NetworkRail

Station Design Guidance

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Foreword

From the great railway 'cathedrals' of the Victorian era, to the ground-breaking corporate identity work that gave us the 'double arrow' logo the railway system in Great Britain has a rich design heritage. At this point in history we reassert these values and seek to create a new legacy of good station design.

To assist this process this document provides guidance to those involved in the early design and commissioning of station works, to give a better understanding of the key factors that influence design outcomes.

The document builds on the guidance offered in Network Rail's 'Our principles of Good Design' which sets out ten core principles, the essential ingredients for good design for a world class railway.

How to use this document

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Section 1
Introduction:

Introduces the document, and identifies how the Network Rail Principles of Good Design can be applied to station design.
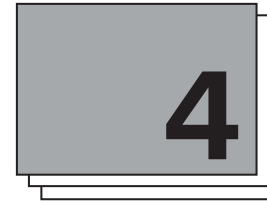
2

Section 2
Project Definition:

Covers the context, processes and approvals for a station design project. Different approaches for investing in a station are covered, and the GRIP process is set out.

3

Section 3
Station Planning Guidance:

Sets out key considerations for a station project, including capacity, inclusive design and sustainability.

4

Section 4
Guidance on Station Elements:

Describes a journey from the station public realm through to the platforms and staff facilities, providing design advice and good practice.

Hint and tips:
To quickly navigate this document click on any of the sections or titles on this page.

To return to the contents page you can click on the Double Arrow symbol.

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Section 5
Project Execution:

Covers details for planning and carrying out a project, defining project BIM requirements and carrying out a Post Occupancy Evaluation.

6

Section 6
Design Considerations Toolkit:

The Toolkit provides a series of considerations for project teams. These are mapped against the Network Rail Principles of Good Design, and covered by GRIP stage.

A

Appendices A–B:

→   Definitions
→   Applicable legislation, standards and guidance
→   Image Credits
→   Station Categories Classification

How to use the guidance

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Design Manual
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The Network Rail Document Suite

Our Principles of Good Design

000 Series

Idiom

You are here

Design Guidelines
NR/GN/CIV/100/02

Station Design Guidance

→

100 Series	
200 Series	
300 Series	
400 Series	

Full Guidance Document Suite

Strategic Planning
Design
Compliance
Operational Property

TECHNICAL USER MANUALS (TUMS)

NR STANDARDS
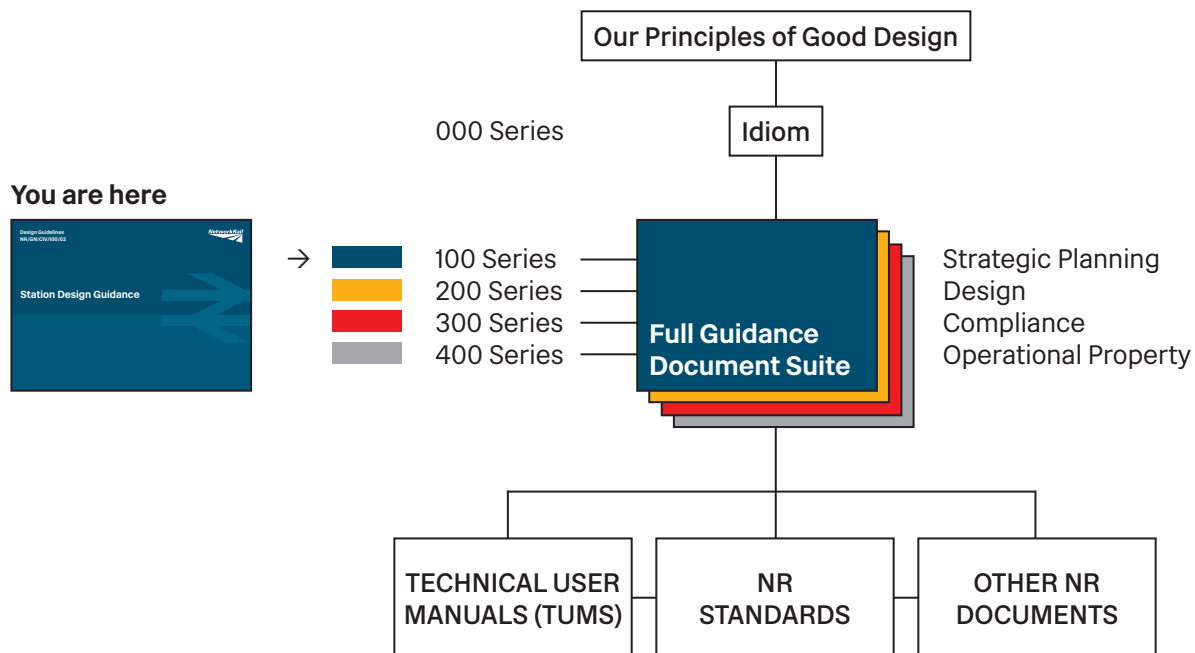
OTHER NR DOCUMENTS

NR Guidance Suite Reference

Heritage: Care and Development
NR/GN/CIV/100/05

This guidance has a Network Rail standards Green status, and the contents do not require derogation

A full list of relevant documents, and other guidance suite documents is contained in the appendix.

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Introduction

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Image 1.1
Paddington station
Taxi rank

Introduction

1.1 Purpose of this Document

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This document offers high level guidance aimed at the Sponsors, designers and planners of new railway station infrastructure in the UK. It outlines not just the factors determining physical space within stations but other components that need to be considered to achieve world class station design.

This station planning guidance is particularly applicable at early design stages, and as projects progress there may be a need to go into more detail in all of these topic areas. The document therefore references other guidance, standards and applicable legislation and acts as a signpost to other parts of the Network Rail guidance suite.

Railway projects are subject to the procedures of the GRIP (Governance for Railway Investment Projects) process, and this guidance helps users to navigate this process.

Key design considerations are set out and aligned to the GRIP stages in Section 6 of this document as a design considerations toolkit: a practical checklist of action for anyone embarking on new station works in the UK.

Image 1.2
Concourse at Glasgow Central station

Introduction

1.2 Our Principles of Good Design

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Our Principles of Good Design identifies ten key principles that enable Network Rail to provide a world class service

Identity

Consistent good design should allow the UK rail network to renew its reputation for innovative, high quality design for a new generation of 21st century stations. Stations should be developed in a way which provides delight, value for money and a high-quality experience to the user. We should take every opportunity to enhance the sustainability of our buildings. This may help our property to become easily identified as part of the high quality Network Rail landscape.

Passengers

Good design helps to maximise capacity while at the same time making the network a better and more accessible place for passengers. The design of good station environments facilitates the safe and efficient flow of passengers and improves passenger satisfaction.

Community focused

People, communities and businesses are placed at the heart of the decision process. Local community requirements are balanced with project and national rail infrastructure needs. The social demographics of the local area are understood and the station is developed in a way which elevates local people's quality of experience.

Collaborative

Projects are developed around an open dialogue with people, communities and businesses that can contribute and feed in through mutually beneficial ideas. Stations are developed through an iterative design process which is collaborative at every stage. Opportunities for investment are explored and stakeholders from the wider area are engaged in the design process.

Introduction

1.2 Our Principles of Good Design

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Inclusive

Inclusive design places people at the heart of the design process. Stations are to be designed in a manner which allows people to use them in an equal way and reduces barriers to access and participation, making them welcome and popular. Due consideration is given to the most vulnerable users of the station to allow the design to develop in accordance with their requirements.

Connected

Development of the station should seek to improve interfaces with other forms of transport and simplify journeys. The railway should reach out into the wider area, making connections with the local community. The use of public transport and cycling should be promoted. A station should contribute to the local environment and function as a societal hub.

Contextual

Railway stations form part of a local area's physical identity and should be developed in a way that is consistent with the local context and culture. The civic quality and character of the existing environment should be enhanced through the development of railway projects.

Enhancing Heritage

Stations are to be designed and developed to strengthen the historical heart of the network by responding to the character of their heritage and social context. The rich existing heritage of Britain's railway infrastructure is to be respected and developed in a sympathetic manner. New design solutions should aspire to be long lasting in a way which adds value to the narrative of railway design in Britain.

Innovative

Innovative solutions should be explored wherever they have the potential to offer improvement. Stations should be designed in a way which considers the whole life cycle of the project to minimise waste and provide future flexibility. The maintenance requirements of the station are to be considered at the earliest design stages and sustainable solutions considered as an intrinsic part of the design.

Environment

Station design should consider the impact on both the natural environment and neighbours, and to consider how this can be minimised. Steps should be taken to minimise energy usage and embodied energy. Preference should be given at station for cycling and other methods of public transport. Design should consider the future and changes to the climate.

Introduction

1.3 The Design Idiom of the Railway

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The Design Idiom document elaborates on the Principles of Good Design by clearly setting out the value of good design in the context of Network Rail's built estate. In doing so it offers design guidance and inspiration to those involved in the design and commissioning of new rail works and confirmation to the wider community that design quality is at the heart of the 21st century railway.

Image 1.3
York station

Station Design Guidance
Project Definition

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Image 2.1
London Bridge station
paid area concourse

Project Definition
2.1 Developing a Proposal

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2.1.1 Introduction
This section sets out the broader rail industry context for a station design project. It makes clear that station design can take many forms and be at many scales. It sets out the key considerations and procedures to follow to make sure the objectives of a project are both clearly stated and understood at the outset and effectively delivered.

Promoters of investment in stations should identify the specific objectives of their scheme. These might include:
→ Providing greater capacity
→ Increasing the connectedness of a community by providing new travel options
→ Providing transport links to a new or growing community, a commercial centre or public facility
→ Encouraging local development
→ Increasing usage of a station
→ Increasing passenger satisfaction at a station
→ Increasing revenue generating opportunities at a station

To show how these objectives may be achieved through investment in a station the proposal may need to:
→ Identify the nature of the local transport challenges being faced
→ Determine the different transport options that could be adopted
→ Understand the existing and future market for rail travel
→ Demonstrate why a rail-based enhancement is most appropriate as part of a package of transport enhancements or on its own
→ Evaluate which of the potential options for rail investment is appropriate
→ Consider the impact of the proposed option on the operation of the railway
→ Consider how the proposed option fits with wider rail industry strategy and objectives

2.1.2 Understanding the demand
In 2013 Network Rail published a series of Market Studies forecasting demand through to 2043 that consider the market as a whole. At a local level the market for rail travel may be influenced by factors including local population density and work patterns, train service provision and the accessibility of a station. A proposal for station investment should consider both to understand the size and nature of the future market for rail travel at a station and develop a proposal that addresses the needs of this market.

2.1.3 Understanding the capacity
Having established the demand exists the promoter should assess the impact of the proposal on existing and planned rail services and stations. Capacity constraints elsewhere on the network may restrict the potential for new demand.

2.1.4 Aligning with rail industry strategy
The Rail Industry Long Term Planning Process (LTPP) looks at the long-term capability of the network up to 30 years into the future to promote efficient use of network capability and capacity.

By looking further ahead the industry can develop potential infrastructure interventions and explore important strategic issues.

2.1.5 Station enhancement programmes
Network Rail has several station specific enhancement workstreams as part of the Control Period 6 2019–24 programme, including but not limited to:

→ Access for All

→ National Station Improvements Programme

→ New Stations Fund

→ Putting Passengers First

The Rail Network Enhancements Pipeline (RNEP) sets out the Governments new pipeline approach to enhancements as outcome based investments. It provides a rolling programme of investment which moves away from a rigid five year cycle. RNEP establishes a framework of five stages: the first three stages, "Determine", "Develop" and "Design" are characterised by increasing levels of detail and understanding; the final two stages are "Deliver" and "Deploy." By the time these latter stages are reached, all investment decisions have been taken and the focus is on building and operating the enhancement.

The GRIP and RNEP stages do not align uniformly, but as a guide GRIP 1-3 is commensurate with Decision to develop, which produces an Outline Business Case. GRIP 4 is commensurate with Decision to Design, which produces a Final Business Case.

Project Definition
2.2 Options for Station Investment

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2.2.1 Investing in an existing station
There are three approaches for investing in station facilities that should be considered in the following order:

→ Investing in an existing station

→ Relocating an existing station

→ Opening a new station

Any proposal should demonstrate that it offers value for money and fits with the Government's objectives and rail industry plans.

Investing in an existing station is likely to be the least expensive option and the least disruptive to the operational railway. Investment can take a number of forms. Lower-cost initiatives range from the cosmetic such as improved lighting, signage or redecoration, through to new or upgraded retail and refreshment facilities.

More substantial improvements are necessary to increase accessibility or capacity, for instance installation of ramps or lifts to improve access, creation of new entrances/exits in response to changes in the wider context, or improvements to cycle and car parking or interchange facilities.

2.2.2 Implementation
Key issues that need to be understood with regard to the impact of the works are:

→ Understand who owns and operates the station. Typically Network Rail may be the freeholder and a Train Operating Company (TOC) may be the leaseholder and operator

→ Understand whether enhancement works are likely to impact on the operational railway

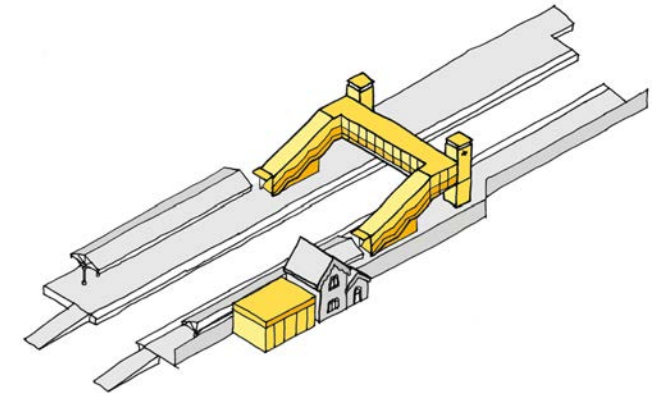→ Understand whether enhancement works are likely to impact on the access to and from the station

Image 2.2
Investing in an existing station —
Example with new footbridge and expanded ticket office

Project Definition
2.2 Options for Station Investment

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2.2.3 Relocating an existing station

Shifts in settlement patterns and town centre land uses over time mean that some existing stations may no longer be located to best meet demand for rail travel.

Any proposal to replace or relocate a station should improve its ability to meet this demand and should clearly demonstrate value for money and fit with government objectives and rail industry plans. It should aim to make the station more accessible to the local community, attract new passengers and offer better access to the rail network, providing improved journeys and interchange opportunities, as well as more frequent and / or diverse services.

An understanding of the net increase in demand achieved by relocating the station, and clarity on the new destinations or catchment areas served. The impacts on the current catchment area should be considered so it is not disadvantaged..

There may be an impact on the operational railway but relocation mitigates this by avoiding duplication of facilities and additional stops.

2.2.4 Planning a new Station

New stations are likely to represent a large investment and a potentially disruptive impact on the operational railway. It is crucial therefore that the proposal is robust, and that the benefits (e.g. increased revenue; modal shift; greater accessibility to communities leading to new passengers) and negative impacts (e.g. extended journey time from the extra stop) are clearly understood.

A positive business case is essential to the success of a new station proposal. In order to develop a business case the costs, benefits and impacts of the scheme should be understood. Both the capital costs associated with construction and the ongoing operating costs, including those for maintenance, repairs and renewals, and how these would be funded, need to be understood to assess affordability and the potential whole life cost of the development. A franchised Train Operating Company (TOC) may be required to operate services and would need to be engaged from the start alongside the relevant franchising authority. The Station Facility Owner (SFO), typically the TOC, should therefore be identified.

A proposal for a new station should be developed with an understanding of the current and planned service pattern on the route and of existing infrastructure constraints as defined in the Route Studies. Early engagement with NR and TOCs is recommended to establish scheme feasibility.
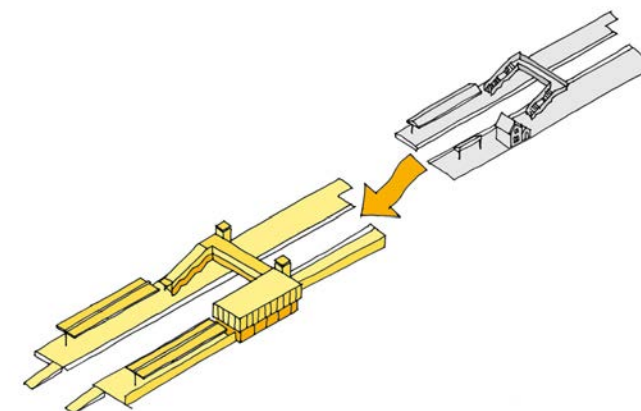
Image 2.3
Relocating an existing station

Image 2.4
Planning a new station

Project Definition
2.2 Options for Station Investment

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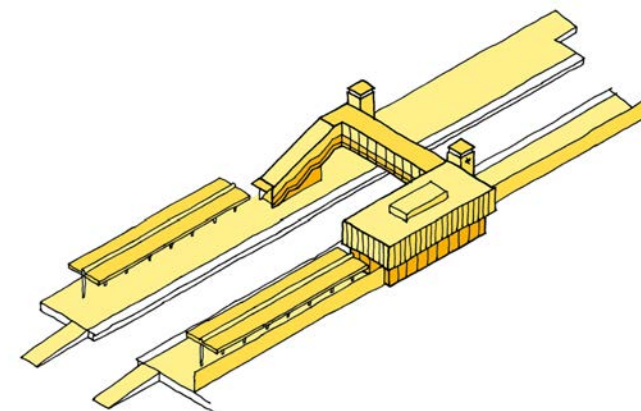
2.2.5 Strategic Design Considerations

There are key constraints that can have a major impact on the design concept of both new station developments and major station upgrades. These should be considered at an early stage and include the following:

Is there space for the length of platforms required?

→   Platforms of new stations should be at least the length of the longest train planned to serve the station

Are track gradients acceptable at the location of the proposed station?

→   Wherever possible the average gradient of track where it runs alongside a platform shouldn't exceed 1 in 500

→   Steeper gradients can make stopping or starting trains difficult

Is the railway straight or curved?

→   Curved platforms result in larger gaps between the platform edge and the train that can make it harder to board or alight

→   Curved platforms make sighting of train doors by crew difficult

Is the station on a cutting or embankment or otherwise difficult to access?

→   Construction costs may be affected by passenger accessibility issues, in particular by implementing the 2010 Equality Act requirements for step-free access to all areas

Is there road access to the site and enough space for parking?

→   Road access may be required for construction and during operation

→   There may be a minimum number of pick-up / drop-off points and parking spaces required, including accessible spaces

Are there existing services / utilities on site?

→   Providing service infrastructure (water, drainage, electricity, communications) can be a major cost it they do not currently exist at the proposed site

→   Existing services may be an obstacle to new construction. Surveys should be carried out early in the design process to identify any services that may need relocating

→   Is all the land required in the ownership of NR or the investor? Acquisition of other land can take a significant amount of time and can be expensive.

Project Definition
2.2 Options for Station Investment

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Image 2.5

Image 2.6

Image 2.7

2.2.6 Planning a new station — Worcestershire Parkway

Worcestershire Parkway is a new station that opened in 2020, and is sited where the Cotswold and Cross Country lines cross each other, providing connection to both lines.

The station is also located close to the M5, providing park and ride access that is expected to relieve traffic problems in Worcester city centre.

2.2.7 Relocating an existing station — Meridian Water

Meridian Water station in Enfield, Greater London opened in 2019, replacing a poorly located and underused station, Angel Road that was sited 600m further north. The station has a higher number of trains calling at it than the former station, and is the starting point for some services.

The station serves the new housing development, Meridan Water, which should eventually have 10,000 homes.

2.2.8 Investing in an existing station — Hackney Wick

Hackney Wick station was comprehensively rebuilt between 2017 and 2018, with a new entrance and ticket hall, and subway access to the two side platforms replacing the previous footbridge.

Wayfinding is improved, as a single entrance replaces the previous separate entrance ramps to each platform. The rebuilt station has lift access to platforms, and the new entrance is better sited for the nearby Queen Elizabeth Olympic Park.

Project Definition
2.3 GRIP

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Network Rail's Governance for Railway Investment Projects (GRIP) describes how Network Rail manages and controls projects that enhance or renew the national rail network.

It covers the project process from inception to post-implementation and was developed to minimise and mitigate the risks associated with delivering enhancement projects on an operational railway. It makes sure that completed schemes can be operated and maintained safely, reliably, efficiently and cost effectively.

GRIP should be followed for most station investments. It is used on all enhancements made to the network and to stations, including third-party funded works.

