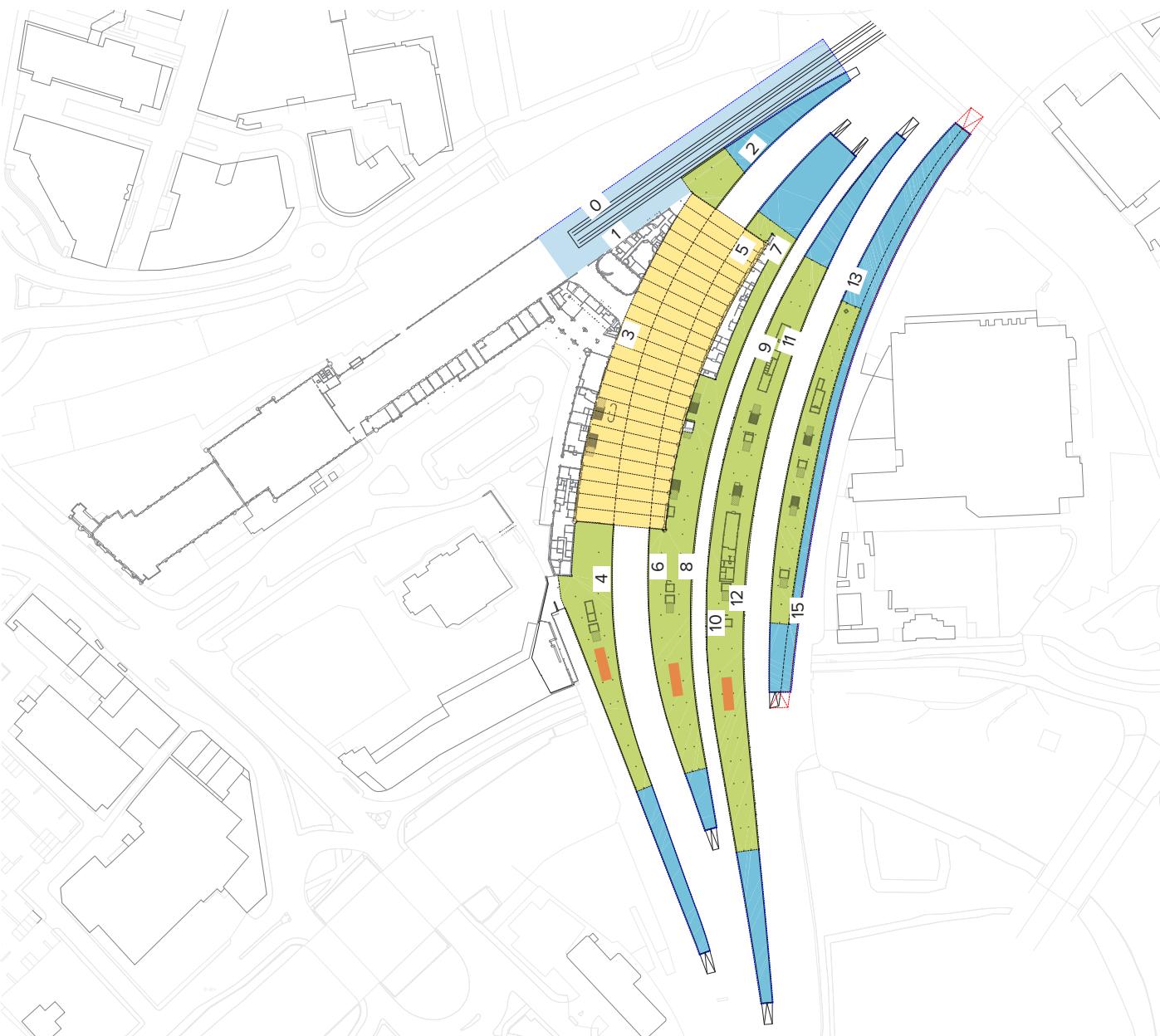


Figure 50 Feasible platform improvement works

5.5.3 Package 2: Platform 13/15 circulation enhancements

This package is focused on widening platforms 13/15, including associated track works and extension and widening of the platform canopy. This would improve passenger flow capacity, passenger experience and is a key enabling scheme to facilitate introduction of a new internal bridge or widening of the stairs to this platform (Package 3).

