Birchall Garden Suburb

Masterplan

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Contents

1. INTRODUCTION

1.1 BIRCHALL GARDEN SUBURB

The Birchall Garden Suburb Masterplan sets out the potential for a high quality, sustainable and mixed-use new community, set within a rich and varied landscape on the south-eastern edge of Welwyn Garden City. The area has been identified within the Welwyn Hatfield Borough Council Draft Local Plan and East Herts District Plan as a suitable location for integrated neighbourhoods that draw inspiration from Welwyn's Garden City origins and respond to the distinctive setting and local landscape attributes. The proposed 1,950 new homes will be supported by schools, community uses, local shops, and services, and will encourage sustainable lifestyles.

Masterplan Role and Status

The masterplan provides a long-term strategy and development framework which responds to the local and wider needs and issues affecting the Authorities. The masterplan is not designed to be a prescriptive blueprint for how development will come forward but provides a clear steer on priorities and principles for the new neighbourhoods and sets parameters for design proposals that can inform detailed masterplans and planning applications for the site. The masterplan will be a material consideration in planning decisions relating to the site for Welwyn Hatfield Borough Council and East Herts District Council and will be a reference for Hertfordshire County Council with regard to transport and highways and education provision. It is, therefore, intended to be reference tool and steer for landowners, developers, and designers preparing planning applications and design codes for the site. It is also designed to be a useful reference for local representatives and community members.

Process Towards Planning Applications

Complete:

LPA STRATEGIC POLICY DIAGRAMS

MASTERPLAN THEMATIC PRINCIPLES

MASTERPLAN PARAMETERS AND GUIDANCE

Application Process:

DETAILED MASTERPLANNING DESIGN CODES

including but not limited to:

- Route hierarchy and street sections

- Active travel network and infrastructure

- On-plot and street parking approach

- Building densities, heights & roofscape

- Housing typologies and delivery models

- Building frontage and edge conditions

- Building materials and fenestration

- Building lines and boundary treatments

- Green amenity space location and design

- Buffers and treatment of wildlife habitats

- Tree planting and SuDs approach

- Accommodation of the Green Corridor

- Phasing of homes and infrastructure

1.2 PURPOSE AND METHODOLOGY

The masterplan is designed to help support the delivery of the site and the report has a number of practical functions, including:

• Guiding the creation of a new sustainable community incorporating Garden City principles;

• Setting out the quantum and distribution of land uses, access, sustainable design, and layout principles;

• Providing a high-level design framework that sets out principles for any future development that will be a material consideration in the determination of planning applications relating to the site;

• Responding to technical concerns raised at the Welwyn Hatfield Local Plan review, including strategic views, screening new development and buffering between uses and landscapes.

Masterplanning Process

Allies and Morrison was appointed in 2019 by Welwyn Hatfield and East Herts Councils to prepare a masterplan for Birchall Garden Suburb for provision of up to 2,500 new

homes within mixed-use new neighbourhoods. This paused during the Welwyn Hatfield Local Plan Examination in Public and was resumed in 2022 to respond to a smaller site area providing 1,950 homes, reflecting the Inspector's recommendations on the draft Local Plan.

The masterplan has been informed by liaison with relevant officers at Welwyn Hatfield and East Herts planning authorities and Hertfordshire County Council. Key statutory and local stakeholders have also contributed to the process and informed the preparation of proposals and guidance.

Welwyn Hatfield Local Plan EIP

Timeline:

- Policy, Context and Site Analysis
- Stakeholder Interviews
- Constraints and Opportunities
- Vision and Principles
- Draft Strategic Proposals
- Refined Strategic Proposals
- Guidance and Parameters
- Final Masterplan Report

1.3 STAKEHOLDER ENGAGEMENT

Stakeholder Steering Group

The stakeholder Steering Group for the project was established in autumn 2022 and has met regularly throughout the project process.

The Steering Group comprises:

• Officers from Welwyn Hatfield Borough Council

• Officers from East Herts District Council

• Officers from Hertfordshire County Council

• Portfolio holders and Parish Councillors

• Representatives of civic and special interest groups

• The landowner for the site and design team

Stakeholder Interviews

A number of stakeholder interviews were undertaken for the project with statutory consultees, officers and special interest groups. These included:

- Historic England
- Hertfordshire Gardens Trust
- Welwyn Green Corridor Group
- Hertingfordbury Parish Council
- Essendon Parish Council
- BP Mitchell waste site agent
- Land Use Consultants (LUC) (preparing the Green Corridor SPD in 2019)
- Education and highways officers from HCC

Design Review Panel (DRP)

The team presented draft principles and strategic proposals to the Hertfordshire County Council Design Review Panel (DRP) in late January 2023. This provided an objective and strategic review of the masterplanning, movement, landscape, design, and delivery aspects of the emerging masterplan. The feedback from the design review session was incorporated into refined strategic plans and guidance for the Birchall Garden Suburb masterplan.

Timeline:

- Policy, Context, and Site Analysis
- Constraints and Opportunities
- Vision and Principles
- Draft Strategic Proposals
- Refined Strategic Proposals
- Guidance and Parameters
- Draft Final Masterplan Report
- Final Masterplan Report

- Officer Technical Workshop
- Stakeholder SG Meeting 1
- Stakeholder Interviews
- Stakeholder SG Meeting 2
- Stakeholder SG Meeting 3

- Design Panel Review
- Follow-Up Stakeholder Interviews
- Stakeholder SG Meeting 4
- Community Exhibition

1.4 PLANNING POLICY CONTEXT

1.4.1 Planning

The site is located across the boundary of East Herts District and the Borough of Welwyn and Hatfield.

East Herts District

In the East Hertfordshire District Plan (2018) Policy EWEL1 states “Land at Birchall Garden Suburb is allocated for development in both the Welwyn Hatfield Local Plan (SDS2) and the East Herts District Plan (EWEL1), to accommodate approximately 2,550 new homes over the plan period, of which 1,200 will be in Welwyn Hatfield Borough and 1,350 in East Herts District”.

Welwyn Hatfield Local Plan

Welwyn Hatfield consulted on Main Modifications to its Local Plan, reflecting recommendations from the Planning Inspector from 4th January - 15th February 2023. The previous policy submitted for the Welwyn Hatfield part of the site was to be allocated for 1200 homes, a small neighbourhood centre, and a 2FE primary school. The Local Plan Inspector concluded that it would not be a sound outcome to allocate the fields to the immediate north of the A414 for residential development. As a result, the number of dwellings in the Welwyn Hatfield portion of the site have been reduced from 1,200 homes to 600 homes, and subsequently, the connection to the A414 has been removed for general traffic. The Inspector specifically notes that the land to the south would not provide a sound outcome because of the impact such development would have on the visual openness of the wider Green Belt and the consequent experience of users of the open countryside to the south, as well as the potential harm to the setting of heritage assets.

1.4.2 Green Infrastructure

Central Parkland

Due to previous land uses, including mineral workings and landfill operations, it is not possible to develop the central portion of the site. The Hertfordshire Ecological Network (HEN) notes the potential to restore areas of grassland, scrub, and woodland within the

north of the site. Furthermore, it encourages opportunities to maintain and enhance the ponds in the north and woodland copse to the south.

Green Corridor

In 2019, LUC established a Green Infrastructure Masterplan, which incorporated a Green Corridor within the site. The Welwyn Hatfield Green Corridor is located between Welwyn Garden City and Hatfield New Town and runs west to east, and is bound to the south by the A414 Hertford Road. The corridor interfaces with the suburban fringe of Welwyn Garden City to the south and east, and wraps around the north-west area of Hatfield.

The Green Corridor is a linear network of green infrastructure, intended to aid the movement of wildlife and people, connecting existing green infrastructure in the form of cycleways, bridleways, and footpaths. It will provide a strategic green link between Panshanger Park in the east, and Symondshyde Great Wood and Ellenbrook Country Park in the west. In the context of the site, "The inclusion of a Green Corridor within the BGS site will help to conserve features of natural and cultural heritage importance, help communities respond to the anticipated impacts of a changing climate, secure overall net gains to biodiversity through the development and will help mitigate potential impacts on land which is currently not heavily influenced by human involvement." (2019 LUC BGS Green Corridor Consultation).

1.4.3 Transport

Local Transport Plan 4 (LTP4)

LTP4 was adopted in 2018 and covers the period up to 2031. It provides a framework to guide all future transport planning and investment. The plan sets out a balanced approach to transport which seeks to encourage a switch from private cars to sustainable modes of transport. The plan highlights that Hertfordshire has high levels of car ownership, poor east-west connections, high levels of cross boundary commuting, and complicated movement patterns, resulting in congestion, rail overcrowding, and air quality problems. To create a transport plan which aims to increase the highway capacity would have a number of negative impacts, and thus the plan seeks to encourage alternative modes of sustainable transport.

Local Cycling and Walking Infrastructure Plans (LCWIP)

In 2017 the Department for Transport (DfT) published a technical guidance to help local authorities develop LCWIP's. The overarching ambition of LCWIP is to make walking and cycling the desired mode of transport for both short and (parts of) longer journeys. Furthermore, it aimed to decrease the number of cycling fatalities and accidents and

increase the number of children (ages 5-10) that walk to school. Welwyn Hatfield produced its own LCWIP in 2022 demonstrating HCC's and WHBC's shared ambition for walking and cycling.

1.4.4 Housing

Overall Housing Figures in Site Allocation

The East Herts Local Plan allocates the northern part of the Birchall Garden Suburb area for 1,350 homes and the Welwyn Hatfield Main Modifications Local Plan allocates the southern part of the masterplan area for 600 homes.

Housing Range and Mix

For large developments such as at Birchall Garden Suburb, a range of home sizes and types should be provided, including a mix of starter homes; family homes; specialist residences for older people (flexi-care and residential care homes); and self-build and custom housing (EH Local Plan policies HOU1-HOU10 and WH policy SP7). East Herts identifies a need for 4 Gypsy and Traveller pitches within BGS. Welwyn Hatfield identifies the need for 11 pitches.

East Herts housing policy requires 40% of homes to be developed as affordable (policy HOU3 and Affordable Housing SPD). Welwyn Hatfield identifies 30% of homes to be affordable (policy SP7), including affordable rent and intermediate affordable housing. This should be provided onsite and integrated within neighbourhoods.

Density Range

Both local planning authorities suggest gross densities of 30-35 dwellings per hectare (dph) for Birchall Garden Suburb. This includes making efficient use of land and being informed by the character of the local area. It should be noted that the HCC Design Review Panel recommended higher densities than this to support a sustainable approach to masterplanning.

1.4.5 Sustainability

International Policy

The UN have set out 17 Sustainable Development Goals (SDGs) which are an urgent call for action by all countries - developed and developing - in a global partnership. They recognize that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests. SDG 11 - Sustainable Cities and Communities – should form a core part in developing a holistic approach to the masterplan's design and development.

National Policy

In conjunction with the NPPF, updates to the UK Building Regulations put sustainable communities, and sustainable design and construction to the forefront. Part L 2021, as well as the introduction on Part O, set out new building performance standards and ensuring overheating risk is correctly assessed.

Local Policy

In 2019, Welwyn Hatfield and East Herts declared a Climate Emergency and subsequently outlined respective Climate Change Strategies to recognise the gravity of the emergency. Both Councils have set an ambition of reaching net-zero by 2030 for their own operations.

Each Council also has extensive policies on sustainability, conservation, improvement of the natural environment, and promoting healthy lifestyles.

1.5 GARDEN CITY CONTEXT

Welwyn Garden City has served as a prototype for Garden Cities, setting the benchmark and providing radical and inspirational contributions to urban planning.

Welwyn Garden City was created in 1920 as England's second Garden City, based on ideas formulated by the Garden City Movement, founded by Ebenezer Howard in 1899, which was later realised by Louis de Soissons. Howard's vision was to reverse the depopulation of the countryside and to decentralise the population of Greater London. London's inner neighbourhoods of the time were overcrowded, and residents suffered from poor sanitation and living conditions. Garden Cities were designed to give residents their own homes with outdoor space, indoor toilets, reliable heating, and light and airy conditions, in direct response to the conditions of inner London. They were also intended to provide the best of both the town and the county, which was demonstrated in Howard's three magnets diagram.

De Soissons self-sufficient and community focused approach saw plans for Welwyn Garden City include a wide variety of houses, civic and community buildings, industrial buildings, churches, schools, shops, a public theatre, and open space. The masterplan was largely landscape-led; Howard's vision of a great central garden was realised through a mile-long Parkway. The whole city was encircled by an agricultural belt as per Howard's Garden City concept. Housing densities were low, with no more than 12 houses to an acre (translating as 30 houses a hectare). Many of the city's new roads incorporated mature trees, with few being cut down, and many new trees being planted, creating a green haven for residents.

Garden City Principles (TCPA)

The Town and Country Planning Association (TCPA) defines nine key principles of a Garden City which are listed below:

1. Land value capture for the benefit of the community.

2. Strong vision, leadership, and community engagement.

3. Community ownership of land and long-term stewardship of assets.

4. Mixed-tenure homes and housing types that are genuinely affordable.

5. A wide range of local jobs in the Garden City within easy commuting distance of homes.

6. Beautifully and imaginatively designed homes with gardens, combining the best of town and country to create healthy communities, and including opportunities to grow food.

7. Development that enhances the natural environment, providing a comprehensive green infrastructure network, net biodiversity gains, and that uses zero-carbon and energy-positive technology to ensure climate resilience.

8. Strong cultural, recreational, and shopping facilities in walkable, vibrant, sociable neighbourhoods.

9. Integrated and accessible transport systems, with walking, cycling, and public transport designed to be the most attractive forms of local transport.

The three magnets diagram by Ebenezer Howard, which addressed the question, 'Where will the people go?', with the choices, 'Town', 'Country', or 'Town-Country'.

2. SITE ANALYSIS

2.1 CONTEXT

Welwyn Garden City is a town located in the Welwyn Hatfield borough, within the administrative and historic county of Hertfordshire, located southeast-central England. It is located 32km north of London, and 60km south of Cambridge.

The site is located approximately 2.8km east of Welwyn Garden City town centre, and 475m west of Cole Green. Welwyn Garden City is well-served by major arterial roads.

The A1(M) located with the west of Welwyn and Hatfield, and goes from Potters Bar in Outer London, to Stotfold, which is located a few miles north of Letchworth.

Junction 5 of the A1(M) provided access to Welwyn Garden City and junction 4 provides access to the A414. The A414 runs along the south and eastern boundary of the site and connects east to Hertford and further on to Harlow.

In addition to these road links, there are connections to St Albans, Harpenden, and Luton via the B653, Hatfield via the A1000 and A1001, and Hertford via the B1000. Welwyn Garden City has a railway station in the town centre with excellent rail links and services south to London King's Cross in an average journey time of 31 minutes, and north-east to Cambridge in an average of 56 minutes. The closest international airport to the site is London Luton airport, located approximately 12.3 miles from Welwyn Garden City, near junction 10 of the M1.

2.2 SITE LOCATION

Welwyn has evolved over time, with a number of new layers of development. Birchall Garden Suburb would represent the latest of these evolutions.

The site occupies an area that has been released from the green belt, including agricultural land that will accommodate homes, and a former landfill site that has been redundant since the 1950s which will accommodate parkland.