Where stations are held on a long full repairing lease by the train operator franchisee, and the proposed changes or improvements fall within the scope of the development rights of the franchisee, it may be the franchisee's investment processes and design approvals for station assets that apply.
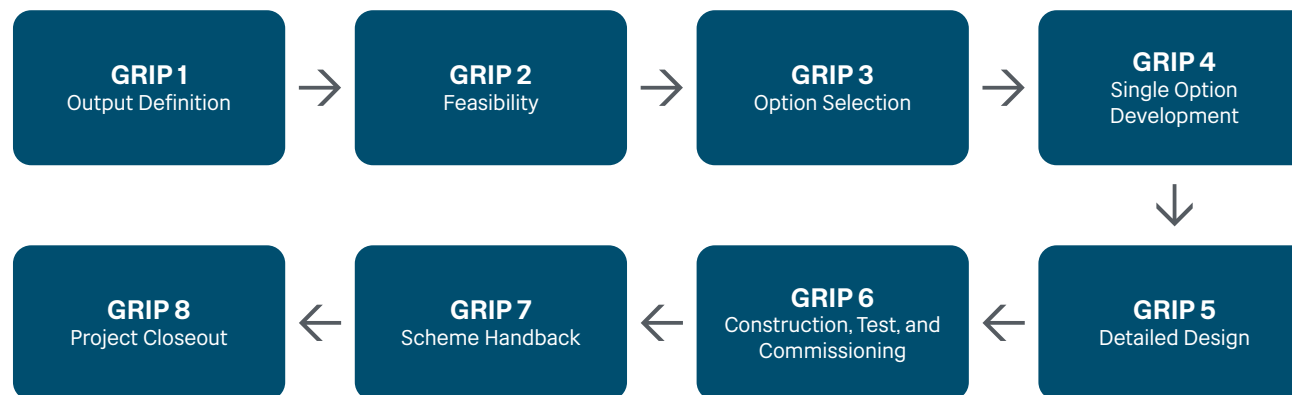
Figure 2.1
The GRIP stages

GRIP requires specific approvals and hand-back procedures to be put in place at a number of stages through the project development phase.

Stage Gate Reviews are mandatory where funding is required for the next stage of the project or where the project is being handed over to an internal or external party for further development or delivery.

Environmental and Social Appraisal (ESA) is a deliverable to be used from the very beginning of project planning, and then iteratively across GRIP workstages. It is an NR tool that generates project checklists and requirements for a range of environmental and social considerations based on the input of project scope and activities.

Standards Reference

Environment and Social Minimum Requirements
NR/L2/ENV/015

Project Definition

2.3 GRIP

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Engineering and Architectural Assurance of Building and Civil Engineering Works

GRIP Stage 0/1 Output Definition	GRIP Stage 2 Feasibility	GRIP Stage 3 Option Selection	GRIP Stage 4 Single Option Development	GRIP Stage 5 Detailed Design	GRIP Stage 6 Construct, Test, Commission

Remit and Requirements

Start → Remit [6.0] → Requirements development (CRD, RRD, DDRD, CR-T, Works Order) [7.0]

End

Processes Specified in NR/L2/CIV/003

Feasibility [8.0]

Option Selection [9.0]

Approval in principle [11.2] → Statement of design intent [11.6]

Detailed design [12.1] → Design check [12.2, Appendix A]

Approved for construction design [13.0]

Inspection and Testing [14.0]

Verification for Entry into Service [15.0]

Engineering Assurance Forms Specified in NR/L2/CIV/003

F004 Architectural and layout acceptance

F001 Approval in Principal

F004 Architectural and layout acceptance

F002 Statement of design intents

F006 Roads/Highway Authority Agreement

F003 Certificate of design and check

F004 Architectural and layout acceptance

F005 Certificate of fitness to be taken into use

Key: Process | Process pre-defined | Form

Note: Timing of processes and outputs by GRIP Stage shown indicatively and may vary to suit the project delivery strategy

Figure 2.2
Design Assurance

Project Definition
2.4 Project Approvals

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2.4.1 Safety Regime
In order for a new station to become a usable part of the national rail network, its operator should comply with the conditions of The Railways and Other Guided Transport Systems (Safety) Regulations 2006 (ROGS) by obtaining safety authorisation from the Office of Rail and Road (ORR).

Major work to existing stations and the construction of any new station should comply with the Common Safety Method for Risk Evaluation and Assessment (CSM Regs).

2.4.2 Network Rail Approvals Processes
Any development of or changes to Network Rail's property require a number of approvals from Network Rail and may also need approval from the ORR and the TOC.

Design approvals required include the following:

→ Technical Design Approvals: typically forms 001, 002 and 004. The approval process is typically managed by the Project Manager's engineer

→ Landlord's Approvals: approval for third party works and impacts on NR property. This is typically managed by the relevant Station Portfolio Surveyor

→ Station Change Procedure: where a formal change is required to the agreement with the TOC for access and occupancy arrangements within station premises. This requires approval from the ORR

→ Closure: where part of a contracted facility is reduced or removed as part of a works proposal. This should be agreed formally with the ORR, the DfT and the affected TOC

2.4.3 Planning Approvals
At a national level planning guidance on transport infrastructure differs across Great Britain. In England this is provided by the National Planning Policy Framework, in Wales by the Planning (Wales) Act 2015, and in Scotland by the National Planning Framework 3.

Network Rail as a Statutory Undertaker has permitted development rights to undertake certain works without further planning permission. This can include alterations and modifications to existing station buildings. There is no such exemption under Listed Building Legislation, where any works impacting on such buildings normally require separate consent prior to commencement.

Any station development that involves a joint venture with a developer may require a traditional planning application procedure.

Construction of new stations is not usually possible under permitted development rights. In such cases either a planning consent, Development Consent Order (DCO), a Transport and Works Act (TWA) Order or a Transport and Works Act Scotland (TAWS) Order may be needed. Any proposal should be assessed to assure the correct approach is taken as various thresholds and differences apply depending on the type of development proposed and where it is in Great Britain.

Where permitted development is being used, early consultation with the Local Planning Authority (LPA) is important. The LPA is still able to exert an influence over the design and location of the proposed works, and in certain instances 'prior approval' from the LPA may also be required before construction starts

Interpretation of the various planning acts and related legislation is a specialised field and should always be referred to the National Town Planning Team at NR for guidance on the use of this legislation, including when permitted development rights apply. Project budget and timing implications should be checked at an early GRIP stage for an idea of the likely complexity and to identify the risks to cost and programme.

Standards Reference

Design Standards for Accessible Railway Stations, Department for Transport

Project Definition

2.4 Project Approvals

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2.4.4 Railway Industry Approvals

As a Statutory Undertaker certain types of legislation do not apply or are not relevant. Conversely in addition to nationally applicable legislation, additional provisions and procedures apply specifically to the railway industry. Prior to the commencement of any design commission or any contract works, guidance should be sought from Network Rail to fully understand which apply.

The overall design should satisfy the following:

→ Provide suitable capacity and facilities to meet the project objectives

→ Comply with relevant European and National standards to assure the construction, operation, maintenance and renewal of the facility can be achieved safely and straightforwardly

→ Have regard to the Heritage requirements

→ Satisfy either the NR or train operator design standards as appropriate

Detailed technical and legislative issues may apply, for instance track curvature, signal sighting, and proximity of track. These can have a material impact on the concept and therefore need to be factored in at an early stage. There may also be other railway upgrades under consideration that may have a bearing on the project. Network Rail is well placed to offer guidance on these issues.

2.4.5 Interdisciplinary Design Coordination (IDC)

The design team carry out an assessment to confirm that the design information is correct and meets the requirements of all aspects that the design should be interfacing with.

2.4.6 Interdisciplinary Design Review (IDR)

A review is undertaken by the Designated Project Engineer (DPE) to confirm that the design information that has been submitted for acceptance appears to be correct and meets the requirements of all interfacing designs and assets. The design team should prepare and present the information in a clear way to assist this review. Issues arising from the IDR should be recorded in an action tracker register, so that they can be managed and resolved before IDR close-out.

2.4.7 Building Regulations

All new works in England and Wales should be designed to comply with the England and Wales Building Regulations and all appropriate codes of practice. In Scotland all new works should be designed to comply with the Scottish Building Regulations and all appropriate codes of practice.

Project Definition
2.5 Rail Industry Structure

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2.5.1 Network Rail (NR)

Network Rail is the owner of rail infrastructure including track, bridges, tunnels and the freehold of most stations. It is accountable for the operation, maintenance and renewal of network assets.

The typical arrangement for a new station is for Network Rail to be the long-term owner of any new or replacement station, with a TOC taking on the role of Station Facility Owner (SFO).

2.5.2 Department for Transport (DfT)

The DfT has overarching responsibility for rail strategy and is the franchising authority for passenger rail services provided by franchised TOCs in England. Transport Scotland and Transport for Wales are established in their respective countries. This means that approval or authorisation should be sought from the DfT if:

→   A franchised TOC is expected to serve a new station

→   Any investment impacts on the long-term finances of a franchisee

→   Third-party proposals include a change in the specified service of a franchised operator

The DfT also requires any proposal to have used its Transport Analysis Guidance (TAG) process to demonstrate a robust business case.

2.5.3 Office of Rail and Road (ORR)

The ORR is the independent economic and safety regulator for the whole rail network in Great Britain. It issues and modifies licences to operate trains and stations. It also approves and may amend contracts for access to track, stations and light maintenance depots. Each TOC requires a contract to enable its trains to call at any stations of which it is not the Station Facility Owner (SFO). This is referred to as an access agreement. The ORR needs to approve any new or amended station access agreements.

Any material physical change to existing station facilities require a 'Station Change' which has the effect of changing the terms of a station access agreement and should therefore require ORR approval.

New stations and major works to existing stations requiring Technical Specifications for Operability (TSIs) to be applied require Authorisation from the ORR.

2.5.4 Franchised Train Operating Companies (TOCs)

Franchised TOCs operate passenger train services and act as SFOs at specified stations on their route. As an SFO they lease the buildings and land for the duration of their franchise. They are responsible for general upkeep, cleaning, security and maintenance of the station and car park areas. They may also fund station improvements e.g. retail upgrades, where this may contribute to increased revenue over the course of their franchise. As the day to day station operators, TOCs have invaluable knowledge about the needs of their customer and the issues that need to be addressed. They should be involved in any proposal from an early stage.

Station Design Guidance
Station Planning Guidance

3

Image 3.1
King's Cross station
route to platforms

Station Planning Guidance
3.1 Station Categorisation

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Stations are categorised into six types, determined by the frequency of usage of the station and complexity of interchange. A summary of the station types is shown below.

Any project involving an existing station should be driven by the need to increase capacity or to improve existing facilities. Capacity and congestion issues do not only impact the larger and busier stations. Even stations in Category F can experience congestion problems, especially if they serve mass entertainment venues with large peaks of activity, such as Wembley Stadium.

Network Rail's Station Capacity Assessment Guidance provides guidance on how to assess existing stations and develop proposals to assure that the public circulation in stations is safe and convenient.

Appendix B lists the passenger amenities and facilities that should be provided for each station category.

	No.	Type	Journeys made and revenue generated, per annum
A	28	National Hub	Over 2m trips: over £20m
B	67	Regional Interchange	Over 2m trips: over £20m
C	248	Important Feeder	0.5–2m trips: £2–20m
D	298	Medium Staffed	0.25–0.5m trips: £1–2m
E	695	Small Staffed	Under 0.25m trips: Under £1m
F	1,200	Small Unstaffed	Under 0.25m trips: Under £1m
	2,536		

Category A — National Hub
The largest stations, these are major termini or interchanges. Examples include Birmingham New Street, London King's Cross and Cardiff Central.
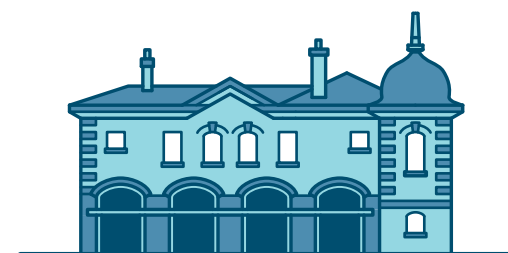
Category B — Regional Interchange
These stations are key hubs on the network, serving cities and major towns, or acting as interchanges. Examples include Cambridge, Derby and Clapham Junction.
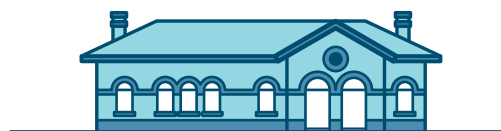
Category D — Medium Staffed
These stations serve inter-urban business or a particularly high volume of urban commuting.

Figure 3.1
DfT Station Categogisation A- F

Category F — Small Unstaffed
These amount to almost half of the stations on the network. These stations serve local communities and can vary widely in terms of size and facilities provided. They often have a surprisingly large station building as part of a historic legacy, with a civic presence that defines the character of the immediate area.

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3.2 Station Planning and Sizing

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Image 3.2
Plan of Charing Cross Station, showing passenger flows
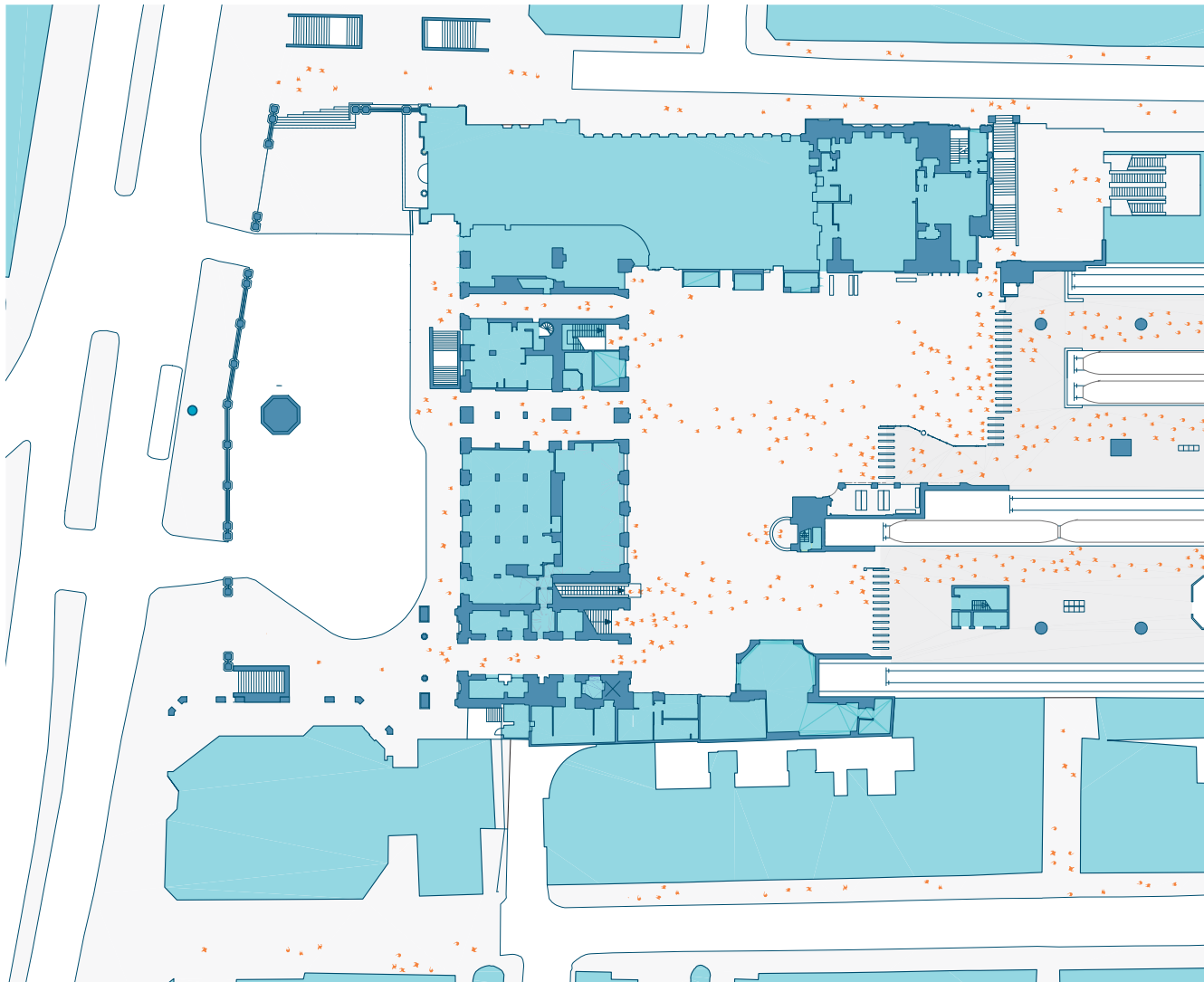
'Only architecture that considers human scale and interaction is successful architecture'
Jan Gehl

3.2.1 Station Planning
Good station design is a sequence of steps, from initial concepts, through to the exploration of alternatives to a detailed preferred option.

Each intervention is an opportunity to enhance the network, and meet or exceed the design ambition of the UK's railway in the 21st century.

Stations need to be planned and sized to meet long term forecasts for passenger flows a changing demographic of users and resulting train service patterns. With rising demand there is a need for new stairs, lifts, entrances and connections, major changes such as new platforms and even new stations.

The following 6 steps summarise the sequence of station planning.

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Figure 3.1
Levels of Service (LOS) A to F

08:30 AM 2061

Figure 3.2
Passenger movement at Gatelines
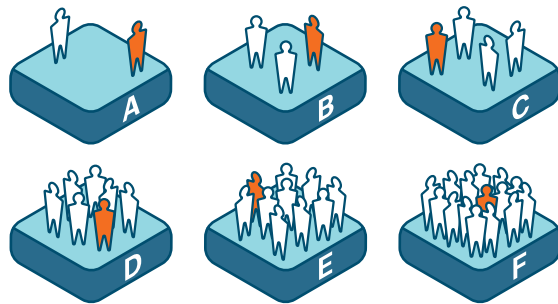
3.2.2 Define the comfortable passenger density to be met

American academic J.J. Fruin gave definition to comfortable passenger densities in the 1960s, a codification that is still used today around the world by transport authorities. He defined the 'levels of service' (LOS) from LOS A, corresponding to free-flowing movement, to LOS F where the passenger density makes any walking movement difficult.

The rail industry has adopted a range of these density standards dependent on their location, from LOS B/C on platforms to LOS D at ticket gates where the gathering of passengers is momentary.

These design criteria apply in normal operations, with higher densities permitted during abnormal, degraded or emergency conditions.

Level of Service (A–F):
Description for queuing areas, walkways and stairways.
A: Free circulation.

B: Uni-directional flows and free circulation. Reverse and cross-flows with only minor conflicts.

C: Slightly restricted circulation due to difficulty in passing others.

D: Restricted circulation for most pedestrians. Significant difficulty for reverse and cross-flows.

E: Restricted circulation for all pedestrians. Intermittent stoppages and serious difficulties for reverse and cross-flows.

F: Complete breakdown in traffic flow with many stoppages.

Descriptions Credit TfL 2012

3.2.3 Assess the numbers of passengers travelling

Station capacity assessments are based on forecast passenger demand for a defined time period in the future, normally the busy morning and afternoon peaks as passengers travel to and return from work. The total forecast number of entering and exiting passengers are factored up by 25% to allow train service disruption. These forecasts typically include detail on passenger numbers interchanging within the station and choice of onward destinations.

Demand forecasts are either provided by or verified by Network Rail's Station Capacity Team.

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Figure 3.2
Movement pattern on a bridge

Figure 3.3
Movement patterns at the bottom of an escalator

Good space provision is particularly necessary where passengers are queuing or making a decision. Accordingly, run-off or queuing zones are mandated for certain station elements. The lengths of these are defined but vary according to the element. For run-off zones these also vary depending on what is beyond the end of the zone.

→ **Run-off zones apply to:** Escalators, moving walkways, stairs and gate-lines

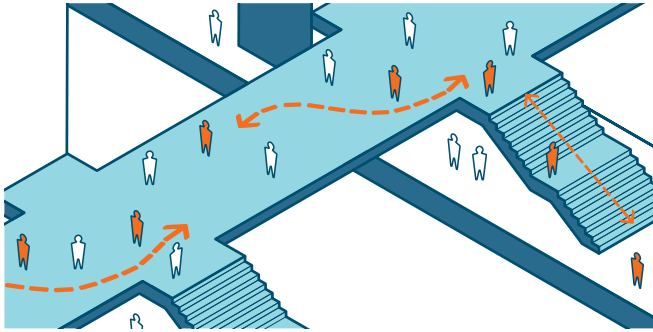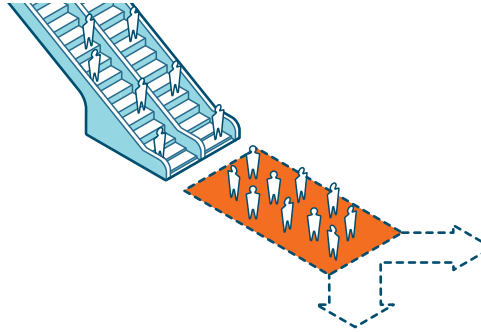→ **Queuing zones apply to:** Ticket machines, ticket windows and lifts

3.2.4 Establish the pattern of movement
Analysis of these forecasts gives a good indication of passenger numbers and an understanding of interchange and entry/exit movements that establish desire lines through the station. The design should be considering intuitive wayfinding, good visibility, and fast and slow spaces at an early stage. These contrast between the focus on movement from point to point, and where people are likely to sit or stand, for instance in front of passenger information screens or where food and beverage is served.

A key aspect of station design is dealing with changes of level as passengers cross above tracks or in response to variations in existing site levels.
The optimum arrangement of routes and vertical circulation (lifts, stairs, and escalators) may determine the success of a legible station layout..

3.2.5 Make space for passenger movement
Having established the passenger numbers and patterns of movement, the key station elements can be sized using clearly defined formulae set out in the Network Rail Station Capacity Planning guidance, with m2 per person used for calculating areas and numbers of people per minute per metre width used for calculating routes.

