

Appendix 2:

Draft Design Statement



NGT  
DESIGN STATEMENT

JUNE 2013

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This fifth draft of the NGT Design Statement, has been prepared for consideration by Metro and LCC Planning Board during June 2013. (Earlier drafts were completed in 2009, 2010 and 2013.)

It is not yet fully complete, the following will be added:

- New and updated photomontage views of key areas of the scheme. (The current photomontages are not up-to-date and are only included to show a broad indication of the proposals)
- 42 of the Character Area 'Design Context and Proposal' sections for Section 3 (A sample has been included only.)

These and other changes will be made following the next design freeze (DF7).

# VOLUME ONE DESIGN STATEMENT



**GILLESPIES**

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SECTION 1  
DESIGN  
OBJECTIVES  
AND PRINCIPLES

# Section 1 - Design Objectives And Principles

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Successful public transport infrastructure projects can provide a positive addition and be an integral part of the streetscene if designed in a complementary manner

Lyon.  
France





# 1-1 Introduction

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## 1-1-1 Overview

Leeds City Council (LCC) and the West Yorkshire Passenger Transport Executive (Metro) are jointly promoting a rapid transit trolleybus network within Leeds, and it will be known as New Generation Transport (NGT). This comprises a line running from Holt Park in the north, through the city centre to Stourton in the south.

The value of good design is recognised by business and political leaders in Leeds as being essential to the development and regeneration of the City. A poor quality environment is both economically and socially unacceptable. The success of NGT in urban design terms will, in part, be measured on its ability to respect, adapt and compliment the varying townscape characters that it will pass through. New transport infrastructure such as NGT and associated urban realm and development opportunities, can make a vital contribution to the regeneration of the City as a whole and to the quality of life of those who live and work there. In particular, new transport infrastructure that is well planned, designed and operated will play a key role in fostering a prosperous community in which people enjoy a better quality of life.

NGT represents a significant investment in the future of Leeds and has the potential to bring about dramatic change, not only with regard to a providing a new high quality public transport network, but also to act as a catalyst for the enhancement of a number of the city's main arterial routes and public spaces. Good urban design principles, a commitment to creative design and a desire to create great places for people will be a major contributing factor in how NGT is perceived in terms of quality, brand and integration with the City.

The purpose of this volume is to support the development of NGT by providing guiding principles or standards for good design that all of those responsible for the planning, design, construction and operation of the network should follow. These standards are fundamentally influenced by the drive for design excellence found in national, regional and local policy, guidance and initiatives.

This volume covers the design of the NGT corridor in its broadest sense, and therefore considers the urban realm in its entirety, not just the immediate NGT lanes or within the planning boundary. It is understood that NGT's effects will extend further than physical highway boundaries.

The aim of NGT is to deliver a quality and sustainable public transport system with reliable and efficient transport links between the main gateways, residential areas, City's businesses, its universities, and the City centre. NGT will contribute to a reduction in congestion through modal shift, seek to reduce pollution, and provide benefits for education, health, employment and the City's overall economy.

## 1-1-2 The Team

Assisting LCC and Metro with this strategic project are the technical design team of Mott MacDonald and Gillespies. As part of this team, Gillespies remit is to provide urban design and landscape advice to develop the public realm proposals as part of the scheme concept design lead by Mott MacDonald, to provide supporting material for a Transport and Works Act Order application for planning powers.

## 1-1-3 Purpose

The purpose of this Design Statement is to set out the urban design principles that have been applied during the outline design stage and to provide a clear statement for the proposed urban realm standards that should be applied during the detailed design and implementation stages.

In addition to this, the design statement sets out;

- To provide guidance and standards for design quality within the urban realm.
- An outline specification that provides the framework to deliver the creation of quality and coherent urban realm.
- The suggested mitigation measures to integrate NGT as sensitively into the existing townscape as possible.
- An overview, from an urban realm perspective, on some of the wider issues such as sustainability, environmental management and maintenance.
- Reflect upon, and integrate LCC's own design initiatives and aspirations for the City, with the NGT project.
- Highlight potential regeneration opportunities and synergies with other developments in the City.
- Provide clarity on urban design and mitigation for the Environmental Statement.

## 1-1-4 Status

The Design statement, when finalised, will be part of the suite of documents accompanying the application for the TWA Order for NGT, and will be used by the project team when working up applications for detailed approval under the planning conditions that will apply to development under the Order. The Planning Panel's in-principle views on the draft statement will facilitate the City Council's decisions on how best to progress the scheme.

## 1-1-5 Volume Structure

This Design Statement, [Volume 1](#) is structured as follows:

[Section 1](#) sets out the high level Design Objectives and Principles for NGT.

[Section 2](#) describes the general Design Components and outline specification for the urban realm associated with NGT and covers aspects such as branding, stops, hard surfaces and soft landscape planting.

[Section 3](#) summarises the context, main design proposals and suggested mitigation measures for each of the 42 Character Areas through which the routes pass.

(A more detailed analysis of the existing townscape and landscape character can be viewed within the new approach appraisal Landscape & Visual assessment chapter of the ES.)

A separate [Volume 2](#) - includes the Urban Design and Landscape Plans, which are detailed at 1:1000 scale.



### 1-1-6 NGT Context

The NGT scheme consists of some 14.6km (9.1 mi) of new trolleybus infrastructure. The network can be summarised as comprising three sections (Figure 1 shows the extents of the NGT network):

1. The northern section begins at Holt Park district centre and runs to a park and ride facility at Bodington (adjacent to the outer ring road) before continuing through West Park, Headingley, Woodhouse Moor, past the University area into the city centre.
2. The city section runs south from the Headrow, along Park Row, past Leeds Railway Station, along Boar Lane and Briggate.
3. The southern section crosses Leeds Bridge and routes through the Brewery Wharf and New Dock areas, Hunslet and Belle Isle before terminating at the new park and ride facility at Stourton, adjacent to the M621 junction 7.

Each section of the NGT network has a distinctive character, and with this, a unique set of environmental/social challenges and opportunities for NGT to respond to. NGT interfaces with a varying urban morphology, ranging from an urban scale in the city, through to suburban and a more rural character out at the P&R sites. Indeed, within these broader character zones there are also local areas of distinctiveness/varying environmental character that NGT will need to consider. The Landscape/Townscape Visual Impact Assessment chapter of the ES presents a detailed analysis of the existing townscape context, providing a breakdown of each of the character areas along the NGT route.

The urban realm associated with NGT will also play an important role in the brand and identity of the new system and how it is perceived, both for the users of NGT and onlookers of the system.

For the purposes of this Design Statement a number of assumptions have been made about the NGT infrastructure. These are as follows:

- The NGT system will include trolleybus vehicles which have rubber tyres, powered by overhead line equipment (OLE).
- The OLE catenary will be building mounted wherever there is suitable opportunities for fixing brackets to adjacent buildings, or be supported by traction poles in all other instances.
- Combined OLE traction poles and lighting columns are aspirational at present and need to be investigated further for their inclusion in the future.
- The vehicle will not require guidance or full height kerbs.
- Generally off highway sections will consist of concrete tracks with either grass or bound gravel between them, so that the route does not look like a road. However surfacing on top of the concrete should be considered to reduce the tyre noise in sensitive locations.

Significant investment in the urban realm and stop design creates a distinctive setting for public transport and provides good integration with the existing urban context

Lyon  
France



## 1-2 Design Objectives And Principles

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1-2-1 This Design Statement begins with the first principles for good design and 'place making', using widely recognised and accepted guidance as the starting point for the development of the urban realm proposals associated with NGT.

Within the context and framework of national, regional and local planning policy and guidance, this Statement has derived a series of objectives and design principles that set out the design aspirations and parameters for the urban realm associated with NGT.

These objectives and supporting principles have been used to initially influence options early on in the design process and to provide a clear direction for the urban realm proposals during design development.

In a complex infrastructure project such as NGT, there are often competing objectives that need to be carefully balanced and compromise is sometimes required. This reality has further strengthened the case within this Statement to raise the bar, or benchmark for design quality, so that even in the event of compromise, there will still be an acceptable and affordable high quality design solution that can be delivered.

The following tables overleaf set out the objectives and design principles of NGT.

### 1-2-2 REFERENCES

In the development of the design principles and objectives for the urban realm and the design development that follows throughout this volume, the following references were used for guidance and technical support and should be referred to in future design work:

- Regional Spatial Strategy and the 2009 update
- Regional Sustainable Development Frameworks
- Unitary Development Plan
- Leeds City Centre Urban Design Strategy (CCUDS)
- Renaissance Leeds Delivery Plan 2007-2009
- City Centre 'Making Spaces' Programme
- City Centre Capital Projects - Streets and Spaces schemes
- Supertram Design Standards Guide - Volumes 1, 2, 3 and 4
- Nature Conservation (covered in detail in the Environmental Statement [ES] )
- Biodiversity (covered in detail in the ES)
- Biodiversity and Development (covered in detail in the ES)
- Conservation Areas with reference to updated area appraisals (covered in detail in the ES)
- Conservation and Heritage including listed buildings (covered in detail in the ES)
- Green belt policy (covered in detail in the ES)
- Neighbourhoods for Living (covered in detail in the ES)
- Sustainable Development Unit (covered in detail in the ES)
- Town centre strategies and action plans
- Village and neighbourhood design statements
- Holt Park District Centre - regeneration consultation
- Draft Area Action Plans
- Street Design Guide draft SPD - consultation (LDF)
- Planning Policy Statement (PPS) 13 – Transport (covered in detail in the Transport Assessment)
- Planning and Development briefs for appropriate sites
- Street Style Design Guide
- Leeds City Centre Strategic Plan 2006 to 2010
- The Sustainable Development Design Guide
- BS:5837 Trees in relation to design, demolition and construction

Design Objective	Supporting Design Principles
Integration of the NGT system should be about good 'place making' in the city.	<ul style="list-style-type: none"> <li>• Where possible, system efficiency should not be at the detriment of the urban environment. Solutions should aim to maintain the existing townscape character and positively contribute to the urban environment.</li> <li>• The NGT network should, where possible, link into wider initiatives so that it fully integrates and benefits the wider urban area/community.</li> <li>• Identifying opportunities along the NGT routes that add value to the existing townscape.</li> <li>• Promote links and connections with surrounding communities, neighbourhoods and key amenities.</li> </ul>
Reinforce NGT identity and brand.	<ul style="list-style-type: none"> <li>• NGT routes should be easily identifiable (overhead lines will contribute significantly to this).</li> <li>• Distinctive brand to NGT stops, infrastructure and vehicles to encourage patronage which is not too subtle or dominant.</li> <li>• Segregated routes are preferable in creating a legible and coherent linear system rather than shared use of the existing carriageways.</li> </ul>
Urban design quality is paramount for raising the profile of NGT.	<ul style="list-style-type: none"> <li>• NGT should reinforce or build upon the existing street pattern and layout where possible.</li> <li>• NGT should respond to scale and form of existing urban grain.</li> <li>• NGT should minimise its impact on buildings/boundaries, spaces and features that have cultural and/or historical significance.</li> <li>• NGT should apply recognised principles of best practice such as 'Secured by Design' and 'Manual for Streets'.</li> <li>• NGT should promote high quality, classic and timeless design solutions.</li> <li>• NGT routes and infrastructure should be clear and legible to other road users and pedestrians.</li> </ul>
There is a need to minimise the amount of infrastructure without impacting system efficiency.	<ul style="list-style-type: none"> <li>• Identify where shared use spaces or off highway solutions are appropriate and the forms which minimise impacts in any particular context.</li> <li>• Integration of NGT within the highway whilst minimising the transport corridor and associated impacts.</li> <li>• Natural forms of visual and acoustic barriers should be considered where they might minimise impacts.</li> </ul>
Minimise clutter often associated with transport infrastructure.	<ul style="list-style-type: none"> <li>• Minimise street and traffic signage (especially in city centre) where possible.</li> <li>• Review and rationalise street furniture and signage, including opportunities for integration of lighting, signage and traction poles.</li> <li>• Minimise pedestrian barriers and guard rails where safe and practical.</li> <li>• Only provide street furniture where appropriate and necessary.</li> <li>• Provide a co-ordinated range of signs and street furniture.</li> <li>• Assume a clear presumption that catenary wires are supported by building fixings where possible.</li> </ul>
Creation of green corridors and infrastructure.	<ul style="list-style-type: none"> <li>• Existing trees should be retained where practical and new planting considered where there is enough space to soften the visual impact of the new infrastructure and create strong avenues.</li> <li>• Where trees have to be removed they should be replaced in accordance with the tree replacement policy in section 2.9.</li> <li>• Where woodland scrub is being replaced it should be replaced on a like for like basis.</li> <li>• Where trees of significant prominence or stature are to be removed these should be replaced by a premium specimen tree in a location as close as possible to the original location.</li> <li>• Grass verges and landscaping should be maintained or introduced wherever possible to soften the transport corridor and create buffer zones.</li> <li>• Integration of effective and user friendly pedestrian and cycle facilities into the NGT system.</li> </ul>

Design Objective	Supporting Design Principles
Design for effective management and maintenance of the urban realm.	<ul style="list-style-type: none"> <li>• Urban realm to use a robust and coherent palette of materials and street furniture.</li> <li>• Urban realm to apply simple, elegant, well designed detailing.</li> <li>• Reduce clutter and minimise street furniture elements.</li> <li>• Achieve a balance between aesthetics and practical maintenance issues.</li> </ul>
NGT stops should be developed as gateways and markers to the system.	<ul style="list-style-type: none"> <li>• Develop bespoke elements in key locations such as City Square.</li> <li>• Timeless, classic, consistent and functional standard design solutions throughout system.</li> <li>• A kit of parts to allow sequential progression from urban to rural with unifying elements.</li> </ul>
Promote a network that respects and enhances the existing and distinctive character of the areas through which it passes.	<ul style="list-style-type: none"> <li>• NGT to respond to the City's strategic vision and proposed development and regeneration opportunities.</li> <li>• Respond to setting, local character and sense of place.</li> <li>• Avoid where practical, intrusion on important local views and vistas.</li> </ul>
NGT network should have a coordinated and consistent approach to design.	<ul style="list-style-type: none"> <li>• Introduce a kit of parts that can be used throughout the network, whilst still allowing adaption to local conditions.</li> <li>• NGT floorscape to be consistent and integrated into the urban fabric.</li> <li>• Timeless, classic and functional design palette.</li> </ul>
Urban realm should be accessible and safe.	<ul style="list-style-type: none"> <li>• NGT routes should form well lit corridors.</li> <li>• Integration of the network into existing townscape should ensure that stops are well connected and not remote.</li> <li>• NGT stops, ramps and pedestrian crossings need to comply with Equality Act 2010.</li> <li>• NGT design to comply with 'Secured by Design' principles.</li> </ul>
Promote a sustainable NGT network.	<ul style="list-style-type: none"> <li>• Promote environmental, economic and socially sustainable design.</li> <li>• Ensure flexibility of design and layout to allow for future changes in demand/standards.</li> <li>• Promote cycling and walking routes to and along the NGT network.</li> <li>• Use of materials with high BREEAM rating and including the use of recycled materials.</li> <li>• Promote sustainable urban drainage systems and water management.</li> <li>• Promote improved ecology and biodiversity throughout the NGT network.</li> <li>• Complement the existing public transport network to encourage greater use of more sustainable transport.</li> </ul>

A simple rhythm to the urban realm elements creates a strong and consistent character to the townscape.

Eindhoven  
Netherlands

IMAGE TO BE  
UPDATED



## 1-3 Overview Of Urban Design Proposals

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The following section provides a brief overview of the design proposals for the NGT network.

### 1-3-1 WIDER NGT NETWORK

#### 1-3-1-1 Integration

For much of the NGT network, the urban realm proposals seek to harmoniously integrate the proposed infrastructure with the existing streetscape so that there is not an adverse change to the existing urban realm character.

The streets and spaces in which NGT will pass should still be interpreted and perceived as part of a coherent urban realm. NGT should not appear as if it is 'bolted on' to the existing urban realm or feel as if has been 'squeezed in' - it should be an integral element of the streetscape and townscape.

#### 1-3-1-2 Surface Materials

There will be a coherent approach to the surface materials using a simple coordinated palette. This palette will be applied using a hierarchy to respond to areas of varying quality and to provide the flexibility to tie in with the local context. The surface materials will aim to be harmonious within the existing streetscape to create a simple 'platform' for street activity - avoiding over complication, too many materials and fussy detailing

#### 1-3-1-3 Street Furniture

The urban realm proposals aim to de-clutter the streetscape. It is an aspiration that traction poles and street lighting will be combined throughout the network to reduce the number of columns required, but this will be subject to further investigation. New street furniture will be generally kept to the stops (obvious exceptions to this are the traction poles and necessary signage) and coordinated through out the network. Pedestrian guard rails will be resisted wherever appropriate and safe to do so.

#### 1-3-1-4 NGT Stops

NGT stops will form a 'gateway' to the network and therefore would be prioritised in terms of receiving a localised higher level of investment, in terms of surface materials/street furniture quality to reflect this.

A 'kit of parts' approach would be employed to NGT stops to allow a consistent and coherent design treatment for the entire network whilst allowing the ability to introduce variation where appropriate to suit the local context in which they are located. Elegant and minimal structures that are understated are proposed so that they have the ability to blend in/adapt to a range of street scenes.

'Bespoke shelters' would be used at key points within the network where a specific design response is required to fit the existing context or where a particular statement is deemed necessary.

#### 1-3-1-5 Brand and Identity

The stops provide the primary opportunity to reinforce the brand and identity of NGT whilst still being an integral part of the streetscene. The segregated off highway sections of the network will also help to reinforce the identity and create a unique character to the NGT corridors.

#### 1-3-1-6 Green Infrastructure

As part of the urban realm proposals, tree planting is proposed, where possible, to soften the impact of proposed and existing infrastructure and replace trees that are felled. A minimal approach is preferred where bold avenues of trees and grass verges can provide maximum impact along a street in terms of greenery whilst providing a low maintenance solution.