Platform widening

Platform 13/15 could be widened to increase its passenger flow capacity. It is currently too narrow to accommodate stairs and lifts for the introduction of a new internal circulation route. These works would include realignment of the platform edges and tracks on the eastern side, and will require the acquisition of a small area of the Temple Island development site to accommodate the new track alignment.

Canopy alterations

Platform canopies on platforms 13/15 could be extended to cover their full length, improving passenger experience.

5.5.4 Package 3: Wider platform circulation enhancements

The package is focussed on improvements to internal passenger circulation capacity. This would improve passenger experience, accessibility and safety.

There are several feasible solutions for internal circulation, including a new footbridge or subway. These solutions are subject to further optioneering and development to optimise to both passenger flows and heritage impacts, including:

- Specific location and sizing
- Structural, architectural and construction approaches
- Connectivity to northern entrance via forecourt buildings
- Platform vertical circulation provisions, size and locations
- Phasing and continuous safe station operation
- Refinement of heritage impacts and mitigations in relation to:
 - Key views and settings
 - Interfaces with main train shed walls and forecourt buildings
 - Interfaces with platform canopies
 - Impact on platform buildings and structures

It is envisaged that these issues will be considered and refined during later stages of design, including addressing and resolving heritage issues and concerns.

For illustrative purposes, a potential new internal bridge is shown in this chapter as one feasible solution that could improve internal circulation.



Figure 51 Station improvements
illustrative concept

Key

- ① Bristol West Junction remodelling
- ② Platform 13/15 widened to accommodate new stairs
- ③ Potential new internal footbridge
- ④ Existing subway enhancements (stairs widening)
- ⑤ Potential walkway from footbridge through station retail and ticket hall
- ⑥ Signal box removal
- ⑦ Platform 1 extended and new Platform 0

New internal circulation route

Following an extensive optioneering and feasibility assessment process, a single passenger bridge positioned within the Main Shed could be installed which would operate in combination with the existing passenger subway to provide capacity for passenger growth. Alternative feasible solutions to improve circulation include a new or repurposed subway. However, this choice will not be confirmed before the conclusion of more detailed study at GRIP 3.

Passenger flow and wayfinding are two important influences on the location of a new circulation route. The current passenger subway and stairs concentrate flows in the centre of the platforms. The preferred location of a new route between platforms should seek to relieve the existing passenger subway and simplify and assist intuitive wayfinding for alighting passengers.

A potential new footbridge arrangement could offer an enhanced passenger experience with elevated views from within the station. The choice of location would present options for the main access stairs from the concourse, including within existing buildings. Alternatively, a new or repurposed subway may be selected to improve passenger circulation. The preferred solution should provide a direct and intuitive connection while minimising negative visual impacts in and around the Main Shed. This should be reviewed in conjunction with the full station circulation opportunities at GRIP 3.

Enhancing the existing subway

Some of the platform stairways to the existing passenger subway would also need to be widened to accommodate 2043 passenger flows, in addition to a new footbridge. Given the current levels of congestion, the new circulation route would need to be in place before these works to relieve the load on the existing stairs. Canopies and other platform facilities would be reinstated to the extent that this is possible around the new circulation infrastructure and routes.

Platform 3 subway stairs

Significant congestion is experienced on the stairs leading to Platform 3, which acts as the primary route for all passengers into the passenger subway. This platform poses a potentially challenging interface between a new footbridge and the existing subway stairs. At this early stage, three main options have been identified for the Platform 3 stairs:

- New, wider stairs to the subway behind the platform. This would require the extension of the existing subway through to the tunnels behind the existing stairs (used to access rail replacement buses when necessary) in conjunction with the construction of new stairs and a new lift shaft. It is worth noting that this subway extension would require the relocation of significant utility services, including major switchroom services and critical cable runs
- New, wider stairs on Platform 3 (current location)
- Additional stairs between the subway and Platform 3, while retaining the existing stairs

There may be opportunities to expedite enhanced subway stairs to alleviate the worst congestion as a standalone project. However, further work is required at GRIP 3 stage to assess the overall internal station circulation so that the footbridge and subway stairs are considered holistically, maximising opportunities and avoiding preclusion of future enhancements.