Refer to Capacity
in the Design Considerations Toolkit

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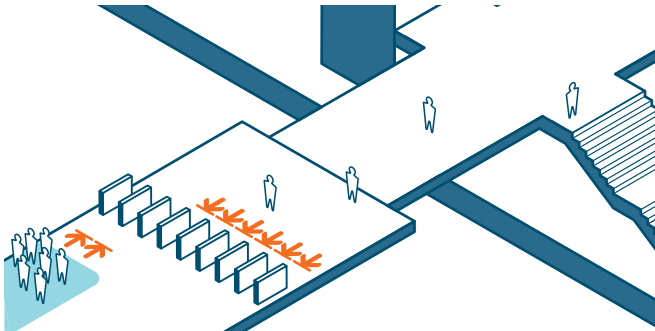March 2021

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Figure 3.4
Control of movement with gates

3.2.6 Develop an operational concept

An operational concept should define how the station passenger flows work at different times of day, how they are managed at peak times and in the event of routine stresses.

The operational concept should define passenger holding areas and measures to manage the platforms and prevent them from becoming overcrowded.

Signage and wayfinding have a key role to play in defining routes and directing flows of people through the station. Variable or switchable signage may be used to alternate routes at different times of day or to deal with specific events or pressures.

3.2.7 Abnormal, degraded and emergency situations

It is important to assure that a station continues to function acceptably during abnormal scenarios including significant delay to trains, construction activity or special events.

Station occupancy at the time of evacuation is based on peak usage, and incorporates a five minute delay to the scheduled train service in the busiest direction only. Two scenarios are considered to replicate the most onerous conditions:

→ A train arriving on fire in the peak period

→ A station fire occurring in the peak period in a location blocking the exit with the greatest capacity

Emergency evacuation of all or part of a station should meet maximum escape times. Key elements and areas of the station need to be stress tested in collaboration with the Fire Safety Engineer to formulate a tailored station fire evacuation plan.

A Threat, Vulnerability and Risk Assessment (TVRA) needs to be carried out. The DFT's Security In Design Of Stations (SIDOS) needs to be considered early in the design stage. ASD and OSD elements have implications for emergency escape. Refer to section 4.10 for ASD and OSD considerations.

NR Guidance Suite Reference

Wayfinding
NR/GN/CIV/300/01

Station Planning Guidance
3.3 Putting the Passenger First

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'Passengers are the lifeblood of our business. Good design helps to maximise capacity while at the same time making the network a better and more accessible place for passengers'

Our principles of Good Design

3.3.1 Passenger Experience
1.7 billion journeys are made by rail a year in the UK, and this figure is forecast to double within the next 25 years. Passenger growth needs to be supported by new infrastructure and rolling stock of a quality that attracts and retains users.

For a great experience that meets the needs of passengers today and in the future, stations and rail systems have to provide a seamless sequence of functions and experiences, from journey planning to arrival, ticketing, waiting and boarding. Extensive passenger surveys provide the answers to what passengers want from their stations. The main drivers to overall passenger satisfaction are:

Generous Barrier-free Spaces

That are easy to navigate. The aim is to create 'legible environments' that are simple, coherent and understandable. These should be spaces that are convenient for all regardless of levels of ability or mobility.

Information

At all stages of the journey in and beyond the station through clear, consistent signage, supported by available and helpful staff and mobile technology.

Facilities

For welfare, for shopping, for food and beverage outlets that are convenient to use whilst travelling, often with little time to spare.

High-quality Environments

Offering all-weather protection, with safe and secure spaces to walk, stand and sit. Well maintained environments with good standards of cleanliness.

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3.3 Putting the Passenger First

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3.3.2 Delight
In addition to the functional criteria such as reliability or security that typically figure highest in customer satisfaction surveys, there are other, less tangible characteristics of stations that combine to deliver 'Delight' and travel that lifts the spirits, encouraging repeat use of the rail network and growth in passenger numbers. Travelling by rail engages all the senses in ways that people are unlikely to identify without prompting but would miss if they weren't part of the passenger and railway experience.

Image 3.3
Margate station

3.3.3 Light
Daylight and sunlight is animated light, alternately bright or shaded, and shifting over the daily and annual cycle. Stations should be designed to be naturally daylit wherever possible. This doesn't necessitate all glass, which in any case risks discomfort of glare or over-heating. A space can be fully daylit with carefully located glazed openings in the roof and facade that can be used to draw attention to parts of the building or be an aid to navigation and support instinctive wayfinding. Natural light should be complimented by the artificial lighting design, which provides flexibility for both functional and decorative lighting.

3.3.4 Volume
Major city termini often have a grand, cathedral scale on the inside, but even the scale of smaller local stations, through a careful consideration of volume and proportions, can provide a sense of generous space that encourages passengers to pause and take a breath.

3.3.5 Sound
Good acoustics in stations are important so that passenger information and announcements are intelligible and easy to hear, but allow people to notice the other sounds of the station, of the trains themselves or the sound of many conversations happening at once. Pianos have been appearing in stations for over a decade; prominently positioned, they encourage passing passengers to play, overlaying other sounds with a joyful drifting note of music.

3.3.6 Touch
There are relatively few 'touch' points in a station and this has decreased further with the advent of contactless and electronic tickets. Where there is a requirement to sit or touch: passenger seating, handrails or door handles for instance, the tactile quality of materials matter. For example, the use of seating that is warm to the touch can be a small but welcome part of the passenger journey.

3.3.7 Colour and Pattern
The colour palette within stations should be predominantly neutral to generate a calm atmosphere and allow wayfinding information to stand out. But neutral doesn't equate to bland. The combination of base materials: the multiple colours of stone or brickwork, grey slate, the warmth of timber or light catching on metal, create an inherently rich backdrop. Against this, bright or distinct colours pop to highlight particular elements: benches, handrails or the structural frame. Certain colours become a signature, indelibly linked to the station, and become part of its heritage, for instance the orange and brown of Wemyss Bay, or the rich dark blue at Brighton or Waterloo.

Refer to Delight
in the Design Considerations Toolkit

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3.4 Inclusive Design

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Inclusive design is a process that aims to deliver spaces and places for everyone. When achieved it means that everyone benefits from the full range of services and opportunities that Network Rail can offer.

It's NR policy to put people at the heart of the design process, ensuring passengers can use the railway safely, easily and with dignity. This means that one design solution does not fit all, and designers should carefully consider how people move through station including those with cognitive, sensory and mobility disabilities and passengers with pushchairs, luggage and cycles.

A fully inclusive station also has wider societal benefits, connecting people to their jobs, schools and colleges, shops, hospitals, open spaces, leisure facilities and their families and friends. An inclusive rail network assures that everyone can make those connections, and play an active role in their local community and contributing to their local economy.

The UK's demographic is changing and fast becoming an ageing society. Providing buildings and environments that are convenient and accessible should help to future-proof the railway for an ageing population and increased incidence of disability. Designers should be supported by Network Rail's

Diversity and Inclusion Team who should provide guidance based on their extensive knowledge and expertise, supplemented by professional advice from elsewhere within Network Rail and from specialist external organisations.

As inclusive infrastructure is delivered across the network all passengers should be happier, as many of the things that support disabled and older passengers, like good signage, lighting, extra seating and unobstructed pedestrian routes help everyone to move safely, quickly and in comfort though the stations.

Inclusive design is an important part of the assurance process through which NR has many legal obligations including but not limited to:

→   The Equality Act 2010

→   National Planning Policy Framework

→   Persons of Reduced Mobility Technical Specification for Interoperability

→   Design Standards for Accessible Railway Stations: A Code of Practice

→   Building Regulations

For the best project outcomes projects should engage with disabled and older people, as well as inclusive design experts. In support of this process the NR Built Environment Access Panel (BEAP) provides expert technical and strategic advice to project teams, particularly on major, challenging or contentious projects.

From the outset of a project a Diversity Impact Assessment should be produced to evidence structured decision making in relation to the needs of all people, particularly the proctected characteristics defined by law (Equality Act).

Inclusive design should be the ultimate goal of every designer, client team and facility manager. It has relevance to the whole estate including: stations, offices, depots, level crossings and footbridges.

Refer to Accessibility and Inclusion in the Design Considerations Toolkit

NR Guidance Suite Reference

Inclusive Design
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Station Planning Guidance
3.5 Passenger Facilities

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3.5.1 Station Facilities

Passengers on their journeys benefit from supporting facilities such as toilets, access to food and drink and places to comfortably wait for trains. These are highly valued in passenger surveys and need to be considered in design at an early stage.

Inclusive design should consider from the very beginning how buildings and environments might be easily used and enjoyed by everyone.

They should be inherently:

→ Welcoming to everyone

→ Responsive to people's needs

→ Intuitive to use

→ Flexible and adaptable

→ Offer choice when a single design solution cannot meet all user need

→ Convenient to use without undue effort so as to maximise independence

3.5.2 Toilets
Customer feedback clearly indicates the importance of quality, security and environment within station WCs.

There is currently a move towards free-to-use WCs which has led to a significant uplift in user numbers. Designs need to be robust enough to cope with high levels of demand. Public toilets are to be provided in a supervised location, generally within paid concourse areas, and designed for peak station occupancy. Toilets should be designed to be accessible for all passengers. Toilet provision should be equitable and should address the historic under provision of female WCs and hand washing facilities.

It is important that all WCs are accessible and laid out prescriptively as per the design guidance to maximise the effectiveness of the facility in meeting the needs of the widest range of people.

3.5.3 Waiting areas
Paid concourse and platform areas should be provided with waiting areas appropriate to the station function, use and capacity. Waiting rooms and platform shelters with good weather protection are important for a wide range of rail users including parents with young children and disabled people.

These facilities require sufficient space to accommodate wheelchair users, parents with buggies and suitable seating for ambulant disabled people.

Waiting rooms and shelters also require access to train information, including clear sightlines of customer information screens (CIS) and clearly audible public address (PA) announcements.

NR Guidance Suite Reference

Public Toilets In Managed Stations
NR/GN/CIV/200/04

Station Planning Guidance
3.6 Retail and Social Enterprise

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Image 3.4 Retail units at Glasgow Central station

'The social demographics of the local area are understood and the station is developed in a way which elevates local people's quality of experience. Opportunities to benefit the wider community are identified and captured through the design development process.'

Our principles of Good Design

The integration of social and commercial activity with transport facilities is strongly encouraged. It supports economic viability and a positive public perception of the railway. The extent of these activities should be determined by location.

In the 'station renaissance' in the UK, stations enjoying high footfall, such as King's Cross, Waterloo and Birmingham New Street have become successful destinations, attracting non-travelling visitors and local people. Small stations too can benefit from the addition of retail activity, which has the positive effects of increasing surveillance, promoting social interaction and satisfying customer needs.

In the case of large stations there is a clear need for each station to adopt a masterplan to allow any commercial development to be integrated with the station's operational requirements. With the increase of activities around the station there should also be an increased demand on the operators to provide additional services such as cycle parking and additional toilet facilities.

Social enterprise outlets, community and market space, meanwhile uses and temporary retail and pop-up uses should also be considered. Examples of these are set out on the following page.

Additional guidance for promoters investing in railway stations can be provided by Network Rail Group Strategy & Planning.

Station Planning Guidance
3.6 Retail and Social Enterprise

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3.6.1 Social Enterprise
Social Enterprises can be initiated by the station team, the TOC, or by other groups that come together to propose ideas.

Change Please is a social enterprise which is tackling homelessness by training people living on the streets to become baristas. Their kiosks are now available in London Underground stations and on-board some West Coast Main Line trains.

At Preston station a cycle hub was opened along with a small branch of family run Leisure Lake Bikes.

3.6.2 Encouraging a diverse range of retail
Some schemes rent out spaces on a very short term basis, encouraging start-ups and pop-up, along with a whole range of occupants that would not otherwise be able to have a tenancy in a train station.

Appear Here is one example, and has sites in a range of stations including Old Street Underground station and Newcastle Central station. Tenancies can vary from bookings of under a week to several months. They are typically much smaller spaces than typical station retail outlets.

3.6.3 Providing meanwhile uses
For areas that are awaiting redevelopment or are underutilised, meanwhile uses can generate interest and attract tenants that may prefer shorter term lets. They can also generate local excitement and provide more sense of community than traditional retail.

3.6.4 Market Uses
Station Forecourts and external areas that have high footfall could be suited to market uses.
Examples include food markets and farmers markets. These should be held at published regular intervals. Infrastructure such as pop-up power should be provided.

A weekly Farmers Market takes place at the forecourt of West Hampstead Thameslink station, organised by London Farmers' Markets.

3.6.5 Supporting the local economy
Where possible, local contractors should be prioritised for station works and servicing contracts. Contracts and staff recruitment should be advertised locally.

Additional guidance for promoters investing in railway stations can be provided by Network Rail Group Strategy & Planning.

Image 3.5
Short Term Let Unit — Old Street station

Image 3.6
Social Enterprise — Change Please Coffee

Refer to Retail, Social and Business in the Design Considerations Toolkit

Image 3.7
King's Cross square

Station Planning Guidance
3.7 Sustainability

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'We believe that outstanding environmental performance is a central part of being a responsible and successful company. We look for the best ways to minimise the impact of our work — as well as how we can positively change, protect and enhance Britain's environment'

Network Rail

3.7.1 Sustainable Railway
The aim is to create a railway fit for the future, and buildings that help respond to environmental challenges rather than contribute to them. The UK's railways are already one of the greenest transport modes, but there is a long way to go to achieve carbon zero stations and journeys.

Network Rail recognises the UK Government's commitment to a legally binding target of net zero emissions by 2050. Network Rail's De-carbonisation Programme has established ambitious key performance indicators for carbon assessment for its built assets so they are both built and managed sustainably.

The strategy also adopts a broader view of sustainability encompassing the social and economic impacts of development. It calls for station buildings and infrastructure to benefit local economies, support the needs of local communities and, where possible, support wider regeneration and development schemes.

3.7.2 Whole Life Carbon
Reducing carbon emissions applies across design, construction, operation and decommissioning of the station.

The orientation of buildings, their heights and shape may all have an impact on the extent to which solar gain, natural light and passive ventilation strategies can be employed to lower energy use and operational carbon. Cost benefit analysis with a whole life cost perspective can identify suitable renewable energy strategies.

Recycled or natural materials often have much lower embodied carbon, and some materials can be carbon negative. Conversely, robust materials and details with a long design life and low maintenance requirements may have higher embodied carbon but ultimately be lower carbon over their life span.

The RSSB have produced the Rail Carbon tool to help calculate, assess, analyse, report and reduce the carbon footprint of stations. This is a web-based tool available on the RSSB website.

Station Planning Guidance

3.7 Sustainability

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3.7.3 Environmental and Social Appraisal (ESA)

The ESA is an NR tool that generates project checklists and requirements for a range of environmental and social considerations. This is tailored to each project, based on project scope and activities. This tool should be used from the very beginning of project planning, and then iteratively throughout the design process.

3.7.4 Third-party Environment Assessments

BREEAM (Building Research Establishment Environmental Assessment Methodology) and CEEQUAL (Civil Engineering Quality Assessment) are internationally recognised independent environmental assessment methodologies for rating and certifying the sustainability of buildings. NR Standard NR/L2/ENV/015 stipulates the use of BREEAM Refurbishment and Fit or New Construction for buildings and CEEQUAL for infrastructure and public realm. Any new or refurbishment work should attain a minimum 'very good' BEEAM rating. Clear guidance for how to achieve certification is available from BREEAM.

The BREEAM tools provide post-handover after-care to the building occupant during the first year of occupation to assure the building operates in accordance with design intent and operational demands.

3.7.5 Ecology / Biodiversity planning and management

Ecological surveys should be used to determine the baseline ecological value of the site, direct and indirect risks to the ecological value and enhancement potential. Opportunities should be taken to provide planting and habitats in order to achieve a minimum of 'no net loss' in the realised project and, where possible, 'net positive' biodiversity.

3.7.6 Climate Resilience and Climate Change

Projects should consider current and future vulnerability of the station to weather impacts, such as susceptibility to site flooding, or extreme weather including high winds, extreme temperatures and heavy rainfall. These vulnerabilities may be exacerbated by the effects of climate change which may alter the severity, frequency and impact of weather events. Climate Change Projections Guidance and Route Plans can help provide predictions of future climate changes at each location.

3.7.7 Post Occupancy Evaluation

Predicted performance can vary wildly from actual performance. Evaluating how buildings actually perform may help to put in place a cycle of continuous improvement. Post Occupancy Evaluations should be used to monitor and evaluate project compliance with targets, successes and challenges. It is important to feed this information back within NR so that lessons can be learned and shared with future projects. Refer to Section 5.5 for more information on Post Occupancy Evaluations.

Standards Reference
Environment and Social Minimum Requirements NR/L2/ENV/015

Standards Reference
Biodiversity Manual NR/L2/ENV/122

Station Planning Guidance
3.7 Sustainability

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3.7.1 Sustainability Driven Design

Despite the fact the key principles of Sustainable Design are well-established there are very few examples of stations, either in the UK or globally, that have used this as their driving principle. In the UK this is largely because of the maturity of the rail estate; most station works upgrade existing stations rather than build new ones, which limits what's achievable. Truly sustainable stations are still seen as the fringe, but the expectation is that this will continue to shift. The examples presented here begin to show how this might happen, and the ways in which station form, configuration or location can present opportunities for sustainability.

Blackfriars station (opened 2012) spans the River Thames and makes use of existing disused piers. The location provided the opportunity during construction to remove and deliver materials via barges along the river, significantly reducing lorry movements and associated CO_2 emissions in the centre of London. A roof covers the full length of the platforms and was designed with a sawtooth profile that incorporates both the largest solar array in the UK at the time and natural clerestory daylighting.

Horrem Station (opened 2014) is a Sustainability pilot project for Deutsche Bahn. It was Germany's first carbon-neutral train station, built from a predominantly timber structure. All the building's heating and cooling systems are powered by on-site solar and geothermal renewable energy sources. The station is daylit from large skylights and full height glazed walls. This is supplemented by low-energy artificial lighting.
A green roof supports rainwater harvesting.

Accrington Station (opened 2010) is a very small station built as an eco-station case study. It is constructed from locally sourced and recycled materials, and incorporates rainwater harvesting, solar hot water generation and photovoltaics within a small footprint.

Image 3.8 — Horrem station, Germany
Horrem is the first carbon zero station in Germany

Image 3.9 — Accrington station
Accrington makes extensive use of low carbon materials, and passive design methods

Refer to Environment
in the Design Considerations Toolkit

Station Planning Guidance
3.8 Local Context

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'Local communities are placed at the heart of decisions'

Our principles of Good Design

3.8.1 Location
Any major intervention in an existing or new station should take into account the aspirations of the people using it or affected by it. A station and its integration with the surrounding context regularly provide the first impression of an area and are therefore incredibly important, both in representing the area and as a catalyst for further development.

3.8.2 Stakeholders
It is important to engage with the local authority, to integrate station proposals with local plans, masterplans and transport policies. Similarly, building an early relationship with all stakeholders is the best basis for a project and also a good way to understand and capture site specific requirements. Tapping into local knowledge often reveals issues that could not otherwise have been known and allows the designer to understand the aspects that make a location unique.

3.8.3 Local Benefit
By understanding the social character, demographics and issues of the area surrounding the station the emerging design may be able to make a positive contribution to the local life and place the station at the heart of a community. This could include upgrading or creating new connections, or creating a public space for community uses and services.

Image 3.10
Kilmarnock station
At Kilmarnock station several rooms at platform level that are no longer required for station purposes have been made available for market and retail unit use by community groups, in a project known as the Kilmarnock Station Community Village. The station provides sufficient footfall to sustain the market, and it has in turn created demand for the station.

Station Planning Guidance
3.8 Local Context

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3.8.1 Examples
Examples of successful community initiatives can take many forms.

Generating Community Engagement
At Thessaly Road a competition was organised by the London Festival of Architecture (LFA) and Wandsworth Council. The route provides a key link to the Battersea and Nine Elms area redevelopment, but was previously dingy and uninspiring. Six proposals were short-listed, and the practices were introduced to residents, members of the local community and key stakeholders. This helped inform the designers with the needs and desires of the local community as they developed their final proposals.

At Kilmarnock station, the TOC commissioned a community art organisation to lead an art project for the refurbishment of the station subway. The project assured that local knowledge and participation was at the heart of the process.

This type of project helps to engender a sense of community ownership and pride in these assets.

Planting and providing biodiversity on platforms
The Bee Friendly Society work with railway authorities, community rail partnerships, and local groups across the UK to install bee-friendly flowering planters, fruit tree orchards and micro wildlife gardens on railway station platforms. They have installed planters at a large number of stations across the South East and South West that are low maintenance and flower throughout the year. This benefits both commuter well-being and biodiversity.

Cycle Surgeries/Workshops
Southern Railway (TOC) run cycle surgeries with the British Transport Police (BTP). At these, BTP share advice on securing cycles and stencil attendees bike frames with a unique serial number. These surgeries act as a deterrent to crime, allow BTP to engage with the public and offer crime prevention advice and solutions.