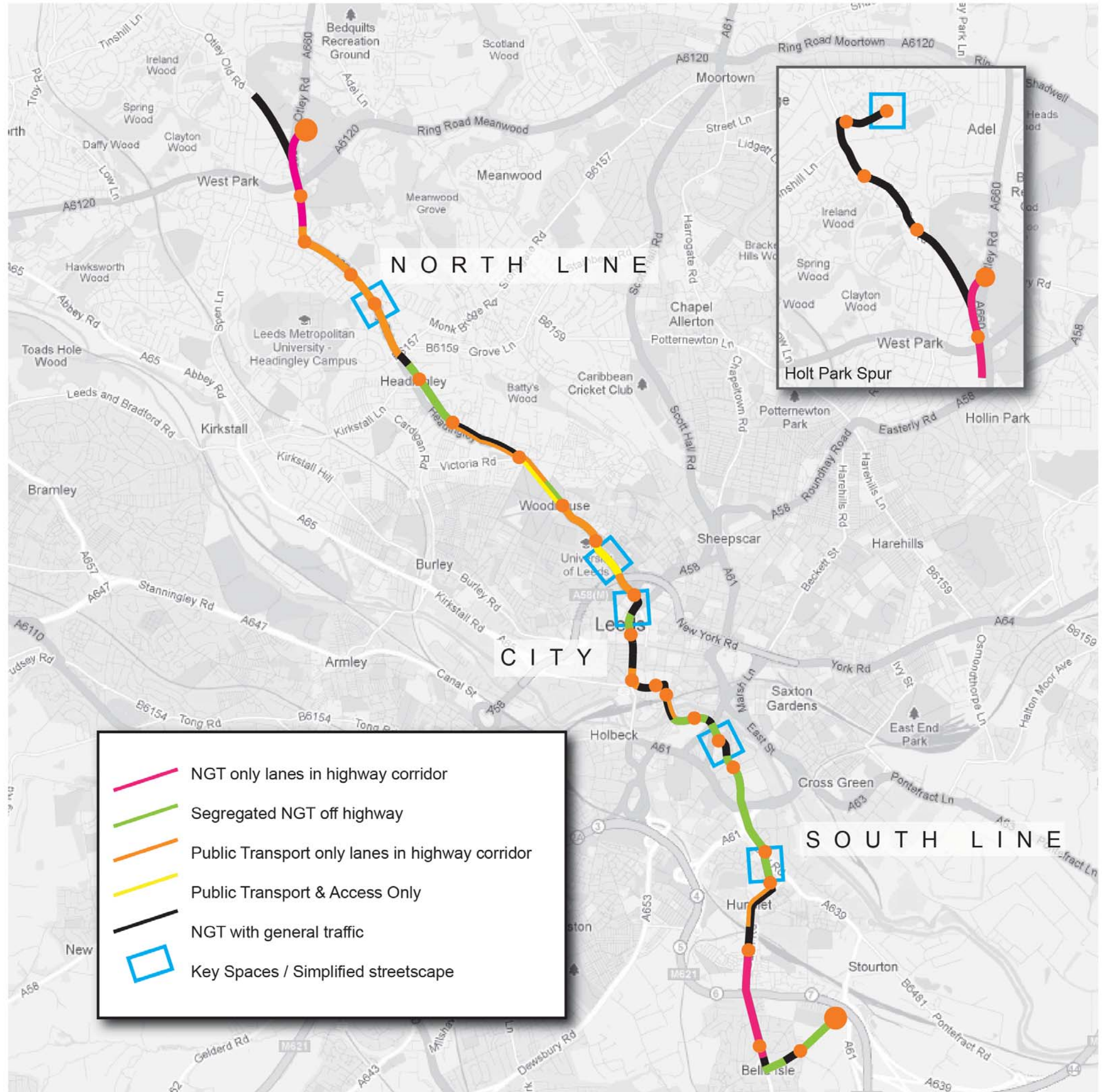
#### 1-3-1-7 Focus Areas

There are within the NGT network, areas where there has been a particular focus on 'place making' either where NGT may have a significant impact, or where it will integrate with existing key areas of the City. These areas are as follows:

- Millennium Square.
- Woodhouse Lane (University of Leeds).
- Woodhouse Moor.
- Hyde Park corner.
- Headingley Hill.
- Headingley Centre (Arndale Centre).
- St Chads.
- West Park.
- Bodington P&R.
- City Square.
- New Dock.
- Penny Hill Centre.#
- Whitfield Square
- Belle Isle Circus

These areas have been subject to a more rigorous and detailed development of the urban realm proposals. A number of these areas are highlighted in this volume and are set out in more detail in Section 3.

Figure 1-01  
Proposed Approach to NGT  
Surface Treatments



### 1-3-2 GENERIC URBAN REALM TYPOLOGIES

There are within the NGT network, generic sections where a particular urban realm form and treatment can be applied. This standardisation of approach in terms of the layout and detailing of the proposed infrastructure assists in developing a coherent character to sections of the route.

Five generic urban realm typologies have been developed:

1. Key spaces and public realm focus areas
2. Segregated off highway NGT corridor
3. Dedicated NGT/shared nearside bus lanes
4. Public transport corridor/local access route
5. NGT running with general traffic

The general overriding application of these typologies to each section of the routes is shown in "Figure 1-01 Proposed Approach to NGT Surface Treatments" on page 12 with a graphic impression of each approach illustrated in Figures 1-02 through to 1-06 on pages 18, 19 and 20.

#### 1. Key spaces and public realm focus areas

- Headingley Centre Stop / Wood Lane,
- St Chads NGT Stop
- Hyde Park Corner
- Woodhouse NGT Stop & Monument Moor
- University area (woodhouse lane)
- Cookridge street & millennium Sq (including Arena/Civic Stops)
- City Square ???
- Adelphi / Bridge End area (TBC)
- Penny Hill
- Belle Isle Roundabout

#### 2. Segregated off highway NGT corridor

- Holt Park
- Lawnswood to Bodington
- Headingley off highway section,

- Otley Road (Weetwood Road to Bodington P&R),
- Woodhouse Moor
- Chadwick Street to South Accommodation Road
- South Accommodation Road - St Joseph stop – Penny Hill
- Belle Isle Road
- Stourton P&R.

#### 3. Dedicated NGT/shared nearside bus lanes

- Otley Road (Shaw Lane - St Chads Drive - West Park - Lawnswood),
- Headingley Lane (Richmond Avenue to Woodhouse Moor)
- Lower Briggate
- Woodhouse Lane

#### 4. Public transport corridor/local access route

- University area (woodhouse lane) to Portland crescent
- Portland crescent to Cookridge street (including Arena/Civic Stops)
- Cookridge Street to Headrow
- Park Row

#### 5. NGT running with general traffic

- Boar Lane,
- Park Row,
- Church Street,
- Balm Road,
- Otley Old Road,
- Holt Dale Approach
- Winrose grove

Figure 1-02

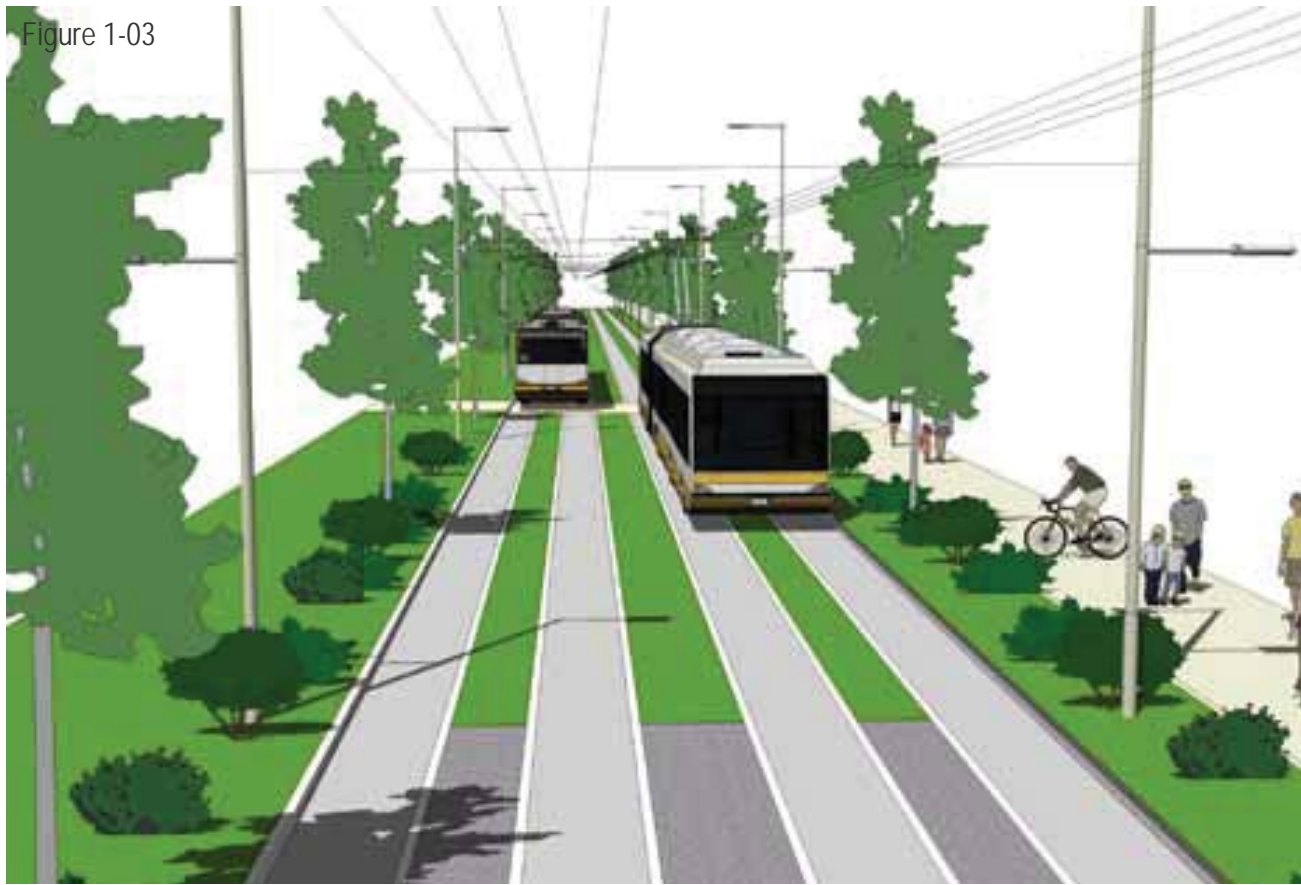


### 1-3-9 KEY SPACES AND PUBLIC REALM FOCUS AREAS

#### Key design attributes:

- Coherent 'wall to wall' urban realm treatment.
- Subtle change in surface material between vehicular/pedestrian areas and pedestrian only areas to maintain perception of unified space. Suggested change in units sizes or subtle differences in colour/stone type.
- Wide contrasting flush kerbs/kerb checks to delineate between pedestrian only and vehicular areas.
- Street furniture used sparingly and as a device to delineate the differing uses of space.
- Minimise highway signage clutter.
- OLE to be building mounted where possible, alternatively use traction poles and possibly combine with lighting columns if feasible.
- Introduce tree planting where possible to screen traction poles and soften areas of hard materials.

Figure 1-03



### 1-3-10 OFF HIGHWAY NGT CORRIDOR

#### Key design attributes:

- Segregated sections provide primary opportunity for reinforcing NGT identity along the sections of network between the stops.
- Often located adjacent to existing infrastructure as replacement to existing grass verges - therefore essential that the NGT corridor appears green in appearance.
- Generally concrete track with reinforced grass or bound gravel strips between, or coloured asphalt carriageway.
- Potentially combine traction poles with lighting columns if feasible.
- Introduce tree planting where possible to screen traction poles.

Figure 1-04

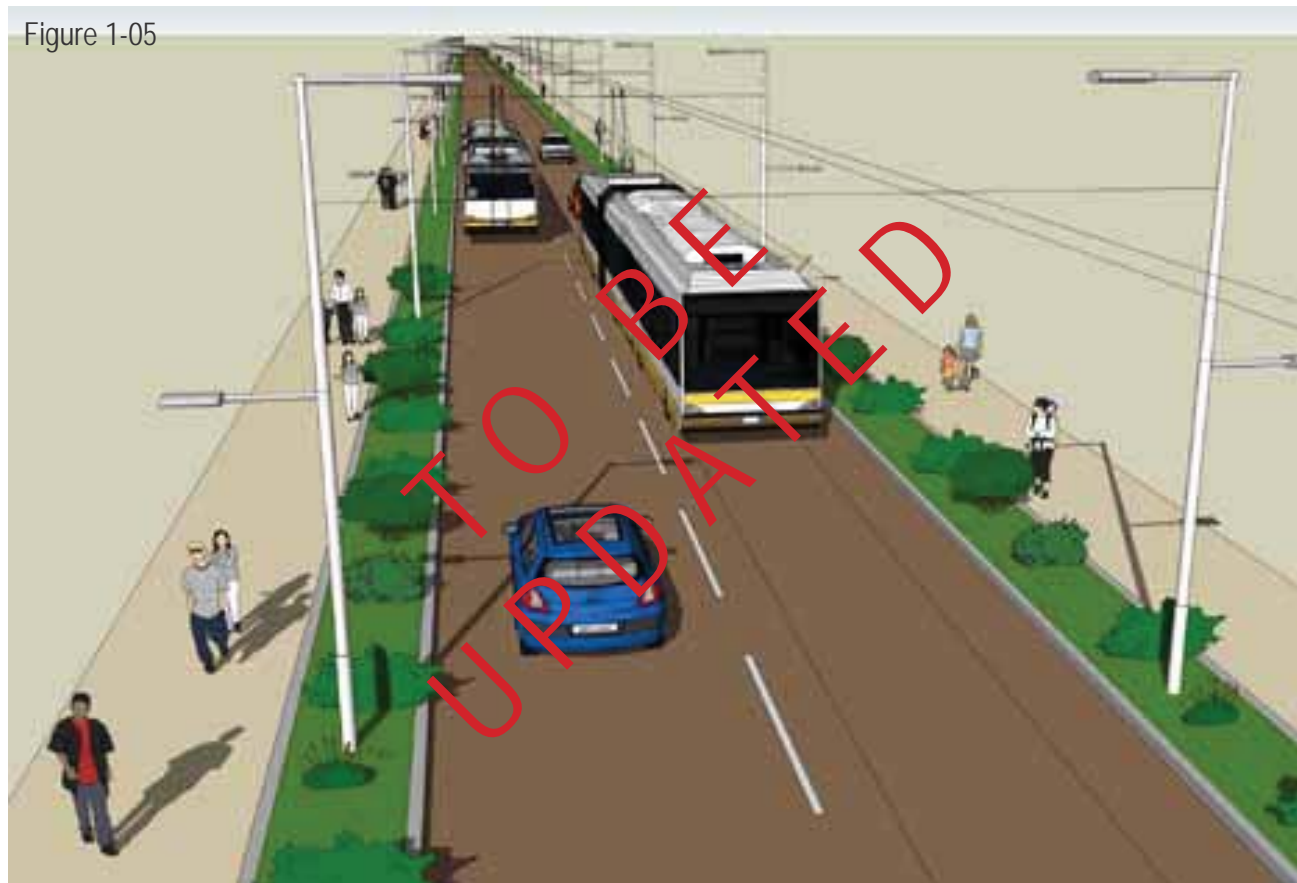


### 1-3-11 DEDICATED NGT/SHARED NEARSIDE BUS LANES

#### Key design attributes:

- Dedicated near side lane on both inbound and outbound lanes or just one lane.
- Unique DfT approved marking/symbol to ensure visible branding of NGT lanes
- Asphalt to be a single colour from kerb to kerb.
- Wide full height kerbs delineate between pedestrian and vehicular uses.
- Potential for raised 30mm kerb upstand or tactile road marking between traffic and NGT lanes, to deter traffic from using NGT lanes (subject to safety requirements)
- OLE to be building mounted where possible, alternatively use traction poles and potentially combine with lighting columns if possible.
- Introduce tree planting where possible to screen traction poles.

Figure 1-05



### 1-3-12 PUBLIC TRANSPORT CORRIDOR/LOCAL ACCESS ROUTE

#### Key design attributes:

- Change in surface material to carriageway to define this route as a 'public transport priority' route.
- OLE to be building mounted where possible, alternatively use traction poles and potentially combined with lighting columns if possible.
- Introduce tree planting where possible to screen traction poles.

Figure 1-06



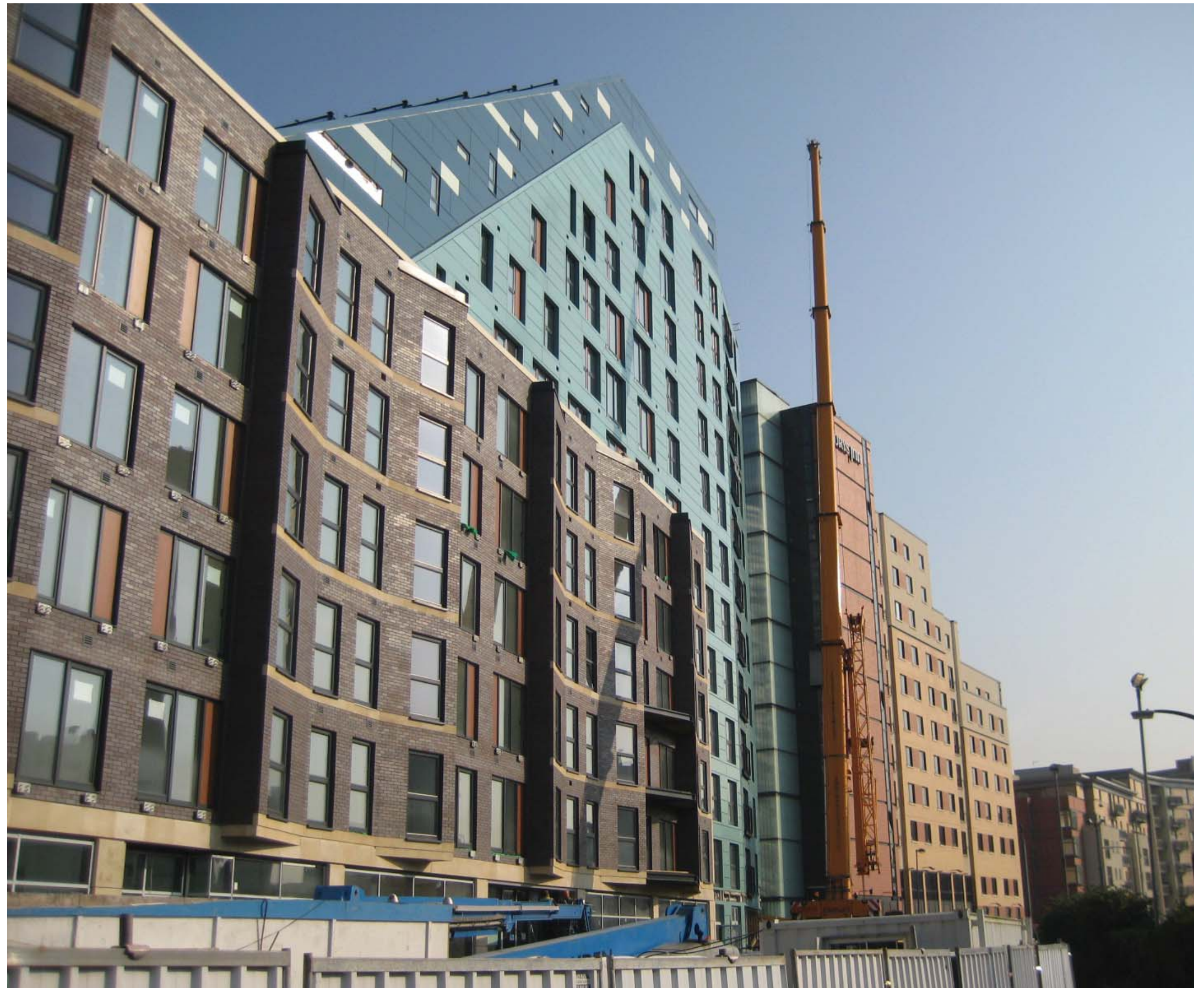
### 1-3-13 NGT RUNNING WITH GENERAL TRAFFIC

#### Key design attributes:

- OLE to be building mounted where possible, alternatively use traction poles and potentially combine with lighting columns if possible.
- Introduce tree planting where possible to screen traction poles.

Investment in new transport infrastructure such as NGT will support the on-going regeneration of the City.

Redevelopment  
Leeds







## 1-4 Integration With Regeneration

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1-4-1 The aim of NGT is to deliver a quality and sustainable public transport system for Leeds with fast, reliable and efficient transport links between the City's businesses, universities, museums and the City Centre, including the main rail station and retail areas. NGT will help increase the use of public transport, seek to reduce pollution and provide benefits for education, health, tourism, employment and the City's overall economy.

The integration of NGT should strive, as a minimum, to improve the immediate existing urban context along the routes, not merely mitigate against its potential negative impacts.

In addition to this, NGT presents the opportunity, or indeed could be the catalyst for enabling transformational change within the City of Leeds. This could be in the form of new urban realm projects for key streets and spaces, or creating new linkages to open up access to isolated parts of the community. NGT also has the potential to enable wider reaching opportunities, such as kick starting the economic regeneration of certain areas like local neighbourhood centres.

In the consideration of these regeneration opportunities, NGT has engaged and responded to the City's aspirations and ongoing initiatives to ensure that the network can be integrated in a manner that supports wider/strategic regeneration projects in the future.

It should be recognised that NGT will not be able to deliver all aspects of such regeneration opportunities in its own right, and therefore, there is a need to identify the complementary regeneration and development opportunities and co-ordinate with them. These opportunities will not be taken forward as part of the NGT scheme unless specific funding sources are identified and aligned and will therefore likely need to be delivered separately by other projects and partners.

"Section 3 - Design Context Proposals" on page 67 provides a more detailed review of regeneration initiatives and complementary regeneration opportunities along the routes which are beyond the scope of NGT to deliver by itself.



SECTION 2  
DESIGN  
COMPONENTS

# Section 2 - Design Components

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## 2-1 Introduction

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TO BE  
UPDATED

Branding within the urban realm is a key component in creating an identity and a sense of a coherent network.