The site is located to the west of the existing Welwyn Garden City neighbourhoods Panshanger and Hall Grove. To the east of the site are Panshanger Park and a cluster of villages, including Cole Green, Letty Green, Birch Green, and Hertingfordbury. To the south are the villages of Essendon and West End.

To the north of the site, the former Panshanger Aerodrome has planning permission for a new residential neighbourhood with a primary school, community uses, and local shops.

2.3 LAND USES

Within the Birchall Garden Suburb allocated area, there are very few active land uses. The most substantial uses are:

- The waste recycling facility, operated by BP Mitchell, called Burnside, which is located to the south-west of the site;
- The Cole Green Lane BP Mitchell site processing, storing, and supplying construction materials including concrete, sand and chalk;

• The logistics hub based on Cole Green Lane.

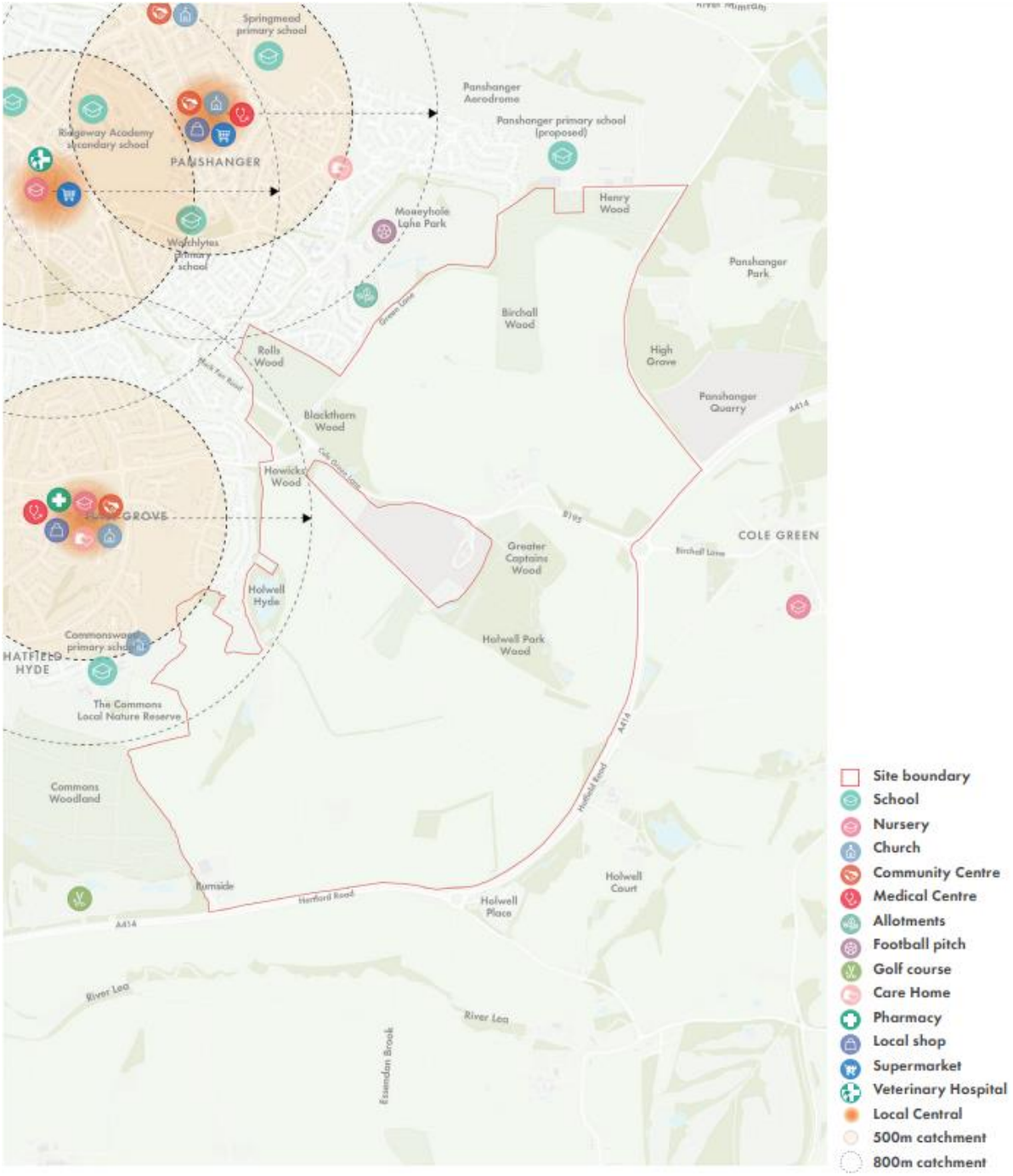
All three of these uses require access for articulated lorries.

In addition to the industry, the Birchall Farm building, barn, and stables operates from the north side of Birchall Lane. This also serves as a residential building, close to the homes found on Birchall Lane.

2.4 LOCAL AMENITIES

The majority of existing local amenities nearby are found in the Panshanger and Hall Grove neighbourhoods, each of which have local shops, a community centre, nursery, church, and medical centre. Additionally, Panshanger benefits from a local supermarket and Hall Grove includes a care home and pharmacy. Cole Green village also has nursery provision. Allotments are found to the south of Moneyhole Lane Park, next to the Panshanger neighbourhood.

A number of primary schools are found at Commons Wood, Watchlytes, and Springmead, along with the Ridgeway Academy secondary school. A primary school is also proposed to the north of the site, at the former Panshanger Airfield site.


Springmead primary school
Panshanger Aerodrome
Panshanger primary school (proposed)
Ridgeway Academy secondary school
PANSHANGER
Moneyhole Lane Park
Henry Wood
Panshanger Park
Birchall Wood
High Grove
Rolls Wood
Blackthorn Wood
Panshanger Quarry
A414
Howicks Wood
COLE GREEN
Greater Captains Wood
Holwell Hyde
Holwell Park Wood
Commonswood primary school
HATFIELD HYDE
The Commons Local Nature Reserve
Commons Woodland
Holwell Court
Holwell Place
Rumside
Hertford Road
River Lea
Essendon Brook
Site boundary
School
Nursery
Church
Community Centre
Medical Centre
Allotments
Football pitch
Golf course
Care Home
Pharmacy
Local shop
Supermarket
Veterinary Hospital
Local Central
500m catchment
800m catchment

2.5 VEHICULAR MOVEMENT

Vehicular Movement

Birchall Garden Suburb sits within the A414 strategic road which wraps around the southern side of Welwyn Garden City. This provides good access locally to Hertford and Hatfield, and more widely to the M25 and M1. However, the road acts as a significant barrier for the villages located to the east and the south of the site (The Greens, Hertingfordbury and Essendon), from Welwyn Garden City.

The area is connected to the town centre via Blackfan Road and Cole Green Lane, which runs through Hall Grove and through to the station. This road currently has a 50-mph speed limit as it passes the Birchall Garden Suburb site.

There are currently no roads which extend into the EH Birchall Garden Suburb area. Holwell Hyde Lane extends south from Cole Green Lane to Holwell Hyde Brook, towards the WH neighbourhoods within Birchall Garden Suburb.

A Byway Open to All Traffic (BOAT) extends southwards from Hall Grove to the A414 Hertford Road, although there are no crossings on the A414 at the southern end of the byway.

Public transport

The adjacent Hall Grove area is currently served by the 301 and 403 bus routes. The Panshanger area is served by the 401-bus route. The 401 route is very likely to be extended in the future to serve the proposed neighbourhood at the former Panshanger Aerodrome. Some of these routes could be extended in the future to serve the Birchall Garden Suburb area.

The nearby villages are served by the 641, 341, 201, and 200 which all run along the A414. The 201 runs along Blackfan Road and Birchall Lane, which could easily serve Birchall Garden Suburb in the future.

A Bus Rapid Transit - HERT - is proposed to run between St Albans to the west and Harlow to the east and extending on to Stansted Airport. The Birchall Garden Suburb area has been identified as a suitable location for a stop on the HERT.

Welwyn Garden Station has direct links to London, Cambridge, and Peterborough.

2.6 ACTIVE MOVEMENT

The Birchall Garden Suburb area is traversed by a number of existing Public Rights of Way (PRoW), bridleways, byways, footpaths, and tracks. However, these do not currently

combine to create a full network, with some areas such as Birchall Wood far better served than others.

These routes often run through ancient woodland, wildlife sites, and the Local Nature Reserve at The Commons. There are three entrances to The Commons LNR which can be found on Holands, The Commons, and Cornfield open space.

Key routes within the masterplan area include:

- A public footpath which extends from the eastern boundary of the masterplan area to the byway and then south-eastwards to the A414 Hatfield Road near to Holwell Court Farm.

- A public footpath which follows Green Lane along the northern boundary of the EH masterplan area and links Rolls Wood to Money Hole Lane Park.

- A public footpath which extends east–west across the EH masterplan area providing access from Welwyn Garden City towards Panshanger Park.

- The byway between Holwell Hyde Farm and Hertford Road (A414), which is a popular walking route and provides access to the angling lake at Holwell Hyde. The byway also takes walkers to the informal access space on the former Holwell Hyde waste disposal/ land fill area.

Public access is available at The Commons Local Nature Reserve which is located to the west of the BGS site. There is limited permissive access over The Commons Woods, which are located to the south of the LNR.

There are walking connections to nearby neighbourhoods Panshanger and Hall Grove, although these are not particularly legible or well-maintained. Walking connections to the nearby villages are even more challenging, with pedestrian crossings across the A414 very limited and unsafe.

The Cole Green Way is a non-motorised transport route, which follows the former Hertford to Welwyn Garden City branch rail line. It is part of the National Cycle Route 61 which provides a valuable connection between Hertford and Welwyn Garden City for cyclists, horse riders, and pedestrians. The cycle lane continues along Blackfan Road into Welwyn Garden City town centre. However, other than this link cycling provision is limited in the area.

2.7 LOCAL VERNACULAR

The local vernacular of Welwyn Garden City's original neighbourhoods and later additions close to the site give design clues for the development that can help it to reflect and sit comfortably in its context.

Welwyn Garden City

The original residential and street character of Welwyn Garden City was developed in a Neo-Georgian style, with symmetry, generously sized windows, and a range of articulated building façades to give interest to the street. Red brick is the dominant material, with pitched roofs and chimney stacks evident. Many buildings were designed to create double aspect internal rooms, either through shallow or L shaped building footprints. The scale and density of buildings varied, however, with one and a half storey cottages and three storey maisonettes incorporated in the earlier phases of the Garden City.

Clear boundaries between private and public space were important, with many residences having front gardens and others being defined by hedgerows. In some cases, homes were set back or away from through roads, creating a mews environment.

Later development at Panshanger (close to the Birchall Garden Suburb site) reflected a more Modernist design aesthetic, with asymmetric windows and roof pitches. The focus on creating light-filled interiors remained, however.

Later phases of development in the Panshanger area also included self-build developments including the Panway Self-Build Group which was developed over an 18-month period.

Site Context

There are very few buildings within and immediately adjacent to the Birchall Garden Suburb site area. However, these include the Grade II Listed Birchall Farmhouse, barn, and stable buildings just to the north of Birchall Lane, built in the 17th and 18th Centuries in red brick and wooden clapboard, with a moat surrounding the site at one point. The Grade II Listed Holwell Hyde Farm buildings just to the west of Holwell Hyde Lane were built in the 17th Century, with 19th Century additions. Each of these heritage assets will need to be respected in terms of their setting. Further information on these is provided in the heritage section of the site analysis.

Residential buildings are located on the north side of Birchall Lane and these are excluded from the site allocation. These are red brick, 1.5 storey chalet bungalow style buildings, with tall, pitched roofs and hung tiles on the gable ends. They are set back from the road, with privet hedges screening the buildings from the road.

More recently, a logistics hub has been developed on the south side of Cole Green Lane which provides a tall, single storey block with graduated sage green cladding. The building backs onto the road and provides parking to the rear.

2.8 URBAN STRUCTURE AND CHARACTER

Welwyn's original neighbourhoods were set out as generous boulevards, with connected streets and set pieces around communal green space. Louis de Soissons created variation in the street scene by varying the distance from front facade to road between houses. More recent development at Panshanger and Hall Grove reflect standard suburban developments, with semi-detached and detached homes set out along residential streets, some of which connect and some which operate as cul-de-sacs. Street patterns are less pronounced and legible in the suburban developments. However, both in Welwyn Garden City's original neighbourhoods and more recent additions, homes tend to front onto public open spaces. Welwyn Garden City's original neighbourhoods were set at 12 homes per acre (c.30 dph). Density levels nearby are generally 25--35 dwellings per hectare with family homes being two-storeys with pitched roofs.

The surrounding villages of Cole Green, Letty Green, Birch Green, and Essendon have more informal layouts with compact village cores but more dispersed homes beyond these, which provide overall lower density levels of 5-15 dwellings per hectare.

2.9 NEIGHBOURHOOD STRUCTURE

A tissue study comparison between original Welwyn Garden City neighbourhoods and more recent suburban development shows some striking differences in form and structure.

The original Garden City neighbourhoods had a far clearer structure and associated legibility than their later suburban counterparts. This formal structure enabled a far more efficient layout and use of land. This means that the density levels (dph) of the suburbs and the garden city neighbourhoods are very similar, despite the suburbs having far smaller gardens and a far less spacious character.

This provides a valuable steer for masterplanning new neighbourhoods at Birchall Garden Suburb, which can reflect the more structured character of the original Garden City neighbourhoods to establish a more sustainable approach of slightly higher densities whilst retaining a spacious character.

Street Hierarchy

Far more space is given over to roads and parking areas - 'grey infrastructure' - in the suburb, which lowers density without improving the environment. There are far more cul-de-sacs within the suburban area.

Figure Ground

The figure ground demonstrates the lack of legibility within suburban neighbourhoods. Without these being clearly marked, it is almost impossible to identify where the roads are, revealing a lack of structure and road hierarchy.

Private Gardens

Private gardens in the original Welwyn Garden City neighbourhoods are far more generous than within the suburbs. It is surprising then that densities are very similar.

Morphology

The striking differences between the two neighbourhood areas are revealed by isolating the different aspects of the spatial layout. These characteristics combine to provide a more familiar plan of each area.

2.10 HERITAGE ASSETS

Birchall Farmhouse (late C18th) and the associated Stables and Barn are Grade II Listed and located in the EH area of the site, north of Greater Captains Wood. The Grade II Listed Holwell Hyde Farmhouse (circa late C16th) is located just outside of the north-western boundary of the WH area of the site. The farmhouse is relatively well enclosed, with trees to the south and Holwell Hyde Lake to the east. Panshanger Park (circa early C19th) is located to the north-east of the EH area of the site. Numerous grade II listed buildings are included within Panshanger Park including the walled garden and gardener's house.

The setting of Birchall Farm and its associated buildings will be further protected by the presence of the Green Corridor. Furthermore, the Green Corridor will protect the historical landscape character through the conservation and restoration of hedgerows.

The plan identifies an open landscape buffer adjacent to Panshanger Park. Additional buffers are located at Birchall Farm and Holwell Hyde Farmhouse.