Image 3.11 — Thessaly Road Bridge — Nine Elms
Revitalisation of a bridge under the railway as part of the London Festival of Architecture

Image 3.12 — The Bee Friendly Trust — Tisbury station
A planter provided by The Bee Friendly Trust, providing food sources for foraging bees.

Station Planning Guidance
3.9 Art in Stations

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3.9.1 Station Art
Art in stations can be part of a station project or be commissioned independently.

Good art often engages with the station and our environment. It respond to, reacts to or challenges the context, enabling those using the space to see it with fresh eyes.

A clear brief that sets out the scale of the art, the scope, the budget and where it should sit may help to provide guidance to artists. At the same time, the brief needs to allow flexibility for the artist to respond and challenge ideas and expectations.

3.9.2 Commissioning Art
Considering and commissioning art early on in the design process provides more time to select artists, and to engage and consult with the community.

3.9.3 Sourcing the Artist
An artist can be approached directly, nominated by other stakeholders or a community or can be selected via an open or invited competition.

Image 3.13
Platform 5, Sunderland station
— Jason Bruges Studio
This responsive artwork is comprised of glass brick with LEDs behind that create figures coming and going, simulating passengers gathering in random patterns and groups before a train arrives. Local volunteers were filmed to create the digital characters.

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3.9 Art in Stations

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3.9.4 Setting a Budget

A realistic budget should be identified early and managed through the process to avoid having to dilute or compromise the artistic intent or omit it entirely at a later stage. This is particularly important for the competition approach to appointing an Artist, which may generate a range of very different proposals with widely differing costs.

3.9.5 Coordinating Art and Architecture

Is the art standalone, applied to the finished building or fully integrated? The approach taken should affect the degree of coordination required between the Artist and Station Designers.

Integrated art can be part of a wall, soffit or floor that has to meet other technical criteria, for instance fire resistance, slip resistance or a specific design life. There may also be technical challenges to delivering a particular artistic intent or visual effect in unfamiliar materials, i.e. those that can be produced at scale and warranted to achieve the technical requirements, rather than the media the artist might usually work in.

The process of getting a building built can alienate an Artist from their original idea and leave them without a sense of ownership, as the process becomes focussed on technical detail or delivery. A need for value engineering across the project might require a rethink of the Artwork component.

All these issues risk losing or critically undermining the Artist's intent. For fully integrated art the Artist should be engaged early so that the detail of the artwork can be developed jointly with the Station Design team and these issues can be overcome.

3.9.6 Reflecting the community and local context in Art

Artwork can take the station, local context or the local community as the subject or as an inspiration. This could involve capturing the community or those that use an area. For example, at Woolwich, the Elizabeth Line station entrance creates a link with local history by incorporating a 'Woolwich rifling' motif first developed on the site in 1865 into cast bronze panels.

3.9.7 Involving the community in Art

Local groups, and the local community can be involved in the selection process once a shortlist has been developed or a range of proposals have been produced. They can also be involved through consultation with emerging designs. Local involvement can help to foster a collective sense of pride and ownership in the artwork, and ultimately the stations they sit within.
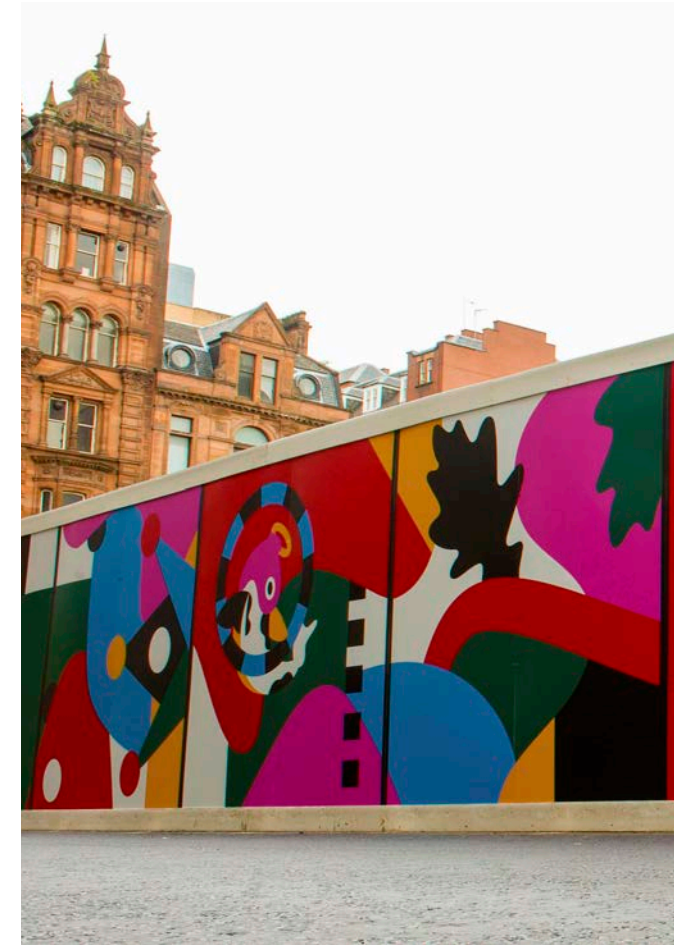

Image 3.14
Hoardings, Glasgow Queen Street station — Gabriella Marcella
Gabriela, a graduate from Glasgow School of Art, was asked to create a bold work that is modular, adaptable and unique to the setting. The art includes local motifs and railway history.

Station Planning Guidance
3.10 Protecting and Enhancing Railway Heritage

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Image 3.15
Platform canopy at Bury St Edmunds station,
Grade II listed

'The rich existing heritage of Britain's railway infrastructure is to be respected and designs developed in a sympathetic manner'

Our principles of Good Design

3.10.1 Approach
Starting with the establishment of the first rail network, the body of engineers, architects and builders have together created a rich heritage, the fabric of which needs to be celebrated and protected.

Restoration requires that the integrity of the original building is retained while at the same time allowing the intervention to achieve modern standards.

The best examples start by respecting the old building, by analysing and understanding what's important and how this can be highlighted. The main asset could be a whole façade, an internal space or particular details and should provide cues on overall form, datums or use of materials. In this way interventions that are sensitive and subtle and those that are exuberant can both be entirely appropriate.

The use of good contemporary architectural language rather than a historical pastiche is preferred, delivered through careful detailing and high quality craftsmanship to establish a dialogue between old and new.

An underused heritage building can sometimes be saved by adopting new and innovative uses, which is to be encouraged.

3.10.2 Procedures and statutory control
There are nearly 200 listed stations in the UK, and six, including Bristol Temple Meads, Newcastle and the London termini at Kings Cross and St Pancras have been given grade I status. Twelve stations have category A status, the highest grade in Scotland. All listed stations require Conservation management plans to be prepared in consultation with the Railway Heritage Trust (RHT) who act as guardians of heritage features.

The Heritage: Care and Development guide sets out procedures to follow for buildings that are listed or in a conservation area, and provides guidance for carrying our projects and maintenance works.

The Railway Heritage Designation Advisory Board (RHDAB) also defines assets that are protected by law. This is a statutory protection and there are penalties if Network Rail fails to consult and agree before making any change or disposing in any way of a designated asset or record.

NR Guidance Suite Reference

Heritage: Care and Development
NR/GN/CIV/100/05

Station Planning Guidance
3.11 Safety and Security

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3.11.1 Hazard Control

Stations should be and feel safe places. The aim is to make them inherently safe by eliminating hazards wherever possible, and managing and mitigating hazards where they cannot be eliminated.

In addition to hazards associated with any public building, hazards to be addressed in stations include:

→ The movement of people in proximity to moving trains
→ The safety of passengers and personnel in proximity to electric lines
→ Congestion within a station in normal or abnormal operating conditions and the provisions to control the behaviour of people in enclosed areas, including overcrowding
→ The provision of adequate lighting and emergency escape lighting.
→ The number, size and spacing of entrances, exits and the emergency evacuation arrangements.
→ The design should include the natural surveillance of public areas. Alcoves and dead ends should be avoided
→ Maintainability with acceptable safety criteria.
→ Mitigation of terrorism should be considered where required.

3.11.2 Threat, Vulnerability and Risk Assessment (TVRA)

TVRA is a risk assessment process, used to establish a threat profile for the project. These are used to assess a wide range of physical vulnerabilities, which are modelled and simulated.

3.11.3 British Transport Police (BTP) input and Secure Stations Scheme

The station design should follow Security in Design of Stations (SIDOS) guidance and the station should be accredited under the Secure Stations Scheme. Any security concerns need to be identified by the British Transport Police as part of Secure Station certification.

All station car park designs should be accredited under the "Park Safe" scheme.

Hostile vehicle mitigation is required in many locations. This may require offsets from road edges, with significant spatial implications, so should be considered early to integrate into the design proposals.

3.11.4 Approvals

The main areas where approvals are required are:

→ Operational safety: station operator / customer services and ORR
→ Personal safety: British Transport Police
→ National security: British Transport Police and Home Office

3.11.5 Suicide

Network Rail recognises the part it has to play in society in the role of suicide prevention. Guidance should be sought from security consultants, the Samaritans, and third parties such as mental health specialists early on in the design process
Vist website: www.railsuicideprevention.co.uk.

For advice on security technical standards and policy Group Security in Technical Authority should be the first point of contact. Group security should act as a conduit to the relevant security experts within NR.
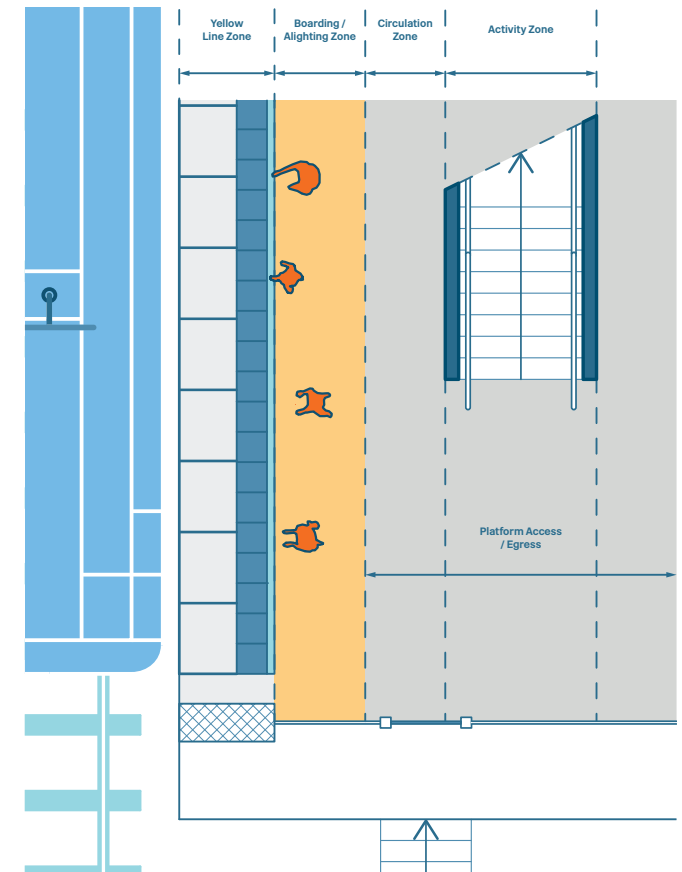

Yellow Line Zone | Boarding / Alighting Zone | Circulation Zone | Activity Zone

Platform Access / Egress

Image 3.16
Hazards at the platform and train interface

Refer to Safety
in the Design Considerations Toolkit

Station Planning Guidance
3.12 Fire Engineering

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3.12.1 Fire Engineering

Fire design may have a fundamental impact on space planning and spatial requirements. It should therefore be considered at the beginning of any project, and for most projects a fire consultant should be appointed.

Key aspects to consider include:
→ Travel distances and escape distances
→ Secondary means of escape
→ PRM passenger considerations
→ Segregation of station functions and retail, ASD /OSD and other commercial elements
→ The prevention of fire and the appropriate provisions in case of accidental or intentional fire (segregation, ventilation, suppression)
→ Use of materials and fire integrity

3.12.2 Use of materials

Materials should be non-combustible where possible. Refer to fire regulations and guidance for detailed requirements.

Structure, finishes and elements such as doors may need to achieve specific ratings for fire integrity and fire insulation when forming fire compartments. This should be defined by the project Fire Engineer as part of the Fire Strategy.

3.12.3 Subsurface Stations

Stations that contain platforms that are considered enclosed underground platforms need to comply with the Fire Precautions (Sub-surface Railway Stations) (England) Regulations 2009.

This sets out additional requirements, including areas such as:

→ Doors to be kept locked

→ Means for fighting fire

→ Means for detecting fire and giving warning in case of fire

→ Combustible matter and materials used in internal construction of premises

→ Instruction and training of persons working in premises

A platform is considered enclosed if the platform and the track are fully or partially in a tunnel; or, fully or mainly within or under a building.

A platform is considered underground if the roof or ceiling immediately above the platform and the track are at or below the ground level of any fire exit.

The platform is considered to be in a tunnel or within or under a building if more than half the length of the platform and adjacent track are covered by a tunnel or building. Refer to the regulations if unsure whether these apply to a particular station.

3.12.4 Approvals

Approval is required from Network Rail fire safety engineers and the local fire brigade. Compliance with fire regulations may be reviewed as part of the building control process.

Fire Safety Review is required at Form F001 stage and endorsement by a Fire Safety Engineer is required at GRIP 3
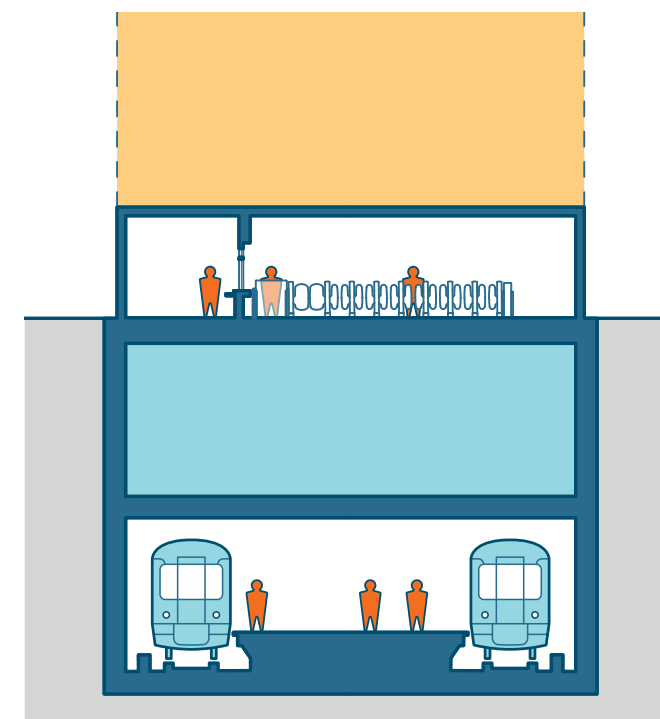

Image 3.17
Section throught a subsurface station

Station Planning Guidance
3.13 Perfomance, Reliability and Passenger Surveys

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3.13.1 Railway Performance and Reliability Targets

The station has an important role in allowing the rail industry to achieve the performance and reliability targets that are set by the DfT, and it is the designers' responsibility to assist in achieving these objectives. By ensuring adequate space for the public to access their trains in an efficient and legible way, the station plays its part in directing the flow of passengers onto the trains in a regular and predictable manner.

The size, number and location of platform entrances has an influence on passenger distribution and clearance times. Measures such as the providing canopies along the full length of the platform, and consistent widths along the length of the platform can be very effective means of distributing passengers and reducing the dwell time. Factors such as this have to be considered and integrated with capacity, safety and accessibility. The legibility of spaces, correctly designed wayfinding measures and customer information screens play a significant role in achieving optimal platform distribution and clearance.

Level platform boarding gives those with restricted mobility flexibility on where they can board the train, and removes the reliance on others to provide temporary boarding ramps. Thus can help to meet train frequency targets and should be promoted where rolling stock and platform gauging allow. It is effective when implemented as part of line upgrades as well as at individual station level.

Network Rail has standards to support the structured application of ergonomics in the development or modification of railway infrastructure and supporting systems. Human safety, health and performance can be affected by inappropriate design of equipment, work processes, working environments and passenger facilities. This can result in risks to individual staff operating or maintaining the railway infrastructure. It can also result in risks to the safety of passengers, and can impact on the efficient operation and maintenance of the infrastructure.

3.13.2 National Rail Passenger Survey

The National Rail Passenger Survey (NPRS) is produced by Transport Focus every year. The survey captures passenger satisfaction across each operator and different routes.

The survey provides feedback on facilities both in stations and on trains, and covers issues such as level of crowding and reliability. The survey contains a lot of granularity on facilities satisfaction at stations, and this information is incredibly useful at identifying what can be improved upon in future station projects.

Refer to Reliability
in the Design Considerations Toolkit

Station Planning Guidance
3.14 Designing for the Future

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'Assets should be designed to meet the requirements of a changing society…. and the next generation'

Our principles of Good Design

3.14.1 Technological change

It is predicted that over the next two decades, transport technology may change faster than at any time since the Victorian era, with cars powered by fossil fuels and internal combustion engines replaced by electric and autonomous vehicles and high-speed rail transforming journeys between major cities. The challenge for designers is to anticipate and align to the direction of change.

The starting point is an awareness of trends:

→ increased passenger numbers

→ increased number of trains, service frequency and network capacity

→ more elderly travellers

→ extended peak periods

→ changes in national climate

→ uncertain threat from terrorism

→ increased impaired mobility

→ the impact of digital /portable technology

Construction should also change and it can be assumed that trends of standardised componentry and off-site manufacture should continue. The adoption of collaborative BIM techniques and the creation of a rationalised product component/ library also represents a move away from bespoke solutions to agreed products, which should bring longer term efficiencies and assets which are fit for purpose, safe, durable/ maintainable and low carbon.

This assessment of all construction materials should take into account the life cycle stages of a product from raw material extraction to decommissioning along with objective assessments of quality, whole life cost and availability, safety and maintenance requirements.

Technological change influences the way passengers move through station spaces, they become interactive spaces responsive to user moods and requirements via smartphone applications. The way passengers access stations with no or minimal contact with control gates technology is being trialled.

Surveillance and monitoring of crowds should allow more agile control of passenger movement.
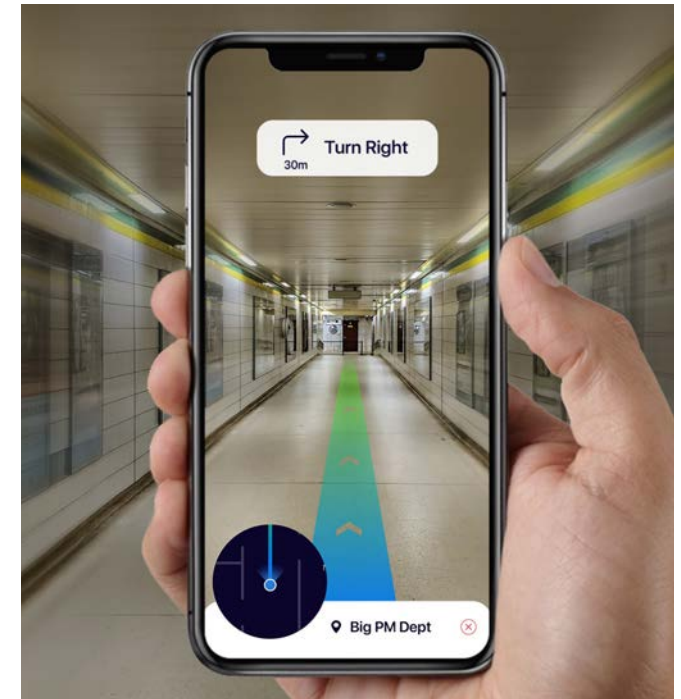

Image 3.18
Wayfinding using augmented reality

NR Guidance Suite Reference

Wayfinding
NR/GN/CIV/300/01

Project Execution
3.15 Innovation

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3.15.1 Modern Methods of Construction (MMC)

Off-site construction methods can reduce the time required on site, and the amount of disruption and track or station possessions. It offers advantages of consistency, standardisation, and for manufacturing at scale.

Off-site construction is particularly beneficial in projects taking place at operational stations, or where the project is adjacent to a live railway. Site activities often require smaller teams and worksites for the majority of the build, as site tasks become more task focused, for example installing foundations. At many stations space is very restricted, and constructing as much as possible off-site can help manage site constraints and storage.

Station elements can be constructed in modular elements, up to a maximum size that can be safely delivered to site. This is useful for elements such as footbridges, where stair components and overbridges can be craned into place as single elements, minimising disruption when working over rail infrastructure.

By carrying out fabrication in the controlled environment of a factory, different materials and techniques become available. These can be used to deliver a more efficient and higher quality outcome, or a design that could not have been achieved with traditional construction.

3.15.2 Standardisation of Components

The standardisation of components offers economies of scale, reliability and familiarity of installation, maintenance and replacement. It can also contribute towards a strong shared identity across the network. This includes small elements like handrails, platform furniture, lighting, signage, and advertising units as well as larger elements such as stairs and footbridges. The creation and use of rationalised components should be used where they can offer efficiency and enhanced quality.

3.15.3 New materials

New materials are suitable where they help to achieve a high quality design that is robust, and maintains performance and appearance without additional maintenance beyond that of traditional equivalents.