Montpellier  
France



## 2-2 NGT Brand

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2-2-1 Branding will create a visual identity for NGT, and will also encourage an image of a public transport system that is modern, efficient, clean, safe and attractive to passengers and car users. NGT provides a unique opportunity to change many of the negative perceptions regarding public transport in Leeds.

The successful branding of public transport infrastructure has a long history. London Transport's 'brand' was developed from the 1920s onwards and includes the iconic underground map and Routemaster double decker bus. These key elements of the London Transport brand are now recognised around the world.

Although NGT branding must be distinctive and have its own identity to promote this unique service, it must be coordinated with that of Metro which is already an established brand. However, it will be important to clearly delineate the service as a 'signature' offer that is different from all other Metro services. This is to help establish or brand the service as a premium offer which should help attract new public transport users. In addition, marketing should emphasise the unique features of the service such as speed, reliability, frequency and comfort.

Common features that are promoted on other bus rapid transit systems include:

- Faster more reliable and efficient than traditional bus services or private car - trolleybus bypasses congestion and has greater priority at junctions.
- More convenient and easier than driving and parking at destination.
- Economic alternative to car ownership.
- Provide a more sustainable and environmentally friendly solution than other forms of transport.

The NGT name, logo and colour palette are primary elements of the NGT brand and identity. Each must be carefully designed to reflect and sell the service, but must also be compatible with the townscape. For example, a logo and associated colour palette that appears attractive on a letterhead can easily fail once enlarged and applied to stops and vehicles, whether by drawing attention to itself for the wrong reasons or by quickly dating. A balance needs to be struck between being distinctive and adding to the visual 'noise' of a busy urban environment, particularly in conservation areas. The colour palette therefore needs to be carefully chosen and coordinated with all other design elements associated with NGT and distinguish it from other Metro bus services. It is also important that the colour palette be accurately reproduced and specific colours specified and not deviated from.

The public will be presented with the NGT brand and identity through three key means:

- Vehicles - design, colour
- Stops - shelters, street furniture, signage, colour
- Graphic materials - timetables, maps, tickets, web/screen based

Vehicle aesthetics should generally be visually 'clean' or uncomplicated in design and prominently feature a simple coordinated colour palette and one typeface which can be read at a distance whilst in motion. Although the convenience and speed of NGT is a key brand image, care should be taken not to overemphasise this in the design of vehicles or graphics, particularly to make vehicles appear 'futuristic'. This can date both the vehicles and brand quickly.

NGT stops and information points should feature high contrast sans serif typeface and distinctive geometrics that are easy to read at a distance or in inclement weather and ensure maximum readability, especially for those unfamiliar with Leeds or for those with memory or visual impairments.

Care must be taken that future advertising opportunities such as billboards at stops or even vehicle 'wraps' do not detract from or compete with the NGT brand which should primarily be about recognition and promotion of the network and service, not selling unrelated products. Advertising opportunities will also be subject to Leeds City Council's Advertising SPD.

Graphic materials must always be coordinated with overall brand and used to reinforce the identity of NGT. It is essential that all graphic material produced with NGT carries and promotes the brand to ensure a consistent positive image, whether on or off the system. As with signage, typefaces must be easy to read and network and local maps easy to understand, especially for those unfamiliar with Leeds or for those with memory or visual impairments.

Overall, NGT branding must create a consistent, modern and attractive identity for vehicles, stops, advertising and promotional materials to help distinguish the service from other bus services as more convenient, comfortable and faster than the private car in Leeds.

High quality surface materials and street furniture palette reinforce the identity and character of the urban realm.

Lyon  
France





## 2-3 Surface Materials And Street Furniture

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2-3-1 There will be a coherent approach to the surface materials using a simple coordinated palette. This palette will be applied using a hierarchy to respond to areas of varying quality and to provide the flexibility to tie in with the local context in which they are located. The surface materials are proposed to be harmonious within the existing street scape, to create a simple 'platform' for street activity - avoiding over complication/use of materials and unnecessary detailing.

Four basic categories of surface materials have been identified along the routes ("Figure 2-01 Surface Material Categories" on page 28) these are outlined below:

- **High Quality** – Generally for important Conservation Areas where natural stone is proposed to be used on new pavements and key spaces, and natural stone or conservation kerbs are appropriate
- **Above Standard** – For other Conservation areas, sensitive or important areas where exposed aggregate precast concrete paving is proposed to be used on pavements and shared surfaces with precast concrete highway/conservation kerbs
- **Standard** – For other nonsensitive areas where asphalt and standard concrete flag surfacing with precast concrete highway kerbs are appropriate
- **Segregated Sections** – A bespoke approach where NGT runs off highway in its own dedicated route

Whilst NGT is proposed to deliver a large range of highway improvements along its full length it is not always possible for it to deliver a 'wall to wall' upgrading of pedestrian surfaces. As such consideration will be required to when and where new materials are introduced, upgraded or replaced; this is generally only likely to affect areas designated as Above Standard or High Quality. Areas which are Standard are proposed to have resurfacing of asphalt course, even if it is wearing course only.

In general areas where kerb lines are to remain untouched then the minimum amount of resurfacing works should be undertaken, limited to that which is required to ensure the successful incorporation and operation of NGT, i.e. resurfacing of bus lanes, line markings and areas of paving around stops or adjustment of signage/ street furniture.

In areas where kerb lines are to be adjusted, either radically or more superficially then resurfacing works should be undertaken where the existing paving cannot be reinstated or suitably matched in order to ensure a quality finish. This is unlikely to be a problem in areas where footways are being reduced but more so where footways are being widened.

### 2-3-2 High Quality Areas

Where NGT is running within a 'high quality' area (generally conservation areas where natural stone paving is already in use) or where it is felt that its introduction is appropriate, natural stone pavements, flags or setts would be used on adjacent pavements and key spaces to differentiate it and raise the quality of the street. The choice of stone and finish would reflect the local context and surroundings but should generally be Yorkstone setts or Granite. Careful consideration will be given to the engineering of the build-up to make sure it is sufficient to handle the loading of NGT and other vehicles and so avoid rutting or dislocation of units. Even in high quality areas, where NGT uses existing bus lanes and normal highway, then asphalt would remain as the surface material. For kerbs in high quality areas, as a general rule, natural stone should be used although reconstituted stone or 'conservation' kerbs could also be used where this is the prevailing detail in the street.

### 2-3-3 Above Standard Areas

Where NGT is running in a dedicated carriageway or key space within an 'above standard' area and it is appropriate, small precast concrete unit pavements or setts should be used to differentiate it and raise the quality of the street. The choice of finish and colour should reflect the local context and surroundings. Careful consideration will be given to the engineering of the build-up to make sure it is sufficient to handle the loading of NGT vehicles and so avoid rutting or dislocation of units. In areas where it is less appropriate then a standard asphalt surface should be utilised.

Within above standard sections where paving (as opposed to asphalt) is already used, exposed aggregate precast concrete flags and setts should be used to reinstate or extend footways. The choice of precast unit should reflect the existing materials and local context. In the majority of areas this will be to the LCC standard specification.

Above standard kerbs will be normal highway spec precast concrete or reconstituted stone 'conservation' types in Conservation areas. Natural stone kerbs where they exist should be retained and reused or replaced with comparable stone kerb. Although stone kerbs will generally only be located in high quality areas, care will be taken not to remove them from conservation areas where they exist.

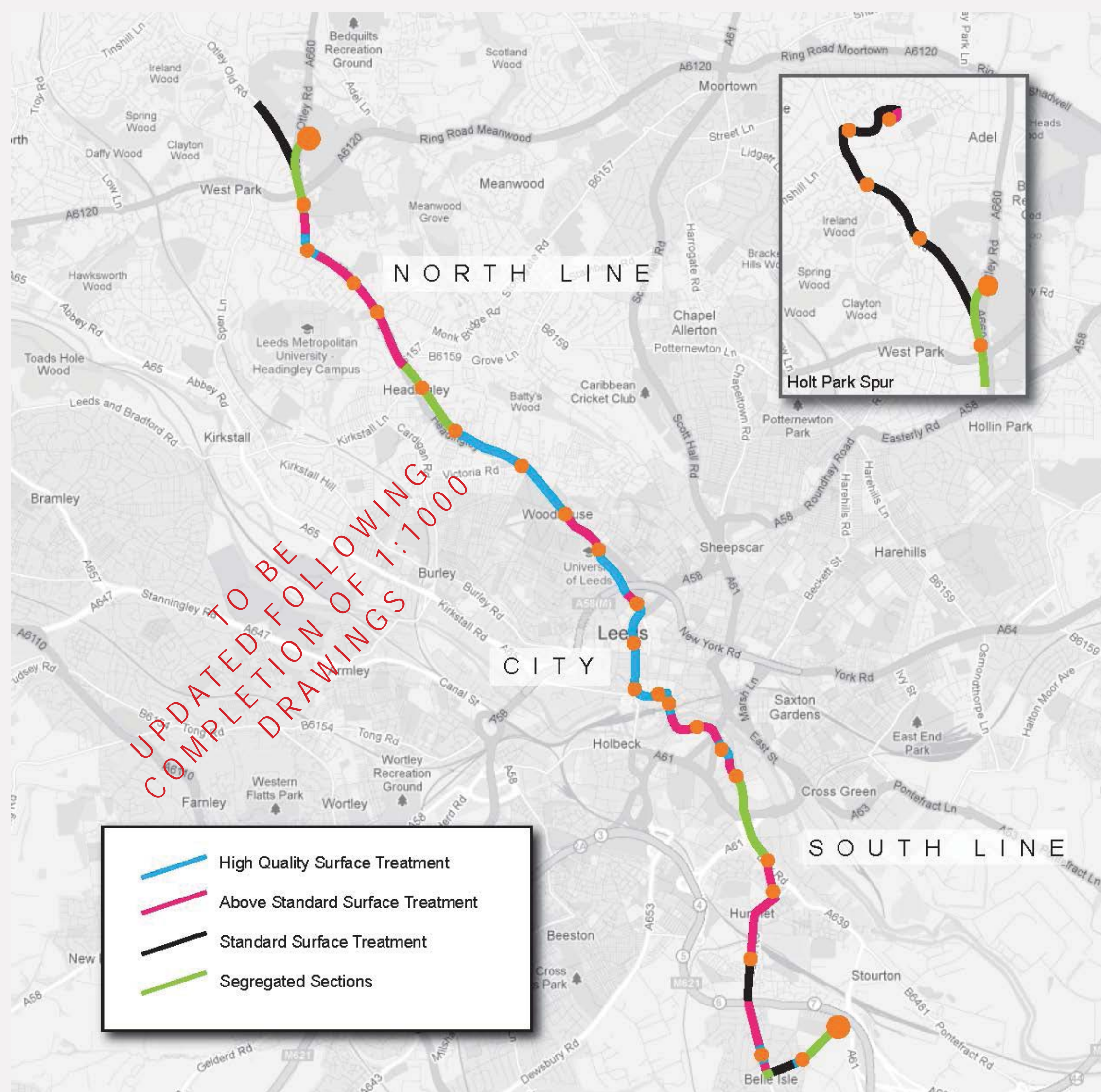
### 2-3-4 Standard Areas

Where NGT is running with general traffic or within a standard bus lane, these should be standard asphalt. Coloured surfaces would not generally be applied to these lanes and standard road markings used to delineate lanes. For replacement or extended pedestrian surfaces the prevailing standard surface would be used. This should generally be asphalt or basic concrete paving flags. Kerbs will be standard highway specification precast concrete type.

### 2-3-5 Coloured Surface

Where NGT is running within the main carriageway, but in a dedicated lane not shared with other buses, a unique symbol or marking (subject to DfT approval) should be applied to the standard asphalt. All lanes where NGT will have access will be resurfaced. This provides an opportunity to have coloured chippings and binder which will give a permanent maintenance free coloured surface.

Figure 2-01  
Surface Material Categories





### 2-3-6 Segregated Areas

Generally, off highway sections of NGT should consist of concrete running 'tracks' with a low noise surface and reinforced grass between them to allow vehicles to occasionally overrun. The concrete and surface should be neutral in colour, and will be given a textured finish for skid resistance. The reinforced grass area between the 'tracks' will give off highway sections a softer/greener appearance and reduce surface water runoff entering the drainage system. These areas will require adequate under soil drainage and include a high void to solid ratio within the reinforcement to ensure sufficient growing medium.

Where reinforced grass is not practical or feasible, it should be replaced by bound gravel to maintain the 'track' like appearance and soften the impact of these off highway sections.

At the entrances to and exits from segregated sections, crossing points and NGT stops, then grass would be omitted from the surface so that the whole surface would be in situ concrete with the natural colour and brushed texture finish. Kerbs would be reconstituted stone 'conservation' types and pedestrian surfaces would use resin bound gravel to give a more informal character.



### 2-3-7 Street Furniture

Generally, NGT will not upgrade existing street furniture along the length of the routes, except at NGT stops and in relation to lighting where possible. It is proposed that existing street furniture that is removed with highway works should be reinstated (or where necessary due to damage replaced with a type that fits within the local context). However, a street furniture audit should be undertaken along all routes in areas affected by NGT proposals to remove clutter as appropriate to provide a safer and more pleasant environment for pedestrians.





## 2-4 Boundaries And Structures

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### 2-4-1 BOUNDARIES

NGT will generally follow existing highways and therefore the definition of the scheme boundaries is not necessary or desirable. Occasionally NGT forms a new route in the townscape (for instance along the Headingley off highway section) and here new boundaries with neighbouring properties may need to be established. Generally these will replicate either the timber fence or wall treatment of design and height to match the immediate locality.

### 2-4-2 WALLS

Numerous replacement or new wall/retaining walls will be required as a result of scheme proposals.

Replacement walls are to be rebuilt using the existing materials, supplemented with matching new materials where required. In the event of the existing materials being unfit for reuse or there is insufficient, then the wall is to be rebuilt using new materials to match the boundaries original design and finish. Where appropriate a change or upgrade to original materials may be necessary if existing materials are poor or inappropriate to their location.

In locations where a completely new wall or boundary is required, then this is to be constructed in materials sympathetic and in context with the surroundings in which it is to be built. This is likely to follow the following principles;

- **Conservation areas or within the setting of listed buildings** – Natural Stone (or where appropriate, bricks to match surroundings or fencing eg. to the rear of the Arndale Centre on Headingley Lane.)
- **Other areas** – Brick with either a natural stone, concrete/reconstituted stone or brick coping detail.
- **Offline areas (prominent locations)** – Finish to be based on above criteria depending.
- **Offline areas (non-prominent locations)** – Reconstituted stone walling or gabions.
- **General** – Temporary Protective Fencing will be used to protect existing features/trees during works

Wherever planting works have been undertaken then post and sheep wire fencing will be used in order to minimise access and accidental damage to the plants. This will assist the establishment period and give the planting schemes an increased chance of success.

Heras Type Fencing with Scaffold Framework (in accordance with BS5837) will be used to protect existing trees during construction works.

Stops are a gateway to the public transport network and a unique opportunity to provide a design statement and reinforce the identity and perception of quality for the network.

Lyon  
France



## 2-5 Stop Design

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2-5-1 NGT stops will form a 'gateway' to the network and therefore will receive a localised, higher level of investment in terms of surface materials/street furniture quality to reflect this. A standardised 'kit of parts' approach will be employed to all NGT stops to allow a consistent and coherent design treatment for the entire network, whilst allowing the ability to introduce variation where appropriate to suit the local context in which they are located. Discreet, elegant and minimal structures are proposed for standard NGT stops, which have the ability to blend in and enhance the locality without becoming an overbearing element within the streetscape.

In addition to the standard stops, bespoke stops will be used at key points along the network where a specific design response is required to fit with the existing local context or where a particular architectural statement is necessary such as at terminuses, key locations within the City Hub and district centres. These are shown on "Figure 2-02

NGT Proposed Stop Hierarchy" on page 34. The bespoke NGT stops will generally use an expanded standard kit of parts and the emphasis will be on creating distinctive canopy structures.

As a principle, 20m length NGT stops are to be implemented at all locations.

NGT stops will benefit from raised kerbs (similar to a Kassel type kerb) at 300mm up stands along the whole length of the boarding/alighting platform. Transition kerbs would be required at either ends of the platform to revert back the existing standard kerb height of approximately 125mm or to a dropped kerb.

Gradients at stops are to be 1 in 40 to address any level changes. Where constraints make this impractical, ramping up to the platform should be at a gradient no greater than 1 in 20.

### 2-5-2 DESIGN

The arrangement of the NGT stop and its associated furniture/equipment should be determined by a calculation of about 0.5m<sup>2</sup> platform space per waiting passenger.

The stop furniture will be an integral part of the public realm on and around the platform, so careful consideration to style, colour and location must be given. The choice of street furniture and overall function of the stop should lead to a coordinated approach to help reduce the number of elements and therefore reducing the potential for 'clutter'. Street furniture should be used as a linking and unifying element running along the length of the network to reinforce the NGT brand, while allowing it to be sympathetic to the various character areas that it passes through.

The selection of stop furniture and layout should also reflect the Department for Transport's 'Inclusive Mobility' guide and also current British Standards/legislation. All elements of street furniture, whether specially commissioned or from standard ranges, will conform to safety requirements and take into the account the needs of those with mobility or visual needs. For example, a range of seating possibilities, seats with armrests and perching posts will make the resting space more comfortable to individuals with differing abilities.

The street environment is a challenging one and items of furniture must be constructed from good quality durable materials if they are to withstand everyday use, weathering and be resistant to vandalism. Future maintenance costs and ease of replacement must be considered throughout the selection process and procuring a standard kit of parts from one supplier should therefore be considered also. The future upgrade of equipment should also be considered and adequate ducting both under stops and within shelters provided. Generally the preferred material choice would be stainless steel due to its resistance to damage and whole life costing. Should stainless steel range be deemed too costly, ranges that also offer a powder coated finish option should be considered.

### 2-5-3 KIT OF PARTS

#### 2-5-3-1 Shelters

It is proposed that a modular system of platform/stops be incorporated for the proposed platform stops. The advantage of using a modular system is that electrical and data systems are integral to the design, so good lighting levels within the canopy can be reached and passenger information displays can be fitted as part of the canopy structure.

The integration and location of lighting is critical to enhance the safety of the platform and should play a major part in the design. Well-designed and located signs should form part of the specification and be integral to the canopy. In addition, a modular system will allow expansion of shelters should the stop capacity requirements increase in the future. A modular system canopy can also be designed to take colour contrast (a basic Equality Act requirement) and more personalised NGT colouring/branding can also be incorporated.