Heritage implications

These circulation enhancements represent significant changes to the internal station environment.

The original circulation provision within the main train shed was via a footbridge, which was dismantled on construction of the central subway during the 1930s Culverhouse extension works. This provides a useful historical precedent for the reintroduction of a new bridge within the Grade I listed station. However a potential new bridge may be approximately twice the width of the original and in a different position, so would require careful design to ensure minimum impact on the station's heritage assets and historic setting.

The potential impacts of this to the forecourt elevation were raised by Historic England. Alternative potential solutions for internal circulation are presented in Figure 522. These options will need to be further refined at GRIP 3 to achieve an optimal balance both heritage and operational requirements before a preferred option is selected.

Package 4: Platform Improvement Works

This package comprises the construction of a new platform 0 and extension of platform 1. This would improve capacity for rail services and operational flexibility.

Signal box removal

These platform works are contingent upon the removal of the adjacent signal box. This project is being considered by Network Rail in order to remove the signal box at an earlier phase. As such the removal of the signal box is not included in this package, but is an essential part of these capacity improvements. This will also influence the new Northern Entrance, explored in Chapter 6.

Platform extensions

Platform 1 will be lengthened to accommodate 6-car trains and a new platform 0 will be introduced, also 6-cars length. There are opportunities for these platforms to be longer by extending into the Midland Shed, though use of these platforms for longer trains would generate additional conflicting moves. These will both terminate 25m short of the concourse area within the extended Midland Shed. A new canopy extension is proposed to cover these platforms, with new gatelines to the new concourse.