Glass Reinforced Plastic (GRP) has been used in canopies and footbridges, and requires little maintenance when compared to timber, which it often replaces. Glass Fibre Reinforced Concrete (GFRC) cladding can be created much thinner and lighter than precast or in-situ concrete, with more control over the process and finish. Also consider new ways of using traditional materials. For example, ceramics can be used as part of cladding systems, and are very durable.

When considering any material, check to make sure that it meets the required fire performance, both individually and as part of any system or construction where it is being employed.

Refer to Standardisation in the Design Considerations Toolkit

Image 3.19
Sheaf Square - public space in
front of Sheffield station

4

Station Design Guidance
Guidance on Station Elements

Guidance on Station Elements
4.1 The Passenger Journey

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4.1.1 End to end passeneger journey.
To put ourselves in a passenger's shoes, there is a need to consider all aspects of a rail journey: from planning ahead, arriving and spending time at a station, making the journey, and leaving a station at the other end.

The industry is well aware of the need to constantly improve this 'end-to-end journey' experience. Many such improvements are informed by the extensive feedback from the National Rail Passenger Survey (NRPS) which has collected passenger opinions since 1999.

The Rail Delivery Group is also developing 'Wavelength', an industry-wide monitoring tool, aiming to track performance against core passenger priorities.

The following sections track the passenger journey through the station environment and highlight key design considerations specific to each area.

NR Standards Reference

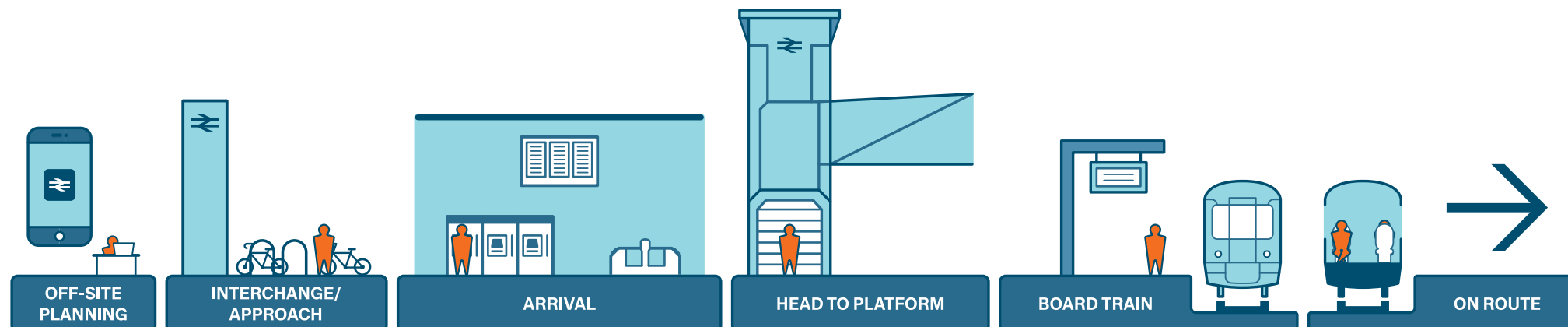Station Wayfinding Design and Assurance Procedure
NR/L2 /CIV/150

Figure 4.1
The stages of a rail journey

| OFF-SITE PLANNING | INTERCHANGE/ APPROACH | ARRIVAL | HEAD TO PLATFORM | BOARD TRAIN | ON ROUTE |

Guidance on Station Elements
4.2 The Station Public Realm

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4.2.1 Masterplan and Urban Integration

Railway stations are critical travel infrastructure components for our cities, towns and rural communities.

Proposed designs should be co-ordinated with the Local Planning authorities in which they are located, to assure integration with any wider development initiatives.

Local Plans, Area Action Plans and Supplementary Guidance may also help to reveal potential additional station design initiatives, such as new entrances, public realm proposals, location of interchange components and complimentary land use facilities within the station environment itself.

Similarly, the local planning authorities should be aware of, and understand, current and anticipated railway operations, ensuring that additional station capacity and future transport mode requirements are not precluded.

An approach that aligns to all stakeholder priorities should provide assurance that transport provision is effectively future-proofed.
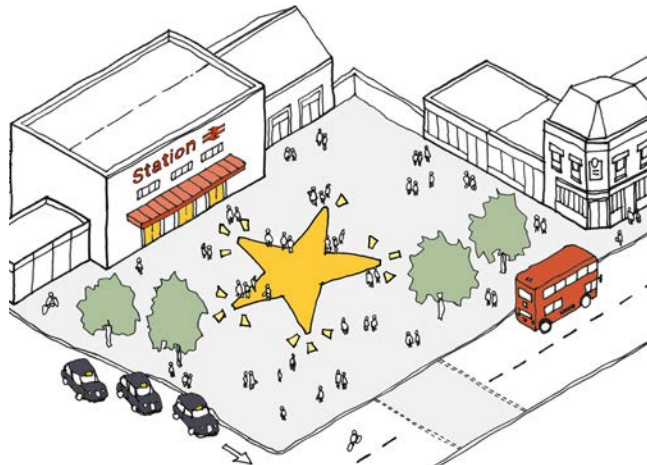

Figure 4.2
The public realm

4.2.2 Contributing to a sense of place

The station public realm is where the station engages with its surroundings, knitting the two together. It is the gateway and often the first impression of an area for visitors but equally the space that makes the station part of everyday life to those that live there. It can range in scale from a station forecourt to a major civic space. Whatever the scale it should be a space to breathe and orientate, to make a decision about what to do and where to go.

4.2.3 Determining the priorities for each station

Each station may have different needs for the public realm, varying by size of station, the needs of the local area, and the proximity to town/city centres.

Connections to other transport modes such as buses should be nearby and intuitive to transfer to. First time visitors should be able to orientate themselves, and wayfinding should feel natural, with signage only needed to assist.

Key considerations include:

→ What type of users does the station serve? Commuters? Tourists? Events?

→ What transport interchanges are the most important?

→ Which direction do passengers approach from?

→ What are the key local connections? A cluster of offices? A retail area? A business park?

→ What are the main pressures on the station? Events? Is there space to wait outside at busy times?

→ How can the Urban Realm complement the local offering?

Guidance on Station Elements
4.2 The Station Public Realm

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4.2.4 Spatial zones
Successful station public realm planning needs to balance multiple spatial zones:

→ At the entrance to the station there should be a clear area for decision making and for dealing with crowds in the event of abnormal, degraded or emergency conditions.

→ Where there is a threat of hostile vehicles or terrorism there should be a zone for vehicle stand-off, enforced by bollards or other street furniture, that limits how close vehicles can get to the station buildings

→ Social spaces should be visible, but away from passenger flows. These should be flexible, at a sufficient scale that they can accommodate a wide range of activities and flexible programming

→ Retail units with active frontage may benefit from spill out areas

→ For seating and landscaping consider the areas with more breathing space away from main flows and busy roads.
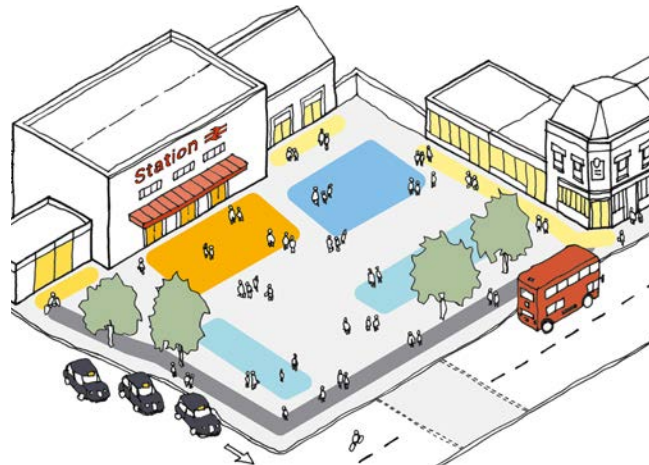

Figure 4.3
Zoning of the public realm

Figure 4.4
Planning for public activities

4.2.5 Character and Elements
The public realm should draw on the characteristics and identity of the context, and enhance the surroundings through high quality materials and space. Places that are legible and easy to navigate.

Stations generate footfall, and where there is space and sufficient demand markets and other community and retail activities can be provided. These offer convenience to passengers whilst serving local communities.

Consider aspects such as:

→ Providing spaces to gather and congregate
→ Providing slower spaces to sit or meander
→ Providing lines of sight to and from key views and on desire lines
→ Providing space for activities and events that can be managed and programmed
→ Landscaping and increasing biodiversity through trees, planting and habit creation
→ SUDS should be considered in hard landscaping
→ Using local materials, and incorporating local vernacular design elements
→ Integrating urban art and sculpture

Guidance on Station Elements
4.2 The Station Public Realm

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4.2.1 Safety, Security and Cleanliness

For these spaces to be successful it's important that they feel welcoming at any time of day or night. This means keeping them clean and free of vandalism and other anti-social behaviour. All transport infrastructure to a degree and city centre stations in particular also present high-profile targets for terrorism. To a large extent the same measures should mitigate both:

→ Maximising passive surveillance, whereby all spaces are overlooked

→ Making sure all spaces are well lit

→ Avoiding blank facades, blind corners and dead ends

→ Maximising the hours in a day when the space is activated by planned activity, whether from the station, retail or other uses

→ Gathering space providing for crowds without disrupting flows and operations of the station

→ Bollards and other vehicle control measures to keep hostile vehicles at a safe distance from the station buildings

→ Using robust materials and a low maintenance design so that it is easy and affordable to keep the space clean
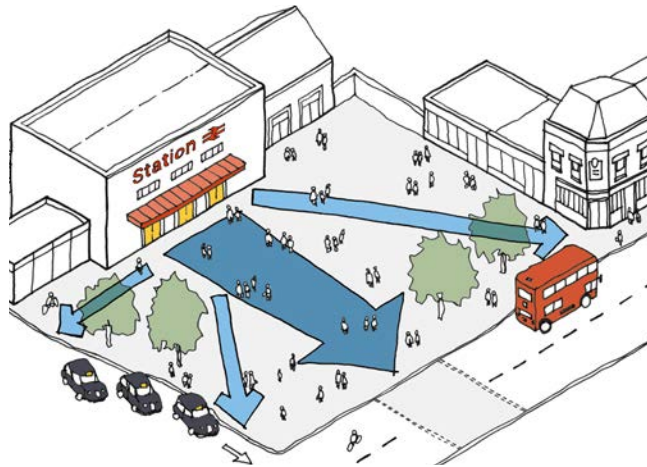

Figure 4.5
Pedestrian movement through the public realm

4.2.2 Enabling efficient Connections

Connections to other transport modes such as buses should be short, direct and intuitive. First time visitors should be able to orientate themselves, and wayfinding should feel natural, with signage only needed to assist. This is described in more detail in section 4.3.

4.2.3 Providing for vehicles

When upgrading an existing station, opportunities should be considered to reduce the space taken up by vehicles on and around station forecourts to enhance and expand the station public realm.

Service access to the station should be segregated away from the public realm and from passengers. More information on station servicing requirements can be found in section 4.7.

4.2.4 Legibility of Station Entrance

The station name and double arrow logo should feature prominently to identify the station.

The station entrance should also have a physical presence that makes it clearly identifiable.

Where the station sits amongst or as part of other development and retail, consider the visual hierarchy. The station should maintain visual prominence. Ways of helping to achieve this include:

→ Scale
→ Use of materiality to distinguish it from its surroundings
→ Continuation of materiality from inside to out
→ Providing projecting canopies. This is also important for shelter and to reduce water ingress within the station

Refer to Place and Social Considerations in the Design Considerations Toolkit

Guidance on Station Elements
4.3 Intermodal and Interchange

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4.3.1 Approach

Historically, individual transport modes have evolved at different rates and times and are subsequently not well integrated. There has also been a fragmented approach to transport governance, one in which different modes and regions are considered in isolation.

This is now changing. We are seeing the emergence of a new mobility that brings together functions such as customer information and payments across different transport modes. In time this should mean an expansion of services, more choice for consumers, greater reliability, greener journeys and lower cost. The opportunity is there to develop a genuinely integrated 21st Century transport system that provides door-to-door connectivity.

Seamless interchange is key to delivering this in reality. If changing from one form of transport to another is quick and straightforward, barely noticeable, it should encourage people to make this part of their regular journey.

The station forecourt and public realm is the interface point between the railway and other transport modes. It should consider a hierarchy of interchange:
→ Public transport options and cycle storage as close to the entrance of the station as possible
→ Taxi and Passenger Pick Up and Drop Off (PPUDO) close to the entrance
→ Blue badge car parking no more than 50m from the entrance
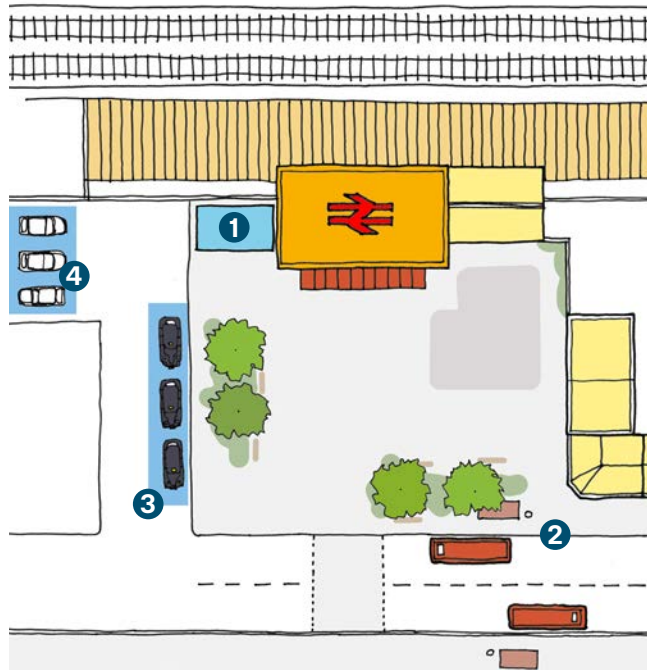→ Regular car parking can be further away, it should not obstruct or impede other journeys

Figure 4.6
Interchange at the station forecourt

1 Cycle Hub
2 Bus Stops
3 Taxi Bays
4 Blue Badge Spaces

4.3.2 Seamless interchange

To integrate transport interchange successfully at a station the following factors should be considered:

→ Journey times: Verify journey times between transport modes are kept to a minimum by reducing horizontal and vertical travel distances. Routes should be short and direct

→ Clarity of routes: Provide generous, uncluttered routes between modes with good weather protection and use clear, consistent wayfinding signage, design language and materials

→ Safety: Routes should be safe and secure, avoiding road crossings or other vehicle routes wherever possible. CCTV and natural surveillance give people confidence to use them at any time

→ Accessibility: The accessibility of a station from the drop-off point of other modes is a significant factor in many disabled and older people's ability to use the station independently. Long distances, changes in level and obstructions all make this journey more difficult

Refer to Interchange
in the Design Considerations Toolkit

Guidance on Station Elements
4.3 Intermodal and Interchange

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4.3.1 Cycling Facilities

The growth in cycling to or from stations depends on providing a big increase in cycle parking that is secure, easy to use, well organised, affordable and reliable. The Government is committed to delivering this through the Cycle Rail programme.

The location and quantum of cycle parking at stations needs careful consideration. Planned poorly, cycle parking can be unsightly and take up a lot of room and therefore be detrimental to the public realm and the setting of the station. When large numbers of cycle spaces are required, planning around individual cycle stands can quickly take up a lot of space. Two tier cycle racks provide a much greater density. When considering quantum, local demand and local design standards should be considered and followed.

Increasingly stations have dedicated cycle hubs that provide a large number of secure and enclosed cycle parking spaces. To encourage cycling they often contain helpful ancillary functions such as cycle repair and maintenance or a café. Larger facilities, for instance the Cycle Hub at Brighton Station, also include showers, changing rooms and toilet facilities as well as exercise and office space.

Cycle hire provides a means of getting cycling without the responsibility of owning one. These schemes include those provided by city Transport Authorities and independent operators. Initially these tended to make use of secure docking stations but increasingly allow cycles to be picked up and dropped off anywhere. The growth in e-bikes also has the potential to increase the market for cycling by making it accessible to people who have longer distances to travel.

Most cycles taken on trains by commuters are foldable and require little special provision. Fixed frame cycles are more likely to be taken on trains by leisure cyclists. Wide, step-free routes from entrance to platform should help people wheel these through stations and reduce the chance of obstructing other passengers.

Image 4.2
Cycle Superhub at Brookwood station

Image 4.3
Cycle storage facilities at
Portsmouth Southsea station

Guidance on Station Elements
4.4 The Concourse

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4.4.1 Entering the Station
When entering the station there should be a clear line of sight to ticketing facilities, CIS and departures information, and the gateline.

Retail grab and go provision should be located on the route between entrance to gateline without interrupting the visual legibility of the main routes through the station.

4.4.2 Concourse / Ticket Hall
In smaller stations the mediating space between the forecourt and the platforms is likely to be no more than a single room ticket hall, offering ticket facilities, information, shelter and seating. At larger stations this expands to become a concourse that acts as the heart of the station, where movement decisions are made and passengers meet, eat and shop.

At either scale the function calls for a light, welcoming space with a generous ceiling height and a calm and uncluttered ambience. There should be space for passenger flows, queuing zones and quieter spaces for waiting and meeting. Clearly visible onward routes to the forecourt in one direction and the platforms in the other should help people to move freely and avoid congestion.

Security and the perception of safety can be built in by avoiding blind corners and having clear lines of sight throughout the public areas. This supports passive surveillance, making it easier to spot both anti-social behaviour and those who may require assistance.

A visible staff presence reinforces the image of the railway as a supervised safe space for passengers.

The high footfall and passenger dwell times in the concourse make it an ideal location for retail and advertising. Commercial opportunities need to be balanced with essential railway operations, in particular they should not obscure or confuse wayfinding signage or occupy space that is necessary for key passenger movements.

4.4.3 Gateline
The gateline is the primary access control point to the railway via the platforms and often the key means of revenue control. It is the boundary between the 'paid' and 'unpaid' areas of the station. The gateline requires run-off space either side to allow for safe queuing and decision making on exit.

There is an aspiration to remove ticket gates and ticket offices and replace with digital or self-service technologies to increase capacity, reduce costs and improve customer experience, for example by freeing up station staff to circulate among or be more available to support passengers.

4.4.4 Concourse volume
Guidance on the relationship between concourse area and height can be derived from operational and historic examples.

As a rule of thumb, there should be a minimum floor to ceiling height of 5 metres for concourses up to 500m^2 and an additional height of 1 metre for every 500m^2 thereafter up to a maximum height of 15 metres. Beyond this, architectural judgement should be made as to the most appropriate height.

For very small concourses e.g. below 100m^2 it may be permissible to reduce the height to 3.5 metres but in this instance consideration should be given to the availability of natural lighting from above, through side windows and from clerestory windows.

It is permissible to vary the headroom within a concourse so long as those areas where this is below the minimum are transitional spaces or where there is no dwell time.

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4.5 Circulation

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4.5.1 Circulation Routes

Circulation around the station should be arranged to give passengers confidence to make the journey through the station by themselves and reduce the walking distances between any point on a train to the station entrance or, if applicable, an interchange route. Routes should be logically arranged, direct, and vertical circulation should be clearly indicated.

This is often not the case in stations that have developed piecemeal over time, where platforms are offset or misaligned, and routes between them can be circuitous. In these circumstances new infrastructure, for instance a new footbridge, can cut through this historic tangle to provide a much quicker, direct route. New circulation routes can also provide more flexibility for station operation, for instance allowing one-way routing to reduce cross-flows of passengers during peak periods.

There can be a tendency for boarding passengers to gather at or close to the point at which they step onto the platform, locally overloading trains. New points of platform access can help make better use of platforms by dispersing passengers along their full length.

Routes should be safe and secure with good visibility and be free of obstructions, recesses and blind corners. At decision points passengers may slow down or pause before continuing their journey. Allowing additional space is useful to prevent people from obstructing one another.

Footfall is high on circulation routes, making them ideal opportunities for 'grab-and-go' retail or advertising. However, the hierarchy of information should be maintained so these facilities do not compromise Wayfinding signage or the route itself.

Standards Reference

Station Wayfinding Design and Assurance
NR/L2/CIV/150

NR Guidance Suite Reference

Wayfinding
NR/GN/CIV/300/01

Guidance on Station Elements
4.5 Circulation

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4.5.2 Vertical Circulation

The different types of vertical circulation — stairs, escalators, lifts and ramps — vary in terms of their capacity (the number of people that can use them per minute), the maximum recommended rise and their spatial requirements. All require run-off zones at the top and bottom.

Whilst widening a flight of stairs increases its capacity, and the capacity of a lift can be increased by increasing its size, the capacity of an escalator is effectively fixed.