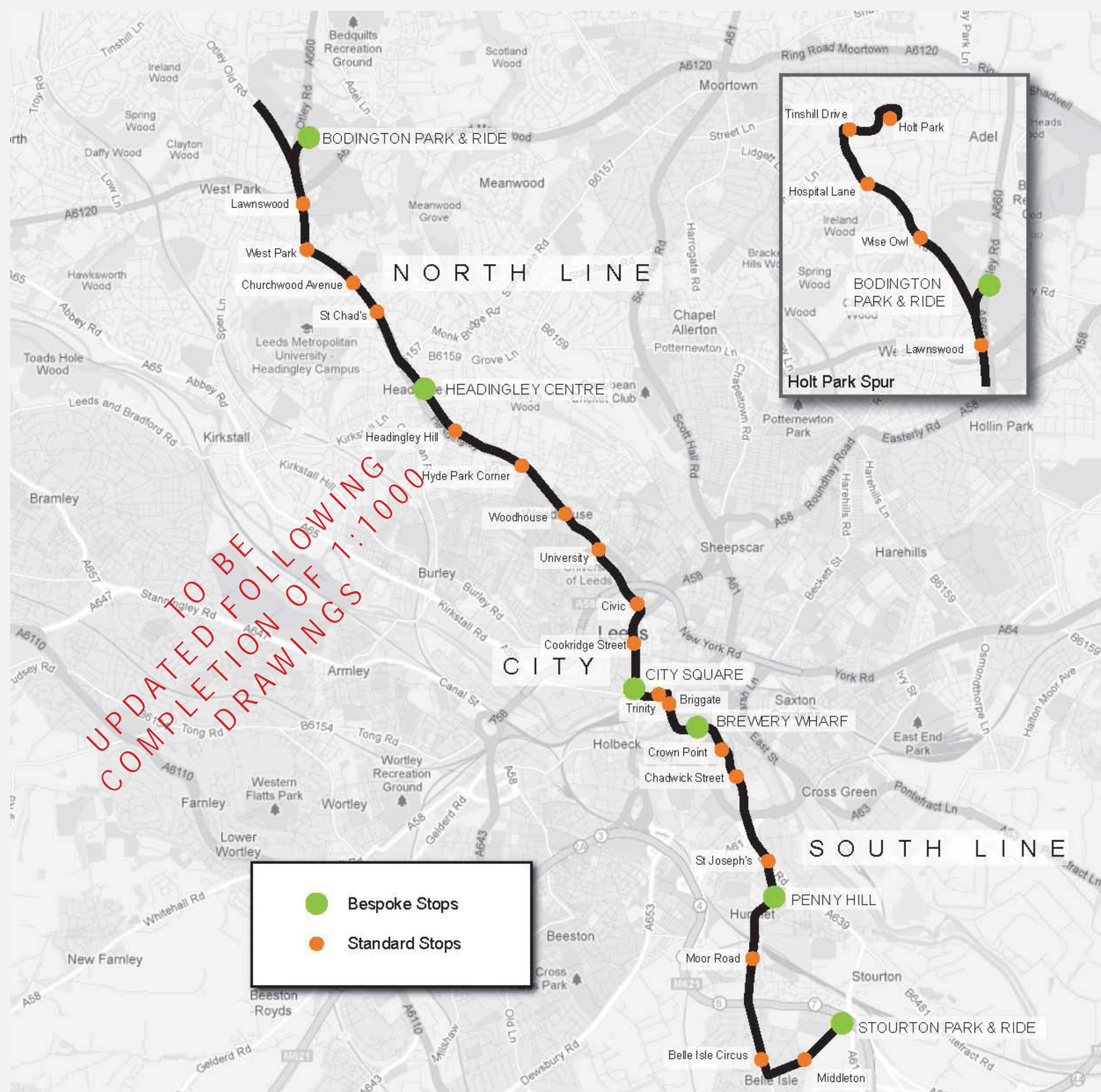
Canopies are to be located on most of the proposed stops, some sensitive stops may not have a canopy where it is felt that it would unduly impact upon a listed building or conservation area. Where space allows, two separate shelters at each stop with a small canopy covering the ticket vending machine(s) and a larger second canopy housing the seating area and main passenger waiting area should be incorporated.

Where stops are placed in exposed locations, the canopies may require additional screening to give protection from the wind and rain. A modular system could easily be adapted to receive 'wing walls'. Care must be taken that these do not block views of approaching NGT vehicles, impede passengers or pose a hazard.

#### 2-5-3-2 Litter Bins/Recycling Points

It is proposed that there be an allocation of two litter bins per platform, with a litter bin being located at either end of the platform adjacent to the entrance/exit to accommodate people arriving and departing from the stop. Particularly busy stops may require additional bins. Where space allows, multi recycling units should be considered in preference to single aspect litter bins and be 'WRAP' colour coded.

Figure 2-02  
NGT Proposed Stop Hierarchy





### 2-5-3-3 Seating

Two types of seating should be utilised at stops and be located within the shelter of the main canopy area. Full seats with armrests should be provided at all stops and where space allows, perch seating should also be provided.

### 2-5-3-4 Signage

General information such as the stop name and way out directional signage can be fitted within the canopy structure. If required, stand alone stop name signs external from the canopies should match the appearance of the canopy structure and NGT brand, but should generally be incorporated into the shelter structure to avoid clutter.

### Real Time Passenger Information Display (PID)

One double PID display should be located at each stop. The location of the PID will be determined by the entry points onto the platform and should be visible from any point along the platform.

### 2-5-3-5 Poster Cases

The canopy system will need to be able to accommodate poster cases. Poster cases will provide suitable locations to display NGT information relating to routes and times adjacent to the seating area. An allocation for advertisement opportunities should also be considered, but should not distract from the NGT brand. The poster case(s) should be located within the TVM canopy should provide information needed to be read in conjunction with obtaining a ticket.

### 2-5-3-6 Passenger Address (PA) System

The canopy should integrate a speaker system within the structure to provide passengers waiting in the seating area of the platform with up to date information and announcements.



### 2-5-3-7 CCTV

CCTV positions will need to be determined at the detailed design stage. The canopy could integrate CCTV within the structure or it could possibly be mounted on lighting columns and/or poles. Domed type cameras are also more easily integrated.

### 2-5-3-8 Help Point/Passenger Emergency Contact (PEC)

Provided as an integral unit within the canopy or as a stand alone unit along the platform, the PEC should be highly visible and centrally located along the platform in close proximity to the ticket machine to provide users with help or assistance if required.

### 2-5-3-9 Toilets

Only the park and ride sites will provide toilets. These must be coordinated with the standard kit of parts.

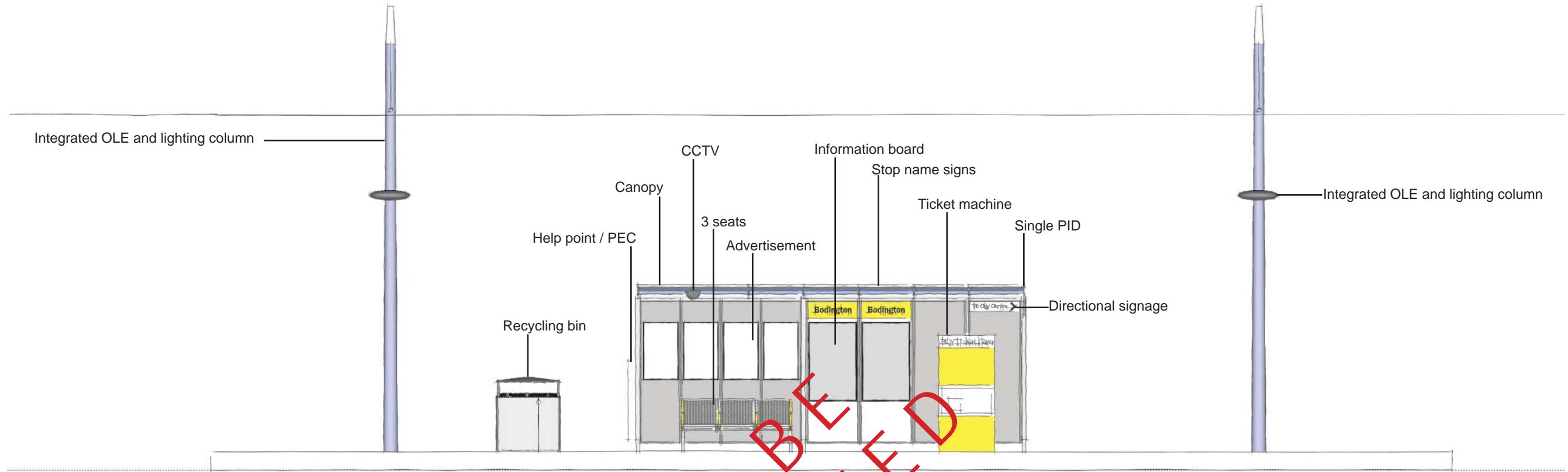
### 2-5-3-10 Cycle Stands/Lockers

Facilities to park bicycles at stops should be considered where conditions require and allow. Cycle lockers should be provided at park and ride facilities to enhance the integration of various modes of transport with NGT. These must be coordinated with the standard kit of parts.



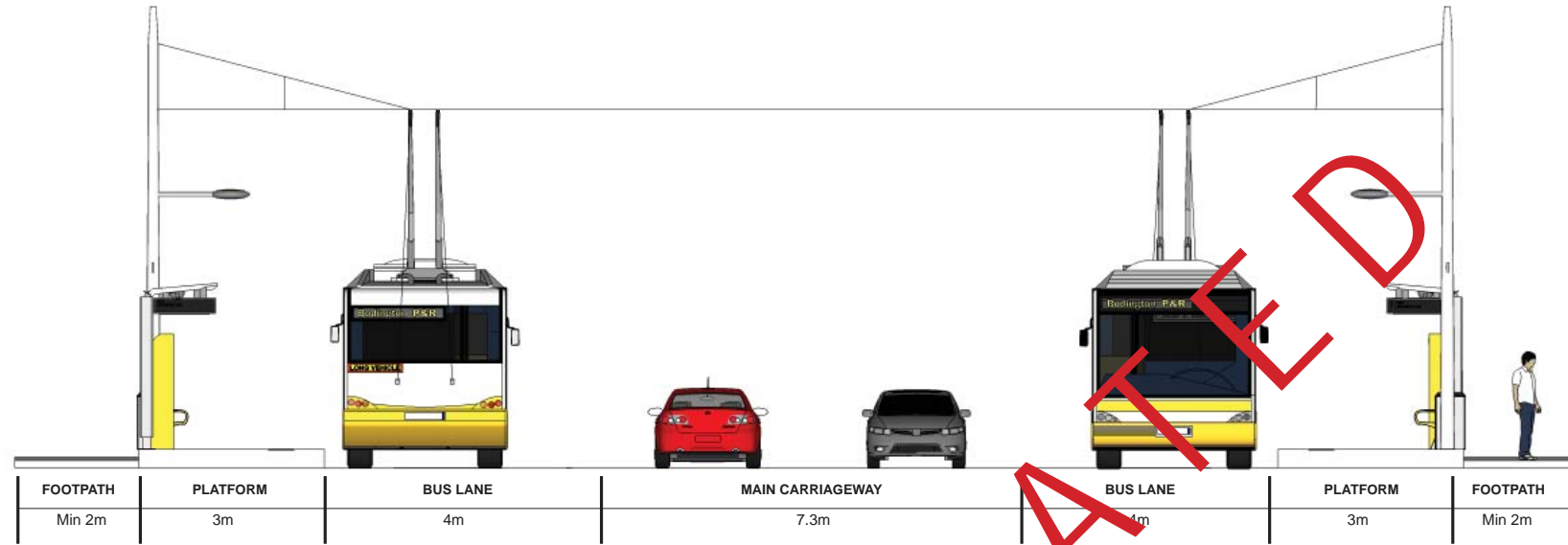


Indicative 20m stop



TO BE UPDATED

Indicative Shared Width Stop



Indicative Narrow Width Stop



Carefully designed and well managed park and ride facilities can be integrated into the landscape and encourage a modal shift.

Wilton

Salisbury



## 2-6 Park And Ride

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**2-6-1** Two park and ride sites are proposed within the NGT network. These park and ride sites will maximise the potential benefits of the trolleybus network by encouraging a modal shift and create significant gateway features for Leeds at key locations at Bodington in the north and at Stourton in the south.

The Bodington site comprises University playing fields on sloping land north of the Outer Ring Road (A6120) and Otley Road (A660) junction. This part of the Outer Ring Road corridor is characterised by largely open landscape. The site is bounded to the east and north by playing fields and to the west by tree lined Otley Road. Existing features such as hedgerows and mature trees should be retained as much as possible as part of the design to integrate the park and ride into the wider landscape.

The Stourton site is located to the southwest of Junction 7 of the M621 approximately 4.5km south of Leeds city centre. It is at present largely rough grassland and is surrounded by high ground, being overlooked from the motorway and nearby housing. Large parts of the site have been subject to opencast mining operations that have been subsequently infilled. Part of the site has been allocated for development within the current Leeds UDP and the park and ride facilities should be compatible with future development opportunities.

### 2-6-2 GENERAL PRINCIPLES

Forming the central focus to the park and ride facilities, bespoke stops will be located at both of the park and ride sites. In order to ensure that the park and ride facilities become prominent gateways/landmarks, it is important that they are easy to identify from both the road and from within the car parks. In order to achieve this, each bespoke structure should have a vertical element that allows it to have an elevated presence.

The trolleybus terminus should be centrally located within the park and ride sites. They should be of a welcoming appearance and contemporary design that is unique to the site and sympathetic to the surrounding landscape.

### 2-6-3 Facilities

In addition to the standard kit of parts, the following facilities should where possible be incorporated into the park and ride sites:

- Public toilets.
- Covered cycle stands/lockers.
- Opportunities for future incorporation of a travel shop.
- Opportunities for future incorporation of a retail or amenity use.

### 2-6-4 Car Parks

Parking spaces are to be laid out along pedestrian friendly arteries that provide direct pedestrian links to the trolleybus terminus from all parking spaces within the site.

### 2-6-5 SECURITY AND PASSENGER SAFETY

The design of the park and ride sites should seek Park Mark® accreditation as part of the Safer Parking Scheme, a joint initiative of the Association of Chief Police Officers and the British Parking Association supported by the Home Office.

### 2-6-6 Boundary Fencing

Security fencing shall be located discreetly within planted areas rather than hard on site boundaries. Vegetation should not conceal views to the integrity of boundary fencing. Suitable materials will typically be weld mesh of low visibility, with a colour coated finish such as dark green. Palisade fencing will not generally be an acceptable boundary treatment. In addition, all park and ride entrances, including pedestrian access, should be able to be locked when the sites and NGT network is closed.

### 2-6-7 Lighting

Lighting is to be provided to all areas of the park and rides. High quality lighting fixtures and tapered columns should be used within the immediate vicinity of the park and ride entrances, approach road and trolleybus terminus. Lighting to the parking areas and pedestrian walkways could be of a standard design and finished to match the surrounding furniture. Lighting should have full cut off above horizon luminaires to minimise light pollution.

### 2-6-8 CCTV

CCTV is particularly effective in the security of car parks and should provide coverage of all of the park and ride sites, including the stops, and be linked to the NGT control centre. They will provide surveillance of the site when no member of staff is present and act as a deterrent to potential criminal activity. Consideration should be given to mounting/incorporating CCTV with lighting columns to minimise the visual impact of additional poles. CCTV should be fully integrated with tree positions and lighting, not designed in isolation.

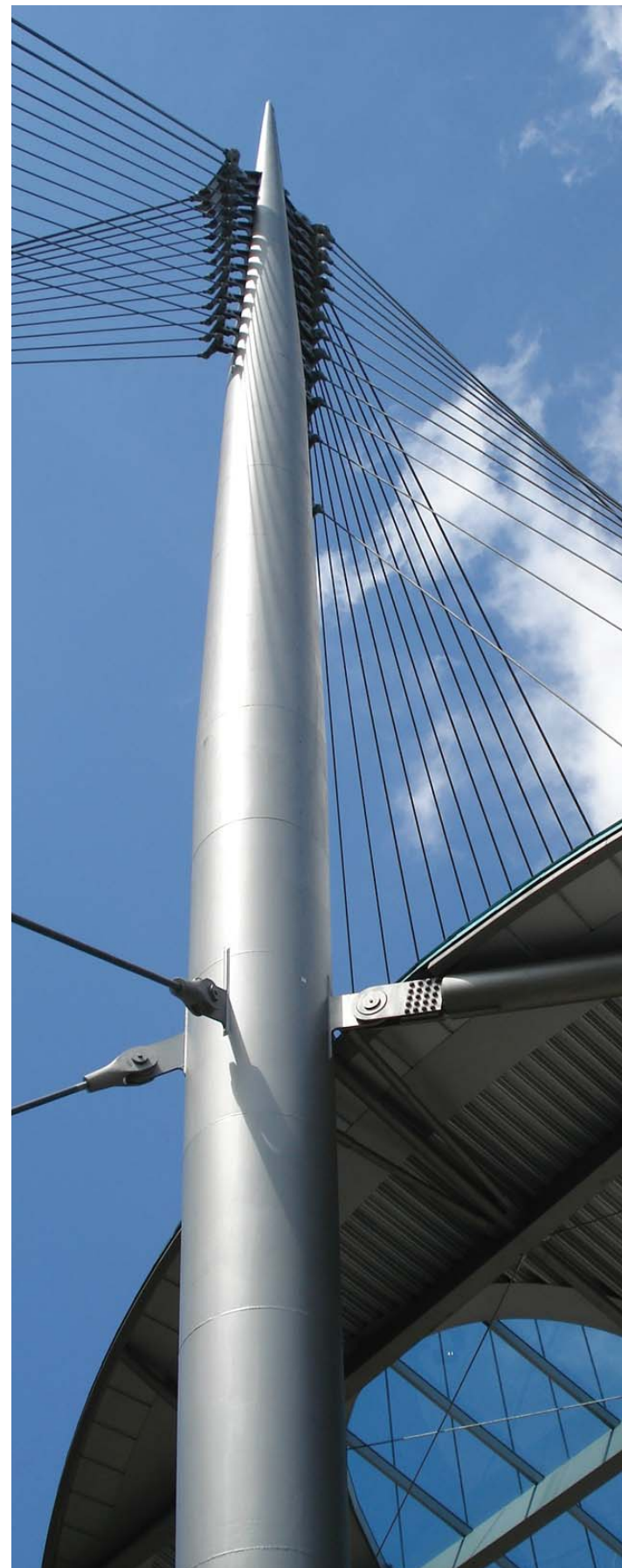
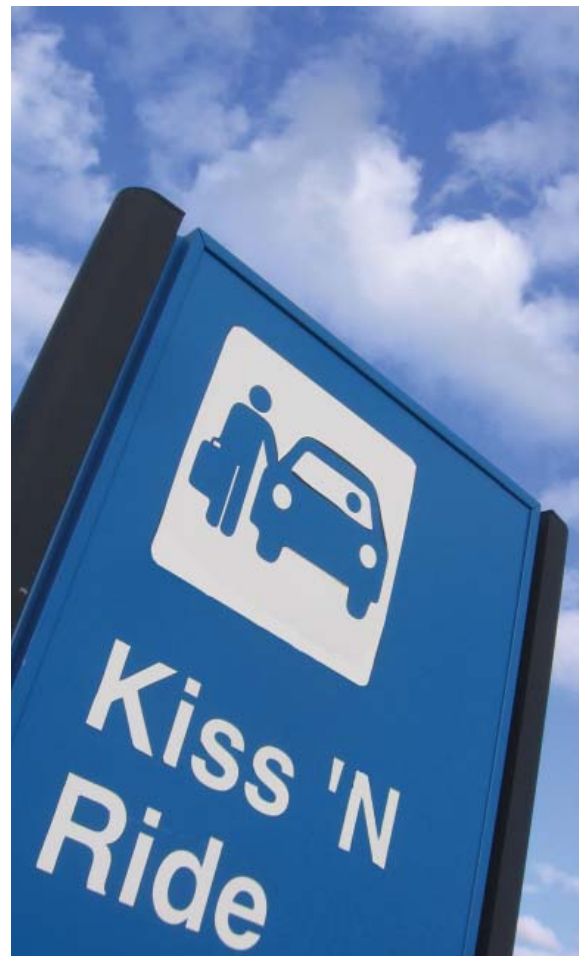
### 2-6-9 Natural Surveillance

Natural surveillance within the sites should be encouraged through design. Planting, street furniture and platform equipment should be located so as to allow good site lines and not hinder views within the sites.

### 2-6-10 Landscape

Parking areas need to include a variety of hard and soft landscape treatment to avoid the creation of large areas of unbroken hard surfaces and reduce the visual impact of parked cars.

A variety of contrasting colours should be used help distinguish between surface treatments, highlighting different uses and changes in levels.





### 2-6-11 Surface Materials

The following surface treatments are to be incorporated into the design:

- **Trafficked areas** - asphalt surfacing.
- **Parking bays** - permeable precast concrete units and asphalt surfacing.
- **Pedestrian walkways** - precast concrete units and asphalt surfacing.
- **Platform and approaches** - precast concrete units
- **Pedestrian plazas** - precast concrete units

### 2-6-12 Soft Landscape

Four types of planting will be utilised within the park and ride sites in order to provide both aesthetical benefits and visual screening. All proposed planting is to be located to ensure that natural surveillance of the area and vehicular sightlines are not compromised at any stage from the to the subsequent continued growth of the planting in the future.

#### • **Parking Area Planting**

Specimen tree planting and low level groundcover shrubs will be used to break up the hard surface areas envisaged and provide visual interest within the park and ride sites.