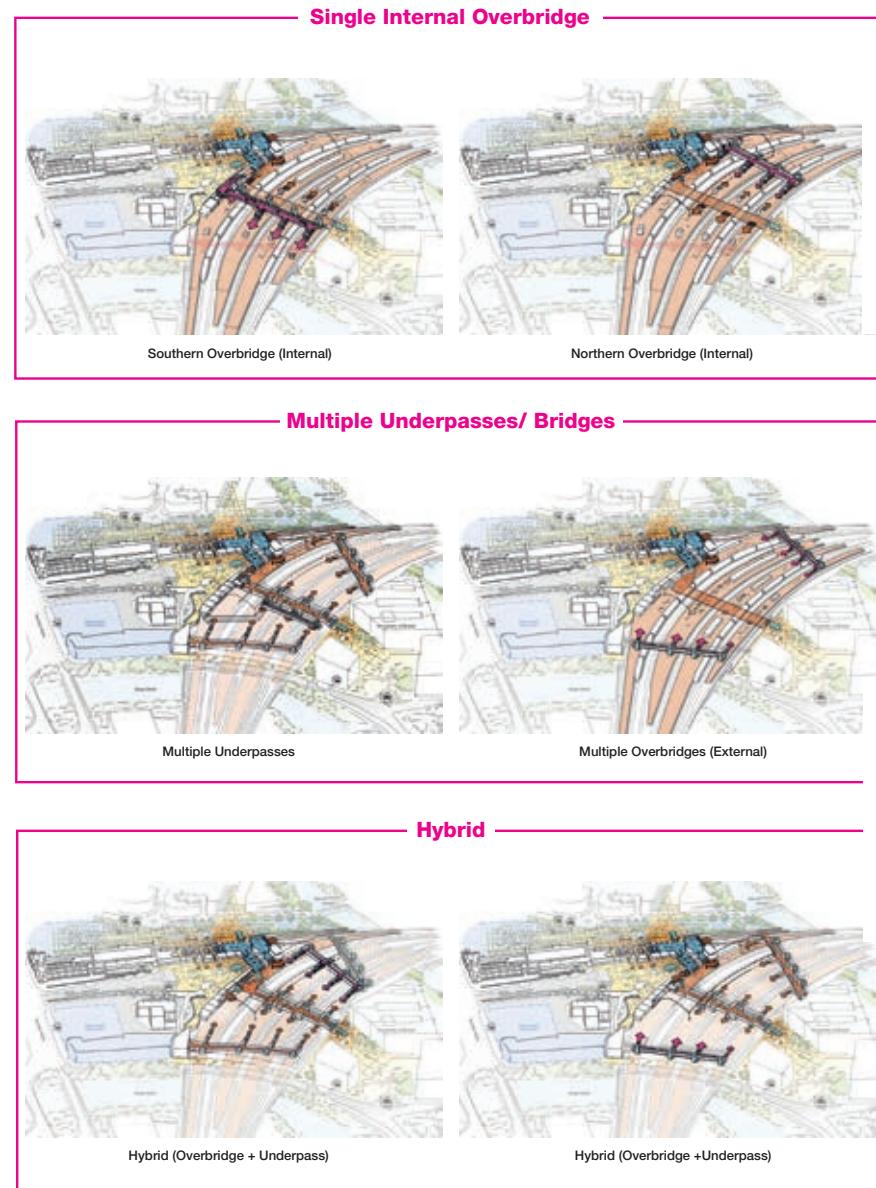


Figure 52 Station internal circulation options

5.5.5 Ticket hall modifications

Ticket hall modifications are proposed to improve passenger flow and connection to the platforms as part of a renewed concourse. These would open up the existing building and provide a high quality passenger experience through the Grade I listed station structure.

It is proposed that Bonapartes Alley could be opened up to improve access and capacity to the platforms. Bay platforms 0 and 1 would be positioned far enough north to safeguard this route. This also introduces opportunities for retail or a lounge in Bonapartes

An illustrative concept of the new ticket hall layout is presented in Figure 533.

Further work is required at the GRIP 3 stage of design to determine the position of gatelines inside this hall. The final layout should seek to maximise intuitive wayfinding, flexibility during peak and perturbed scenarios, and connectivity with new vertical circulation options presented in the packages above. This could potentially include closure of the Queen Anne Gate exit.

This is also dependent on decisions around the Northern Entrance, the Midland Shed and the Station Approach entrance, particularly which doors are used for main access routes, how the station will be secured out of hours, and how the floor level challenges are to be overcome. These are explored in more detail Chapter 6.