Hatfield House (Grade I listed) and its Registered Park and Garden (Grade I listed) is located approximately 1.5km southwest of the site (located off the plan). There are open rural views to the south, east, and northeast of Hatfield House. Whilst extensive mature tree planting within the north of the park and garden softens the relationship

with the A414 and Welwyn, there are some long views and inter-visibility through the landscape and open fields, facilitated by the topography of the land. The rural nature of the Lea valley contributes strongly to the setting of Hatfield House.

Any development should respect the setting of Panshanger Registered Parks and Gardens by providing sufficient landscape buffering and noise mitigation measures.

2.11 LANDSCAPE AND GREEN INFRASTRUCTURE

Much of the land within the site is managed as arable agriculture, interspersed with large areas of semi-improved grassland, blocks of broad-leaved woodland, remnant field boundaries, dense scrub, and water bodies, which include ditches and ponds.

Much of the agricultural land on the site will support a range of ecosystem services, including carbon storage, water infiltration, nutrient cycling, and food provision. Natural England (NE) highlight that due to the loss of a portion of this agricultural land to development, there is a need to retain as much as possible of the soil's important functions and services.

The plan identifies a central area of land in the site which was previously used for mineral workings and landfill operations. Central Herts Green Corridor Group (CHGC) have identified areas of Leachate breakout, as a result of the former landfill waste disposal operations. These are located predominantly within the scrub and grassland mix close to the water course in the WH area. These have been identified on the plan as blue flags.

The CHGC have also identified an area of ancient fen within the Commons LNR, which is a highly important site, including the water source that supports it.

Within the EH area of the site Blackthorn Wood, Rolls Wood and Holwell Hyde, and Howick's Woods are covered by TPO. Outside of the site boundary, there are TPOs on areas of woodland where Henry Wood meets Panshanger Park.

The water bodies and network of trees, hedges, and woodland within the site support a variety of wildlife, contributing to the wider network of habitats within area. Despite this, much of the woodland and green spaces are relatively fragmented, limiting the movement of wildlife biodiversity.

2.12 ECOLOGICAL DESIGNATIONS

Local Wildlife Sites (LWS)

Located both within and around the site are several broadleaved woodlands, which are designated as LWS's. These include Rolls and Blackthorn Woods LWS, Greater Captain's and Holwell Park Wood LWS, Cole Green Way (western end) LWS, Henry and Birchall Woods LWS, The Commons LWS, and Panshanger Park LWS. Located to the north of the site, along the River Mimram, is the Archers Green LWS, which includes rare chalk streams; home to a rich variety of wildlife including Kingfishers, bees, and endangered ater Voles.

Local Nature Reserve (LNR)

The Commons LNR is located to the southwest of the site, adjoining the western edge of the WH site area. These 15 hectares includes a mosaic of habitats including broadleaved woodland and is designated for its grassland indicators, Blackfan valley fen, and swamp. The boundaries of the LNR have remained the same since 1840.

Site of Special Scientific Interest (SSSI)

Tewinbury SSSI is located approximately 1.8km northwest of the site boundary and comprises a series of alluvial meadows and marshes bordering the River Mimram. There are several Impact Risk Zones (IRZ) radiating out from the SSSI with varying conditions applied to them. An IRZ covers much of the EH portion of the site, which will impact major infrastructure and roads.

Ancient Semi-Natural Woodland (ASNW)

Henry Wood, and parts of Greater Captain's and Holwell Park Wood are designated as Ancient Semi-Natural Woodland. Birchall Wood is designated as Planted Ancient Woodland Site.

Panshanger Registered Park and Garden

Panshanger Park includes a variety of mature tree planting, which forms a strong visual barrier to the site.

2.13 GREEN CORRIDOR

The Green Corridor has been introduced as part of the emerging Draft Local Plan (Policy SP12 - Green Infrastructure). WHBC will work with partners and developers to enable the delivery of a Green Corridor. Within the site, the Green Corridor is intended to connect key nature conservation assets including the Commons LNR, Local Wildlife

Sites, and Ancient Woodland. It extends from The Commons Local Nature Reserve on the western boundary of the WH area of the site, north-east wards through Greater Captain's and Holwell Park Woods and Birchall Farm before travelling north and connecting with Birchall Wood. Its strategic position allows for the movement of wildlife between the key nature conservation assets.

LUC have identified a number of key considerations for the creation of the Green Corridor. These include:

- supporting the conservation and enhancement of Birchall Farm, associated building and environs, as well as other cultural heritage features including Burnt Mound and the Grade II listed Holwell Hyde Farmhouse.
- supporting the conservation and restoration of the historic landscape character through the retention and creation of hedgerows.
- enabling the connection of existing footpaths and future proposed pedestrian and cycle routes.
- supporting the enhancement of the existing chain of ponds and ditches, to create a network of sustainable drainage which will contribute to the attenuation of water, before reaching the Brook.
- contribute to air cooling, water management, and moderating air quality, which will help mitigate the effect of climate change.

The CHGC Group have identified several species within the site including barn owl, polecat, brown hare, harvest mouse, bats, and several declining bird species such as yellowhammer, linnet, and grey partridge. A low population of water vole have been identified in the eastern boundary of the EH area, south of the B195 adjacent to the A414 (SLR, 2017).

2.14 HYDROLOGY AND TOPOGRAPHY

Hydrology and Flood Risk

The site contains a network of water bodies including ditches and ponds. The site is located on higher ground, between the River Mimram to the north, and the River Lea to the south. The River Mimram flows south easterly to meet the River Lea in Hertford.

There are two primary watercourses within the site. Within the WH area of the site, Hatfield Hyde Brook (1) is located along the western boundary and is made up of three main channels; two of which flow from the Welwyn Garden City area, and the third

joining from the Holwell Hyde brook, located within the site. The Hatfield Hyde Brook (2) is tributary of the River Lea, which is located south of the A414, approximately 400m from the site boundary. A ditch flows south-westwards from the Holwell Hyde Lake which connects to the Holwell Hyde Brook.

There is one fishing lake located in the WH area of the site called Holwell Hyde, which was previously used for mineral extraction that was not in-filled. Within the southern portion of the EH area, there are several ponds and brooks adjacent to Holwell Park Wood. Several ponds are also located in both Great Captains Wood and Blackthorn Wood. The site is predominantly outside of Flood Zone 2 and 3. In the south of the WH area, Flood Zone 3 slightly encroaches into the site boundary.

Topography

The WH area of the site slopes north from point 4, down towards River Lea in the south.

The CHGC have identified a ridge (3) from which rainwater seeps westwards to support the fens and wetland areas within The Commons LNR.

2.15 RECREATIONAL GREEN SPACE

Whilst the majority of the site is not specifically an area for recreation, a series of pedestrian rights of way (PRoW's), footpaths, bridleways, and byways provide access into the site, allowing people to enjoy walking, cycling, and riding horses through it.

Moneyhole Lane Park is located to the north-west of the site and provides opportunities for formal recreation activities, including a multi-activity area, 3 youth football pitches, a tennis court, and children's playground.

Holwell Hyde is a well-established angling lake, open to members only. Mill Green Golf Course is located on the south-western boundary of the site and is open to members and visitors.

The Commons Woodland is enjoyed by walkers and includes a range of habitats including oak woodland, calcareous fen, meadows, ditches, and ponds.

2.16 VISUAL AND LANDSCAPE CHARACTER

The site is located on the western residential settlement edge of Welwyn Garden City. To the north, east, and south of the site lies a combination of woodlands, open fields and parks. This rural context, together with the sites green open landscape, interspersed with woodlands, creates a strong rural character for the site.

The western portion of the WH area of land is relatively flat. The land north of the A414 slopes upwards and is visible from higher ground to the south of the River Lea. The northern area within EH is mostly flat, with a slight undulation in the land south of Birchall Wood, located within the proposed Green Corridor.

2.17 ECOLOGICAL AND HERITAGE BUFFERS

Buffer zones are used to protect sensitive areas from the impacts of development. Buffers may vary from landscaped features with planted trees or shrubs or may be areas of land left undeveloped. The nature of the buffer zone will vary depending on the asset which it is protecting. The buffer zones identified below represent best practice.

A minimum of 8m undeveloped buffer is required along both the Hatfield Hyde and Holwell Hyde Brook. There must also be sufficient maintenance access to the main rivers.

A 15m minimum buffer zone from the boundary of Ancient Woodland is required in policy to avoid root damage of the trees. Where ancient or veteran trees are present, there must be a buffer of at least 15 times larger than the diameter of the tree.

A 65m buffer zone is required around Burnside, which must include both a 5m planted bund and a 14m solid barrier. This buffer will provide visual screening and ensure that homes and other land uses are not adversely affected by noise and air pollution impacts. The buffer will also contribute in providing a visual screen to the A414, and mitigate harm to heritage assets located to the south of the site.

A buffer is also be recommended to Cole Green Lane employment area, with a 5m high planted bund. However, the longer-term shift in character of this road should also be considered, should the waste site relocate and be replaced with commercial uses that do not have associated noise and dust pollution issues.

2.18 SITE CONDITIONS

Ground Contamination

Much of the Green Corridor area is a former landfill site, which was decommissioned in the middle of the 20th Century. Knowledge of the contents within the landfill is not complete, although some information is known for each of the areas. A thorough assessment of ground contamination and the likely remediation requirements will be needed at the detailed planning application stage.

Services and Utilities

A gas pipeline has been identified, which runs to the immediate west of the masterplan area and may be a relevant concern for homes developed in the WH neighbourhood areas.

Both overhead and underground high voltage power lines have been identified within the masterplan area, with the overground lines within the WH area and the underground lines within the EH area.

Noise and Pollutions

The two BP Mitchell waste sites at Burnside (on the A414) and Cole Green Lane are considered to be sources of noise pollution that would need to be mitigated for any new residents. For this reason, landscape buffers and bunds are suggested for each within policy. For Burnside, a 65m landscape buffer with a 5m high planted bund is recommended. A 14m solid wall facade is also required for the buildings to the north of the bund. For the Cole Green Lane waste site, a 5m planted bund is required on the north side of Cole Green Lane.

2.19 CONSTRAINTS

An in-depth analysis of the site and the surrounding area has provided an understanding of the various constraints which will influence the proposals for the site. The degree to which the different constraints affect the site varies and a sensitive approach to the site's key features must be taken. Details of each constraint can be found in the previous sections of this report.

2.20 OPPORTUNITIES

The site has an abundance of rich opportunities which focus on creating a vibrant and sociable community, which is highly connected through modes of sustainable active travel. Ecological opportunities to retain and enhance the existing environment should be pursued to provide biodiversity net gain and ecological enhancement. Opportunities for the site include:

Landscape and Ecology

1. Retain areas of open space and create new areas of green amenity space.

2. Strengthen existing planting and/or create new tree planting for screening.

3. Active management at The Commons LNR to protect and enhance scrub and fenland.

4. Water courses and bodies, namely Holwell Hyde Book, Hatfield Hyde Brook, and Holwell Hyde Lake, protected as key blue infrastructure.

5. Open neutral grassland is retained and enhanced on former landfill site, with scattered tree planting and habitats for small mammals and reptiles.

6. Woodland retained and managed at Henry Wood, with opportunities for coppicing and clearance to promote biodiversity.

7. Woodland and scrub planting to enhance the woodland along the perimeter of the site adjacent to Moneyhole Lane Park.

8. Landscaped buffers along Commons Wood Local Nature Reserve, protecting rural context and existing habitats.

9. Viewpoint with interpretation or cultural heritage feature.

10. New woodland planting.

11. New planting along historic hedgerows.

12. Retained open space, protecting rural context and views into/from Panshanger Park and Heritage assets to the south of the site.

Movement

13. New Vehicular connections with safe pedestrian and cycle crossing points.

14. New and improved connections and wayfinding with the existing walking and cycle network, integrating the new development with surrounding communities.

15. Creating new walking and cycling routes within the site, through key amenity green spaces.

16. Opportunity to create safe junction for the National Cycle Route, both crossing the A414 and the B195.

17. Opportunity for new public transport connection with bus stops close to homes and key destinations.

Place-Making

18. New development parcels integrated into the landscape.

19. Opportunity for primary schools located within the local centre with close walking distance to homes.

20. Opportunity for secondary school.

21. Proposed local Centres at the heart of the new communities.

3. DESIGN APPROACH AND DEVELOPMENT OBJECTIVES

3.1 VISION AND APPROACH

The design approach for Birchall Garden Suburb is underpinned by nine Garden City Principles. These have been developed as a combination of the original Ebenezer Howard Garden City Principles and the TCPA Garden Community Principles (set out in section 1.5), which most reflect the desired approach for Birchall Garden Suburb.

1. Clear Identity – a distinctive local identity as a new garden community, including at its heart an attractive and functioning centre and public realm.
2. Sustainable Scale - allow the community to function self-sufficiently, with the capacity for future growth.
3. Well-Designed Places – vibrant mixed-use communities.
4. Strong Local Vision and Engagement – design and execute vision with the engagement of the existing local community, and future residents and businesses to reflect and respect natural and historic environment.
5. Integrated, Forward Looking and Accessible Transport - promotion of public transport, walking, and cycling so that settlements are easy and efficient to navigate.
6. Healthy Places - choices and chances for all to live a healthy life and prioritise wellbeing.
7. Green Spaces - generous, accessible, and good quality green and blue infrastructure.
8. Legacy and Stewardship - care for the whole community.
9. Future Proofed - resilient places that allow for changing demographics, future growth, and the impacts of climate change.

3.2 KEY THEMES AND PRINCIPLES

Five key themes have been identified which underpin the masterplan framework for the site. These include:

- Land use: a well-functioning place
- Movement: an integrated place

• Placemaking: an attractive and diverse place

• Landscape and Green Infrastructure: a landscape led approach

• Sustainability: a resilient place

The five themes create the overarching structure to explain how the masterplan has been developed. Each theme has a set of three key principles which help to guide development and growth of the site. For each principle, a series of guidance and indicators have been developed, which help to shape and inform future detailed masterplanning for the Birchall Garden Suburb area.

3.3 LAND USE

A Well-Functioning Place

Vibrant and Diverse Communities

1. Neighbourhood centres will co-locate shops, community uses, and schools to help establish a critical mass to support these and help encourage linked trips.

2. Local centres shall be located where they are visually and physically accessible to local residents, to maximise their profile and support these active uses.

3. A range of homes including sizes, types, tenures, and delivery models will support mixed and balanced communities and cater to different life stages and budgets.

4. A phased approach will see homes delivered close to existing local centres or for infrastructure and new local centres to be delivered early, to establish communities and encourage sustainable behaviours.

5. Gypsy and Traveller sites will have close access to schools and services, with high quality pitching facilities that meet their everyday needs.

Safe and Secure

6. Overlooked community play areas will be provided in space that can also support community events.

7. Public uses such as schools and community spaces will have legible, welcoming entrances and be well-lit, so they feel safe and comfortable.

8. Key routes to schools, community uses, and local centres will be well-lit and safe.

9. Thresholds between private and public spaces will be clearly defi ned, with all streets and open spaces fronted by front doors and windows, maximising active frontages and animating public spaces.