Upright trees with a compact habit and ultimate tree height of 5 – 10 metres are to be specified for use within the parking areas and must have 2m minimum clear stems to ensure visibility throughout the sites and ensure that visibility splays are not compromised.

Parking layouts should accommodate as a minimum, trees planted between rows of car parking at intervals of 10m and planted in dedicated planting pits of 5m<sup>3</sup>. Low level groundcover planting should be incorporated at the base of the trees. Groundcover species should have a final growth height of no more than 300mm. Tree and shrub planting within trafficked areas should be protected by means of kerb placement, bollards or tree guards as required.

#### • **Ornamental Planting**

In the vicinity of the trolleybus terminus, ornamental planting is proposed to be used to soften and enhance the appearance of the bespoke stops. Non - native species could be used to offer the widest possible palette of plants available to create a suitable planting scheme. Shrub planting should be no taller than 0.6m - 1m high (depending upon location) and tree planting should be of an upright nature with a minimum 2m clear stem.

#### • **Boundary Planting**

Buffer planting is proposed to be used to help integrate the sites within the surrounding landscape and provide screening of the sites from the surrounding road network, residential dwellings and open countryside where applicable. Planting will comprise native species with tree planting being located at regular intervals along the boundary to maximise screening potential. The buffer should be a minimum of 10m wide.

Existing planting will be retained where it forms part of the existing landscape structure or boundary treatment such as hedgerows.

#### • **Aquatic Planting**

In order to maximise the biodiversity potential of both swales and retention ponds associated with any sustainable drainage systems, appropriate native species should be selected.

### 2-6-13 Sustainable Drainage

Due to the location and size of the park and ride sites, sustainable urban drainage (SUDS) should be considered to help manage storm water runoff. However only the Bodington site will be suitable for SUDS due to the Stourton site being a former opencast mine and has been backfilled, which is unsuitable for infiltration into the ground.

The following sustainable urban drainage systems could be employed to effectively manage storm water where appropriate:

- Water attenuation tanks for irrigation and toilets.
- Porous paving to walkways and parking bays (Bodington only).
- Swales and attenuation ponds to enhance biodiversity.

### 2-6-14 Access

In order to ensure integration of the park and ride sites within the existing transport network, drop off and pick up points will be required to accommodate the needs of those arriving and departing from the park and ride locations by different modes of transport:

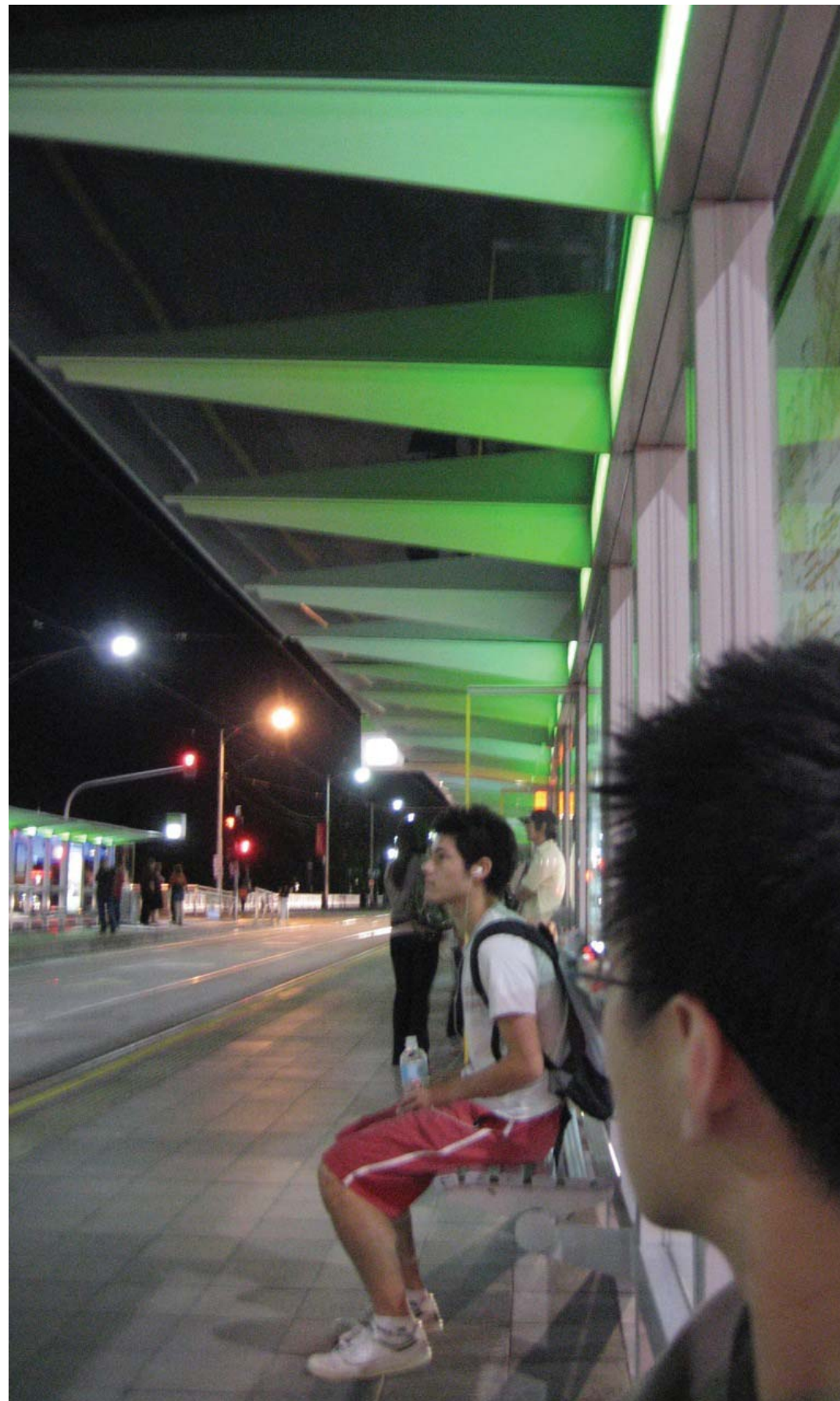
- Cycle access and associated secure parking ('cycle and ride')
- Existing bus network (with route and real time information)
- Taxi drop off and waiting
- Private vehicle drop off ('kiss and ride')
- Signage

It is important that a comprehensive signage strategy be implemented on the strategic road network and at all the park and ride sites to ensure good circulation of traffic, and ease of movement for both pedestrians and vehicles. This could include new variable message signs (VMS) or use of existing VMS on motorways to inform drivers of the number of parking spaces available.

Adequate provision must also be made for disabled access and parking at the park and ride sites. Approximately 4% of parking bays should be marked as disabled and must be located to minimise the distance to the stops. As with all other areas of the NGT network, all features and facilities at park and rides sites must comply with the Equality Act, with reference to DfT 'Inclusive Mobility' guidance. In addition, consideration should be given to the inclusion of a number of wider parent and child spaces within the car parks.

Pedestrian access to the park and ride sites should be restricted to a small number of points and be highly visible and gated to ensure overall security is not compromised. If footpath diversions are required, the new route must be convenient and fully integrated into the landscape.

The quality of light at stops and the careful integration of OLE reinforces the identity of tram and trolleybus systems and minimises their impact on the streetscene.



## 2-7 Lighting And Overhead Line Equipment

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2-7-1 As vertical elements in the townscape, street lighting, traction poles and overhead line equipment (OLE) will likely have the most visual impact with the introduction of NGT. It is therefore critical that the design of street lighting and overhead line equipment is carefully coordinated and sited to minimise any negative impact. However, fixed transport infrastructure such as OLE can also have a positive effect by defining the NGT routes and differentiating them from conventional bus services. Good design can highlight this benefit.

### 2-7-2 LIGHTING

Good lighting will be a key element of safety and security on the NGT network. It will play a key role in making NGT attractive to passengers after dark. Lighting associated with NGT will primarily be at stops and park and rides and shall be independent of other light sources such as existing highways street lighting and shop fronts. It is not intended to upgrade highway street lighting along the NGT routes other than where it may be possible to use combined lighting and traction poles (see below).

All passenger waiting areas, front edges of platforms, access routes, passenger information and any hazards such as changes in level must be adequately illuminated for the safety, comfort and convenience of passengers. Lighting should be provided during all hours of poor lighting, whether day or night and when the network is not operational.

The design of all lighting associated with NGT should be coordinated with the 'kit of parts' that has been established for the stops. There are a number of key considerations for the design of the lighting:

Good colour rendition is essential to enhance both personal safety and visual interest. 'White' light sources, for example metal halide or LED, should be used in place of sodium which is orange in colour. Lighting sources should be low energy demand where possible without compromising the quality of the light and intelligent systems which respond to movement considered;

- Glare for passengers, trolleybus drivers and other road users shall be avoided where possible;
- Nuisance light spill for local residents and night sky pollution shall be minimised, particularly on off highway sections and at park and ride sites which have not been lit before;
- All lighting should have full cut off above horizon luminaires to minimise light pollution;
- Lighting levels shall be to an appropriate approved standard for stops;
- Lighting shall be robust and maintainable without disruption to NGT services or passengers; and,
- Well controlled high level light shall be provided across the length of the platform.

### 2-7-3 OVERHEAD LINE EQUIPMENT

Overhead wires will provide power to the NGT trolleybuses along the entire length of the network. The overhead line supports in particular must be carefully considered and designed to minimise their visual impact and reduce street clutter throughout the network. The support methods used for overhead lines are either supported on wires from buildings or supported on wires or cantilevers suspended from traction poles. These poles could be combined with street lighting columns, but the practicality and feasibility of this approach will need to be investigated further.

Wherever possible, span wires fixed to buildings should be used to reduce visual and environmental impact, provided the building itself is suitable in terms of height and structural capacity. Listed buildings should not necessarily be exempt. The use of poles will be visually detrimental, more expensive, possibly require utility diversions for foundations and also present an additional hazard/obstacle to footway users including pedestrians and in some areas, cyclists. Their use and number should therefore be minimised where possible through building fixing throughout the network.

### 2-7-4 Building Fixing

Building fixing for span wires will be fixed to structurally suitable buildings approximately 6.5 metres above street level, depending on the length of the wire. The wires will be attached to non-corrosive eye nuts that will in turn be bolted to the building.

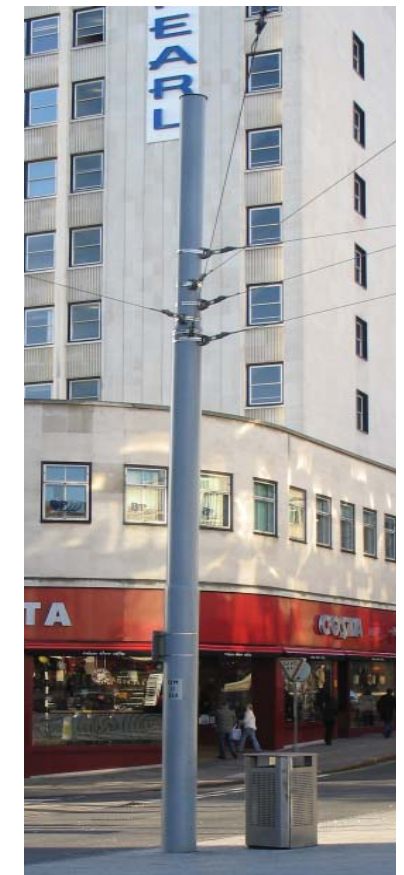
Building fixing is most likely to be possible within the City Centre. Outside of the City Centre, traction poles will generally be used along the routes, although building fixing should be considered where possible to minimise the visual impact and cost of additional poles, particularly within Conservation Areas.

The design of bespoke NGT stops should consider the incorporation of fixings into the canopy structure to support overhead wires to reduce clutter.

### 2-7-5 Combined Lighting Columns

There is an aspiration for the combination of OLE and street lighting on a single pole throughout the NGT system.

It is anticipated that street lighting along the corridor will be de-accrued from the Leeds PFI contract, so that street lighting can be combined with OLE poles. Where OLE poles are not provided and instead building fixings are used, it is anticipated that lighting fixings will be attached to the OLE, in order to reduce street clutter.



### 2-7-6 Independent Traction Poles

There are four basic types of independent or stand alone traction poles:

- **Double Catenary** - Supporting or span wire running between two individual poles located on either side of the carriageway to accommodate trolleybuses in both directions.
- **Single Cantilever** - Independent cantilevered support structure secured to an individual pole on either side of the carriageway to accommodate trolleybuses catenary in a single direction.
- **Double Central Cantilever** - Double cantilevered support structures secured to an individual pole located within a central reservation to accommodate trolleybuses catenary in both directions.
- **Double Side Cantilever** - Double cantilevered support wires secured to an individual pole located on either side of the carriageway to accommodate trolleybuses in both directions.

### 2-7-7 Traction Pole Design And Siting

As with all other infrastructure associated with NGT, the design of the traction poles will be subject to the approval of Leeds City Council Planning Authority. The design and siting will be based on the following principles:

- Tapered poles to ensure simple elegant design
- Use of an appropriate colour throughout the scheme to provide appropriate background and be sympathetic to the immediate surroundings. All fixings including lighting must match the colour and style of the pole
- Consideration of a different pole design/and or colour in visually sensitive locations such as Conservation Areas
- Consideration of important views of buildings and vistas when siting
- All poles to be sited to avoid obstruction of vehicular sight lines
- Where impact protection is necessary and cannot be avoided or designed out, it must be carefully designed itself and fully integrated into the streetscene
- Poles are to be sited at the back of the footway with a desirable minimum footway width of two metres being maintained, to ensure road user and pedestrian safety
- Opportunities to site poles out of footways on adjacent adopted highway, as well as incorporation within new or existing boundary walls, should be considered to avoid footway narrowing
- Particular consideration should be given to difficult areas such as large junctions, corners or where routes meet to minimise the number of poles by utilising the full range of pole types and building fixing opportunities

### 2-7-8 System Integration

Where space allows or constraints dictate, there is the opportunity to alternate other vertical elements alongside traction poles to minimise their visual impact. This will allow incorporation of OLE into the streetscene with a minimum of visual intrusion.

### 2-7-9 Lighting Columns

Where it is not possible to combine lighting columns with OLE, existing or new lighting columns can be accommodated between traction poles at a regular spacing. It is critical that the spacing of vertical elements is regular and traction poles are not placed adjacent to lighting columns.

### 2-7-10 Tree Planting

Trees can be interspersed with traction poles to create a valuable green aspect, provided the following points are considered:

- Upright trees with compact habit should be used when in very close proximity to the line;
- Where possible, trees shall alternate with traction poles to form a single series in a line except on narrow central reserves and where a less linear tree pattern is appropriate;
- Locate traction poles and cables to avoid damage or restrict growth of existing trees and their roots;
- Take appropriate measures to protect underground utilities;
- Written method statements should instruct installation and working within the vicinity of particularly sensitive trees.

### 2-7-11 Other Elements

In order to minimise street clutter and reduce visual impact, traction poles should be considered to accommodate signage and other elements including signals where possible.



## 2-8 Substations

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2-8-1 SUBSTATIONS

TO BE  
UPDATED





## 2-9 Softworks

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**2-9-1** There is a strong emphasis on greening the NGT network and associated urban realm in order to 'soften' and reduce the adverse impact of the proposed infrastructure. The implementation of the soft landscaping works within the scheme is paramount for the successful integration of the NGT network within its urban context.

Where there are areas of soft landscaping associated with NGT it will generally comprise of significant tree planting within simple grass verges in order to create a simple, low maintenance treatment with a desirable impact in the public realm. In key locations there will be a higher grade treatment utilising amenity shrubs and some herbaceous species, to create increased impact. Where appropriate native shrub and tree mix will be used to improve/enhance biodiversity and mitigate impacts. For the Park & Ride sites, a sculptural landscape setting is proposed through tree planting and earth mounding that provides the necessary screening and enhancement of biodiversity.

The soft landscape scheme can be considered as two elements which combine to create the overall works. They are 'existing vegetation' and 'proposed planting'. The approach to each is described separately below but the when considering the scheme proposals they should be thought of together.

### 2-9-2 Existing Vegetation

A number of significant mature trees and shrub/hedge planting exist along the routes of NGT and where possible, these will be retained and protected during construction. Where possible they will be enhanced with supplementary planting to protect existing habitats and landscape character.

A full tree survey has been undertaken by Mott MacDonald. It surveyed all of the trees along the route within the Planning Boundary and in agreed offsite areas. The survey followed the guidance of British Standard 5837:2005, 'Trees in Relation to Construction'. This survey is being refreshed in 2013 to classify trees along the routes in terms of the desirability for retention taking condition and amenity value into account.

The Environmental Statement will contain an appendix on trees which will fully identify the condition, size, impact and significance of the trees affected by the scheme. This will assist in the identification of the high value trees which require replacement.

In locations where the existing trees and vegetation are unable to be retained, suitable replacements will be planted either in-situ or at a more appropriate location. NGT would implement:

- A 1:3 replacement policy, where 3 'urban or woodland specimen' trees are planted for each 1 individual removed.
- In locations where there is requirement to remove trees of particularly high value, then these will be replaced with a 'super replacement specimen' mature tree where appropriate.
- An area match replacement policy for groups of trees, woodland or areas of scrub where the same area is planted to that which is removed.

The specification for replacement planting to meet the replacement policy is set out later.

### 2-9-3 Proposed New Planting

In locations where it is appropriate the existing vegetation will be supplemented and enhanced through the addition of new native trees and shrubs. It is intended that this will not only enhance the visual quality of the existing planting but also its biodiversity and ecological/environmental quality.

Locations will include sections of the route where NGT goes offline and at the park and ride sites. These locations are where a more naturalistic landscaped approach is appropriate and is in keeping with the intentions.

The proposed new planting will form a key part of the NGT proposals and the overall design intent is shown on the 1:1000 drawings in "Section 3 - Design Context Proposals" on page 67. The following specification notes form the planting strategy and relate to the keyed items on the Design Drawings. The notes and drawings describe the proposed location of planting but it anticipated that in isolated locations variations to this specification may be required or desired. Such occurrences are to be considered and weighed up on a location by location basis.

### 2-9-4 Native Scrub/Woodland Mix

These will be used in areas where en-mass tree planting is required or desired. Typically this will be to produce a woodland buffer to mitigate the visual and environmental impacts of the scheme proposals. It will generally be in areas of urban fringe or in areas around the park and rides and offline areas where existing mature woodland/scrub vegetation exists.

#### Tree specification:

Form:	Transplants and Feathered
Root:	Bare Root
Girth:	N/A
Height:	60 – 150cm
Spacing:	1 -2m

Species to be Native hedgerow and woodland with some evergreen with the percentage mixes varied to allow the most appropriate result for the location. Highlights or elements of ornamental or ground cover amenity planting will be added to increase value at junctions, gateways and around certain NGT stops.

Example locations: Park and Ride Sites, Headingley off road Section, Chadwick Street/Sayner Road, South Accomodation Road and and Belle Isle Road / Circus.

### 2-9-5 Woodland Specimen Trees

These are the trees which are to be generally used to supplement the woodland planting areas, with the intention to offer useful mitigation sooner at key points. They will typically be in suburban areas or planted in open or large areas of planting/grass.



#### Tree specification:

Form: Clear Stem Heavy Standards  
 Girth: 12- 14cm  
 Height: 400 – 450cm

Species to be specific to complement woodland mix  
 Example locations: Park and Ride Sites and Headingley off highway Section

#### Urban Specimen Trees

These are the trees which are to be used along the majority of the route, they will typically be in urban areas or planted in tree pits surrounded by hard standing or small to medium sized planting/grass areas.

Consideration should be given to providing a load bearing root zone system for trees within hard surface areas where vehicles are likely to travel over.

#### Tree specification:

Form: Clear Stem Standard (Semi-Mature)  
 Girth: 20 – 25cm  
 Height: 550 – 600cm

Species to be specific to the location.  
 Example locations: Otley Old Road, Woodhouse Lane, Cookridge Street and Hunslet Shopping Areas.

#### Super Replacement Specimen Trees

These are to be used in locations where large existing high value trees in prominent locations are required to be removed as part of the scheme proposals. These will be limited in number and restricted to locations where the impact demands the most mitigation possible.