To increase capacity another escalator is required. This means increasing the capacity of a bank of escalators results in a jump in width, rather than the incremental increase of a stair. This is a key consideration when assessing capacity requirements against the spatial constraints on a platform, where minimum clear widths need to be maintained to safely accommodate passenger numbers.
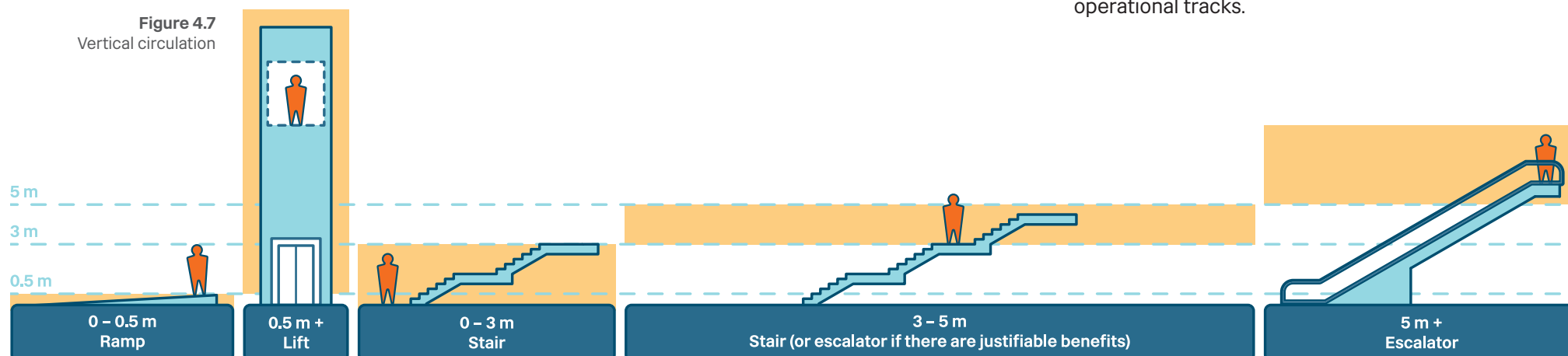
4.5.3 Ramps

Ramps are best used to overcome small changes in level. With large changes in level ramps require multiple intermediate landings and quickly become very long, taking up significant space within a station.

4.5.4 Stairs

The recommended maximum overall rise for a staircase is 5m. The height of a footbridge across tracks is often greater than this, especially where it needs to be clear of overhead electrification. This may force a choice of escalators instead, though an acceptable alternative is to have an escalator and a stair, with the escalator serving the Up direction. The stair can then become two-way if the escalator is out of action.

Stairs are the most appropriate means of level change for subways, where this level change is usually less than 5m. This shorter distance makes subways a quicker means of interchange than footbridges, and they also have less visual impact, which can be critical in a heritage station environment. Building a new subway can however be a challenge to construct and disruptive where it runs below the track-bed of operational tracks.

Figure 4.7
Vertical circulation

5 m
3 m
0.5 m

| 0 – 0.5 m Ramp | 0.5 m + Lift | 0 – 3 m Stair | 3 – 5 m Stair (or escalator if there are justifiable benefits) | 5 m + Escalator |

Guidance on Station Elements

4.5 Circulation

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4.5.5 Lifts

Lifts are the primary means of providing step-free access through stations. They should be located as close as possible to the main passenger routes whilst providing clear space in front to wait, so that they are highly visible, convenient to use, and to make sure that those using step-free routes benefit from the same experience of the station as those using stairs and escalators. Through-lifts are recommended to avoid users having to reverse out or turn around within the lift to leave, and lift doors should face along the platform rather than towards the platform edge.

For resilience it is preferable for all platforms to be served by at least two lifts in case one is out of action. The overall width of two lifts side by side can make it difficult to fit these next to each other safely on a platform though, and arranging them back to back means they can't be through lifts. A large number of lifts can also place a high on-going operational and maintenance cost on a station. It is therefore important that lift numbers and locations are carefully assessed on the basis of the size and footfall of the station.

4.5.6 Escalators

As escalators can only serve one direction at a time a minimum of two, or an escalator and a stair, are required so that one can run in the Up direction and the other Down. This allows for the eventuality of an escalator breaking down and requiring maintenance or replacement during station operation hours. A bank of three or more escalators also provides this resilience and allows for the direction of escalators to be changed to suit AM or PM peak passenger flows that may run in opposite directions.

Consideration needs to be given to the expense of installation and on-going maintenance of escalators and the spatial and construction requirements of the machinery requirements at the top and bottom.

Image 4.4
Vertical Circulation at
Victoria Underground station

NR Guidance Suite Reference

Station Footbridges & Subways
NR/GN/CIV/200/07

Guidance on Station Elements
4.6 The Platform

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4.6.1 Platforms

Platforms accommodate both passengers waiting to board and passengers alighting from trains. At the same time there are often passengers moving along the platform, whether this is to find space to stand, access platform facilities or as a route to other parts of the station or the exit.

With the risk of falling onto the tracks or being hit by a train, platform edges are the most hazardous part of the station. It is critical therefore that they are a sufficient size to accommodate passenger numbers. Platform widths are based on calculations derived from the peak number of passengers boarding and alighting trains plus an allowance for circulation along the platform, the interface with the platform edge (yellow line zone) and an 'activity zone' for seating and passenger facilities. If fast non-stopping trains pass through a station it is important that people can wait further back from the platform edge.

Platforms can be made safer by making it easier for passengers to circulate and find space. This can be done by managing and minimising obstructions on the platforms, providing clear lines of sight and by locating vertical circulation where it should encourage passengers to disperse over the full length of the platform.

Platforms should be long enough to accommodate the full length of the trains that call at the station, with 5m added to allow for slight variation in the train stopping point. Curved platforms can result in large gaps between the platform edge and the train door so should be avoided where possible.

The relative levels of train door and platform on the UK rail network are such that there is typically a step down, often large, from one to the other. This results in slower boarding and alighting and an increased risk of tripping and falling. It is also very difficult for wheelchair passengers to get on and off a train without assistance. Temporary ramps need to be stored on the platform and are put in place by a member of station staff. This operation takes up space on a platform, increasing congestion and acting as a hazard if the platform is busy. Serious consideration should be given to reducing the level difference between train and platform so that the transition can be managed by wheelchair users without assistance.
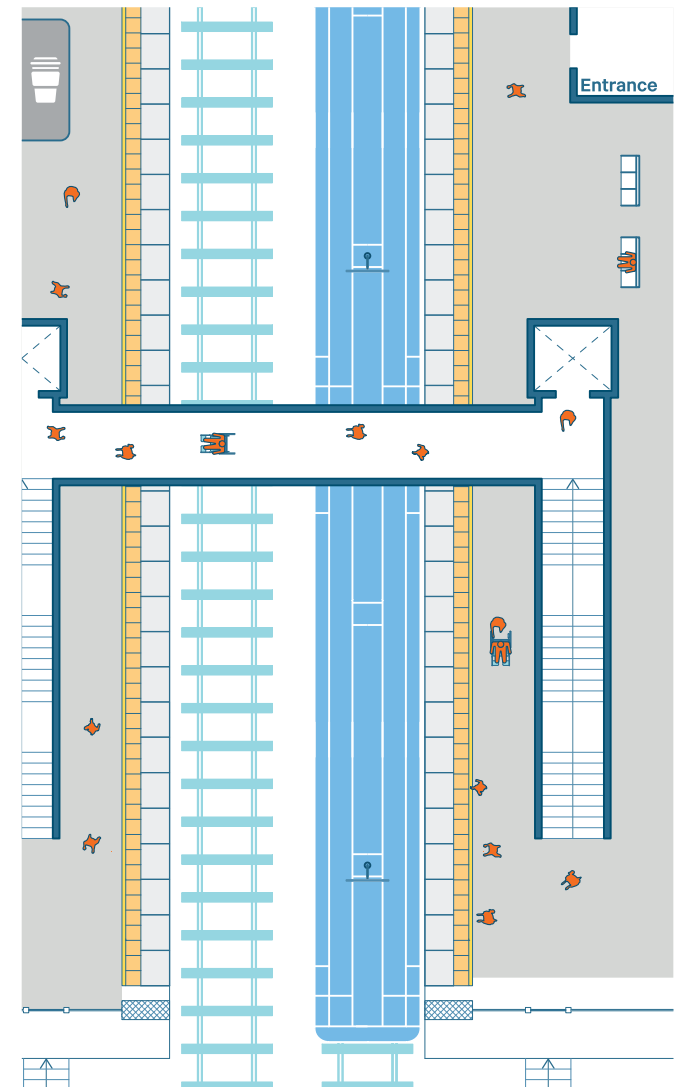
NR Guidance Suite Reference

Station Capacity Planning

Image 4.5
Plan view of platform

Guidance on Station Elements
4.6 The Platform

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4.6.2 Platform canopies

Platform canopies are required for passenger comfort and, especially at smaller stations, the platform and canopy can be by far the largest station element. They should be more than just utilitarian structures: and should combine function with confident structural expression and detailing.

Platform canopies are rarely as long as the platforms themselves and in small stations are often replaced with discrete standalone shelters. In inclement weather people waiting are inclined to bunch up under cover, slowing boarding and alighting. The extent of canopy should therefore be calculated to avoid a knock-on impact on train performance. Refer to the Station Capacity Planning Guidance.
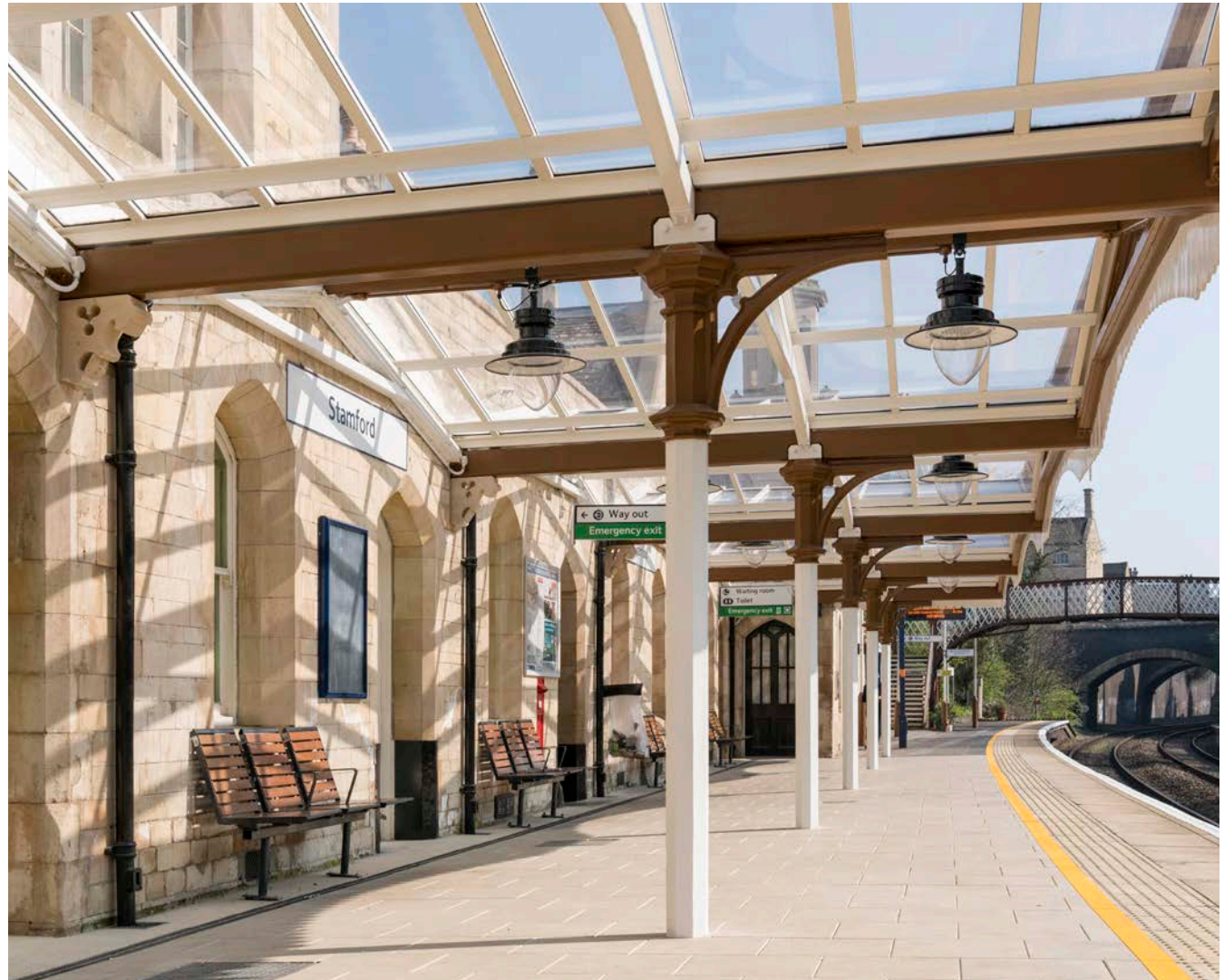

Image 4.6
Platform canopies at Stamford station

Guidance on Station Elements
4.7 Station Servicing and Vehicular Access

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4.7.1 Servicing Routes
Servicing (deliveries, maintenance, material handling and waste management) is an important element in the successful functioning and operation of all stations. Lack of proper planning and design for operations should result in the potential for ongoing issues throughout the lifetime of the station, including poor functionality and resilience, safety issues and cost. Consideration should be given to the servicing strategy early on in the planning of a project.

4.7.2 Determining the quantity of service space
A key factor is the quantity of space that needs to be provided. This should be calculated and presented within an accommodation schedule that articulates the spatial requirements for a future station.

4.7.3 Security
Undertake a TVRA (threat and vulnerability risk assessment) to determine the security requirements (e.g. service vehicle access control) and provide the operational flexibility/resilience required for the site.

4.7.4 Servicing Routes
Provide logistics routes that minimise travel distances and level changes. The key to this is to locate the loading bay area(s) as close as possible to the final points of goods delivery, ideally at the same level.

Where possible there should be independent servicing for station and retail functions.

4.7.5 Vehicular Routes
A key hazard relating to servicing is the potential for conflict between servicing vehicles (including material handling equipment) and pedestrians (passengers, staff and visitors). To avoid this, separation of pedestrian and vehicular routes should be planned, with clear demarcation.

Highways design should be undertaken for vehicle tracking and for connecting the vehicle access to neighbouring roads.

4.7.6 Provision of staff parking
Staff parking may be required for a percentage of the total number of staff. As a minimum, blue badge parking should be provided for 5% of the total number of staff. The staff that need blue badge parking may be less mobile, so this should be in close proximity to staff entrances, with a step free route.

This needs to be considered early on in the project, particularly for larger stations or those in constrained locations where passenger parking would not be provided and space is at a premium.

4.7.7 Electric Vehicle Charging
As part of NR's decarbonisation initiatives consideration should be given to the provision of electric vehicle charging points.

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4.8 Planning for Retail

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4.8.1 Quantum of retail, location of retail, relationship of retail to concourse and urban realm
The quantum of retail should depend on the size of the station, the level of usage and service, and also local demands and the level of provision locally.

Retail units require as much visible frontage as possible to attract custom. This needs to be balanced with the needs of the station, to avoid a confusing and cluttered layout, where retail and customer information and wayfinding compete.

4.8.2 Segregating service access for retail
Where retail is provided, service access should be required. For small kiosks, access may be via the passenger environment. For larger retail units, access that is separate from both public and station staff areas is advised.

4.8.3 Retail Management Suite
In large stations, a retail management suite should be included alongside station management offices where retail is managed by the station operator or owner.

4.8.4 Building services, connection and extraction
Early on in the design of any project the Mechanical, Electrical and Public Health requirements should be considered.

→   Does the retail unit require toilet facilities?

→   Is cooking taking place? Will it require an extraction system to atmosphere

→   Is the station power supply sufficient to support the proposed retail?

4.8.5 Designing and planning a retail service area
A retail accommodation schedule can help to define the spatial requirements for a retail service area. Other key considerations include:

→   How is vehicle access provided, and has sufficient space been provided for the retail units to load and unload

→   What size of servicing vehicle has been allowed for?

→   Will servicing space for the retail units be shared, and should usage be staggered or required at the same time?

→   Is there a change of level between service area and retail area? Has adequate lift provision been allowed for?

→   Is the transfer distance between servicing and retail as short as it can be?

→   Where should waste be stored and how can recycling be maximised?

→   Is a compactor required, and has sufficient space and headroom been allowed for?

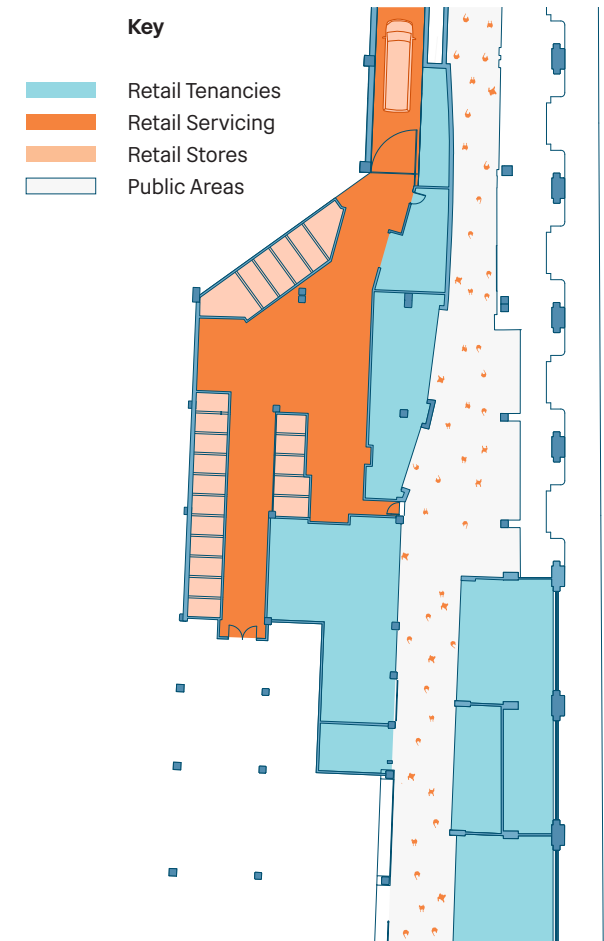→   To what extent should waste management and servicing be combined or separated between station and retail?

Key

- Retail Tenancies
- Retail Servicing
- Retail Stores
- Public Areas

Image 4.7
Retail servicing area for Broadgate Link at Liverpool Street station. This is a typical example of the challenging constraints to retrofitting a retail service area into a station

Guidance on Station Elements
4.9 Staff and Operations Facilities

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4.9.1 Staff Facilities
The range of staff rooms and facilities may vary depending on the size of the station. The requirements for the largest of these rooms are introduced here.

4.9.2 Ticket Office
Ticket Offices are located adjacent to the station concourse, and should be visible from the concourse without having to visually compete with retail and other station elements. Space for ticket vending machines should be provided adjacent to the ticket office, and there should be space for passengers to queue without disrupting station flows.

Staff facilities for ticket offices should be in a secure area adjacent to and accessed from the ticket office, with toilets, a mess room and lockers provided. These should be separate from other staff facilities at the station.

4.9.3 Station Control Room (SCR)
The function of the SCR is to provide safety and security to passengers, customers, staff and visitors to the station at all times, to provide information on train services to passengers and coordinate operational train and platform information in liaison with the TOCs. It is the point of contact with all the emergency services during incident management. The SCR may be located alongside the station management suite. It should be located in close proximity to the Telecoms Equipment Room.

4.9.4 Station Management Suite
This provides accommodation for the station manager and duty manager teams, along with meeting, conference and training space.

4.9.5 Staff Facilities and Mess Rooms
Staff mess and toilet facilities are to be located wherever staff are based. They are to include segregated male and female locker areas. These facilities may be duplicated where access is made difficult by distance or change of level. They may also be duplicated in secure areas of the station such as the secure suite.

4.9.6 Train Management Suite
At terminus stations and larger stations a Train Management suite may often be required. This includes management space and facilities for drivers and conductors. Space for drivers should include a mess room and toilet facilities for use between services. This may be shared with other staff, but it is important that it is located close to the trains.

4.9.7 Train Cleaning and Servicing
Space is required at some stations for train servicing, this includes train cleaning and fitting. Cleaning of trains is managed by the TOCs and includes turnaround cleaning, berth cleaning, toilet tanking and providing a supply of fresh water to the train.

Cleaning staff require a mess room, toilets and showers, locker facilities, a cleaner site manager desk and storage space. Work is usually undertaken by contract cleaners. Accommodation is best located on platforms, near to the trains, as the cleaning staff carry heavy containers and chemicals. Cleaners toilets may not be shared with other staff.