10. Open spaces will be fronted, to provide natural surveillance and a sense of safety.

11. Parking courts without overlooking from surrounding homes will be avoided.

Supporting Businesses and Communities

12. Existing workspace within the areas such as at Birchall Farm, and the waste sites at Burnside and on Cole Green Lane shall be retained while this is viable.

13. Design mechanisms such as landscape buffering and bunds will help to mediate between employment uses and new homes.

14. Homes will be designed to support home working and have high-speed fibre-optic cable.

15. The potential to include flexible workspace in the EH local centre will be explored.

Creating Activity, Responding to Context

The local centre could include a cafe use and associated seating (example from Lincolnshire Lakes).

Shops and community spaces could support co-working space.

Overlooked play areas will be provided, in spaces that can also support community events.

3.4 MOVEMENT

A Well-Connected Place

Prioritising Sustainable Movement

1. Any future development will be developed with the sustainable transport hierarchy in mind and in line with HCC policy LTP4.

2. Neighbourhoods will be directly served by local bus routes to and from Welwyn Garden City town centre that form a loop through BGS. These can be extensions of existing routes.

3. The Birchall Garden Suburb area will have a stop for the HERT rapid transit system in an accessible location for residents.

4. Parking provision will be carefully considered, and car clubs will be explored, to encourage people to use alternatives to private cars, where possible.

5. Electric charging points will be provided for cars and bikes, at residences, on street and/or in key locations.

Walkable and Cycle-Friendly Neighbourhoods

6. Good and safe pedestrian and cycle links will be provided within and between new neighbourhoods; and to/from existing neighbourhoods such as Hall Grove and Panshanger.

7. New developments will be designed to promote physical activity and active lifestyles through the built and natural environment. Walking and cycling will be prioritised, with direct routes for both and priority at signalled junctions. Key cycle routes will be segregated from vehicular traffic.

8. Local centres and schools will have ample cycle and scooter parking, and infrastructure such as cycle pumps and tools, to encourage active travel to the schools and for local journeys.

9. Homes will be designed with easily accessible cycle storage, to make it simple to use a bike for transport.

10. Improvements to strategic cycle connections will be explored with the Councils, particularly towards Welwyn Garden City train station and to Hatfield.

A Permeable, Attractive Street Network

11. Design proposals will take design cues from the original Garden City neighbourhoods, including the road structure and hierarchy, and relationship between roads and spaces, rather than more recent suburban neighbourhoods.

12. Streets will be integrated and permeable, with direct connections, particularly for walking and cycling, and cul-de-sacs avoided.

13. Homes and other buildings will front onto streets and reinforce a clear hierarchy and structure of connected streets.

14. Street sections will provide sufficient space for all users - walking, cycling, and driving - alongside sustainable urban drainage and on-street parking, where this is possible.

15. Detailed masterplanning will consider innovative parking responses that can adapt over time to provide green space, should demand fall.

Establishing a Permeable Street Network

Safe, segregated cycle routes will be provided to local schools (example Cambridge).

Cycle hubs could be a good model for providing safe cycle parking and maintenance tools (examples Waltham Forest).

3.5 PLACEMAKING

An attractive and distinctive place

Responding To Character and Context

1. The form and structure of neighbourhoods, including spine roads and civic building locations will take their cue from local topography, views and landscape features, so that they sit comfortably in terms of its scale, massing, and orientation.

2. The setting of local heritage buildings including Birchall Farmhouse, Stable and Barn; and Holwell Hyde Farmhouse will be preserved through buffer zones and landscape design.

3. The setting of Panshanger Park will be protected by avoiding buildings (other than the school) in land to the east of the Green Corridor in the Birchall Gardens neighbourhood.

4. Buildings will take characteristics of Welwyn Garden City as design cues, helping to inform materials, colour palette, form and structure, and design proposals will demonstrate how this has been done.

A Varied Mix of Typologies and Tenure

5. A tenure-blind mix of homes will be provided, including ownership occupied, private rented, affordable and social rented, and alternative housing models such as co-housing.

6. Net density levels will typically be between 30 and 60 dph with the variation in density facilitating the range in housing types that will create a mixed and balanced community.

7. Slightly higher densities will be focused at the local centre, amenities, and public transport stops, to help support these uses.

Resilient and Distinctive Design

8. Birchall Garden Suburb will have a clear, overall identity and read as one cohesive place. However, within this, each neighbourhood will have a distinctive character and design ethos.

9. Buildings will be designed with scope to adapt to the changing needs of occupants in years to come, with potential, for example, for loft conversions or rear extensions.

10. Buildings will front onto streets and community open spaces, reflecting the approach within Welwyn Garden City's original and more recent neighbourhoods.

11. Roofscapes will be varied with terraced rooflines avoided so that the roofline is fragmented and punctuated by trees and greenery.

12. Clear delineation will be provided between public and private space through landscaping measures.

13. Detailed masterplanning will be undertaken as part of a participatory design process with local communities, to help ensure the new neighbourhoods respond to local needs and preferences.

Distinctive Neighbourhood Characters

Homes will front onto green spaces to support community use and activity.

Density can be slightly higher in the local centre, next to shops and services but also open space.

3.6 GREEN INFRASTRUCTURE

A Landscape-Led Approach

Integrated with the Landscape

1. The masterplanning process will identify, protect, enhance, and expand the natural systems unique to the site.

2. The existing landscape will shape new development, which will retain and respond to existing woodland, waterways at Holwell Hyde and Hatfield Hyde brooks, historic hedgerows, and topography.

3. Views into and out of the neighbourhoods from the surrounding landscape will be carefully considered and inform designs.

4. The Welwyn Garden City Green Corridor will be accommodated, with a minimum width of 100m to this green infrastructure link, to allow for continuity of wildlife habitats.

5. Designs will work with natural drainage patterns and existing water features and will be enhanced to maximise sustainable urban drainage.

High Quality Public Space and Landscaping

6. Each neighbourhood will have communal, public space located close to amenities such as local shops and/or a primary school.

7. Active open spaces will be multi-functional and support a variety of uses such as play, exercise and community events for residents. Particular attention will be given to designing activity spaces that are welcoming and accessible to girls.

8. A large central park will be established between the neighbourhoods with areas of community access and areas protected as wildlife habitats.

9. Streets and key routes will be important landscape corridors, as part of a green/blue infrastructure strategy.

10. Tree lined streets will provide shaded pavements, access to nature and help to screen rooflines.

11. Neighbourhood growing spaces will support the health and well-being of residents, including allotments and orchards.

12. Access points will be provided to the Green Corridor from each neighbourhood, so this can provide public amenity space.

13. Green infrastructure including planting and drainage will happen early in the development process, so it matures as places are established.

Space for Nature

14. Ancient woodland, The Commons Local Nature Reserve, and wildlife rich areas within the central park will be protected and enhanced.

15. Continuity of wildlife habitats will be carefully maintained and enhanced, with barriers mitigated.

16. Existing mature trees will be retained and complemented by new tree planting of native species, creating interest throughout the year.

17. These investments will mean that the development will result in a biodiversity net gain. A strategy to achieve this will be developed at detailed masterplanning stage.

Embedded in the Natural Landscape

Attenuation ponds retain run-off and remove contaminants before draining into a water course.

Allotments will play an important role in creating social and healthy places.

Sociable green spaces and play will be integrated into the neighbourhoods.

3.7 SUSTAINABILITY

A Resilient Place

Sustainable Design and Construction

1. All homes should target the highest levels of energy and material efficiency - i.e. reducing operational energy and embodied carbon.

2. Buildings will be designed to encourage low carbon living.

3. Employ highly energy-efficient means of heat and power delivery, following the energy hierarchy described in Policies SADM13 & CC2.

4. All development should assess the whole life carbon impact.

5. This development should be considered an opportunity for exploring sustainable construction methods and materials.

6. Density of housing along with co-location of services should be maximised to an appropriate level. As per policies SP1 & CC2.

Supporting Sustainable Lifestyles

7. Minimising waste streams throughout the development.

8. Maximising circular waste stream possibilities, including maximising recycling rate.

9. Provide homes with appropriate internal and external storage for recycling and landfill waste.

10. New developments should demonstrate how lower domestic energy use, reduced utility bills, and increased rates of recycling will be achieved.

11. Provide access to green spaces and biodiverse areas.

12. Create and maintain food-growth areas such as community allotments and orchards.

13. Encourage a shift to more sustainable means of transport such as cycling or walking. As per Policies SADM3 & TRA1.

Future-Proofed and Resilient Neighbourhoods

14. All homes should consider the impacts of climate change, including hotter weather conditions and flood risk.

15. Designs should endeavour to make all buildings highly water-efficient including rainwater harvesting and recycling of grey-water.

16. All new homes and commercial buildings shall be designed to demonstrate their adaptability for future growth and innovations in energy generation and conservation technology.

17. Minimising peak electricity loads of the development.

Adapting to Climate Challenges

SUDs incorporated into the residential landscape

Access to green space

Green corridor supporting biodiversity

Promotion of active travel

Co-location of services

Ultra-low energy domestic development

Microgrid

4. MASTERPLAN

4.1 DESIGN OPTIONS

Option 1

Within the East Herts area, the proposed primary and secondary school are co-located in the east of the site. The local centre is located adjacent to the B195, in the south of the EH community. Within the WH area, the primary school is located within a triangular parcel, to the east of the primary spine road. In this option, the EH Gypsy and Traveller (G&T) site is proposed off a new junction along the A414 on the former waste site. However, this relies on the waste site being decommissioned and relocated to another location and remediation works being undertaken. The WH G&T site is proposed along the edge of the northern neighbourhood. Allotments are provided on the edge of neighbourhoods, alongside the green corridor and to the north of Birchall Farm in the EH area; and alongside woodland in the WH area.

Option 2

Within Option 2, the primary school in the East Herts area has been moved closer into the centre of the new community. The local centre remains in the south of the community; however, its orientation has changed to provide active frontage onto the proposed primary road within the neighbourhood. Given concerns about colocation of the G&T site and the household waste site in EH, this has been relocated to an area along the edge of the secondary school playing fields. The allotments within EH are tested alongside Blackthorn Wood.

Option 3

Within Option 3, the EH primary school is tested on a north-south orientation to the east of the spine road and the local centre is moved northwards, to front the road and establish a strong relationship with the school. Allotments are provided alongside Blackthorn Woods and to the south of the school, buffering the green corridor and Birchall Farm. Community sports pitches are introduced to the north of the secondary school fields. The G&T site is tested south of Holwell Park neighbourhood, accessed either from the A414 or through the neighbourhood.

The WH primary school is tested to the west of the main spine road to be more centrally located but results in a very linear site and creates a difficult relationship with Holwell Hyde Brook and woodland. The WH G&T site is relocated away from sensitive woodland and Holwell Hyde Farm, at the southeast corner of development. An emergency services

access and bus route is introduced from the WH neighbourhoods to Holwell roundabout.

Option 4

Within Option 4, the EH primary school and local centre are moved northwards, to a more central neighbourhood location based on Design Review Panel feedback. The allotments are kept in the same positions, but with their shape and size adjusted. The G&T site is relocated to a site to the western of Holwell Park, close to the entrance, to address access issues.

The WH primary school is relocated to the east of the spine road following testing of potential layout options. The WH G&T site retained in the same location, to the south of the school site.

Throughout the options, densities have been tested through overall layouts and tissue studies at street scale. These have broadly remained the same, with areas of higher density adjusting to respond to active use locations.

4.2 CONCEPT EVOLUTION

1. Retaining Existing Assets

Existing woodlands, trees, and hedgerows will be retained and form the structure of the landscape for the new development. The existing brooks, Hatfield Hyde and Holwell Hyde, will be protected supporting the Commons Local Nature Reserve.

2. Enhancing Green Infrastructure and Biodiversity

Existing tree belts will be strengthened forming connected green buffers, enhancing biodiversity, and screening views to the new development. A parkland will form the central green open space, with a Green Corridor navigating from west to north, connecting key woodlands and nature reserves. Additional Green Corridors will be set along key desire lines and footpaths connecting woodlands and green spaces. Two areas of retained open space will preserve long-distant views and the rural setting of surrounding heritage assets. Green buffers around the edges of the site will restrict the new development infringing on woodland and assist in screening views to neighbouring settlements.

3. Establishing Landscape-Led Neighbourhoods

Development parcels are integrated into the landscape structure and will sensitively respond to the buffers, Green Corridors, and heritage assets surrounding the site.

4. Creating Permeable Neighbourhoods

Existing walking and cycle paths will be retained, and new routes will be introduced to develop a legible, connected, and accessible network within and between the communities. Vehicular access will be provided off Birchall Lane for the EH neighbourhoods and Cole Green Lane to the WH neighbourhoods. A network of secondary and tertiary routes will provide further permeability through the site. A bus route will navigate through the neighbourhoods with bus stops at key destinations.

5. Social, Supportive Neighbourhoods

New green amenity spaces will be integrated within the neighbourhoods and connected along pedestrian and cycle routes. They will support a variety of sports, play, and community activities, including allotments and community orchards. The communities will be further supported with a local centre in both EH and WH which include a variety of facilities and amenities for the community. One secondary school and two primary schools will be carefully situated within accessible, safe, and close walking distances to homes.

6. Connecting to Surrounding Communities and Green Spaces

The future development will be seamless with both the social fabric and natural landscape of the existing context. Walking and cycling routes will connect with the existing network and new access points will provide further permeability between neighbourhoods and surrounding open spaces, including Panshanger Park and The Commons LNR. Improvements to junctions and key routes, such as the Cole Green Way, will make accessing the site safer.

4.3 THE MASTERPLAN

Introduction

The Birchall Garden Suburb masterplan has been designed to establish a series of distinctive but integrated neighbourhoods that respond to the significant local landscape assets and sensitivities and sit comfortably in their setting. They will forge relationships with existing neighbourhoods rather than sit in isolation and it is intended that after a few years, it should feel as if the neighbourhoods have always been there. The new neighbourhoods will draw on the best of the Garden City ethos and respond to this with contemporary characteristics and features.

Once developed, Birchall Garden Suburb will establish neighbourhoods and patterns of living that should last 100 years or more. For this reason, the masterplan is designed to support sustainable and healthy lifestyles and respond to the need for climate change

adaptation and mitigation. The masterplan has been designed to avoid embedding 20th century models of living that may fail to adapt or be inappropriate to respond to the climate and environmental challenges of the 21st and 22nd Centuries.

Over the following pages, a series of masterplan strategies are provided according to the themes identified for the projects:

- A well-functioning place, which covers land-uses and activities.
- A well-connected place, which covers active travel, public transport, and vehicular access.
- An attractive and distinctive place, which covers the approach to densities, typologies, layout and building design.
- A landscape-led approach, which covers green infrastructure of all types and biodiversity.
- A resilient place, which covers the approach to sustainability.

For each of these sections, diagrams are provided which indicate the suggested approach for the masterplan, though are not intended to be prescriptive. Each section also includes 'Key Characteristics and Guidance', which any future detailed masterplanning should respond to.

Following this, the various neighbourhoods are introduced, with information on the nature and character of each.