#### Tree specification:

Form: Clear stem Standard (Semi-Mature)  
 Girth: 35-40cm  
 Height: 450-650+cm

Species to be generally as per existing tree it is to replace

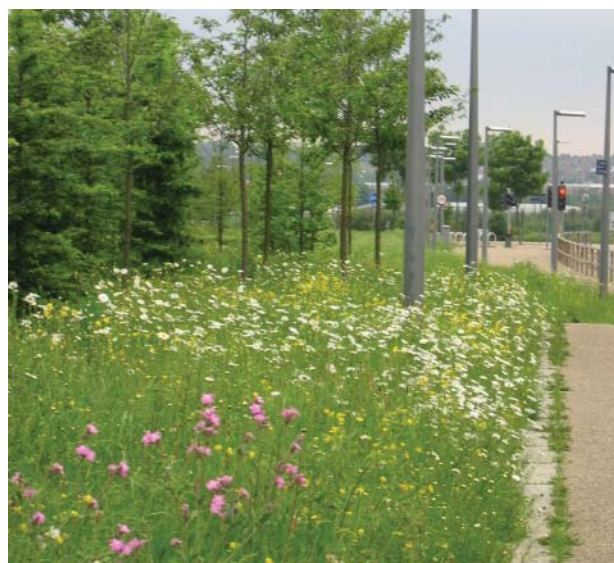
### TREE PIT SPECIFICATION AND DETAILS

#### Trees in Paved Areas with Underground Support

BS 4043 & BS 4428 apply

#### Pit Size and Construction

Pits: shall be 600mm wider than the diameter of the root ball with a minimum size of 900 x 900mm. Minimum depth to be 750mm. Where necessary the depth shall be increased to accommodate the depth of the root ball and to obtain the correct planting level. Break up bottom of pit to 300mm deep and scarify the sides of the pit with a fork.



## Planting

Trees will be planted upright and, unless otherwise instructed, in centre of the pit. Moisture-retentive material used to prevent the root ball drying out during transport from the nursery will be removed. The root ball will be protected from sun and wind during the planting operation.

### 2-9-6 Planting depth

The natural thickening between the trunk and the root collar will be at the finished top surface of the planting medium. A straight edge placed across the pit at finished surface level and adjacent to the tree will assist in gauging the correct level. If necessary, the depth of the pit will be adjusted to ensure the correct planting level.

### 2-9-7 Drainage

Where appropriate below-ground irrigation and aeration system, e.g. Greenleaf 'Root Rain Urban' will be installed ensuring that the top of the filler pipe is flush with finished surface levels. Immediately after planting the tree shall be watered to ensure that the contact of soil between the root ball and backfill material is uniformly moist.

### 2-9-8 Underground Support

Underground ground anchorage system such as root ball guying kits, or alternatively, Deadman System comprising 2No. dead man anchors of timber or concrete located at opposite sides of the root ball, will be installed where appropriate.

### 2-9-9 Installation of Root Director / Root Barrier

A suitable 'root director' will be installed where required due to underground services, buildings or other built forms, vulnerable paving etc. Installation will be in accordance with the supplier's instructions.

### 2-9-10 Tree Pit Surface Treatment

Tree pits located in areas surrounded by hard standing will have generally have a permeable resin bound gravel surface treatment, edged with a kerb or galvanised steel edge. The surfacing will be installed in accordance with the manufacturer's recommendations and in line with the anticipated performance criteria for the location. E.g. areas which are likely to be either heavily trafficked or pedestrian loaded.

Tree pits located in soft landscape will be surfaced with of bark mulch (a minimum depth of 75mm) until such a time that establishment of the trees has succeeded (typically 2-5 years after planting).

### 2-9-11 APPROACH TO BACKGROUND PLANTING

Background planting will be provided at locations along the length of each route in order to assist the tree planting in softening the scheme proposals and allowing it to blend into the wider surroundings. The majority of this will be robust, low maintenance Ground Cover, Ornamental Shrub or Native Hedge Planting, which will provide structure and subtle value to the environment. In addition to this there will be occasions where a more visually striking Accent Planting scheme is provided. These will limit in general to key locations where they will serve to emphasis the quality and significance of the given locality.

### 2-9-12 Background Planting

Forming the majority of the planting along the scheme the background planting will consist of either native hedge or amenity ground cover or ornamental shrub/herbaceous planting, the use of each determined largely by

the location and wider setting of the planting area. They will be designed to complement the existing vernacular of the surroundings and whilst having a requirement for low maintenance, will offer structure and value throughout the seasons. Background planting will be utilised along the scheme to create structure and mitigate the environmental and visual impacts, typically it will be located adjacent to highways, footpaths and sections of offline route. It will also be utilised to mitigate the visual and environmental impacts of the park and ride sites.

Where the scheme is running through more urban areas, such as the city centre, local centres or residential areas, woodland edge planting may not be appropriate so the background planting will be formed with shrubs and herbaceous species. This will be typically low to mid growing evergreen shrubs with some deciduous shrubs and herbaceous plants to create more variety and value.

Areas of amenity planting will be formed by strong blocks of individual species at a rate of approximately 1 species per 6m<sup>2</sup> of planting (refer to the Planting Density Matrix below) to enforce their presence and increase the successful establishment of a meaningful planting scheme which makes a positive addition to the area. In addition the 6m<sup>2</sup> blocks of plants can include 1 specimen plant where deemed appropriate or beneficial to enhance the planting with added value.

Area of Planting Bed (m <sup>2</sup> )	Max No. of Proposed Species	No. of Permitted Specimen Plants
0-6	1	1
6-12	2	2
12-24	4	4
24-48	8	8
48+	8+ (at the rate of 1 per 6m <sup>2</sup> )	As appropriate to design

### 2-9-13 Accent Planting

Accent planting will have a greater emphasis on the aesthetic value and interest of the chosen species mix and will be freer in design to allow a greater variety of value to the various locations where it is deemed appropriate. The intention of the Accent Planting is to reinforce the identity of each location and create a strong positive impression of the NGT experience and as such will be restricted to planting beds around key locations and high profile NGT stops. It will be identified in planting areas which allow suitable interaction and appreciation without impacting upon the usability of the scheme.

Planting will still retain a robustness to allow its successful long term nature but will have a more dynamic, engaging and naturalistic layer of character weaved through it. Planting will have seasonal variation and detail through herbaceous perennials and grasses which is underpinned by bold swathes of herbaceous and shrub species.

### 2-9-14 Mulching of Planting Beds.

All planting areas should be covered where appropriate with bark or wood chip mulch to a depth of 75mm which will be maintained until the full and successful establishment of the planting has been secured.

### 2-9-15 Grass and Wildflower

Amenity grass is proposed to provide a neat soft appearance and permeable surface for sustainable drainage. These areas will be augmented with wildflower meadows in more urban fringe, off highway and rural environments, which will have the added benefit of improving bio-diversity.

Streets should be designed to cater for a wide range of users, both vehicular and pedestrian.

Such uses can interact safely and harmoniously under the right conditions without the need for formal segregation.

Brighton New Road  
Brighton



## 2-10 Access, Circulation, Cycling And Key Spaces

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**2-10-1** This Section brings together the many issues associated with access around the NGT network, with particular reference to mobility impaired people, pedestrians and cyclists. Overall, the NGT network must be readily accessible to all people, including vehicles, stops and associated facilities. An integrated approach to access which references the broad and detailed provisions of the Equality Act for all throughout the design process and in the operation of NGT is expected to support place making. A full Equality Impact Assessment is being undertaken and this will be included within the TWA submission. The following headings are indicative of the range of access issues relevant to NGT.

### 2-10-2 ACCESS FOR ALL

Disabled people should be able to move easily on approaches to and from and within NGT facilities. Through design and operation, this movement must not be impeded and key areas will include:

- Appropriate width of NGT stops and footways
- Surfacing
- Placing and design of street furniture
- Gradients and design of steps and handrails

The Department for Transport's 'Inclusive Mobility' guidance should be referred to during detailed design and specification.

#### 2-10-2-1 Surfaces

The choice of surfaces can greatly help or hinder the use of facilities by mobility impaired people. The extent to which floor and wall surfaces enable mobility impaired people to find their bearings and maintain their independent use of a facility, is influenced by:

- The colour, luminance and texture of the surfaces
- The treatment of components and finishing elements
- The correct use of surfaces to clarify location and direction and to identify objects
- The grip of floor surfaces, particularly at changes of level
- The perception of a surface day or night, wet or dry

#### 2-10-2-2 Glazing

Although glazing at stops is encouraged to provide protection from the elements and good visibility, floor to ceiling glazing can cause difficulties for some users. Without hazard markings, glass used in this manner can be a hazard to visually impaired people and other users. Glazing must therefore be clearly marked to ensure it can be seen and this should be integrated into the overall design of the stop and branding.

#### 2-10-2-3 Signs

People need clear information if they are to use spaces as intended. Visual information such as signs should be designed in such a manner as to be accessible for all users. Key issues include:

- The location, accessibility, layout and heights of signs
- The size of lettering, symbols and their reading distances
- The use of tactile letters and symbols
- Colour/luminance contrast and lighting
- The finished surfaces of materials used for sign and symbols
- The simultaneous use of audible cues
- Integration with any other communication systems

#### 2-10-2-4 Real-time Displays and Public Address Systems

The real-time displays shall be accessible to all users and make use of appropriate colours. A public address system, where required, should be used to complement the real-time displays. In some areas the use of a public address system may be prohibited during unsociable hours. If this is the case consideration should be given to the installation of local real-time speaking machines with induction loops.

#### 2-10-2-5 Lighting

Good lighting is crucial in ensuring that visually impaired people are able to use NGT facilities conveniently and safely. In addition, people with impaired hearing need to see and understand the movement of lips for lip reading, and hands, when signing.

#### 2-10-2-6 Stop Seating

If a seat is too high or low, or if there are no armrests or side supports, a person may experience considerable discomfort as a result of poor posture. A person may also have difficulty rising from a seated position if the seat is set too low, or if it has no armrests. A variety of seat heights and types is therefore useful to a broad section of users. In addition, sitting on a slope can also be very uncomfortable for many users and should be avoided.

#### 2-10-2-7 Toilets

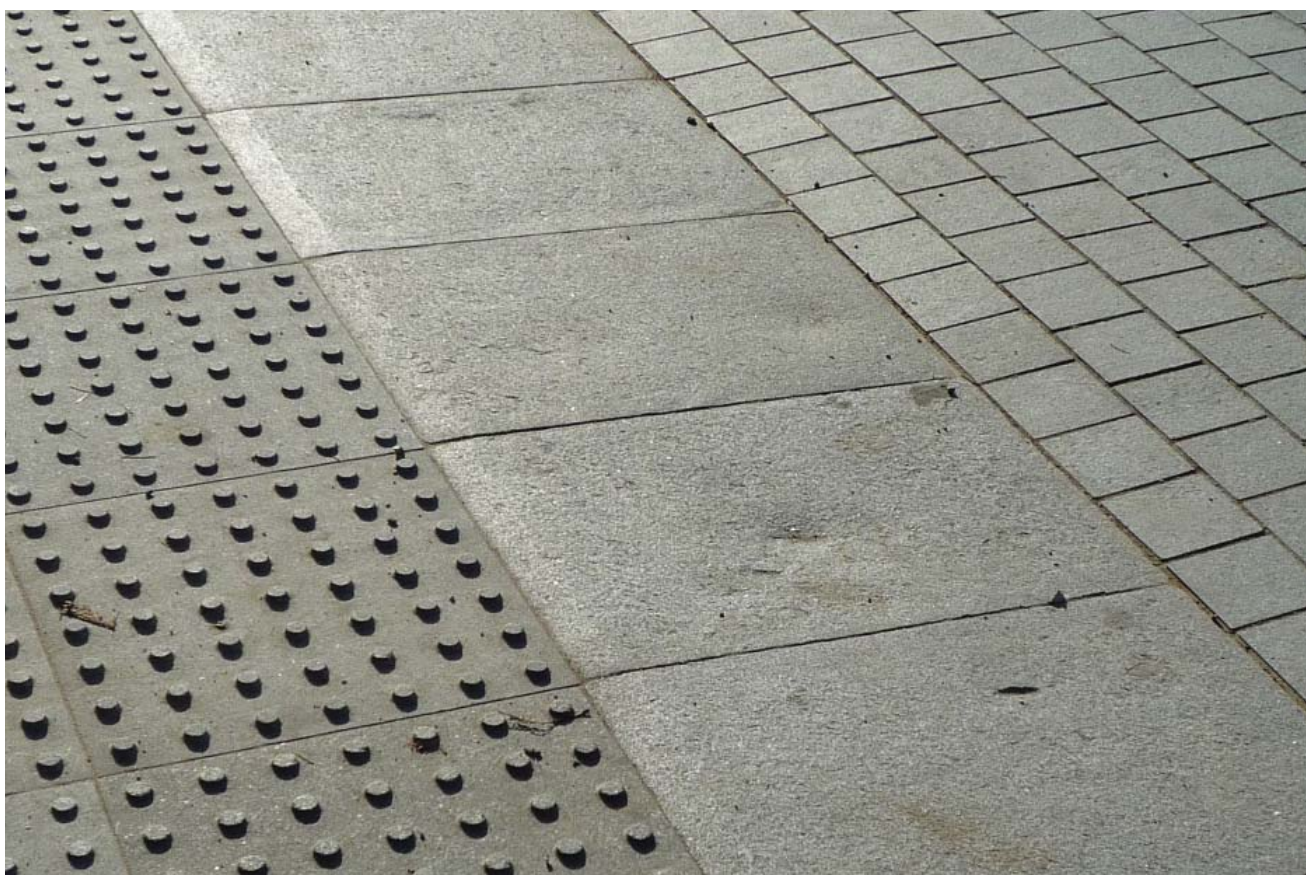
Any toilets provided with NGT should make appropriate provision for disabled people. A multi-user toilet is an increasingly popular provision although separate facilities with a RADAR key may be more appropriate. In addition, it should be noted all-white toilets can be a problem for some users. Appropriate colouring should be considered.

#### 2-10-2-8 Display Panels

Any maps, timetables or other information shown in display cases or panels should be clearly visible. Common difficulties found with display panels are height, glare/reflection and fading of material.

#### 2-10-2-9 Colour/Contrast

There should be clear contrast between colours or value of a single colour to highlight elements and differentiate



surfaces and changes in level. A degree of uniformity in colour will allow users to quickly access recognisable services delivered from the platform.

### 2-10-2-10 Stops

Appropriate boarding areas for disabled passengers and those with pushchairs should be identified at stops to make access to trolleybuses convenient and safe. Contrasting tactile paving should be used along the length of the platform due to its height. Gradients up to platforms should be no greater than 1:20. In addition, due to their quiet operation, an audible warning will be provided on all trolleybuses to warn visually impaired people of their approach, particularly in simplified streetscapes.

### 2-10-3 PEDESTRIAN CIRCULATION

Provision for pedestrians must be an integral part of the NGT network. Any journey by trolleybus, whether it be from home, work, or at a park and ride car park to the stop, begins and ends on foot. It is essential, therefore, to the successful operation of the NGT network that detailed consideration be given to the needs of pedestrians, both those who wish to use the trolleybus, and those whose routes are diverted or realigned as a result of the construction of the network. The design of the pedestrian network should aim to ensure that:

- All passengers can gain easy and safe access to the NGT network
- Walking distances from stops to principal routes and origin and destination points, are minimised
- Potential catchment areas for NGT are maximised
- The overall NGT journey is at least as attractive and convenient as the equivalent journey by private vehicle
- Diversion and barriers to existing pedestrian routes are minimised

These aims will be achieved by adopting the following principles of footpath and footway design. All footpaths and footways required to be constructed, diverted or realigned as part of the NGT network shall:

- Be safe, direct and attractive to use and segregated wherever possible
- Incorporate safe pedestrian crossing facilities on NGT routes
- Be fully accessible to all and designed so as to minimise the creation of barriers to pedestrian movement
- Be routed away from residential and other sensitive frontages in order to minimise noise and disturbance and loss of privacy and amenity

Particular consideration will need to be given to the following categories of pedestrian provision:

#### 2-10-3-1 Access to Stops

Routes to stops should provide direct, convenient, fully accessible and safe links from major origins and destinations and from the adjacent footpath/footway network to NGT stops. Where possible, they should be overlooked to provide natural surveillance from adjacent development. They should be surfaced with materials which match those on the adjacent existing public footpath or footway. They should be laid out, lit and maintained to Leeds City Council adoptable standards. Fencing or enclosure will not normally be required, except where needed for safety or amenity reasons. Dropped crossings and tactile paving must be provided where links cross carriageways.

### 2-10-3-2 Footpaths/Footways Adjacent to Stops

Where a segregated platform is constructed on or adjacent to a public footway, a footway of at least 2.0m width is proposed to be retained at the back of the platform to allow passage along the footway unimpeded by waiting passengers. In locations where this cannot be achieved, a shared platform and footway with a minimum width of 3.0m could be provided. Surface materials should generally match those on the adjacent footway, except where specified otherwise.

### 2-10-3-3 Footpaths Alongside NGT

These should be surfaced in materials to match those on adjacent public footpaths/ways except where specified otherwise. They shall be laid out, maintained and lit to Leeds City Council adoptable standards with a minimum width of 2.0m except where shared with cyclists, when the minimum width shall be 3.0m with appropriate signage except in particularly constrained locations over short distances. The boundary to NGT is proposed to be clearly demarcated by a change of surface materials and levels, or if there is sufficient space, by deterrent planting.

### 2-10-3-4 Footpaths Crossing of Segregated NGT

Wherever possible, footpath crossings should be provided at right angles to the NGT route. Planting adjacent to these crossing points should be restricted to low level species to maintain adequate sight lines for both trolleybus and pedestrians. Except when specified, these crossings will be uncontrolled. The surface material to the crossing shall match that used on the adjacent footway/footpath, shall visually contrast with the materials used for the NGT route surface and shall meet Leeds City Council slip and skid resistance requirements. There shall also be adequate visual and tactile warnings to warn partially sighted pedestrians of the commencement of a ramps, in accordance with DfT guidelines.

### 2-10-3-5 Crossing Points (of NGT and adjacent highway)

Crossing points shall be provided near to NGT stops and signal controlled where safely possible. Surface materials for these crossings should visually contrast with the carriageway wherever possible. An audible signal should normally be provided at signal controlled crossings. Red tactile blister type paving in an 'L' shape and flushed dropped kerbs should be provided at all controlled crossings. At uncontrolled crossings buff coloured tactile paving and dropped kerbs should be provided.

## 2-10-4 CYCLING

Trolleybuses and cycles are both modes of transport that should be encouraged. NGT must take account of cyclists both as passengers and as highway users. Cyclists as passengers have particular requirements that NGT will need to accommodate such as convenient and secure parking. The NGT network must also be usable by cyclists as highway users where practical and safe. A cycle strategy report is being undertaken and this will be included within the TWA submission.

Although limited cycle parking should be considered at all stops, the main provision shall be at the Park and Ride stops and Holt Park terminus. Cycle storage must not impair the circulation of pedestrians at the stops or adjacent footways. It therefore may not be possible to provide cycle storage at all stops due to restricted widths of platforms and/or adjacent footways. At Park and Ride stops, cycle storage should be provided in large secure areas under cover where possible. Generally, the provision of secure cycle storage should be from the stop 'kit-of-parts' and be co-ordinated with other street furniture.

Wherever possible, cycling should be permitted in the carriageway along the NGT network. Elsewhere, such as

along segregated NGT lanes, cyclists should be specifically catered for alongside the route, ensuring that their journey is safe and as direct as possible.