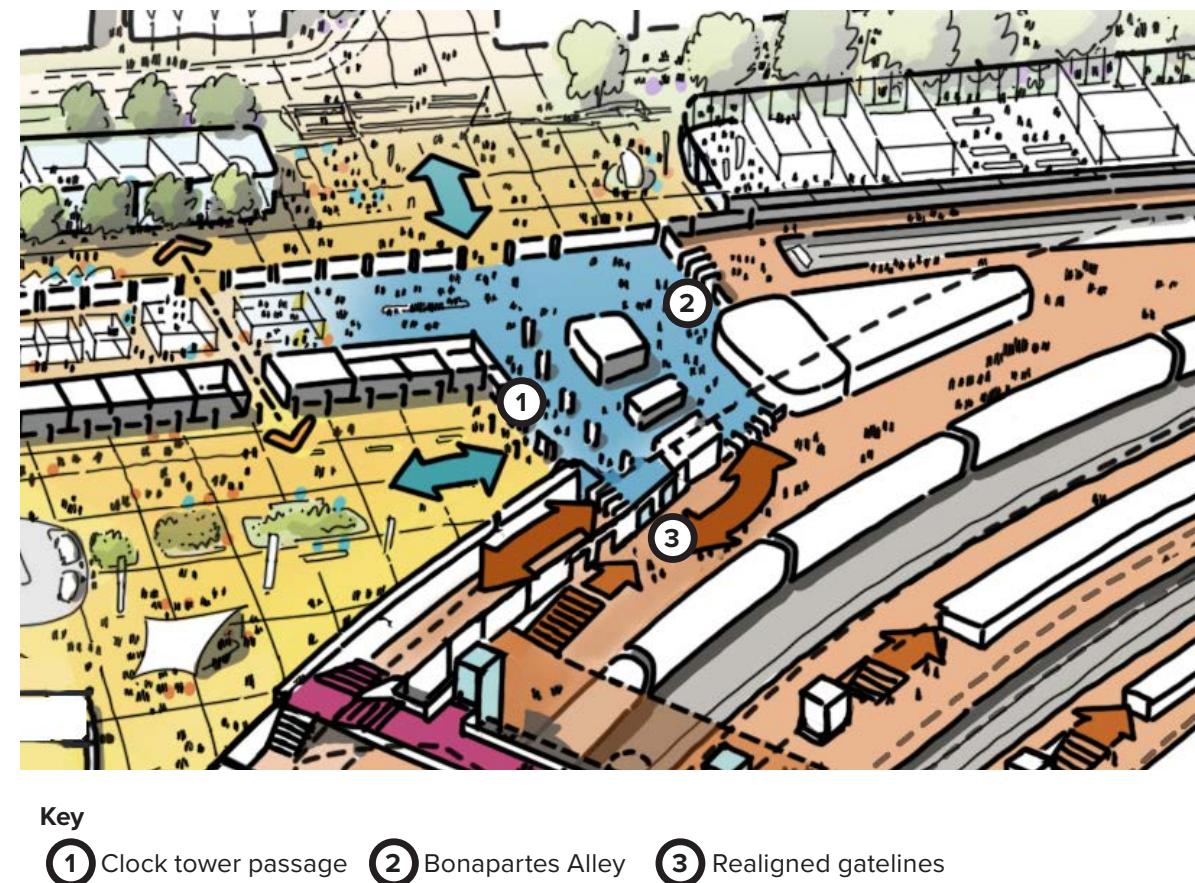


Figure 53 Ticket hall modifications illustrative concept

5.6 Making it happen

This section presents a set of strategic considerations and objectives to inform the next steps for the City Gateway. These recommendations have been developed in response to the constraints and opportunities (Section 5.3) and the financial modelling undertaken as part of this study.

5.6.1 Infrastructure costs

Indicative costs for the main components of the Bristol Temple Meads Station masterplan are outlined below.

Item	Total cost
Package 1a: Platform improvement works	£20-25m
Package 1b: West Junction Remodelling	£20-25m
Package 2: Platforms 13/15 Circulation Enhancements	£35-40m
Package 3: Wider circulation Enhancements • Internal footbridge • Subway enhancements • Alternative Platform 3 access to subway	£35-40m £10-15m (incl. Plat. 3 stairs) £10-15m
Package 4: New Platforms 0/1	£25-30m

All costs are to Q4 2019 base rate, not including any inflation to the anticipated mid-point of construction. They include an uplift factor of 40% applied for risk in accordance with the Network Rail Cost Planning Procedure Document, June 2019.

5.6.2 Delivery strategy

The delivery of the station enhancement projects is best suited to Network Rail working independently. Conversation with Network Rail in developing this study has established that Network Rail could be the sole sponsor and delivery client for the core internal station works as Bristol Temple Meads is a major, directly managed station and maintaining a safe, operational station is imperative.

As the delivery client, it is assumed that Network Rail will take on development, interface and construction risks for the core station works described above. The funding arrangements for these core station works is to be determined, although the scenario modelled assumes core station works will be funded by the DfT's rail network enhancements pipeline (RNEP).

5.6.3 Planning conformity and strategy

As a Statutory Undertaker, Network Rail benefits from deemed consent ("Permitted Development") for certain types of work to its rail infrastructure. Many of the proposed interventions identified in the Masterplan, such as platform improvement works, track and signalling works and concourse enhancements, are likely to benefit from permitted development rights.

Development that falls outside the permitted development regulations is likely to require planning permission, including works involving the reconstruction or alteration of a building or structure where its design or external appearance would be materially affected. Any planning applications would be assessed in the context of the adopted and emerging Local Plan policies. The principle of the works at Bristol Temple Meads is supported by the adopted Local Plan, in particular,

Core Strategy policy BCS2 (City Centre) and policy BCAP35 (Bristol Temple Quarter) which supports the enhancement of the station.