BIRCHALL GARDENS
HOLWELL PARK
HOLWELL GREEN
COMMONS WOOD
HATFIELD DOWNS

4.4 LAND USE STRATEGY

Overview

The masterplan has been developed to establish sociable and self-sufficient neighbourhoods, with local shops, community uses and amenities positioned in an accessible location for residents and co-located to provide a critical mass for these uses and encourage linked trips.

Key Characteristics and Guidance

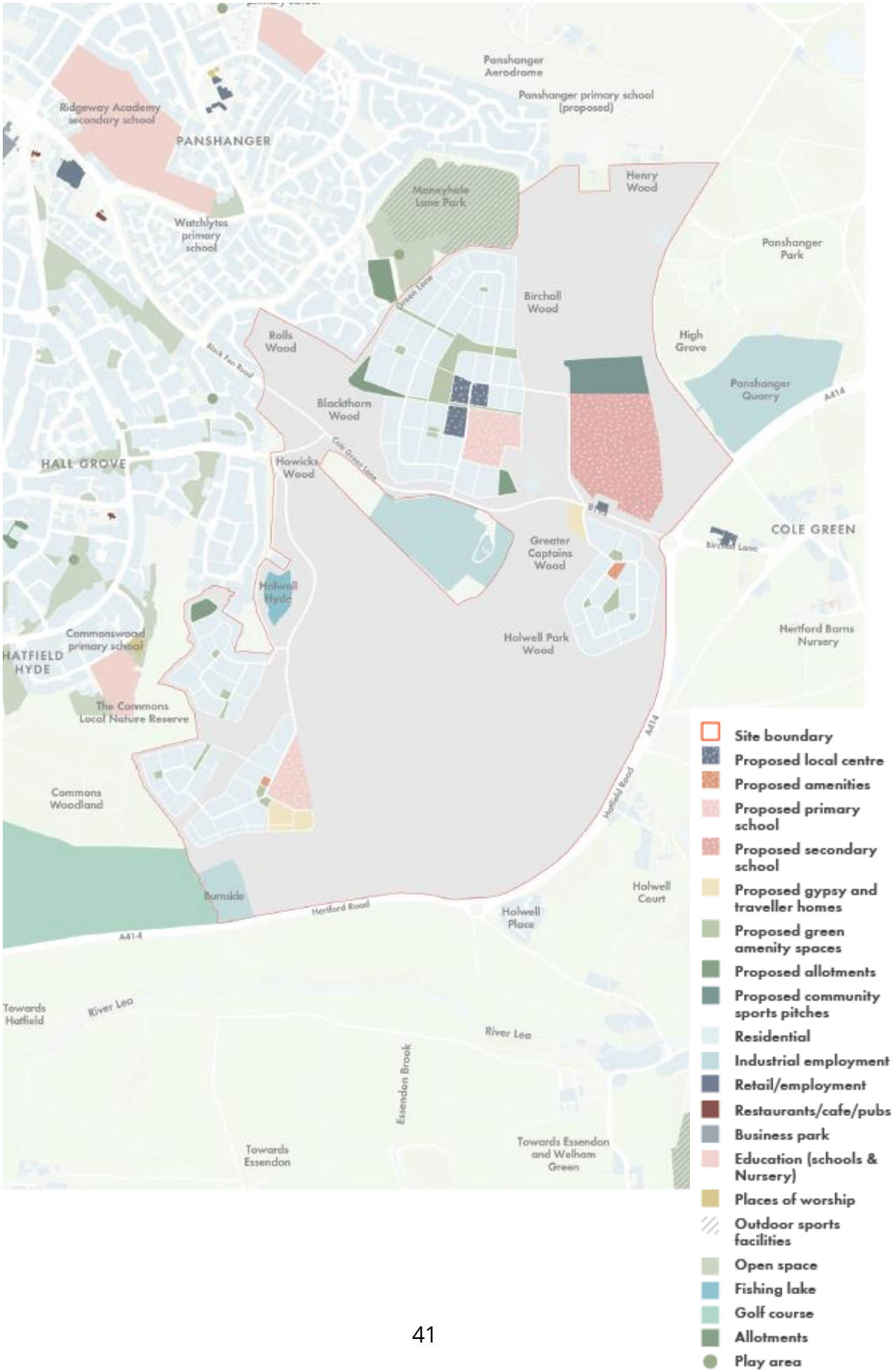
1. A local centre within the large East Herts neighbourhood (Birchall Gardens) should be centrally located and be closely related to both the primary school and community open space.

2. Community uses, including community space and a children's centre, should be provided in the larger of the Welwyn Hatfield neighbourhoods, and this should be located close to the primary school.

3. A small local shop or community use, such as a nursery, should be explored for the Holwell Park small neighbourhood within the East Herts area. This should be located in a central, visible location and relate to open space.

4. A visible employment site should be established on Cole Green Lane, should the relocation of the waste site from this location become viable. Careful thought should be given to the landscape treatment along Birchall Lane, to successfully accommodate this shift, should it happen at a later date.

5. The local centre should come forward in an early phase of the detailed masterplan delivery, to support new residents.


Panshanger Aerodrome
Panshanger primary school (proposed)
Ridgeway Academy secondary school
PANSHANGER
Henry Wood
Moneyhole Lane Park
Watchlytes primary school
Panshanger Park
Green Lane
Birchall Wood
Rolls Wood
High Grove
Black Fox Road
Panshanger Quarry
A414
Blackthorn Wood
HALL GROVE
Howicks Wood
Cole Green Lane
COLE GREEN
Greater Captains Wood
Holwell Hyde
Commanswood primary school
Holwell Park Wood
Hertford Barns Nursery
HATFIELD HYDE
The Commons Local Nature Reserve
Commons Woodland
Hatfield Road
Holwell Court
Burnside
Hertford Road
Holwell Place
A414
Towards Hatfield
River Lea
River Lea
Essendon Brook
Towards Essendon
Towards Essendon and Welham Green
Site boundary
Proposed local centre
Proposed amenities
Proposed primary school
Proposed secondary school
Proposed gypsy and traveller homes
Proposed green amenity spaces
Proposed allotments
Proposed community sports pitches
Residential
Industrial employment
Retail/employment
Restaurants/cafe/pubs
Business park
Education (schools & Nursery)
Places of worship
Outdoor sports facilities
Open space
Fishing lake
Golf course
Allotments
Play area

Local Centres and Amenities

During the first phase of development, the local centre and community uses may not yet be delivered and the nearby local centres at Panshanger and Hall Grove will, therefore, be important in meeting the everyday needs of new residents. As new facilities are delivered, local amenities will be within easy access of residents in all of the neighbourhoods, with good links between the villages and, particularly, to the Birchall Gardens neighbourhood local centre.

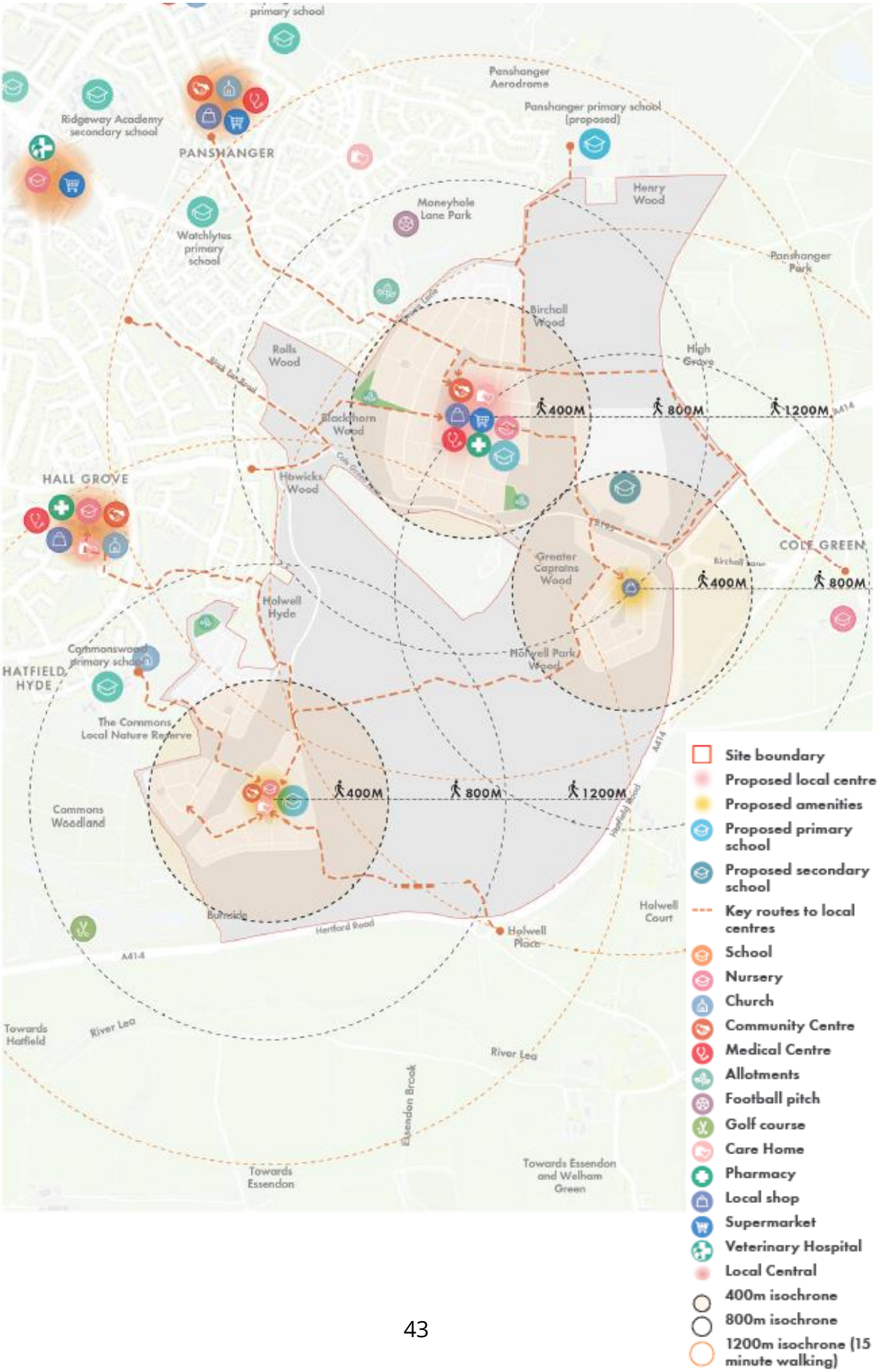
Key Characteristics and Guidance

1. The local centre within the EH Birchall Gardens neighbourhood should include shops and a grocery store, healthcare facilities, a children's centre, community space, and the potential for small, flexible employment space. The centre should be highly accessible by walking and cycling and broadly within 5 minutes' walk (400-500m) from homes within the Birchall Gardens neighbourhood.

2. The community space and children's centre within the Hatfield Downs WH neighbourhood could be combined within one building, providing that there is no conflict between the operational requirements of both. This should be explored at the detailed masterplanning stage.

3. Safe and comfortable walking and cycling routes should be provided to the local centre and community spaces to encourage people to walk or cycle to these rather than take private car, leading to associated health, wellbeing, air quality and sustainability benefits. Suggested key connections to these are identified on the plan.

4. The masterplan identifies key routes to access existing local centres in Panshanger and Hall Grove for the period before these services are delivered within BGS. Detailed masterplans should also identify the routes and investment needed to make these safe and comfortable connections to surrounding amenities.


primary school
Ridgeway Academy secondary school
PANSHANGER
Panshanger Aerodrome
Panshanger primary school (proposed)
Henry Wood
Moneyhole Lane Park
Watchlytes primary school
Panshanger Park
Birchall Wood
High Grove
Rolls Wood
Blackthorn Wood
400M
800M
1200M
HALL GROVE
Howicks Wood
COLE GREEN
Greater Captains Wood
Holwell Hyde
Holwell Park Wood
Commonswood primary school
HATFIELD HYDE
The Commons Local Nature Reserve
Commons Woodland
Holwell Court
Holwell Place
Hertford Road
A414
A41-A
Towards Hatfield
River Lea
Essendon Brook
Towards Essendon
Towards Essendon and Welham Green
Site boundary
Proposed local centre
Proposed amenities
Proposed primary school
Proposed secondary school
Key routes to local centres
School
Nursery
Church
Community Centre
Medical Centre
Allotments
Football pitch
Golf course
Care Home
Pharmacy
Local shop
Supermarket
Veterinary Hospital
Local Central
400m isochrone
800m isochrone
1200m isochrone (15 minute walking)

Education

A 3-form entry primary school with early years provision and an 8-form entry secondary school will be provided within the EH Birchall Gardens neighbourhood. A two-form entry primary school will be provided within the WH Hatfield Downs neighbourhood.

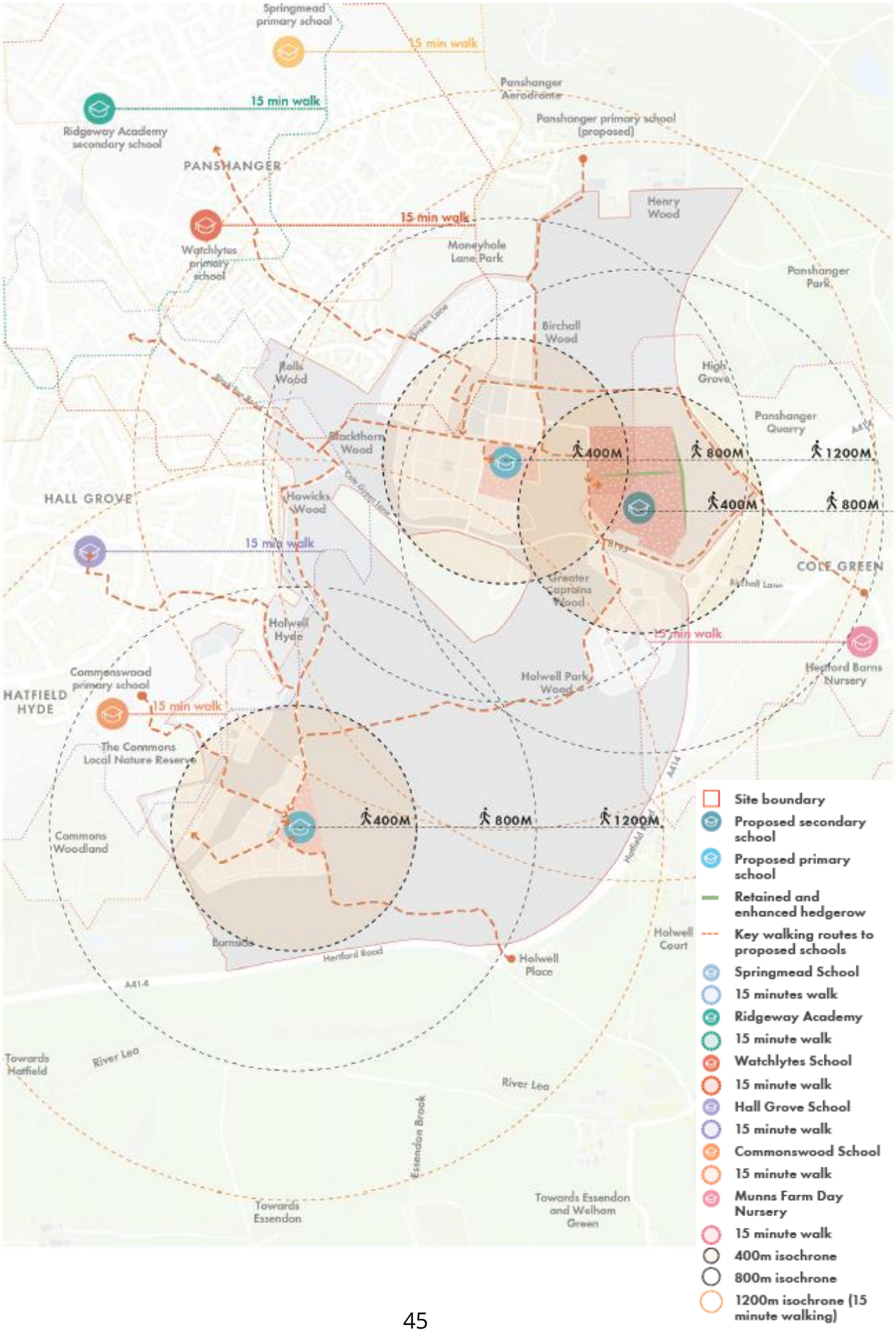
Key Characteristics and Guidance

1. The EH primary school should be located in a central neighbourhood position so that it is within a 5-minute walk (400-500m) from most of the homes with the Birchall Gardens neighbourhood and ideally within a 10-minute walk (800m) of all new homes within EH. It should be close to the local centre.