## 2-10-5 KEY SPACES AND SIMPLIFIED STREETSCAPES

### Chapter to be rewritten

The routes of NGT will pass through several areas which are either currently pedestrianised or are proposed to be restricted to trolleybuses and will therefore be pedestrian dominated. It is proposed that a Key Space approach will be applied to these locations, which involves the removal of road markings, kerb upstands and signing to create a sense of ambiguity over priority. This sense of ambiguity is intended to slow vehicles and make all users more aware of each other as they move around the space to create safer and more attractive places. As previously stated in the Shared Space Study Findings report (RTP05), the NGT network would benefit from Shared Space at several locations both within and outside the City Hub as this approach would:

- Change the emphasis of certain areas from traffic to pedestrian orientated;
- Allow the NGT route to be clearly demarcated and defined to improve safety and reliability;
- Reduce street furniture and clutter, providing a better urban design solution; and
- Help to encourage pedestrian activity and regenerate a particular area.

However, Shared Space presents particular issues for blind and partially sighted users due to the lack of traditional control measures, in particular the kerb upstand. There is currently no generally accepted standard approach to the design of Shared Spaces, nor a solution which satisfies all vulnerable user groups. It is therefore important that consultation is undertaken early on with all relevant groups to understand and work through their concerns in order to arrive at a balanced solution. In addition, the DfT is currently undertaking research to understand the issues around Shared Space with a view to producing guidance. This guidance, along with extensive consultation with access groups, should be incorporated into the final detailed design work for the NGT network.

Safety and security are essential to successful, sustainable communities. Not only are such places well-designed, attractive environments to live and work in, but they are also places where freedom from crime, and from the fear of crime, improves the quality of life.

Safer Places  
ODPM/Home Office



Mérida, Venezuela (top)

Lyon, France (bottom)



## 2-11 Safety And Security

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**2-11-1** In addition to specific security measures and systems below, keeping the urban realm animated by the presence of people throughout the day and night can also help reduce crime and the fear of crime. NGT stops should therefore be located in busy areas, highly visible and overlooked where possible by adjacent development.

The more overlooked and animated spaces are by people and activity, the safer they will feel and the less need for intrusive security systems there may be. It is important to avoid a fortress mentality through the design of NGT as this may well reduce local ownership, responsibility and surveillance of the wider environment. Indeed, a sense of ownership of NGT is to be encouraged through the support of local community groups.

However, specific security measures and systems will have an important role in making NGT safe and secure and should be an integrated part of the overall design of the network and not considered in isolation. Their design should be undertaken in liaison with West Yorkshire Police.

### 2-11-2 Lighting

As well as making the NGT system welcoming and visually attractive after dark, good lighting can have a positive benefit in terms of reducing actual crime and the fear of crime. Research confirms that good levels of street lighting can have more impact on reducing crime than the widespread introduction of CCTV outside of car parks (Home Office Research Studies 251 and 252). Both the level and quality of light at stops and on key routes to and from them should be a key consideration in terms of security. Of particular importance is the colour rendition of the light which should allow for easy facial recognition.

### 2-11-3 CCTV

Along with good quality lighting, CCTV will still have an important role in ensuring safety and security on the NGT network. All platform areas, including shelters and areas where passengers may be vulnerable should be covered by CCTV. There is also the potential for onboard trolleybus CCTV. It should be obvious that security is provided, but it should coordinate with the overall design of the stop.

Sight lines should not be the only consideration when locating cameras, but also their impact on place making. Poorly located columns and control boxes can easily become obstructions and add to general clutter. Integrating cameras into structures or onto lighting columns for example is preferable, as are domed type cameras which are still easily identifiable, but are more discreet and do not indicate direction which may also deter criminals. Adding camera positions rather than reducing tree planting is also preferable to maintain sight lines.

Monitoring by the NGT control centre with direct links to the Police, or through Metro or Leeds Watch, will ensure the CCTV system is not merely passive, but that criminal or anti-social behaviour that is detected will elicit an immediate response through the PA System at stops and/or security/police and act as a further deterrent. CCTV should also be considered on trolleybuses and each trolleybus should have radio or other communication link with the NGT control centre to act as a further deterrent to crime and anti-social behaviour.

### 2-11-4 Help Points

A robust and integrated help point or passenger emergency contact facility should be provided on each stop platform and be visible along the length of the platform and to the CCTV system. The help point should provide the facility to call the NGT control centre either for information or emergency assistance if required.

### 2-11-5 Line of Sight

Stops should be highly visible and therefore glazed panels of shelters are preferred to solid where practicable. Passengers approaching a platform should be visible to those already waiting. However, glass is particularly vulnerable to vandalism and alternative materials such as polycarbonate could be considered if they provide similar clarity to glass, but must also be scratch, burn and graffiti resistant.

In addition, shrub planting throughout the NGT network should be maintained to below 1m in height and trees with clear stems above 2m where appropriate. This will ensure that passengers remain visible and reduce potential hiding places. Dense planting with no views through should be avoided except as buffer treatment where required as necessary.

### 2-11-6 Park and Ride

Park and ride sites could be particularly vulnerable to criminal activity and security should be a key consideration in their design and layout. The design should seek Park Mark® accreditation as part of the Safer Parking Scheme, which is a joint initiative of the Association of Chief Police Officers and the British Parking Association supported by the Home Office. Secure perimeter fencing and limited access should be considered, as well as good levels of lighting as a minimum. CCTV is particularly effective in car parks and full coverage should be provided to the park and ride sites. In addition, visible permanent on site staff should be considered to further deter criminal activity and reduce the fear of crime at park and ride sites. It is essential that passengers feel reassured about leaving their car to encourage the shift to public transport.

### 2-11-7 Staff

Consideration should be given to having visible regular patrols of the NGT network, including stops, trolleybuses and park and ride sites. These could be via NGT staff or other dedicated officers. Staff will also be required to monitor the control centre and park and ride sites. In addition, the design of the NGT depot should also seek a Secured by Design Award to ensure both a safe working environment and security of the NGT trolleybuses.

Climate change is not something that will be happening somewhere else. There will be impacts for the UK. We will see hotter, drier summers and warmer wetter winters, coupled with increased frequency of extreme weather events such as heat waves, droughts, heavy rain and floods. It is not something we can ignore.

DEFRA UK  
Climate Projections 09



On street storm water planters -  
Portland, USA

## 2-12 Sustainability And Climate Proofing

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**2-12-1 Sustainable development aims to foster and balance continued and diverse economic success, environmental improvement and the development of social equity through stronger and fairer community life. Sustainable development, including transport infrastructure, is concerned with the overlapping working of the economy, environment and society. Sustainable development must also respond to the threat of climate change. A full Sustainability Assessment is being undertaken and this will be included within the TWA submission.**

### 2-12-2 SUSTAINABILITY

A sustainable and innovative approach to the design of the NGT network is encouraged to make use of current best practice, to make it more energy and resource efficient. NGT will operate using modern trolleybuses, running on rubber tyres and powered by electricity from overhead wires. Electric trolleybuses will provide fast, smooth acceleration and deceleration, with the benefit of zero emissions (air pollutants and greenhouse gases) at source and generate very low noise and vibration. There is an aspiration for NGT to be powered totally, or at least partially, from a renewable source of electricity. NGT vehicles will benefit from regenerative braking systems making the vehicles more energy efficient.

As well as the NGT vehicles and their power source, individual buildings and structures should also be efficient in their use of energy and water by incorporating energy and water saving devices, together with renewable energy technologies where appropriate and practical. For example, photo voltaic cells on shelter structures to generate energy will be considered and all lighting will be low energy demand and/or intelligent (by responding to movement) where appropriate. In addition, wherever possible, sustainable building materials and techniques should be employed during the construction phase, including waste reduction, re-using and recycling.

The following issues will be key to developing a sustainable NGT network:

#### 2-12-2-1 Reduce the Risk of Flooding

Considering the growing risk of flooding with climate change, sustainable drainage systems (SUDS) are encouraged across the NGT network where possible to reduce the speed and quantity of surface storm water run-off. The incorporation of SUDS can also support increased biodiversity where water is kept at the surface and improve water quality.

#### 2-12-2-2 Choice of Materials

Consideration should be given to both the Green Guide to Material Selection and the reuse and recycling of materials where possible during construction. The source of materials should also be a consideration with locally sourced materials being preferred to reduce travel distances.

#### 2-12-2-3 Biodiversity

New landscape features and green spaces should ensure they have wildlife value wherever possible to support increased biodiversity across Leeds. Individual buildings and structures can also support increased biodiversity through the incorporation of green roofs and bird and bat boxes where possible.

Potential damage to existing habitats and green corridors should be mitigated against and new habitats and corridors created with new landscape. It is important that wildlife is not isolated. In addition, for every existing tree lost through the works to introduce NGT, it is proposed that three will be planted along the routes.

### 2-12-3 CLIMATE PROOFING

One of the effects of climate change will be a change in the severity and patterns of weather to be expected in the future. Higher average temperatures, more severe winds, floods and droughts are expected. This could lead to damage to the NGT network and disruption to passengers without consideration of climate proofing. Infrastructure with the longest expected life span such as bridges will need to consider significant climate proofing from the initial design of the network. Infrastructure that will be renewed regularly over the life of the network will be able to be adapted more over time as the climate changes.

A number of climate proofing measures should be considered in the design of the NGT network:

- consideration of the capacity of drainage and watercourse systems and improved cleansing to cope with higher and potentially more intense rainfall;
- greater use of sustainable drainage systems to reduce the rate of surface storm water run-off;
- more resilient electronic and electrical equipment to cater for increased temperatures;
- reduction of heat island effect through the use surfaces that do not store as much heat during the day;
- more substantial lighting columns, traction poles, stop structures and different tree species to resist potentially stronger gales;
- deflective barriers or shelter belts to reduce wind impact;
- increased shelter and shade for waiting passengers;
- alterations to horticulture maintenance to cater for potentially erratic and longer growing seasons; and
- modifications to winter maintenance in wet locations.

Investing in high quality materials, workmanship and detailing from the outset will ensure the NGT network looks better for longer.

Ashford, UK



## 2-13 Environmental Management And Maintenance

2-13-1 Investment in high quality, well detailed and implemented infrastructure and urban realm will increase patronage of the NGT network, promote a positive identity, raise aspirations and values and have long-term management and maintenance benefits.

High standards of management and maintenance should ensure that the design intentions of the previous sections are realised on the ground over time. The landscape setting of NGT must improve and mature, rather than deteriorate. A high quality, well-maintained environment will continue to attract and build regular patronage amongst residents and commuters. It will also reduce crime and the fear of crime and encourage inward investment.

The design and specification of the NGT network must be robust and easy to maintain, whilst minimising any effects on operations. It should be understood at the design stage how each element is to be maintained. For example, how easy will it be to clean shelter canopies, empty bins, change information in display panels and access ticket machines? Using a standard kit of parts will also allow spares to be obtained easily so the consistent branding of the NGT network is not compromised. Equally, reinstatements also must be undertaken to the same high standard in a timely manner. Delays in repairs can encourage further damage.

Investing in affordable high quality materials, workmanship and detailing from the outset will also ensure the NGT network looks better for longer. Establishing clear ownership of each element of the NGT network from the start will also ensure there is no ambiguity with regard to maintenance responsibilities. This will include clearly identifying adopted and non-adopted areas, but should also consider litter collection, bin emptying and care of soft landscape and maintenance of sustainable urban drainage systems.

To ensure that future works are carried out to the same specification, a maintenance manual should be prepared by the original design team before construction is complete. This should incorporate:

- as built drawings;
- procedures for maintenance works and reinstatements;
- the exact materials used and equipment installed; and,
- the names and contact information of all suppliers.

The maintenance manual should be distributed to all those with responsibilities for maintaining the NGT network. Staff involved in the maintenance of the network will need to appreciate the importance of quality workmanship and detailing to ensure quality is maintained over time. In addition, for materials and equipment not readily available, a stockpile should be set aside for future maintenance and reinstatement works.



Extensive landscape works help mitigate the impact of new transport infrastructure and better integrate it with the urban realm.

Eugene  
Oregon, USA



## 2-14 Measures For Mitigation

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**2-14-1** This section summarises the design mitigation principles from the Environmental Statement that will be employed to offset the impacts and subsequent effects of the NGT network. The use of the term 'Impact' within the Leeds NGT Scoping Report and Environmental Statement refers to a predicted change in the baseline environment whilst the term 'Effect' refers to the consequence of the change on either the baseline environment or the identified environmental receptor considering their given level of sensitivity.

### 2-14-2 Mitigation

Mitigation measures will seek to minimise the impact and subsequent effect of the NGT proposals on the landscape/townscape and will occur in two forms along the route - essential mitigation and supplementary/complementary mitigation.

In order to offset the predicted effects of the proposals created by the impact of the development, essential mitigation will be required. Being employed in both the landscape and townscape existing along the route, it will be needed to maintain the unique character of the areas that the trolleybus will pass through.

### 2-14-3 Supplementary/Complementary Work / Initiatives

In addition to essential mitigation measures, complementary mitigation measures will also be implemented along the length of the route. These measures will seek to redress indirect effects of the trolleybus route on the surrounding environment that do not directly relate to the proposals.

### 2-14-4 General Mitigation

- Temporary landscape of sites where billboards and buildings are removed, with opportunities for redevelopment to follow in future.
- Reinstatement of hard landscape features lost during construction.
- Reinstatement of soft landscape features lost during construction.
- Screen planting.
- For every tree lost during construction, three will be planted along the routes.

Due to the length of the route, the NGT corridors move through a number of different landscape and townscape character areas that require more site specific design measures to integrate the NGT corridor into its context. These measures could include where possible:

### 2-14-5 Urban Areas

- Streetscape and traffic infrastructure should be rationalised to minimise the levels of street clutter.
- Combine signage onto traction poles and lighting columns.
- Co-ordinated location of traction poles with lighting columns.
- Building mounted OLE when buildings are in close proximity to route and of suitable construction.
- Public realm improvements.
- Street tree planting where possible to enhance current hard landscaped space.

### 2-14-6 Suburban Areas

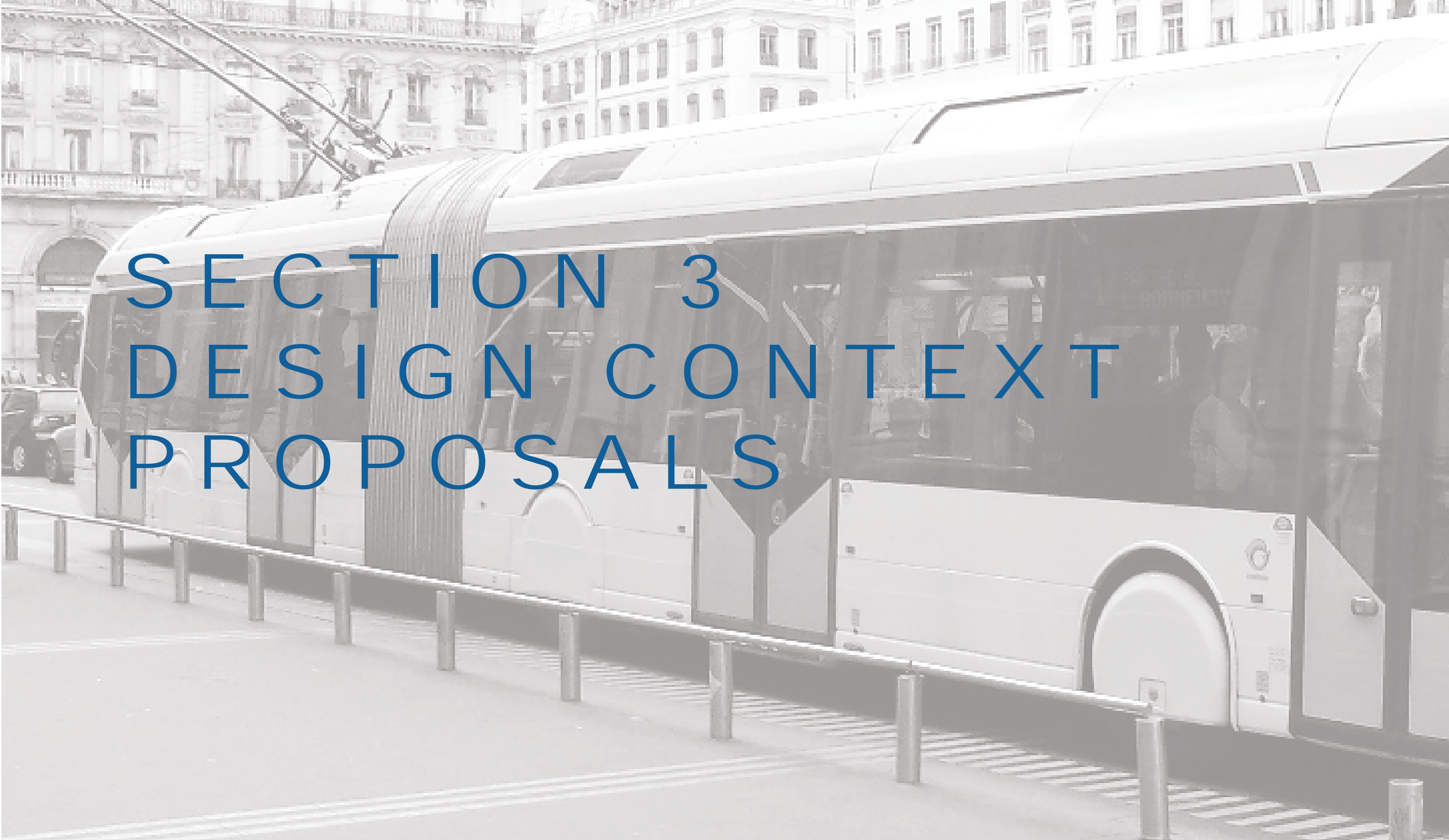
- Hard landscape reinstatement.
- Boulevard tree planting.
- Reinstatement of landscape to traffic islands where existing ones are unduly impacted.
- Tree planting to provide screening.
- Earth mounding.
- Ecologically rich planting to enhance biodiversity.
- Noise attenuation fencing if required.
- Fencing for residential properties.

### 2-14-7 Conservation Areas

- Hard landscape improvements with high quality materials.
- Replacement of soft landscape elements.
- Improvements to the urban realm, including natural stone paving materials.
- New street furniture should enhance the setting of conservation areas.
- Building mounted OLE when buildings are in close proximity to route and of suitable construction.
- Careful placing of traction poles and lighting columns.
- Combine signage on traction poles and lighting columns where possible.

All proposals within the boundaries of conservation areas should be in keeping with the character of that conservation area and seek to enhance the setting of that area.

More detailed mitigation proposals for each section of the route can be found in the Design Context Proposals (Section 3).



SECTION 3  
DESIGN CONTEXT  
PROPOSALS





# Section 3 - Design Context Proposals

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## 3-1 Introduction

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TO BE  
UPDATED

# 3-2 North Route

TO BE  
UPDATED





## 3-2-21 Lawnswood Character Area [N21]

### Existing Character and Uses

This character area is green and leafy dominated by mature stands of trees

The tightknit urban grain of the residential areas around West Park gives way to a more expansive and large scale character. The Lawnswood School, West Yorkshire Police building and Univeristy of Leeds sports fields contain large urban blocks surrounded by extensive areas of open green spaces. To the north east of the Lawnswood roundabout the urban grain returns to a residential scale of large villas/apartment blocks. The listed Weetwood Hall Gatehouse provide the only historical/vernacular building fronting onto Otley Road at this location. Perimeter sandstone walls are evident along a significant lengths of this section of the corridor.

In this character area the highway corridor widens with a large centre grass reserve, and has mature trees either side of the corridor and along the central reserve creating an informal boulevard effect and distinctive landscape character to this part of the city.

This dense tree planting provides a sense of enclosure to the corridor, their scale dominates and softens the existing highway infrastructure. Generally the tree planting along either side of the corridor forms dense clusters of mature trees that either restrict views east or west or allows only glimpse views through the canopy to the land uses beyond. The trees to the central reserve form more isolated clumps and are less extensive, although where present do contribute considerably to the overall greening of the corridor. These trees are showing signs of stress and look in a poorer condition to those either side of the corridor.

At Lawnswood roundabout (and adjacent to the Lawnswood School to a certain degree) the views open out to provide longer distance views along the ring road in an east and west direction. The scale of the Lawnswood roundabout means that the trees are set further back and are less dominant here.

Pedestrian footpaths are set back from the road corridor by grass verges.



## Urban Realm Issues and Opportunities

Extensive loss of trees in this area will cause irreparable damage (certainly in the short/medium term) that will have a significant and detrimental effect on the distinctive character of this part of the corridor.