4.9.8 Other facilities that may be required include:
→ Excess Fares Office

→ Train dispatch area

→ British Transport Police (BTP) Office

→ Onboard Catering Suite/storage

Guidance on Station Elements
4.9 Staff and Operations Facilities

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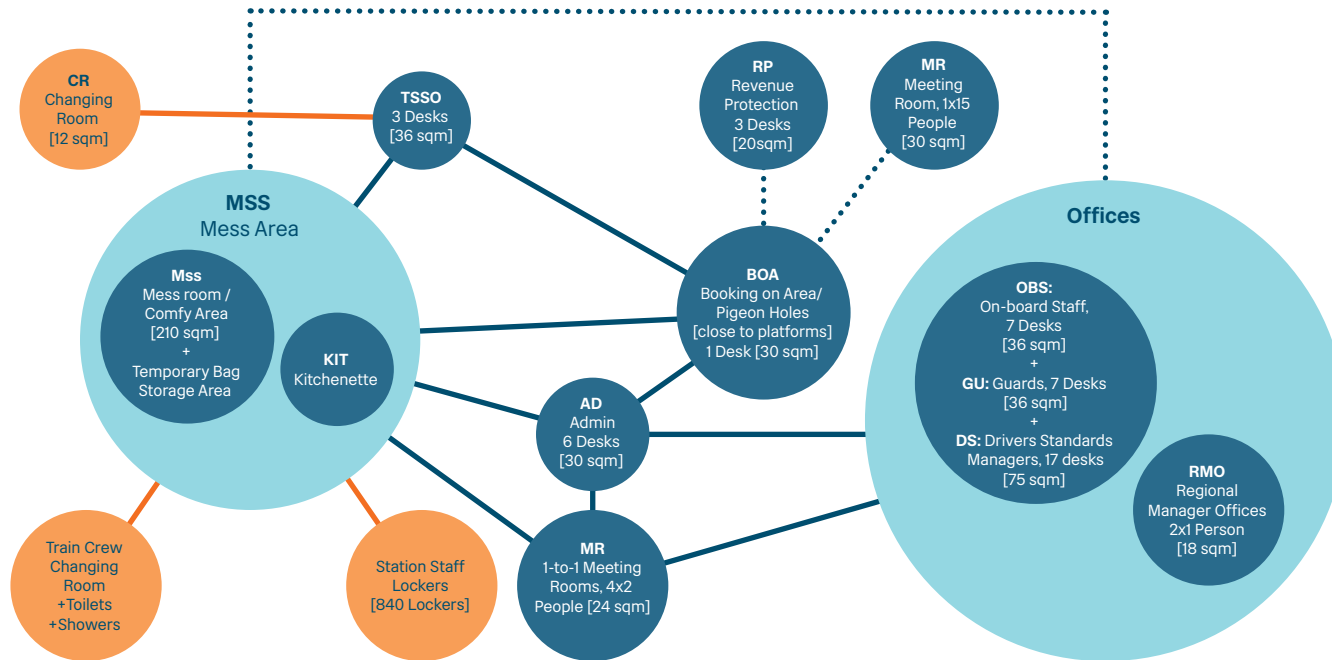
At larger stations, understanding the structure of staff teams, clustering these into functional groups and mapping out the relationships within and between these clusters, for instance where adjacency is required, valuable or unimportant, can help in identifying how to use space effectively in support of station operations.

Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
Joint Station Management	Train Crew	Locker Space	Other TOC & NR functions	Catering and technicians
Includes control, shift managers, shared stations, management suite, brefing room, e-learning, meeting rooms, storage	Including office space for drivers, managers, on-board staff, managers, admin, coordinators, TSSO, the mess area, quiet rooms, toilets and showers	550 lockers for TOC; Potentially 65 lockers for NR and an additional 150 lockers for TOC	This includes office space for TOC: catering managers, publications, print room, training, MD., as well as NR meetings rooms and Mitie	This includes Rail Gourmet stores and train technicians

Image 4.8
Space planning cluster example for a Category A station

Guidance on Station Elements

4.10 Over and Adjacent to Site Development

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Oversite Development (OSD) and Adjacent to Site Development (ASD) make use of land immediately next to or above a station or rail corridor. Challenges to viability include:

→ Disruption to rail services

→ Additional safety restrictions on building close to an operational railway

→ Constraints on construction or permanent access

→ Land that is often awkwardly shaped and difficult to plan efficiently

Planned correctly though this development can be a key part of bringing a station precinct vibrantly to life, and where ASD or OSD projects are considered as part of station redevelopment, the financial benefits can be used to fund or unlock upgrades to the station or railway.

The issues identified above are most pronounced above railway tracks and platforms. For this reason OSD is more likely to be viable over lineside elements such as entrances and concourses.

When designing a new station, or a new element such as an entrance, the potential for ASD or OSD should be considered early on, even if it won't be designed in detail or built out as part of the scheme.

Key considerations for successful ASD or OSD include:

→ Keeping development and station separate: critical functions need to be kept separate. These include access and egress, both for normal use and for the emergency services, and other fire safety systems

→ Commercial attractiveness: the layout and size of building floorplates need to be commercially attractive and fit for purpose. Contrarily, the footprint and massing of the ASD or OSD may need to be agreed before a tenant is found, and potentially before the use is defined. The design requirements for an office development are not the same as those for a residential one and market conditions change, as does demand for different types of space. It is important therefore to maintain flexibility where possible through design development

→ Construction worksite and access: careful construction planning should help to mitigate the restrictions placed on accessing and building adjacent to a live railway

→ Maintainability: it should be possible to safely maintain the building, for instance facades that are adjacent to or overhang the railway, without any impact on railway operations

Additional challenges applicable to OSD include:

→ Locating structure: Regular column grids are preferable to expensive transfer slabs and other complex structural solutions, which are unlikely to be viable except in areas with very high land values. The layout of railway infrastructure directly below the building may constrain the locations of structural columns and building cores. Space may be reduced further by factoring in safe offsets from tracks

→ Providing 'a front door': the attractiveness of a development to tenants, especially a commercial tenant, may be reduced if the 'front door' and access to the building is raised on a deck above the surroundings and lacks traditional street presence. It is important to reconcile the level differences through the design to overcome this

→ Planning for rebuilding or demolition: it should be possible to construct and dismantle an ASD or OSD without affecting the ability of the railway infrastructure to function. While a new station may have a design life of 120 years, the OSD may be entirely or substantially rebuilt after only 60 years. A strategy should be in place from early on in the design process as to how this change should be managed

Station Design Guidance
Project Execution

Image 5.1
Cambridge station public realm

Project Execution
5.1 Whole Life Design

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5.1.1 Sustainable,- Whole Life Design

The designer should consider all phases in the whole life of the station, from initial design to construction and beyond to allow safe maintenance, cleaning and eventual demolition. The materials selected for station works are required to be fit for their intended function and represent the best whole life value. All designers have a duty to record the materials expected design life and to state how the material is to be maintained, repaired and cleaned whilst minimising the impact on station operations and users.

The following considerations should help in reducing the whole life cost of a project:

→   A building configuration plan and specification of materials and equipment to minimise operational and maintenance costs

→   Minimised energy use and costs through consideration of passive environmental design strategies (e.g. natural light and ventilation)

→   Robust material choices and detailing to resist the impacts of weather, wear and tear and antisocial behaviour

→   Considering future flexibility for the station to expand or change, for instance to respond to an emerging context

→   Planning MEP systems so that they are simply configured and easily accessed for maintenance or replacement

Image 5.2
New footbridge, Cambridge

Project Execution
5.2 Rail System Interface

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5.2.1 Interfaces
From the first concept design to the final handover a scope and remit needs to consider the following possible interfaces with rail systems:

→ Potential requirements for traction power accommodation

→ Connections to the electric grid and potential power supply equipment

→ Electrical clearances from overhead lines

→ Communications equipment and rooms

→ Sufficient and safe maintenance access

→ Trackside services equipment

→ Integration with rolling stock

→ Train dispatching

→ Security systems and control

→ Human factors

Network Rail has a dedicated human factors team that undertakes human factor assessments and oversees assessments by external parties. The team reviews any changes to the station building design or use and assess the impact to operational staff and to the station operational concept.

Design of station control room, station reception and ticket offices and input into the design of operational equipment (e.g. building management systems or station management systems).

5.2.2 Integrated Wayfinding and CIS
An integrated wayfinding solution for the station that includes the requirements for signs and CIS screens to support passenger decision making and efficient passenger flow management.

The information required on CIS screens should be defined though analysis of the specific passenger journeys at that station. The size and position of display screens and signs should be considered carefully to confirm that the required information is readable at relevant decision and confirmation points, and that space has been allowed for people to gather there.

Image 5.3 London Bridge

Refer to System Approach
in the Design Considerations Toolkit

Project Execution
5.3 BIM and Asset Information

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5.3.1 Building Information Modelling/ Management

Network Rail recognises that design, construction and asset management are part of a wider integrated system and aims to comply with the government targets for Building Information Modelling (BIM) level two and beyond for centrally procured government projects. The application of BIM may provide an opportunity for Network Rail to make efficiency savings.

BIM level two design work takes place in a collaborative environment using asset information models, underpinned by common reference systems and formats based on standards, shared libraries of elements and electronic information sharing. Adopting BIM principles leads to savings through reuse of information and a reduction in information handling, waste and rework.

Effective use of BIM optimises value from lifecycle asset information, the introduction of collaboration in the design process, and the creation of information which is fit for downstream operation and maintenance for use by future projects.

5.3.2 Determining the value of BIM to the project

Key factors to consider when determining the level of BIM, and the scope of modelling on the project:
→ Is there already BIM information for this station? Will it assist the project? Will it need updating?
→ Is the model just for this project, or is it being setup for use on future projects?
→ Will the BIM model be used for Facilities Management (FM)?

→ Is the BIM model an investment for use on future projects? This may help to determine the level of modelling, for example detail for elements that are not specific to the project.
→ Consider the scale and scope of the project. If it is an upgrade project to a small area of a large station, then producing a BIM model of the whole station may not be appropriate.

5.3.3 Employer's Information Requirements (EIRs)

Once the project requirements are defined, they should be captured within the EIRs. The EIRs set out the information required from the NR internal team and from suppliers for the project development and operation of the completed building. These typically cover:
→ Methods for how the information is created, named and exchanged
→ Roles and responsibilities, and what is required
→ A plan or schedule of information to be delivered, who may be delivering this and when
→ A COBie demand matrix

Project Execution
5.4 Preparing a Project for Construction

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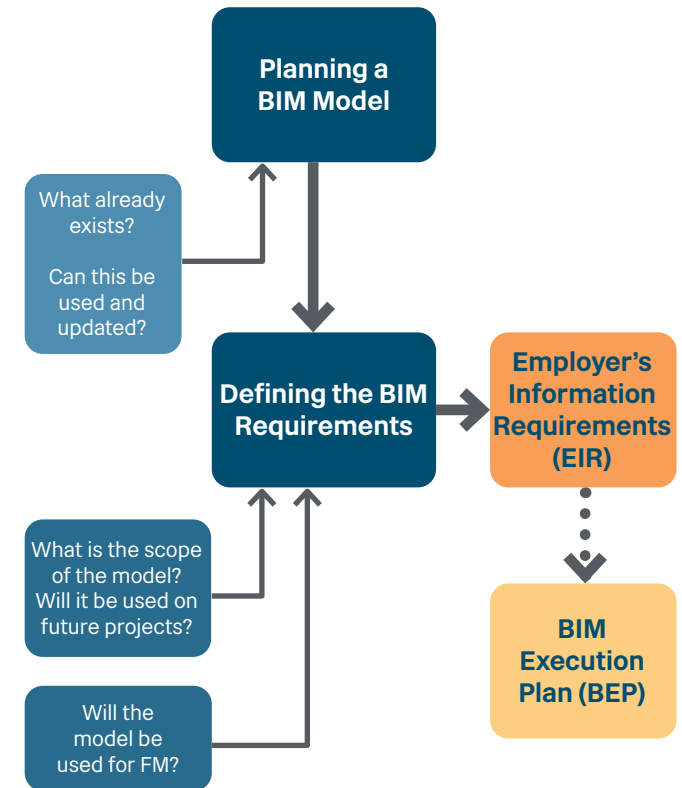
5.4.1 Keeping the station operational

When a project is at an existing station, consideration needs to be given to whether the full level of service is to be maintained, or if for example, the number of platforms and level of service is to be reduced. Reducing services can have a longer term impact on passenger satisfaction, and lead to passengers seeking alternate modes of transport. Specialist input should be sought before considering this option.

Whilst a project is in progress, the station still needs to meet all regulations that usually apply. For example, this includes egress, platform capacity clearances, and fire regulations.

Wayfinding can be challenging when the usual route for passengers is interrupted, particularly when passengers have a familiar routine. For this reason, good wayfinding is more important than ever during construction projects, and good temporary wayfinding should be employed.

5.4.2 Segregating operational and construction elements

Construction areas should be segregated from operational and public areas through the use of secure hoardings or other means.

Where possible, construction areas should have direct external access, avoiding access through the operational station. Construction areas should have welfare and storage facilities that are separate from facilities used by station staff.

Where noisy works are taking place, acoustic screening should be used.

5.4.3 Possession of track and other assets

In some instances, for example in the construction of a footbridge, it may be necessary to close tracks. Track closures need to be planned a long time in advance, and should be made as short and efficient as possible. Off-site construction can reduce the length of time a possession is required, as pre-constructed elements can be quickly moved into place. This and other methods should be employed to help reduce possession lengths.

Opportunities should be sought to align this with any other works along the line, where a line closure may already be in place. For stations that serve events, care should be taken to avoid disruptions that coincide with times that the station is busy.

5.4.4 Keeping passengers and stakeholders informed

Good communication is important to manage expectations both with passengers, passenger and user groups and neighbours that may be impacted by the works. This can also generate engagement and interest in the project.

Project Execution
5.5 Post Occupancy Evaluation

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5.5.1 Post Occupancy Evaluation

Post occupancy evaluation (POE) is used to evaluate whether a building behaves as intended and whether the occupants are happy with the results. High performing buildings have higher user satisfaction and significantly lower running costs. A POE should identify where there is potential for improvement and lessons that can be learned for future projects by helping designers and clients to understand the impact and effectiveness of the decisions taken during the design stage. Conclusions should be shared with Network Rail so that this information can be used in future.

It is useful to commit to carrying out post occupancy evaluation at the beginning of the project so that the project brief and budget can include a requirement to test whether objectives are achieved, and the evaluation criteria can be agreed and tracked through design development.

5.5.2 Post Project Review

A post-project review evaluates the effectiveness and efficiency of the project delivery process. Input should be sought from contractors, designers, suppliers and the client as to how well the project was managed and delivered against the project requirements. The criteria for a post-project review should be set early in the project so that they are part of the briefing process

5.5.3 Performance in Use

Performance in use assessments should be carried out at least 6 to 12 months after occupation, so that the station is fully in use and a routine is established. It is more effective if the station has been used across all seasons. Assessments do not need to be a one-off, they can follow at different times of the year or be an ongoing process.

An assessment of performance in use can include:

→ An assessment of whether the project is functioning as designed

→ Effectiveness at achieving project objectives

→ Satisfaction of passengers and staff

→ Passenger comfort

→ Ease of use for disabled passengers, and those with children or luggage

→ Improvements in passenger flows and capacity

→ The standards of lighting, acoustic environment, ventilation, temperature and humidity

→ Environmental and energy consumption in use

→ Maintenance and occupancy costs

→ Quality issues and Defects

5.5.4 Lessons Learned

Lessons learnt sessions should compare outcomes to the project brief and objectives, along with benchmarked projects. The outcome of the project should also be compared against a 'do nothing' alternative scenario to understand the value and effectiveness of the work carried out.

A report should be produced that covers what has and hasn't worked well and make recommendations for future projects.

Image 5.4
Delft station

Image 6.1
Birmingham New Street station

Design Considerations Toolkit

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6.1.1 Design Considerations Toolkit

This section provides a toolkit of considerations and requirements for designers and project managers to successfully develop a project through the initial stages of the design life cycle. These cover common points, but are not exhaustive. The toolkit maps design considerations to the most applicable stage of the GRIP process, though it is important that they should also be considered iteratively throughout the design process.

Network Rail's ten Principles of Good Design set out the factors for a well-considered project, one that is responsive to its context and the environment. Projects should refer to and respond to these criteria throughout the project planning and design stages.

In parallel projects should also make use of the Environmental and Social Appraisal tool (ESA) to elicit and record opportunities for best practice in the built environment. This section identifies where requirements relate back to these criteria.

Network Rail has established an independent Design Advisory Panel (DAP) to review the design impacts of projects on passengers, communities and the environment. The DAP can work with project teams to assure that high quality design is developed, and that projects meet the Network Rail Principles of Good Design and the parallel ESA requirements.

A Form F004 (architectural and layout acceptance) is initially submitted at GRIP stage 3 and prior to a planning submission. It needs to be resubmitted to capture the maturity of a design proposal so may be required at GRIP 4 (Single option development) and certainly at GRIP 5 (Detailed Design).

NR Guidance Suite Reference

Design Advice Panel Project Guidance
NR/GN/CIV/100/01

Standards Reference

Architectural and Layout Acceptance
NR/L2/CIV/003/F004

Standards Reference

Environment and Social Minimum Requirements
NR/L2/ENV/015

Design Considerations Toolkit

GRIP Stage 2 Feasibility	GRIP Stage 3 Option Selection	GRIP Stage 4 Single Option Development
Safety		
◯ Has the British Transport Police been consulted to identify areas that need to be addressed through design?	◯ Are potential hazards and risks in the station properly identified, understood and recorded? Are they minimized for all station users?	⬤ Are the materials specified hazard-free
◯ Have CDM principles been properly applied to the design and its delivery stages?	◯ Does the station design comply with all statutory emergency requirements?	◯ Fire Engineer Form F001 sign off required
◯ Has a Threat, Vulnerability and Risk Assessment (TVRA) been carried out?	◯ Does the layout, material treatment and lighting allow for clear visibility and CCTV coverage of all public station areas?	
	◯ Has safe access been considered for construction, operations and maintenance of all station areas?	
	◯ Is a fire consultant appointed and has the Network Rail fire officer approved the design?	
Accessibility and Inclusion		
♿ Have escalators and lifts been located on or adjacent to desire lines with good natural surveillance?	♿ Is the station compliant with DfT code of practice for accessible railway stations?	♿ Are spaces free of clutter with appropriate tonal contrast between wall and floor surfaces?
♿ Has a diversity and inclusion assessment (DIA) been undertaken? The DIA should also be reassessed at GRIP Stages 3 & 4.	♿ Has advice been sought from an accessibility consultant?	
♿ BEAP Panel should be consulted at GRIP 2 and subsequently at GRIP Stages 3 & 4.	♿ Can service information be accessed and understood by all users?	

Network Rail's Principles of Good Design Key:

- Identity
- Passengers
- Community Focussed
- Collaborative
- Inclusive
- Connected
- Contextual
- Enhancing Heritage
- Innovative
- Environment

→ Refer to the Environmental and Social Appraisal (ESA). This provides additional advice and considerations

Design Considerations Toolkit

GRIP Stage 2 Feasibility	GRIP Stage 3 Option Selection	GRIP Stage 4 Single Option Development
Capacity		
Has the project been assessed by a Network Rail or external accessibility consultant?	Has sufficient capacity been provided at entrances to avoid conflicts?	Station Capacity Team (pedflow) Form F001 sign off required
Have the Station Capacity Team (pedflow) been consulted?	Does the design anticipate the need and potential for future change?	
	Does spatial provision meet with current and predicted future needs?	
	Does the design facilitate convenient and safe access for pedestrians and other feeder modes to meet with passenger and operational needs?	
Environment		
Has the RSSB rail carbon tool been used to identify potential reductions in the project carbon impacts? (eg. renewable energy)	Has expansion been facilitated or inhibited in any way by the design? How will the station cope in the future?	Have materials been selected to avoid complicated repair, removal or disposal processes?
What environmental assessment methodology is being used?	Will any structures or assets need to be decommissioned, demounted, demolished or stripped-out as part of preparation for the works?	Does the work/ job description involve any cutting or clearing of vegetation?
Are there any records of protected species, or their habitat, within 250m of the project?	Has constructibility of the design and the consequences been considered?	
Will the work take place in an area at risk from flooding or extreme weather including high winds, extreme temperatures, heavy rainfall, snow, or lightning?	Will the works generate excavation materials that could be reused in other works or projects?	
Will the work take place within 250m of a water body (including ponds and features that may be seasonally flooded)?		

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Design Considerations Toolkit

GRIP Stage 2 Feasibility	GRIP Stage 3 Option Selection	GRIP Stage 4 Single Option Development
Reliability		
Has the design considered the need for resilience against climatic change and extreme weather?	Has adequate spatial provision been allowed for decision points, queue locations and passenger cross-flows?	Has an ergonomics and/or human factor specialist reviewed the project in line with Network Rail standards?
	Have passenger facilities been located to minimise conflicts with movement routes and station operations?	
	Have passenger waiting rooms and weather protection been provided appropriate to station function, use and capacity?	
	Can regular maintenance be undertaken efficiently, with minimal impact to station operations?	
Interchange		
Is the station intermodal? Can interchange be improved?	Does the design include conveniently located pick-up and drop-off areas for taxis, buses and private vehicles?	Has an independent wayfinding consultant been appointed to determine location and specification of signage?
Does the spatial organisation provide for efficient vehicle movement, while minimising conflicts between vehicles, pedestrians and other means of transport?	Does the wayfinding comply with Network Rail's wayfinding standards?	
Is there an integrated local transport strategy and is the design coordinated with other means of transport?	Does wayfinding and information support onward movement beyond the station footprint?	
	Have appropriate bicycle facilities been provided? Is the quantity sufficient?	
	Have appropriate car parking facilities been provided?	