Whilst works may not require an application for planning permission, Listed Building Consent (LBC) is likely to be required. The requirement for LBC applies to any works for the ‘demolition of a listed building, or for its alteration or extension in any manner which would affect its character as a building of special architectural or historical interest’.

Works affecting Listed buildings and structures must be carefully considered. Individually, phases of works may be acceptable in terms of their impact on Listed buildings or structures, but cumulatively the end result of the completed project will need to be taken into account.

5.6.4 Prioritised list of projects

The following projects and activities have been identified as high priority for the next few years to progress the Bristol Temple Meads Station masterplan. These have been selected based on the outcomes they would enable, their benefit cost ratio and deliverability considerations. It is recognised that the exact parcelling of projects and sequence of delivery may change as the project continues to develop, thus a list of known dependencies is presented in the following section.

This list excludes interfacing projects that are subject to their own process but makes reference to them where they introduce a significant interface. Routine asset management and maintenance projects have been excluded from this list.

Station interventions – design and business case 2020-2021

1. Network Rail Capital Delivery review these proposals and identify strategic priorities in the context of the national infrastructure programme
2. Produce design brief(s) for station packages, including Contract Requirements (Technical):
 - Package 1a: Platform improvement works
 - Package 1b: West junction remodelling
 - Package 2: Circulation enhancements 0
 - Package 3: Circulation enhancements 1
 - Package 4: New platforms 0/1
3. Prepare design programme for station packages
4. Procure designer(s)
5. Further refine the demand forecasts and train timetables to inform the design
6. Develop GRIP 3 designs, including the internal station circulation, implications for stairs positioning on Platform 3 and the ticket hall modifications. This should include engagement with stakeholders such as Historic England
7. Refine WebTAG appraisal to Stages 2 and 3
8. Submit RNEP applications to the Department for Transport
9. Continue to GRIP 4 design and construction

Additional enablers

2020-2025

1. Create a coordinated Project Management Office (or equivalent) to manage the numerous schemes in/around the station
2. Produce an integrated programme of all planned rail schemes, including:
 - Bristol East Junction Remodelling
 - Station Roof Renewal and Rewire
 - New Eastern Entrance
 - MetroWest
 - Bristol West signalling renewals
 - Signal box removal and relocation of its functionality
 - Electrification of the railway
 - Packages of station works outlined in this masterplan
3. Identify and implement measures to manage customer experience and safety in the meantime, such as peak passenger flows on platforms
4. Continue to quantify and develop station servicing requirements, in liaison with stakeholders, throughout the design process

5.6.5 Phasing dependencies

Key phasing dependencies and considerations for the development of the Bristol Temple Meads station masterplan are as follows:

- Platforms 13/15 must be widened (Package 2) before new stairs or lifts to a new footbridge or widened stairs to the existing subway could be installed on this platform (Package 3)
- The existing signal box and its associated buildings and services must be removed and its functionality relocated elsewhere before the new platform 0/1 works can begin
- The enhancements to the passenger subway may not be possible to undertake until an alternative means of circulation between the platforms has been installed, as proposed by the new internal footbridge. This is due to the already high levels of congestion which could present a significant safety hazard if stair widths were temporarily restricted. Further work is required to understand this dependency in more detail.
- It is likely that projects will be timed to coincide with other planned blockades to minimise disruption to the railway, similar to that planned for the East Junction Remodelling and new Eastern Entrance in 2021