Careful consideration need to be give as to where trees are lost if this is the only alternative. Depending on where these trees are removed effects how the corridor will appear visually. Trees within the central reserve breakup the visual dominance of the highway infrastructure by creating a green spine down the centre of the highway effectively splitting the dual carriageway into two roads. Trees either side of the corridor provide the visual enclosure to the space and are more extensive in their number and density.

Segregated footways should remain a feature of the scheme to provide a comfortable pedestrian/cycle route along the corridor.

The NGT stop will be a prominent feature in the central reserve of the corridor and should be designed to promote the NGT brand.

NGT stop should provide strong physical links to adjacent facilities such as the Lawnswood School, University of Leeds sports pitches and adjacent residential areas through the use of wide and direct crossings.

Opportunity to have a significant art installation on the Lawnswood roundabout to signify the importance of this junction as one of the gateways into the city.

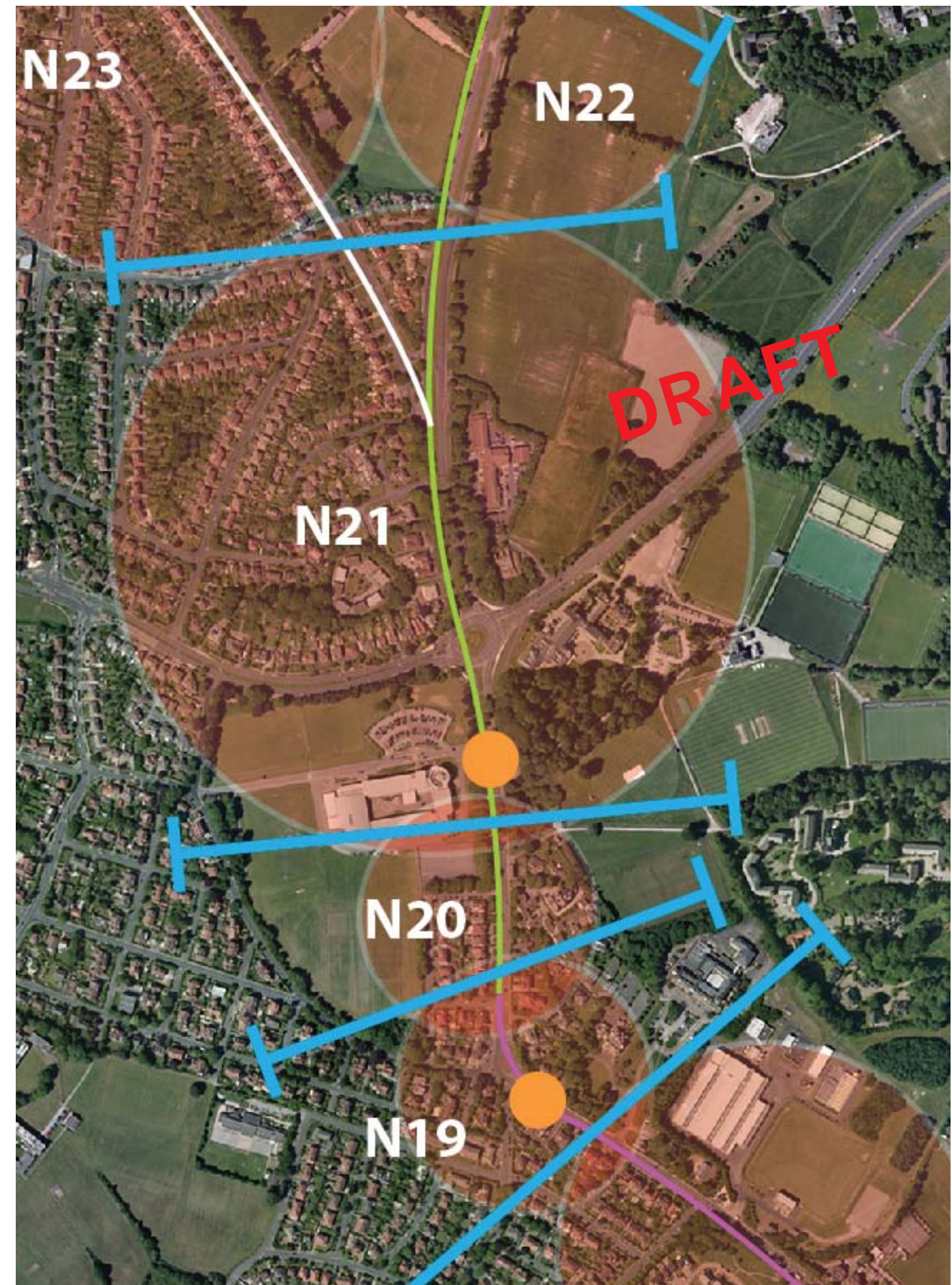
Opportunity to green up the Lawnswood roundabout with tree planting to reduce the dominance of the traffic island.

## Regeneration Synergy

None Significant.

## Potential Local Adverse Effects

- Loss of trees will have a significant effect on the character and visual amenity of the area;
- Loss of trees on the central reserve, and the grass central reserve will create a more open corridor that is extensively 'hard' in appearance with no visual separation with the infrastructure- in effect there could be 6 lanes of infrastructure;
- Incursion either side of the corridor will result in a greater loss of mature trees, and sense of enclosure to the corridor, but potential more opportunity to provide new replacement tree planting;



- Loss of the segregated pedestrian/cycleway will create a less welcoming pedestrian/cycleway network;

### Incorporated/Essential Mitigation Measures

[to be delivered by NGT]

- Retention of the mature trees where ever practically possible, will be paramount to the decision making process/design resolution;
- Where trees are lost, replacement tree planting with larger specimen trees or super replacement trees will be provided to create a more immediate impact and a greater degree of mitigation;
- Tree reinstatement will be considered as a matter of course in areas that are not disturbed to provide future longevity of the tree stock in this area and mitigate generally for tree loss;
- A grass track system will be considered for NGT to green up the central reserve.
- 

### Supplementary Mitigation Measures

[to be delivered by others]

- Upgrade of the NGT stop to bespoke stop to create a more iconic gateway to the NGT network and bespoke feature with the highway corridor;
- New tree planting within the curtilage of Lawnswood School (to compliment existing mature trees) will help reinforce the boulevard character and greening up of the streetscape;
- Art installation on Lawnwood roundabout to create a gateway feature;
- Wide pedestrian crossing to the NGT stop.

















### Incorporated/Essential Mitigation Measures

[to be delivered by NGT]

- Reinstatement of all footways where widening/realigning using high quality natural surface materials to reflect conservation area status.
- Increase footway widths on Woodhouse Lane to ease intensive pedestrian flows (particularly prevalent around Parkinson Building).
- Provide temporary landscape scheme for proposed University drop off space (Cavendish Road junction). Full landscape scheme to be developed as part of wider University masterplan. Temporary scheme to maintain existing access arrangements for University and also improve pedestrian circulation.
- Reinstatement of landscape buffer with earth mounding and replacement tree planting along Blenheim Walk to provide screen/buffer for neighbouring residential properties
- Potential temporary compound site area to have replacement tree planting and associated landscape works to reinstate original green space character
- Reinforce strong boulevard character through new tree planting to compliment existing mature trees.
- As there is not sufficient enclosure for building mounted OLE, the OLE to be carefully sited to minimise visual clutter

### Supplementary Mitigation Measures

[to be delivered by others]

- Creation of an enhanced drop off area/ pedestrian plaza that forms a foyer/gateway space for the University and a high quality setting for the Parkinson building
- Upgrade roadway surface material to enhance visual appearance of boulevard and reinforce the restricted traffic access measures. This could either be for the entire boulevard or a shorter section in front of the Parkinson building/drop off area





## 3-2-6 Woodhouse Lane - Leeds University Character Area [N06]

### Existing Character and Uses

This character area has a conservation area designation, with a number of listed buildings along the length of Woodhouse including the Parkinson Building and the Trinity St Davids Church

The listed Blenheim Terrace creates a strong continuous frontage to the street. It is set back from the road with walled parking forecourts and a number of prominent mature trees along the boundary wall.

The listed Parkinson Building provides an iconic landmark on axis with Woodhouse Lane. Typified by its Portland stone elevations and dominant stepped entrance.

The area is notable for its heavy pedestrian movement along its footways between the University and the city centre, and periodic crowds at certain times of the day. There is a strong pedestrian desire lines across Woodhouse Lane from The University to the adjacent shops/food outlets. This density of pedestrian activity currently conflicts with car access to university. The footways are currently narrow and heavily congested.

The servicing drop off area is a prominent, and well known gateway to The University. Currently this space is dominated by highway infrastructure but presents a real opportunity in terms of public realm space.

The highway currently dominates the streetscape with two way vehicular traffic, a dedicated bus lane and on street parking.



## Urban Realm Issues and Opportunities

The two universities, Leeds University (LU) and Leeds Metropolitan University (LMU) play a vitally important role within the city. In close proximity to each other and the city centre, it is proposed that NGT provides the catalyst for improving connectivity between the city centre and universities through the creation of a new 'knowledge route' which forms a boulevard along Woodhouse Lane.

The boulevard will be more public transport and pedestrian/cycle orientated with avenues of trees and an upgrade in surface materials to reflect the conservation status of the area. General traffic will be restricted and on street parking will be removed to reduce the dominance of vehicles along the street.

Given the large volumes of students in this area, pedestrian/cycle movement along Woodhouse Lane and into the University campus is a key consideration. Promoting direct, comfortable and safe walking/cycling journeys through the provision of wider footways and wide crossing points is vitally important

It is proposed that the boulevard terminates with the creation of an enlarged and enhanced pedestrian plaza and reconfigured drop off service area that forms a foyer space for the listed Parkinson Building and the gateway to the University.

The NGT stops are to be carefully considered in terms of location and form to ensure that the setting of the Parkinson building and steps are not adversely affected.

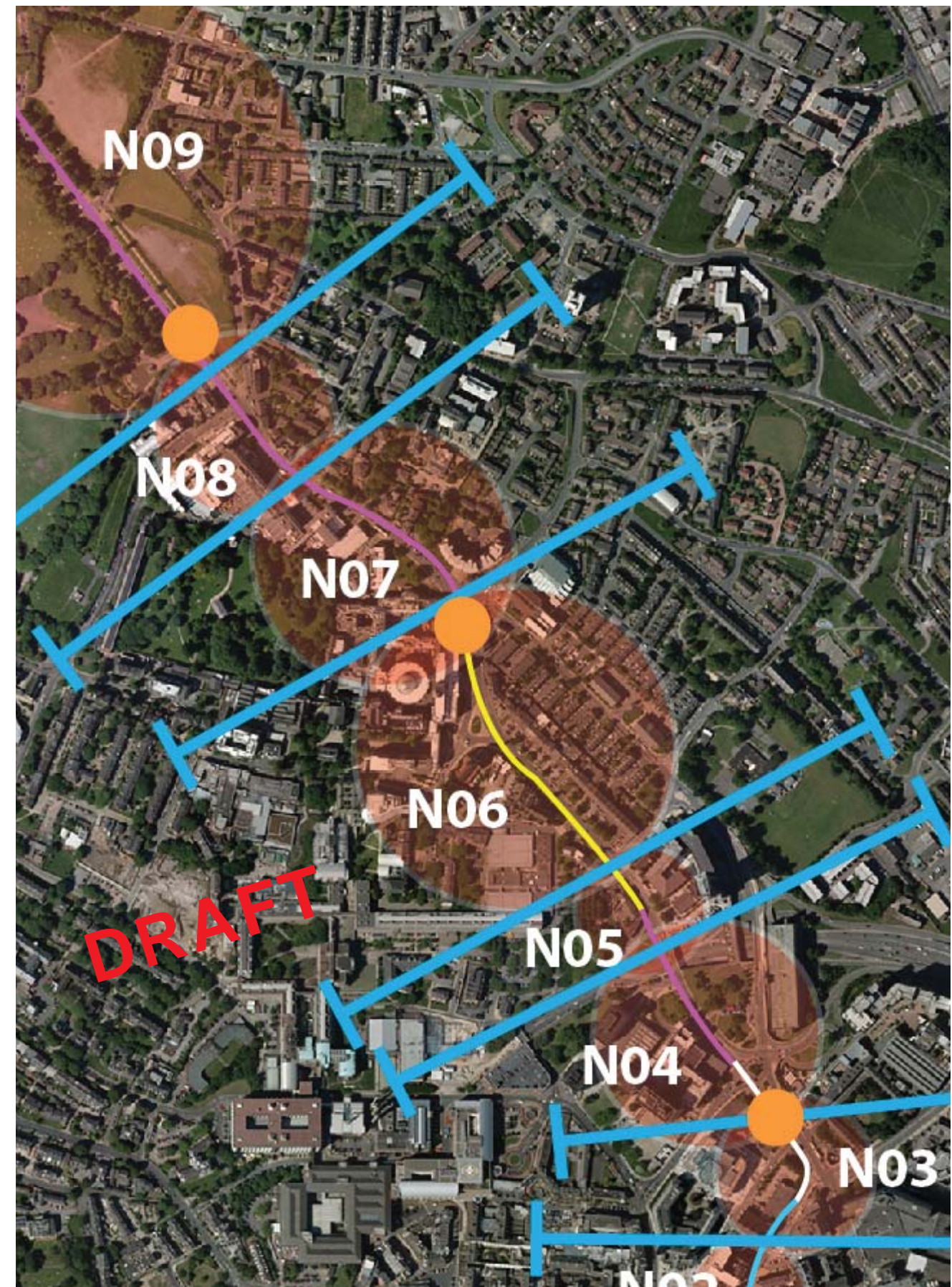
### Regeneration Synergy

The University has long term development masterplan that will see new public realm/refurbishment of public realm as new development is delivered. It is intended that the pedestrian plaza/drop off area will be delivered by the University as part of this long term development strategy. Section 106 monies could be available to upgrade specification of plaza/drop off area.

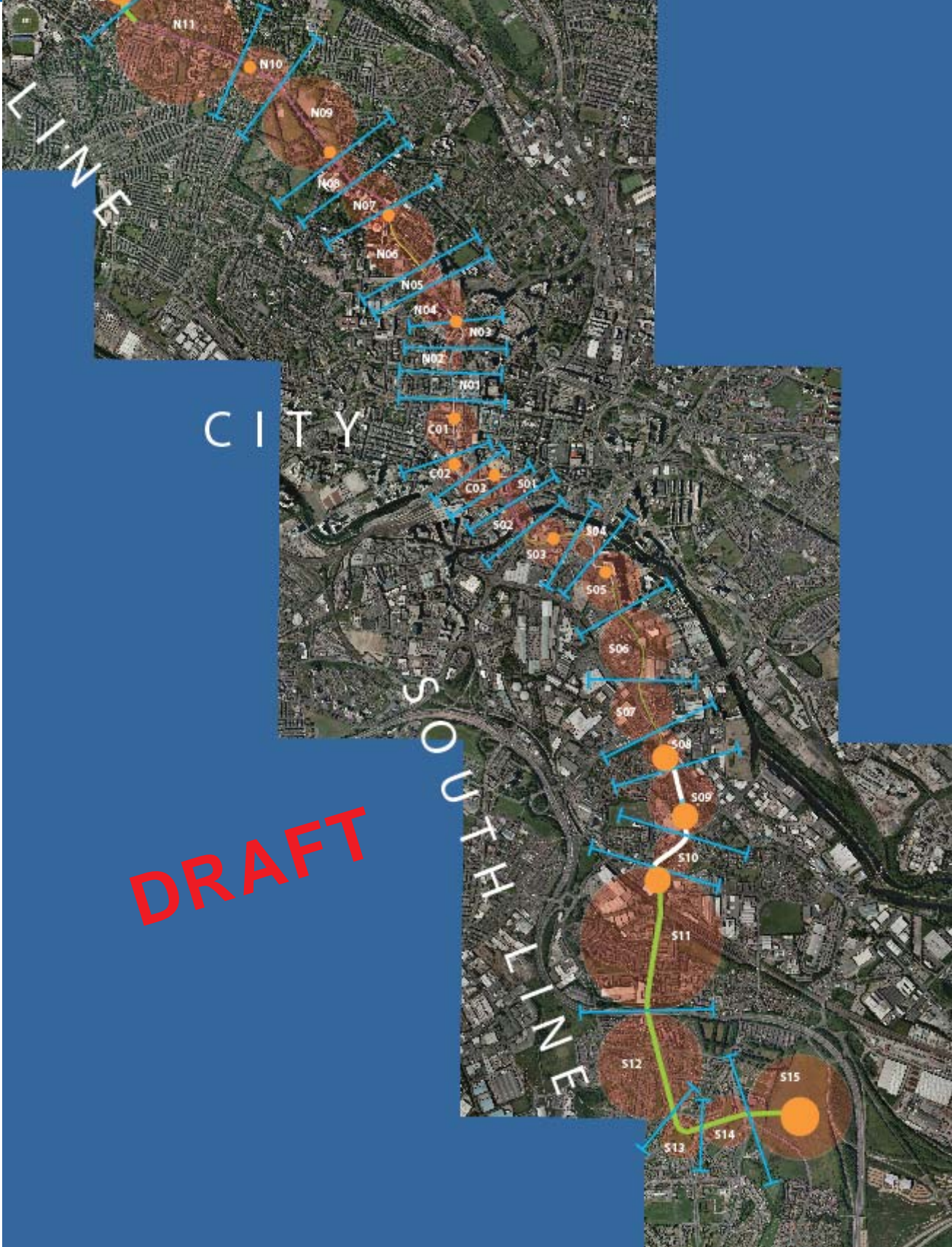
The boulevard design will give consideration to access and connectivity to the wider University masterplan for pedestrians/cycles and vehicles.

### Potential Local Adverse Effects

- Reduction in landscape buffer along Blenheim Walk and Blackman Lane leaves adjacent properties more exposed to highway infrastructure.
- Potential to undermine the setting for the listed Parkinson Building through the location of NGT stops within the immediate vicinity.
- Additional bus stops will potentially create less pedestrian space along footways
- OHLE poles will create visual clutter with the potential to undermine both the quality of Blenheim Terrace and the setting of the listed Parkinson Building.



# 3-3 South Route





## 3-3-2 Bridge End Character Area [S2]

### Existing Character and Uses

Bridge End has a historic character and is focused around the landmark Leeds Bridge that crosses the River Aire. This character area lies within the Leeds City Centre Conservation Area [CA45a] and has a number of listed buildings in the vicinity and is typified by traditional sandstone paving slabs to the footways and setts to the side roads.

There are framed views east and west along the River Aire to the converted historic mills/warehouses and newer residential developments. The area is predominantly residential with ground floor commercial/A3 uses, notably the Adelphi public house utilizes the pavements for outdoor seating areas.

There is a well-structured dense urban form that frames the historic street pattern along Dock Street and around the Leeds Bridge area itself. The urban grain is more fragmented to the south east where the highway infrastructure dominates the street scene. Here surface car parks and taxi rank drop off areas create large areas of open space with little enclosure.

### Urban Realm Issues and Opportunities

The street is currently used as a taxi rank lay over area for the station/city centre. Taxi rank spaces are currently in short supply and the routing of NGT along this street will only compound this problem.

The wide street provides the opportunity to create a high quality setting for NGT and improve the pedestrian route/experience and streetscape along this key link between the retail heart and the riverside.

### Regeneration Synergy

None significant



Potential Local adverse effects

Reduction of pavement widths outside the Adelphi Pub and over Leeds Bridge.

Bridge will require major strengthening work, but this will not adversely affect the appearance of the bridge once complete.

Incorporated/Essential Mitigation Measures (to be delivered by NGT)

Co-ordinate or combine new OHLE infrastructure with existing lighting, signage to reduce impact/street clutter.

Heritage features/character of bridge to retained if bridge strengthened

Replacement tree planting to car park that will be used as temporary compound

Develop landscape treatment to 'green up' and soften of proposed new 'traffic islands'.

Supplementary Mitigation Measures (to be delivered by others)

Develop a city wide scale gateway feature to city centre at this key junction through potential standalone

art intervention.