2. The WH primary school should be located within the eastern Hatfield Downs neighbourhood and co-located with the community uses.

3. The EH secondary school should be located to the east of the Green Corridor, providing a buffer to Panshanger Park, and protecting the setting of the historic park. The school building should be on the southern portion of the site, south of the ancient hedgerow.

4. Safe and attractive cycling routes should be provided to the primary and secondary schools to encourage parents and then pupils to walk or cycle to school rather than take private car, with associated health, wellbeing, air quality, and sustainability benefits. These key routes should be lit so that they are safe for children to use during winter months when it gets dark at 3pm.


Springmead primary school
15 min walk
Ridgeway Academy secondary school
15 min walk
Panshanger Aerodrome
Panshanger primary school (proposed)
PANSHANGER
Henry Wood
15 min walk
Watchlytes primary school
Moneyhole Lane Park
Panshanger Park
Birchall Wood
Rolls Wood
High Grove
Panshanger Quarry
A414
Blackthorn Wood
400M
800M
1200M
HALL GROVE
Howicks Wood
400M
800M
15 min walk
COLE GREEN
Greater Captains Wood
Birchall Lane
Holwell Hyde
15 min walk
Hertford Barns Nursery
Commonswood primary school
Holwell Park Wood
HATFIELD HYDE
15 min walk
The Commons Local Nature Reserve
400M
800M
1200M
Commons Woodland
A414
Holwell Court
Burnside
Hertford Road
Holwell Place
A41-8
Towards Hatfield
River Lea
River Lea
Essendon Brook
Towards Essendon
Towards Essendon and Welham Green
Site boundary
Proposed secondary school
Proposed primary school
Retained and enhanced hedgerow
Key walking routes to proposed schools
Springmead School
15 minutes walk
Ridgeway Academy
15 minute walk
Watchlytes School
15 minute walk
Hall Grove School
15 minute walk
Commonswood School
15 minute walk
Munns Farm Day Nursery
15 minute walk
400m isochrone
800m isochrone
1200m isochrone (15 minute walking)

EH Primary School and Local Centre Location

The EH primary school location has been shifted from the local authority policy diagram (co-located with the secondary school to the east of the Green Corridor) to a central location within the Birchall Gardens neighbourhood. This is based on research and analysis on encouraging walking and cycling to the primary school, and feedback from the Hertfordshire Design Review Panel. It also helps to support a movement approach informed by the Sustainable Transport Hierarchy (see Movement principles section) and aligns with HCC's Local Transport Plan (LTP4).

The benefits of walking or cycling to school are now widely accepted. The Living Streets 2018 report summarises the following positive impacts:

- Improved physical and mental health and wellbeing for pupils, which is an increasing national priority.
- Road safety and social skills, and levels of independence for pupils.
- Improved air quality for all as a result of fewer vehicles on the roads.
- Associated reduced peak time congestion.
- Safer streets for the community.
- Pupils arrive at school ready to learn.

The key barriers identified for students walking to school are the distance and the associated time it takes to make the journey. This is followed by the comfort and safety of the walking or cycling route.

Research has been undertaken by the University of Granada into the thresholds at which distances to school become too far and prompt car journeys rather than walking or cycling. For 7-18 year olds, these were identified on average as 875m in urban areas (c.11 minutes) and 675m in rural areas (c. 7 minutes). For younger children of 5-10 years old, a shorter distance of 400-500m will likely be the threshold that prompts car journeys rather than active travel.

This suggests that relocating the primary school will bring many health and wellbeing benefits for the community and establish neighbourhoods that can adapt to the environmental priorities and changing lifestyles of the 21st Century.

The local centre has similarly shifted northwards to the centre of the Birchall Gardens neighbourhood, remaining on the primary spine route and activating this with commercial and community frontage. This will similarly encourage residents to walk or cycle to shops and services and give a 'heart' to the community. Co-locating the local

centre and primary school in a central neighbourhood location will additionally encourage meaningful community interaction and help to support local shops through linked trips. This has been chosen as the priority over visibility of the local centre from the B195, which would be challenging to achieve if a bund and landscape buffer is required between the road and the local centre to buffer the Cole Green Lane employment site to the south.

The masterplan locations of the primary school and local centre represent the Council's preferred position. However, it is expected that this will be further explored at the application stage. See the masterplan evolution pages for more information on the options testing for this.

80% of boys and 72% of girls are physically inactive.

30% of children are overweight or obese.

15% of children show symptoms of mental ill health.

60% of parents are concerned about traffic speeds.

30% of parents are concerned about traffic overcrowding.

(Data from living street 2018 report Swap the School Run for a School Walk).

4.5 MOVEMENT STRATEGY

Active Travel

Birchall Garden Suburb will be designed to be well integrated with existing adjacent neighbourhoods (which previous periods of growth in Welwyn Garden City have failed to do). The urban structure and layout will encourage healthy and sustainable lifestyles through active travel.

Key Characteristics and Guidance
Priorities for new or improved connections as part of the masterplan have been identified as:

1. Direct, segregated, and prioritised walking and cycling links at the junction of Cole Green Lane/Black Fan Road, on Birchall Lane by the secondary school site, and Holwell Park EH neighbourhood.

2. A pedestrian crossing at the main vehicular access point to Birchall Gardens, connecting from the footpath by the entrance to the waste site.

3. Improved signage and junction management at the ‘five way’ junction that is already a busy walking and cycling route and will connect Birchall Gardens with the Panshanger neighbourhood.

4. Cycle hubs or similar infrastructure with parking and maintenance tools at the local centre, EH secondary school and WH primary school / community centre.

5. Improvement to the rights of way network for new routes and to accommodate the increased use, particularly between the WH neighbourhoods and Commons Wood / Hall Grove.

6. A potential cycle route is identified to Hatfield station within the green infrastructure plan on page 120. This route should be enhanced through public realm investment as funding becomes available.

7. Enhancement of the Cole Green way to provide a safe and attractive route to key destinations within and beyond the site. Particular focus at the underpass beneath the A414 to provide a usable route year-round.

8. Coordination with the pedestrian link to/from the forthcoming Panshanger Airfield neighbourhood.

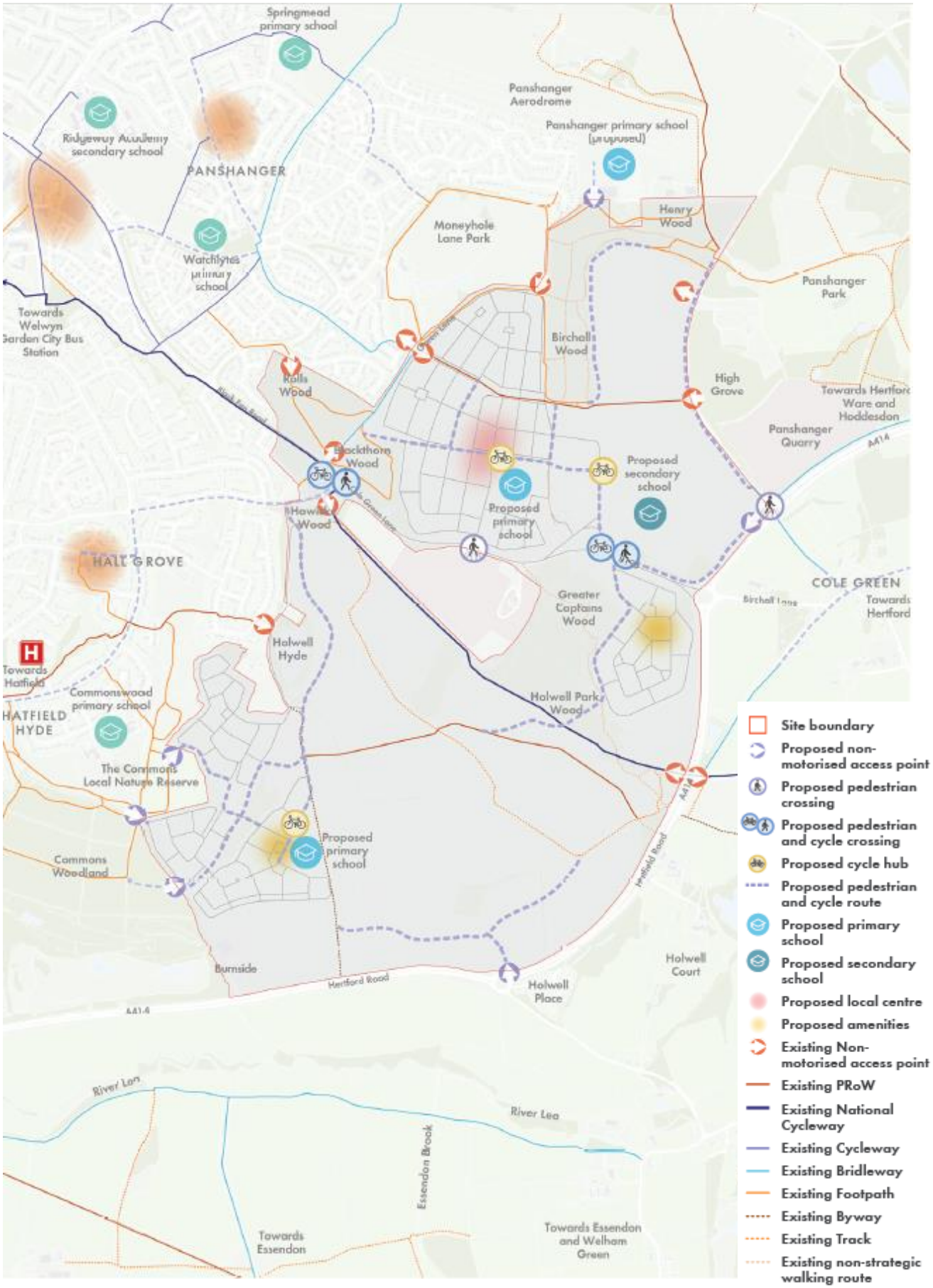
9. A high quality, safe connection across the A414 between Cole Green and Panshanger Lane, to overcome issues of poor rural connectivity and enable nearby village residents to access the amenities of the BGS area. This should be grade separated.

10. Pedestrian access and enhanced bus stop provision in the area of Holwell Roundabout.

11. A signage strategy across the BGS area, to ensure routes to the local centre, schools, community uses, and local assets such as Panshanger Park are clear.

12. Connections to the LCWIP network, which should be constructed and funded by the site developer.

Walking and cycling routes such as the Cole Green Way and local signage should be improved.


Springmead primary school
Panshanger Aerodrome
Panshanger primary school
Ridgeway Academy secondary school
PANSHANGER
Henry Wood
Moneyhole Lane Park
Watchlytes primary school
Panshanger Park
Towards Welwyn Garden City Bus Station
Birchall Wood
Rolls Wood
High Grove
Towards Hertford Ware and Hoddesdon
Panshanger Quarry
A414
Blackthorn Wood
Proposed secondary school
Proposed primary school
Hawkes Wood
HALL GROVE
COLE GREEN
Greater Captains Wood
Towards Hertford
Halwell Hyde
Towards Hatfield
Commonswood primary school
Halwell Park Wood
HATFIELD HYDE
The Commons Local Nature Reserve
Proposed primary school
Commons Woodland
Burnside
Hertford Road
Halwell Court
Halwell Place
River Lea
Essendon Brook
Towards Essendon
Towards Essendon and Welham Green
Site boundary
Proposed non-motorised access point
Proposed pedestrian crossing
Proposed pedestrian and cycle crossing
Proposed cycle hub
Proposed pedestrian and cycle route
Proposed primary school
Proposed secondary school
Proposed local centre
Proposed amenities
Existing Non-motorised access point
Existing PRoW
Existing National Cycleway
Existing Cycleway
Existing Bridleway
Existing Footpath
Existing Byway
Existing Track
Existing non-strategic walking route
Existing local centre
Existing hospital
Existing schools

Public Transport

Providing viable public transport options that represent a preferred alternative to private cars will be central to supporting a modal-shift amongst new residents. This will need to be well-integrated with the cycle network to support multi-mode sustainable trips where possible.

Key Characteristics and Guidance

1. Local bus stops should be provided at regular intervals in the larger neighbourhoods and should be located close to the local centre, schools, and amenities. Ideally, these could form an extension to both of the 403 and 201 existing bus routes.