5.6.6 Phasing strategy

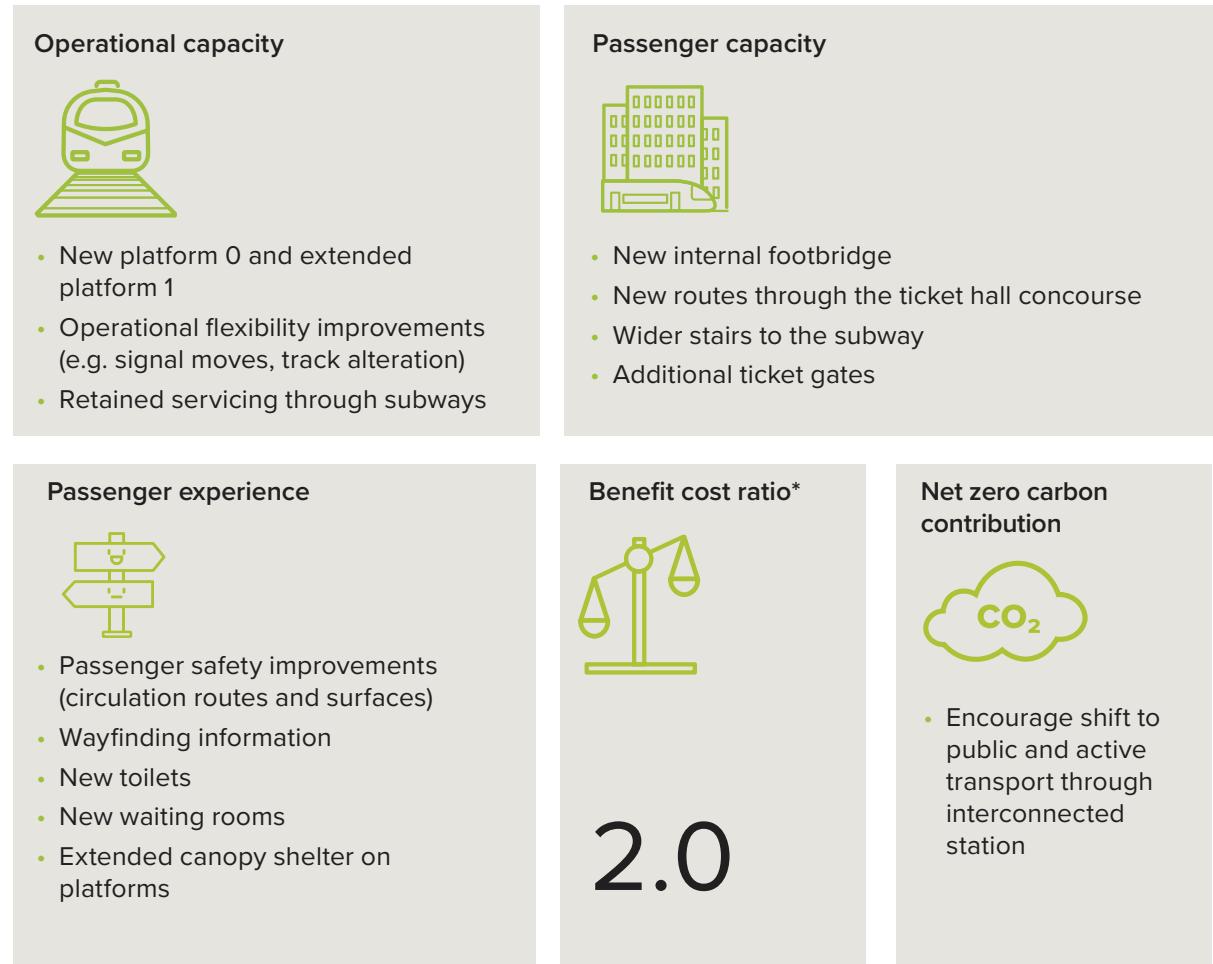
An indicative programme has been produced to illustrate the potential sequence of construction. Other planned projects which represent a significant interface have been included (shown using a lighter colour) with a current best estimate of their construction programme.

Figure 54 Bristol Temple Meads key performance indicator outcomes

5.6.7 Key performance indicator outcomes

The adjacent figure summarises the outcome opportunities for the Bristol Temple Meads presented in this Masterplan. It should be noted that these are underpinned by several high-level assumptions that are considered reasonable and appropriate at this stage, but should be tested and refined through further studies and stages of design.

A positive BCR for transport user benefits has been identified for the station programme, which are likely to be publicly funded. This includes both the internal and external station works as they are considered to represent a combined programme of improvements.



*The BCR assessment considers the costs associated with funding the city gateway enabling public realm and station entrance enhancements. It takes into account the benefits associated with the facilitated development around the station in Goods Yard, Friary North and Mead Street discussed in subsequent chapters.