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Design Considerations Toolkit

GRIP Stage 2 Feasibility	GRIP Stage 3 Option Selection	GRIP Stage 4 Single Option Development
Whole Life Cost		
○ Have all phases of the station's life been considered?	⌂ Has end of life reuse and disposal been considered to minimise waste and allow for positive reuse and regeneration of components?	○ Has the asset owner been consulted regarding maintenance?
⌂ Has the design been optimised to minimise ongoing operational costs, waste and the consumption of natural resources?	○ Have estimates been undertaken for in use operational energy (eg CIBSE TM54)?	
⌂ Does the design exploit opportunities to maximise energy efficiency over the station's whole-life?		
Retail, Social and Business		
📍🖼 Does the design provide for mix of uses and development opportunities appropriate to the station context and location?	🏃📍 Have passenger amenities, such as retail and toilet facilities been provided appropriate to use and context?	○ How will operational waste be managed?
○ Have OSD and ASD opportunities been considered?	○ Is signing provision balanced with retail frontage and advertising to avoid visual clutter?	
	🏃 Have potential clashes with passenger movement been identified and avoided?	
Delight		
📍 Does the spatial design allow clear sightlines and views between principal destinations?	○ Are the volumes appropriately sized and naturally lit?	⇌ Is the design balanced and coherent?
📍 What is the character of the area? Can it be enhanced?	⇌ Has the NR DAP (Design Advisory Panel) been engaged to comment on the scheme?	○ Will it be enjoyable to use?
	📍 Is the design appropriate and responsive to its local context?	

Network Rail's Principles of Good Design Key:

- ⇌ Identity
- 🏃 Passengers
- 🖼 Community Focussed
- 👥 Collaborative
- ♿ Inclusive
- ⤢ Connected
- 📍 Contextual
- ♥ Enhancing Heritage
- 💡 Innovative
- ⌂ Environment

→ Refer to the Environmental and Social Appraisal (ESA). This provides additional advice and considerations

Design Considerations Toolkit

GRIP Stage 2 Feasibility	GRIP Stage 3 Option Selection	GRIP Stage 4 Single Option Development
System Approach		
Have other projects affecting the station been integrated and coordinated with the project?	Have convenient and comfortable staff facilities been provided appropriate to the station size, location and functions?	Network Rail Station Change Process required?
Will the Common Safety Method for risk evaluation apply?	Have management and maintenance requirements been considered and agreed to with all relevant stakeholders?	
	Does the station design take full account of heritage assets and needs?	
	Have management and maintenance requirements been considered and agreed to with all relevant stakeholders?	
	Has an interdisciplinary design coordination (IDC) taken place and approved by a Network Rail representative?	
	Has a project notification form 004 been submitted to Network Rail ergonomics team prior to the closure of GRIP 3?	
Standardisation		
	Refer to designs handbook to see if any common details or elements can be used	Have materials been selected to provide a balance between function, performance, sustainability, cost efficiency and appearance?
		Have standardised and modular elements been considered where appropriate?

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GRIP Stage 2 Feasibility	GRIP Stage 3 Option Selection	GRIP Stage 4 Single Option Development
Place and Social Considerations		
Is the station listed or in a conservation area? Have the appropriate stakeholders been consulted?	Does the station design integrate seamlessly with the surrounding public realm?	Are external areas appropriately lit to enhance safety?
Is the work taking place in an area that closely identifies itself with rail heritage?	Have surrounding public spaces been designed to provide high quality places where people will want to linger and enjoy?	
Has the NR DAP (Design Advisory Panel) been engaged to comment on the scheme?	Has the relationship of the station and any surrounding development been considered to assure a positive integration that opens up views, sightlines and maximises energy optimisation opportunities?	
Is there an opportunity to enhance the public realm?	Is the design appropriate and responsive to its local context?	
	Has a Form 004 (architectural & layout acceptance) been submitted to Network Rail prior to closure of GRIP3?	
	Are there people living and/or working within 150 m of the project?	
	Will the project require access via third party land? And will the work negatively impact normal access routes, including Public Rights of Way (PRoW)?	

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Image 6.2
Woolwich Elizabeth line station

Document References

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Applicable legislation, standards and guidance
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A

Appendix A
Definitions

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AfA

The DfT 'Access for All' programme is delivered by Network Rail and provides accessibility improvements at selected stations.

BIM — Building Information Modelling

BIM is an acronym for Building Information Modelling, or Building Information Model. It describes the process of designing a building collaboratively using one coherent system of computer models rather than as separate sets of drawings.

Capital Delivery

Capital Deivery is the part of Network Rail that delivers large or complex projects in the five regional routes.

CDM

Construction Design and Management refers to regulations issued in 2007 by the Health and Safety Executive that place legal duties on clients, designers and contractors involved in construction activity.

CPNI

Centre for the Protection of National Infrastructure. www.cpni.gov.uk

CRE

The Contractor's Responsible Engineer is accountable for the day-to-day management and coordination of the technical and engineering activities within a specific engineering discipline for a specific contract. The CRE is appointed in accordance with NR/L2/INI/02009 and is:

    a) Authorised to sign the forms associated with this standard on behalf of the design and/or contracting organisation

    b) Responsible for confirming that the engineering deliverables satisfy the requirements of the contract and also meet the requirements of this standard

CSM and CSM REA

Common Safety Method for Risk Evaluation and Assessment is an ORR imposed European regulation that places duties on those in charge of projects who wish to implement a change to a technical, operational or organisational aspect of the railway system.

Deviation or Derogation

For Network Rail and Railway Group Standards, a deviation is defined as "a departure or alternative approach" from the originally specified requirement. The Network Rail process is defined in NR/L2/EBM/STP001/04 'How to manage deviations to Network Rail and Railway.

Development Consent Order

A Development Consent Order (DCO) is the means of obtaining permission for developments categorised as Nationally Significant Infrastructure Projects (NSIP). Projects classified as NSIP are large scale or strategically important projects.

DfT

The Department for Transport is the UK government department responsible for the English transport network, and transport matters that have not been devolved in Scotland, Wales and Northern Ireland .

Diversity Impact Assessment (DIA)

Network Rail's methodology for recording and assessing the impact on works on people. DIA's evidence due regard in response to NR's Public Sector Equality Duty under the Equality Act

DPE

The Designated Project Engineer and the project engineers working with him are responsible for ensuring the technical compliance of the design and the delivery in accordance with NR/L2/CIV/003 Group Standards'.

Appendix A
Definitions

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Environmental and Social Appraisal
Environmental and Social Appraisal (ESA) is an NR tool that generates project checklists and requirements for a range of environmental and social considerations. It is to be used from the very beginning of project planning, and then iteratively across GRIP workstages.

FOC
Freight Operating Company

Form NR/L2/CIV/003
The design project engineers and the project engineers working with them are responsible for ensuring the technical compliance of the designs and the delivery in accordance with Network Rail Standard.

GRIP
Governance for Railway Investment Projects is Network Rail's management and control process for the design and delivery of rail projects.

HMRI
Her Majesty's Railway Inspectorate established in 1840, became part of the **HSE** (Health and Safety Executive) in 1990, transferred to the ORR in 2006 and ceased to exist in 2009 when it was renamed the Safety Directorate.

Managed Station
Major stations in the UK are not only owned but also managed by Network Rail and are called so to distinguish them from the franchised stations that are managed by the SFOs. There are currently 20 managed stations.

NSIP
The National Stations Improvement Programme (NSIP) is a DfT backed programme to deliver improvements to medium sized stations in England and Wales, working together with local sources of funding. At present there is not an equivalent programme in Scotland; however Transport Scotland has worked closely with First ScotRail and with Network Rail to improve stations in Scotland and they are considering the future programme.

ORR
The Office of Rail Regulation is the independent safety and economic regulator for Britain's railways. www.rail-reg.gov.uk

OHLE
Over Head Line Equipment refers to the electrification lines of trains that occur above the track and over the train.

PPM
The Public Performance Measure shows the percentage of trains which arrive at their terminating station on time.

PRM TSI
'Persons with Reduced Mobility — Technical Specification for Interoperability' is a European standard which provides the accessibility requirements of rail vehicles and railway stations.

RRD
Route Requirement Document is the project brief. This was previously known as project requirement specification (PRS).

Appendix A
Definitions

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Rail Delivery Group
British rail industry membership body that represents train and freight operating companies

RIDDOR
Reporting of Injuries, Diseases and Dangerous Occurrences Regulations that are published by the Health and Safety Executive.

Route asset manager (RAM)
Route asset managers are responsible for defining the scope of work via the PRS. They participate in the selection and approval of the selected design (AiP form 001) as they may be eventually in charge of the new infrastructure.

RSSB
The Rail Standards and Safety Board measure safety performance and analyse risk for the UK rail industry, and publishes Railway Group Standards.
www.rssb.co.uk

Secure Stations Scheme
A voluntary accreditation scheme launched in 1998 and directed by the Department for Transport and the British Transport Police.

SFAIRP
An acronym for "So Far As Is Reasonably Practicable". Reasonably practicable involves weighing a risk against the trouble, time and money needed to control it.
www.hse.gov.uk/risk/theory/alarpglance.htm

SFO or TOC
Usually the Station Facilities Operator or Train Operating Company franchises the station from Network Rail and is legally responsible for its operation. Hence it has a major interest in all design stages. In managed stations, it is not uncommon for Network Rail to be the operator of the station (the SFO) that provides service to a number of train operators (TOCs) using the station.

Station category
The DfT's station categorisation reflects the number of passengers using the station and the importance of the station.

TSI
Technical Specification for Interoperability is the European regulatory set of standards that are intended to assure railway interoperability throughout Europe on designated routes. They are published by the European Union Agency for Railways (EUAR).
The TSI's apply to the entire UK rail network with the exception of the exclusions listed on the DfT web-site.

Appendix A
Applicable legislation, standards and guidance

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Industry Standards

The rail industry has safety, technical and procedural standards that apply only to Railway Infrastructure, including stations. It is a legal requirement that all parties comply with these standards to the extent that their approved Safety Management System refers to and depends upon them.

Railway Group Standards (RGSs)

NR's Safety Management System is based on compliance with RSGs that are produced, managed and maintained by the Rail Safety and Standards Board (RSSB). These provide a framework for system safety and safe interworking across the rail industry.

Technical Specifications for Interoperability (TSIs)

The TSIs applicable to stations are the Persons with Reduced Mobility (PRM) TSI and the Infrastructure (INF) TSI.

Network Rail company standards

NR develops, publishes and maintains its own technical standards and guidance by which it mandates, through requirements and processes, its staff and contractors to uphold the commitments it has made in its Safety Management System. These standards are subordinate to the RGSs and TSIs. Some of these guidleines are listed on the following page.

Accessibility standards

Under Section 71B of the Railways Act 1993 the Secretary of State maintains a code of Practice to protect the interests of disabled people travelling by rail.

ORR and HSE Guidance

ORR guidance covers the enforcement of railway system safety and the minimum safety requirements to be taken into account in developing alterations to infrastructure, including stations.

HSE guidance covers Health and Safety other than where this relates to railway safety. Under the provisions of the ROGS the duty holder for the station (NR for Managed Stations and TOCs for leased stations) are required to appoint a "competent person" to assess the safety risks arising from any change to the station.

Fire Legislation

National legislation applies. Advice should always be taken from Network Rail's Fire Safety Engineer.

Appendix A
Applicable legislation, standards and guidance

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Legislation:
DfT code of practice — Design Standards for Accessible Railway Stations (2015)
The Building Regulations
The Building Act (1984) Approved Document parts A to P
Scottish Building Standards
Technical Handbook Non Domestic (2013)
TSI PRM Technical Specification for Interoperability: Accessibility for Persons with Reduced Mobility for High
Speed and Conventional Lines on the Trans-European Rail Network
BS 8300 Design of an accessible and inclusive built environment (2018)
Equality Act (2010)
CDM Regulations Construction and Design Management Regulations (2015)

Network Rail Guidance:
Our Principles of Good Design (2019)
Design Advice Panel Project Guidance NR/GN/CIV/100/01
Station Capacity Planning Guidance (2016)
Inclusive Design NR/GN/CIV/300/04
Wayfinding NR/GN/CIV/300/01
Operational Property Design & Construction Handbook (2010)
Guidance on the planning and management of station flooring to public areas (2015)
Station Safety Policy (2015)
Guide to Sustainable Design for operational Property (2012)
Environmental Sustainability Strategy 2020- 2050
Heritage: Care and Development NR/GN/CIV/100/05
Whole Life Cost Manual
Arch Design Guide (commercial exploitation of Arches)
Investment in Stations — A guide for promoters and developers (2017)
Public Toilets in Stations NR/GN/CIV/200/04
Design Guide for Station Street Furniture (2009)
Implementing BIM principles for Railway Infrastructure Projects (2014)
Preventing the risk of suicides at new and enhanced stations

Appendix A
Applicable legislation, standards and guidance

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RSSB Standards: www.rgsonline.co.uk
RIS 7016 INS Interface between Station Platforms, Track, Trains and Buffer Stops
RIS 7700 INS Rail Industry Standard for Station Infrastructure
RIS 7701 INS Automatic Ticket Gates at Stations
RIS 3703 Passenger Train Dispatch and Platform Safety
GE/RT8025 Protective Provisions for Electrified Lines (2001)
GI/GN7520 Lighting in Railway Premises
GC/RT5212 Railway Clearances
GC/RT5033 Buffer stops and Impact Walls
GC/RT5633 Risk assessment of Buffer Stops
Wayfinding at Stations Good Practice Guide

Other Guidelines:
ATOC Motorcycle Parking at Rail Stations (2013)
ATOC National Rail & Underground CCTV Guidance (2010)
BTP Retail watch
BTP CCTV output requirements stations car-parks and trains (2009)
CPNI Integrated security
CPNI Operational Requirements for Security Measures
CPNI EBP 04/13: July 2013 (Blast Performance of Laminated Glass)
BRE Building Research Establishment New Construction Manual 2014
BPA British Parking Association
Park Mark Safer Parking Scheme
BSI BS 6180:2011 — Barriers in and about buildings COP
BSI PAS 2030:2012 — Improving the energy efficiency of existing buildings
CABE / Design Council Urban Design Principles
CABE / Design Council The Value of Urban Design
CIBSE Transportation Systems in Buildings (Guide D 2010)
Centre for Window &
Cladding Technology
Technical note 66 — Safety and Fragility of Glazed Roofing — Specification
Centre for Window & Technical note 66 — Safety and Fragility of Glazed Roofing
Cladding Technology — Testing and Assessment

CIRIA C722 — Safer stairs in Public Places (2013)
CIRIA C652 — Safer Surfaces to walk on (2010)
DfT Better Rail Stations (2009)
DfT Inclusive Mobility (2011)
DfT Security in Design of Stations (SIDOS) Guide
Historic England Protocol for Care of Government Estate
Historic England Infrastructure Transport
HSE Railway Safety Principles & Guidance Part 2 Section B— Guidance on Stations
HSE Guidelines for the safe operation of Escalators (2011)
HSE Assessing Slip Resistance of Flooring
HSE Workplace (Health, Safety and Welfare) Regulations 1992.
HSE HSG65 — Managing for health and safety (2013)
HSE INDG370 — Controlling fire and explosion risks (2013)
ISO 16933:2007 — Explosion-resistant security glazing
Changing Places Consortium Guidance
ORR Guidance on the application of the CSM on REA (2012)
RNIB Building Sight
RIBA Green overlay to Plan of Work
RIBA BiM overlay to Plan of Work
RSSB Station Capacity
TfL Interchange Best Practice Guidelines (2009)
TfL Parking Standards in Rail Stations Study (2010)
TfL Highways Design Index
TfL Climate Change and Mitigation
UK Power Networks Standards for Secondary Substations & Switchrooms

Appendix A
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Station Categories Classification

B

Image B.1
Manchester Piccadilly station

Appendix B
Station Categories Classification

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The tables on the following pages set out the passenger amenities and facilities that should be provided at each station.

This is set out by station category, with the largest most used stations (Category A) requiring many more amenities that the least used (Category F).

Note: A step free route to be provided where average daily number of passengers embarking & disembarking exceeds 1000 people p/a.
This is unlikely to meet the requirements of the Equality Act 2010 and should be the subject of a site specific locality & demographic study.

	No.	Type	Criteria per annum
A	28	National Hub	Over 2m trips: over £20m
B	67	Regional Interchange	Over 2m trips: over £20m
C	248	Important Feeder	0.5–2m trips: £2–20m
D	298	Medium Staffed	0.25–0.5m trips: £1–2m
E	695	Small Staffed	Under 0.25m trips: Under £1m
F	1,200	Small Unstaffed	Under 0.25m trips: Under £1m
Total	2,536		

Key

Mandatory PRM TSI Requirement	Highly Desirable	Desirable	Optional

Appendix B
Station Categories Classification

Station Access/Station Egress

	Station Category					
	A	B	C	D	E	F
Interchange mode: Car/Bus/Taxi/Tram/Cycle/Tube	✓	✓	✓	✓	✓	
Vehicle Pick Up/Set Down Areas	✓	✓	✓	✓	✓	✓
Blue Badge Parking Area	✓	✓	✓	✓	✓	✓
Level, Step-free Access	✓	✓	✓	✓	✓	✓
Wi-Fi	✓	✓	✓	✓		
Advertising	✓	✓	✓	✓	✓	✓

Forecourt

	Station Category					
	A	B	C	D	E	F
Landscaping (Trees, Planters, Shrubs)	✓	✓	✓	✓		
Weather Protected Walking Routes Between Modes	✓	✓	✓	✓		
Sheltered Waiting Areas for Buses and Taxis	✓	✓	✓	✓		
Locality Information	✓	✓	✓	✓	✓	✓
Train Service Information	✓	✓	✓	✓	✓	✓
Station Identification Signage and National Rail Symbol	✓	✓	✓	✓	✓	✓
Secure, Identifiable Boundaries	✓	✓	✓	✓		

	Station Category					
	A	B	C	D	E	F
Appropriate Security Devices, e.g. CCTV	✓	✓	✓	✓	✓	✓
Secure Cycle and Vehicle Parking in Closest Proximity to Station	✓	✓	✓	✓		
Post Box	✓	✓	✓			
Public Art	✓	✓	✓			
Cycle Hire	✓	✓				
Rail Replacement Bus Location	✓	✓	✓	✓	✓	✓
National Rail Symbol	✓	✓	✓	✓	✓	✓
Demarcated Accessible Route	✓	✓	✓	✓	✓	
Passenger Help Point	✓	✓	✓	✓	✓	✓
Long Stay Car Park	✓	✓	✓	✓		
Short Stay Carpark	✓	✓	✓	✓		
Hostile Vehicle Devices	✓	✓				
Station Service Yard	✓					
Maintenance Depot	✓					
Contractors/Trade Counter	✓					
Train Crew Parking	✓	✓	✓	✓		
Other TOC Parking	✓	✓	✓	✓		
Parking Payment Machines	✓	✓	✓	✓		

	Station Category					
	A	B	C	D	E	F
Wi-Fi				✓	✓	
Advertising	✓	✓	✓	✓	✓	✓

Station Entry and Ticketing

	Station Category					
	A	B	C	D	E	F
Concourse Building	✓	✓	✓	✓		
Station Reception	✓					
Induction Loops	✓					
Ticket Machines	✓					
Travel Centre — Advanced Travel, Business Travel and Information	✓					
Timetables, Leaflets	✓					
Left Luggage	✓					
Station Toilets (Unpaid Side)	✓					
Changing Places Facility						
Station Clock	✓	✓	✓	✓	✓	
Wayfinding Signs (Platform Signs/Exit Signs)	✓					
Summary Departures Board	✓	✓	✓	✓	✓	
Customer Information Screen	✓					
Interchange Information	✓					

Appendix B
Station Categories Classification

	Station Category					
	A	B	C	D	E	F
Trolley Management		■				
Customer Seating						
Mobility Assistance Point	■	■				
British Transport Police Office						
Wi-Fi	■	■	■			
Advertising	■	■	■			

Waiting and Commercial

	A	B	C	D	E	F
Comfortable Waiting Areas and Facilities		■	■			
Waiting Lounges		■	■			
Range of Seating						
Parent Room Baby Change						
Help Point		■	■	■		
Cash Machines		■	■	■		
Food Retail		■	■	■		
Other Retail		■	■			
Goods Collection point		■	■			
Lost Property	■	■				

	Station Category					
	A	B	C	D	E	F
Programmable Event Space		■				
Statutory Signage						
Advertising	■	■				
Vending	■	■	■			
Station Wayfinding						
Evacuation Point Refuges						
Ticket Office	■	■	■			
Station Control Room	■	■				
Secure Room	■	■				
Business Lounge/ Office / Meeting Rooms	■					
Retail Storage	■					
Loading Bay	■					
Dog Spend Area	■	■				
Wi-Fi						■
Advertising						■

Platform Zone

	A	B	C	D	E	F
Station Toilets (paid side)			■	■		
Automatic Ticket Gates			■	■		

	Station Category					
	A	B	C	D	E	F
Canopies and Shelters				■	■	■
Lifts						
Help points						
Seating						
Tactile Paving						
Platform End Barriers						
Public Address System						
CCTV						
Lighting						
Yellow Lines to Platform Edge	■	■				
Vending Machines	■	■	■			
Retail	■	■				
Landscaping	■	■	■	■	■	■
Waste Management						
Wi-Fi	■	■	■			
Advertising						■

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