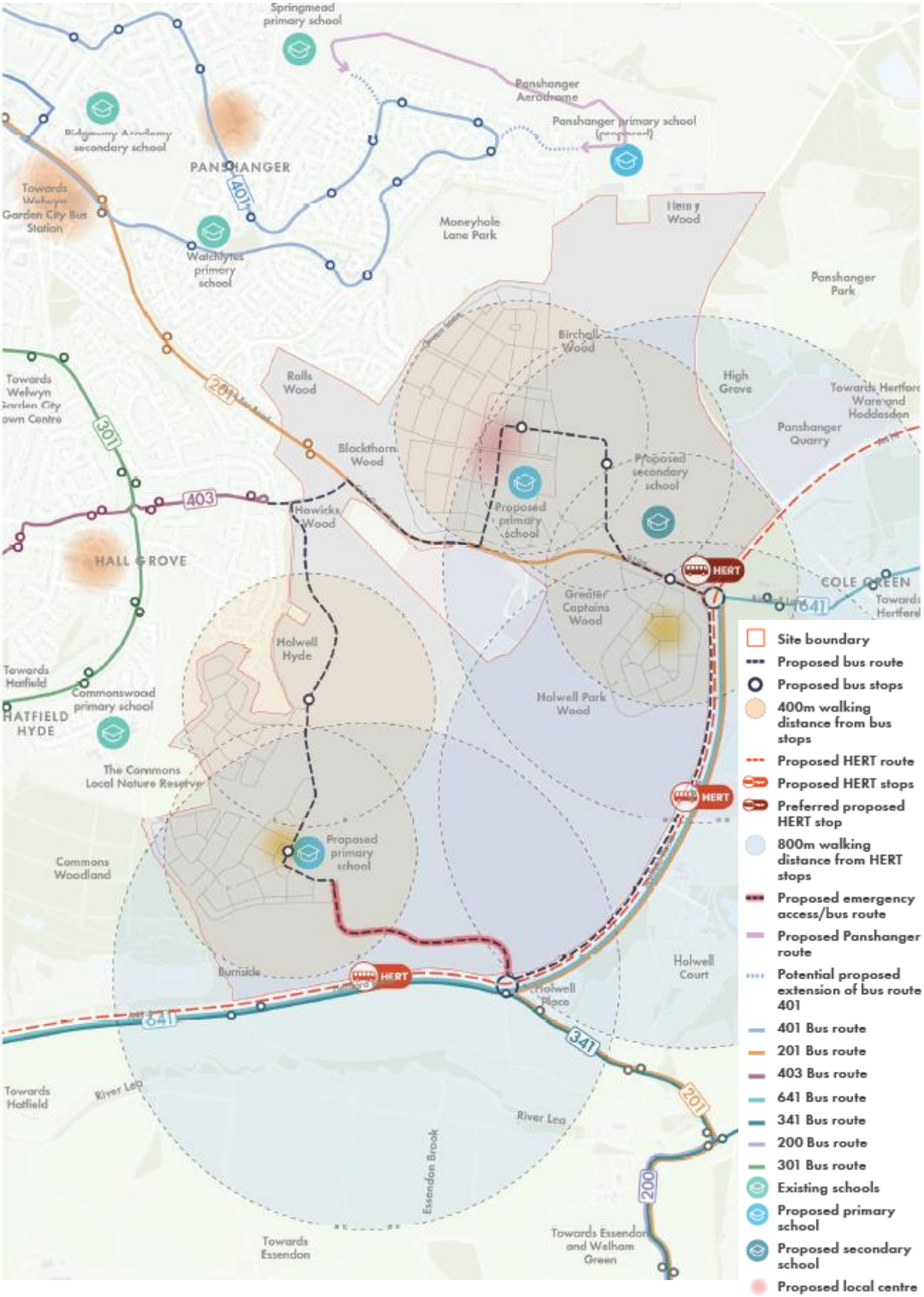
2. Bus stops should be within an approximately five-minute walk (400m) of all new homes within the Birchall Garden Suburb community.

3. Direct and comfortable walking routes should be provided for Birchall Gardens residents to pick up the 401-bus route; and for WH neighbourhood residents to access the 301-bus route.

4. A bus and emergency service access only road will need to be included between the Hatfield Downs WH neighbourhood and Holwell roundabout. This

will support a bus loop that can circle the neighbourhoods before returning to Welwyn Garden City town centre.

5. A minimum of one stop for the HERT should be provided at a point that is well-integrated with the proposed A414 route and within a 10-minute walk (800m) of as many homes as possible. Proximity to key uses, such as the secondary school, should also be considered, along with interchange with local bus services. Suggested indicative locations are shown on the masterplan, but these should be tested and refined during the detailed masterplan process.


Springmead primary school
Panshanger Aerodrome
Panshanger primary school (proposed)
Ridgeway Academy secondary school
PANSHANGER
Towards Welwyn Garden City Bus Station
Watchlytes primary school
Moneyhole Lane Park
Henry Wood
Panshanger Park
Birchall Wood
Towards Welwyn Garden City Town Centre
Rolls Wood
High Grove
Towards Hertford Ware and Hoddesdon
Panshanger Quarry
Blackthorn Wood
Proposed secondary school
Proposed primary school
Howicks Wood
HALL GROVE
HERT
COLE GREEN
Towards Hertford
Greater Captains Wood
Holwell Hyde
Towards Hatfield
Commonswood primary school
HATFIELD HYDE
Holwell Park Wood
The Commons Local Nature Reserve
Proposed primary school
Commons Woodland
Burnside
Holwell Court
Holwell Place
Towards Hatfield
River Lea
Essendon Brook
Towards Essendon
Towards Essendon and Welham Green
401
201
301
403
641
341
200
Site boundary
Proposed bus route
Proposed bus stops
400m walking distance from bus stops
Proposed HERT route
Proposed HERT stops
Preferred proposed HERT stop
800m walking distance from HERT stops
Proposed emergency access/bus route
Proposed Panshanger route
Potential proposed extension of bus route 401
401 Bus route
201 Bus route
403 Bus route
641 Bus route
341 Bus route
200 Bus route
301 Bus route
Existing schools
Proposed primary school
Proposed secondary school
Proposed local centre
Proposed amenities
Existing local centre

Vehicular Movement

A clear hierarchy of streets is proposed within the masterplan area, to aid legibility and to create a natural sorting of travel modes; with a vehicular focus to spine streets and a walking and cycling focus to residential streets.

Key Characteristics and Guidance

1. A clear spine road loop should be provided to the EH Birchall Gardens neighbourhood, which will run past the local centre. This could run past the primary school and secondary schools. At its northern point, it should be pulled back from the Birchall Wood ancient woodland.

2. A clear spine road should be provided from Cole Green Lane to the WH neighbourhoods, which will run to the east of Holwell Hyde angling pond.

3. Each neighbourhood should have a secondary loop serving the core residential streets. These lightly trafficked streets will feed into the main movement corridor and have local streets emanating from them. Modal filters should be used to retain the street form whilst removing unwanted vehicle movement.

4. As set out in the principles, the roads should follow Welwyn Garden City's traditional character, with set pieces and long, framed views, where possible

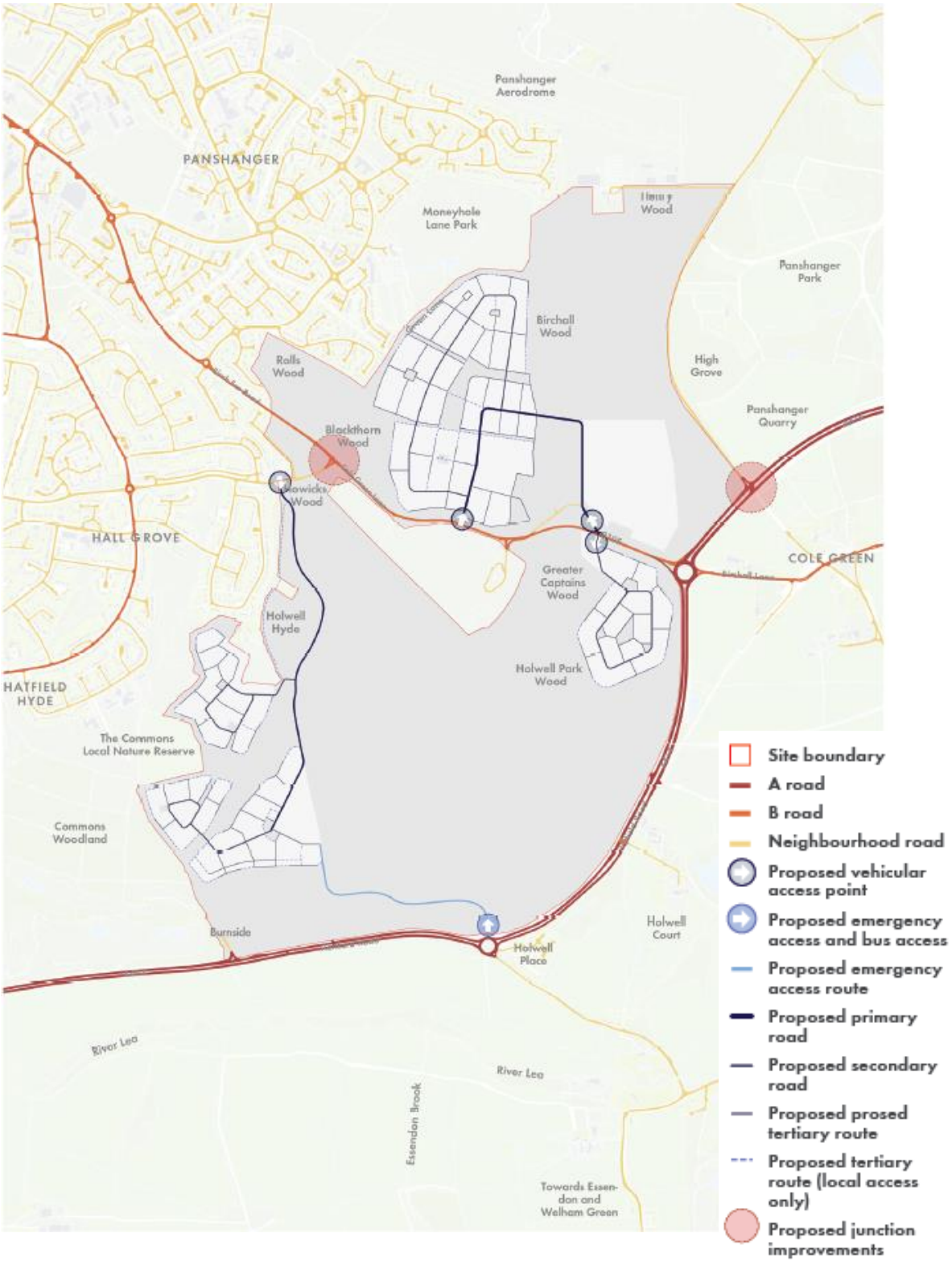
5. An emergency services access route should be provided between the WH Hatfield Downs neighbourhood and Holwell roundabout on the A414. This will need to have a solid sub-structure to support 12 tonnes emergency service vehicles (and buses). However, the route need not be lit, or could have low level lighting to limit impacts on biodiversity and strategic views. The design of this route will need to be given careful thought at the detailed masterplan stage, including surfacing options, so that it can have minimal impact on strategic views. Designs should not preclude the route from becoming a general access route for all vehicles at some point in the future.

6. Improvements will be needed to the Cole Green Lane/Black Fan Road junction and new junctions will be required on Birchall Lane at the primary entrance point to the EH Birchall Gardens neighbourhood and at the entrance point to the EH Holwell Park neighbourhood (on the south side of the road). (See the pages on the B195 for further information).

7. Careful consideration will be needed for the new junction created by the current access point to Holwell Hyde Lane. This will need to accommodate far greater levels of traffic; avoid conflict with movements to/from Holwell Hyde residential street; and accommodate an important cycle route between the WH

neighbourhoods and to Black Fan Road and towards Moneyhole Lane Park area (see the pages on the B195 for further information).

8. Access and impacts to the A414 will require detailed understanding and suitable mitigation measures, likely at Holwell roundabout and Birchall Lane Roundabout.



The cambridge Busway is an example of a solid sub-structure raod that can read as a 'lane'.

Role and Character of the B195

The character of the B195 will play an important role in establishing successful neighbourhoods at Birchall Garden Suburb. It has the potential to be a significant active travel and psychological barrier between the neighbourhoods to the north and south so will require careful design to ensure this can be overcome.

The road will form the entrance to both Birchall Garden Suburb and to Welwyn Garden City. In the short-medium term the road will continue to read as a 'lane', with trees on both sides and a landscape bund to the north, designed to mitigate noise pollution from the waste site.

However, in the medium-long term, with the possible relocation of the waste site, the road has the potential to shift in character to a 'street'. A visible employment site can be established on the south side of the road with active frontages to the road. At this point, it may be possible to review the role of the landscape bund (see the landscape and green infrastructure section for further information) and remove this to create a visual connection with the Birchall Gardens neighbourhood.

Key Characteristics and Guidance:

1. Pedestrians and cyclists should have direct and prioritised access at signalled junctions along the road, to facilitate easy access to the schools and local centre and to avoid the Holwell Park neighbourhood from being isolated. Roundabouts are not considered appropriate to deliver these characteristics.

2. HCC's emerging strategy has a 'place and movement' strategy. Within this, the B195 corridor will move from a purely movement function to a place function. The design of the road should take account of this future change in role and associated character and avoid designs that do not support a future 'place' function of the street. Designs should help remove severance and support Birchall Lane as an attractive corridor for the new community.

3. Working with HCC and the Police, the speed limit on the road should be lowered, for example to 40 mph in the short term, and to 30 mph in the longer term, as potential future active frontage changes the designated role of the road.

4. An indicative layout is provided for the Cole Green Lane/Blackfan Road junction, to demonstrate how the competing requirements of walking, cycling, and vehicular movements could be accommodated. This will be an important movement node for all modes so should be carefully considered. This layout should be tested and worked up at detailed masterplan stage, along with

consideration and balance of different transport modes at the new junctions on the B195.

Plan of the Proposed Vehicular, Public Transport, and Active Travel Routes

1. Existing byway as primary point of access for pedestrians and cyclists to the Birchall Gardens neighbourhood area. Opportunities to upgrade and improve the byway should be explored.

2. The Cole Green Way cycle route could be diverted to a junction where cyclists and pedestrian can either cross west to the National Cycle Route 61 or north toward to existing byway.

3. Proposed two-way cycle route along proposed primary vehicular route.

4. Proposed access point utilising existing Holwell Hyde Lane access point.

5. Holwell Hyde Lane to be diverted to a junction onto proposed vehicular route. Cycle route to be maintained for cyclists turning left at Cole Green Lane, towards the town centre.

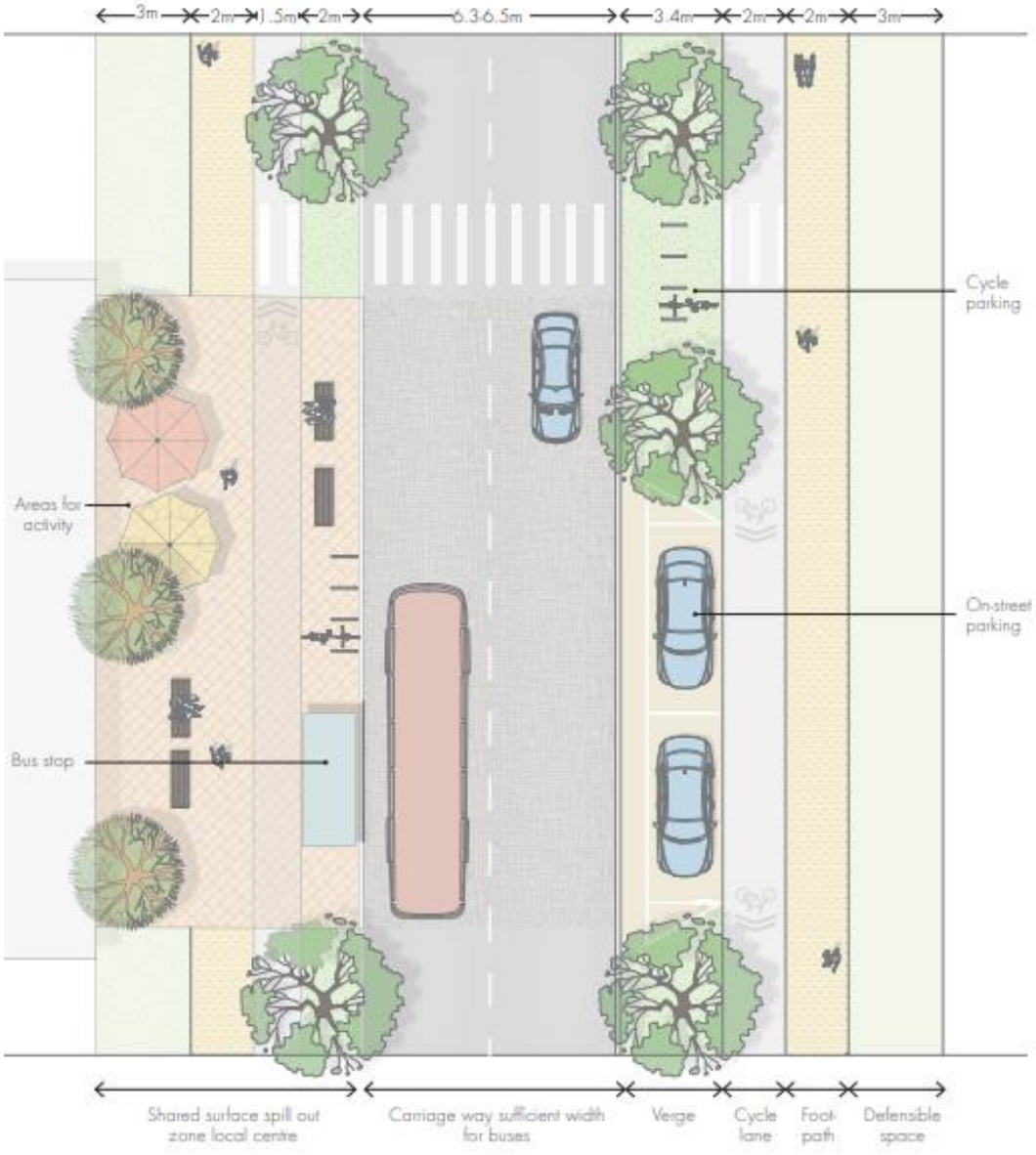
6. Opportunity for an island to allow pedestrians to access the footpath through the woodland.

Example Street Sections

The following four street plans show examples of how different hierarchies of road could look and function. The roads act as both movement corridors and places within themselves for people to socialise and relax. As such, each street type should be designed to reflect their location in the masterplan, function and priority for cars and pedestrians, and cyclists.

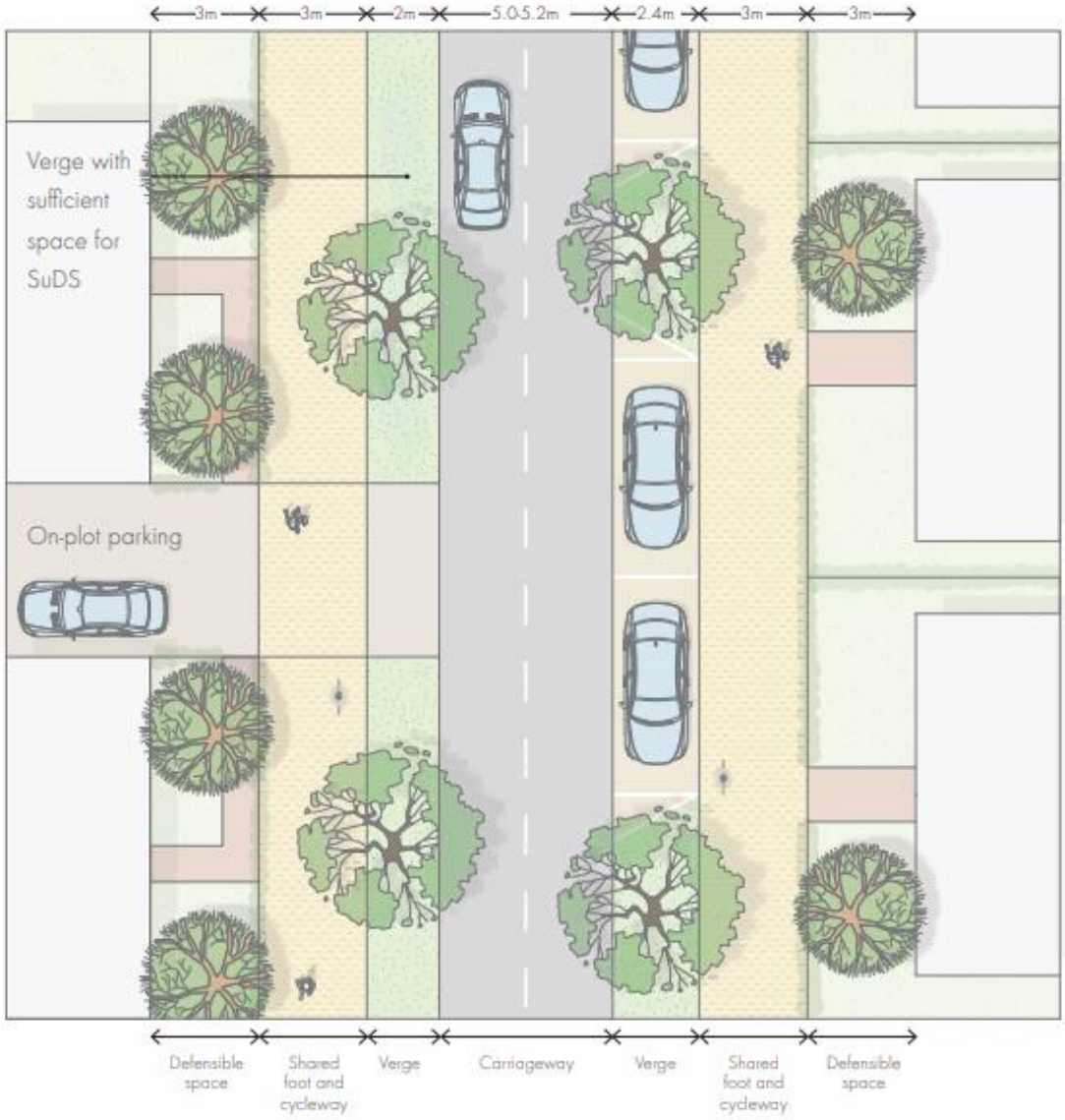
Primary Road

The main function of the primary road is to connect residents with the proposed local centre, amenities, and schools. The plan below shows an example of how the primary road could look near the EH Local Centre. This area includes segregated cycle routes with areas dedicated to cycle parking, sitting, and socialising, creating a vibrant and active local centre.



Secondary Road

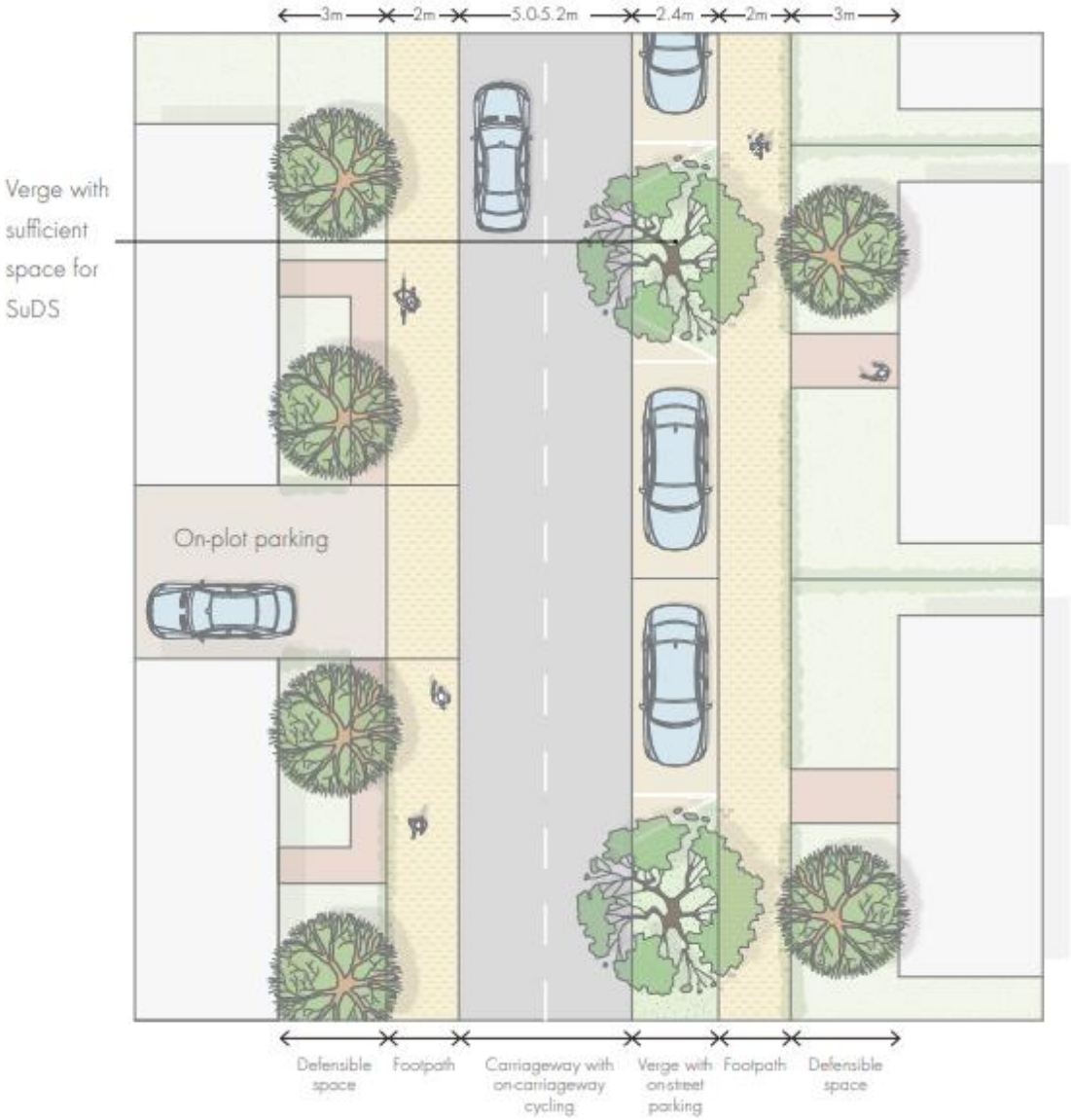
Secondary roads are accessed off the primary road. There should be opportunities for both on-plot and on-street parking. Street trees are used as traffic calming measures with the opportunity to integrate SuDs into the verge. In this example, cycle provision is provided on generous shared cycle/footpaths. Opportunities for safe on-carriageway cycle paths could be explored.



Tertiary Road

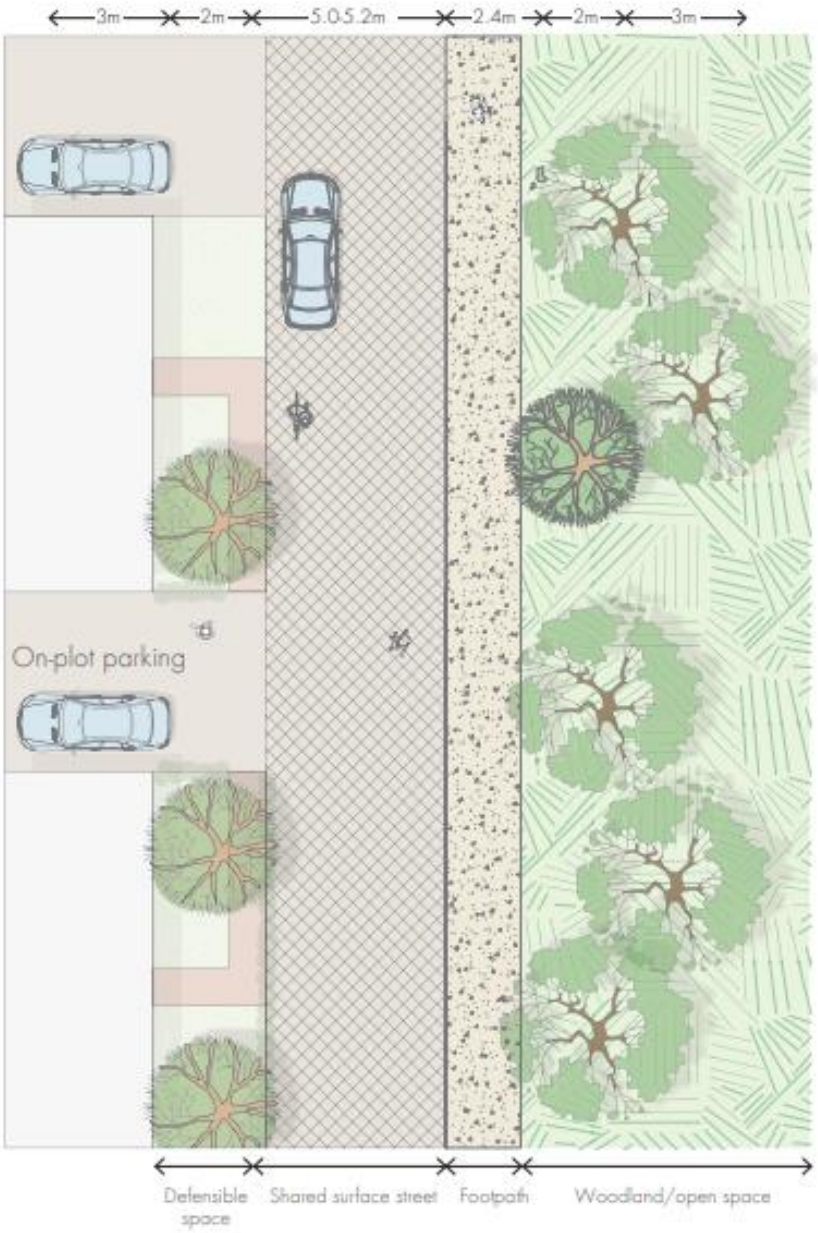
Tertiary roads provide permeability through the neighbourhood and access to dwellings. As quiet residential roads, measures to minimise traffic speeds are important. The plan example presents on-carriageway cycle with a footpath on either one or both sides of the carriageway.

Opportunities for both on-plot parking and either on-street parking or a green verge with planting and SuDs to improve biodiversity.



Local Access Tertiary Road

The local access tertiary roads are the lowest order of streets, and they should be designed in a way to minimise vehicular access and provide safe footpaths and cycle routes. They should have an informal character and be used solely to provide access to the homes they feed into. They may include shared surfaces with on-street parking and/or on-plot parking. Along these streets, priority should be given to cyclists and pedestrians.



4.6 PLACEMAKING STRATEGY

Housing Typologies

To establish a mixed and balanced community it will be important to provide a range of housing types within Birchall Garden Suburb. Homes should cater to people buying their first home; sizing up to accommodate a growing family; or moving somewhere more accessible or with care options as they get older. Homes should also cater to a range of budgets, including affordable housing to respond to WHBC and EH Plan requirements.

The plan on the following page shows the range of homes that can be included and suitable locations for these. However, it is not intended to be prescriptive in terms of those locations or the balance between the types. The principle of variation is the important aspect.

Key Characteristics and Guidance

1. A range of housing types should be provided, including detached, semi-detached, terrace, town house, and maisonette. This range will help to improve legibility within the overall area and will help to establish distinctive characters for each of the neighbourhoods.

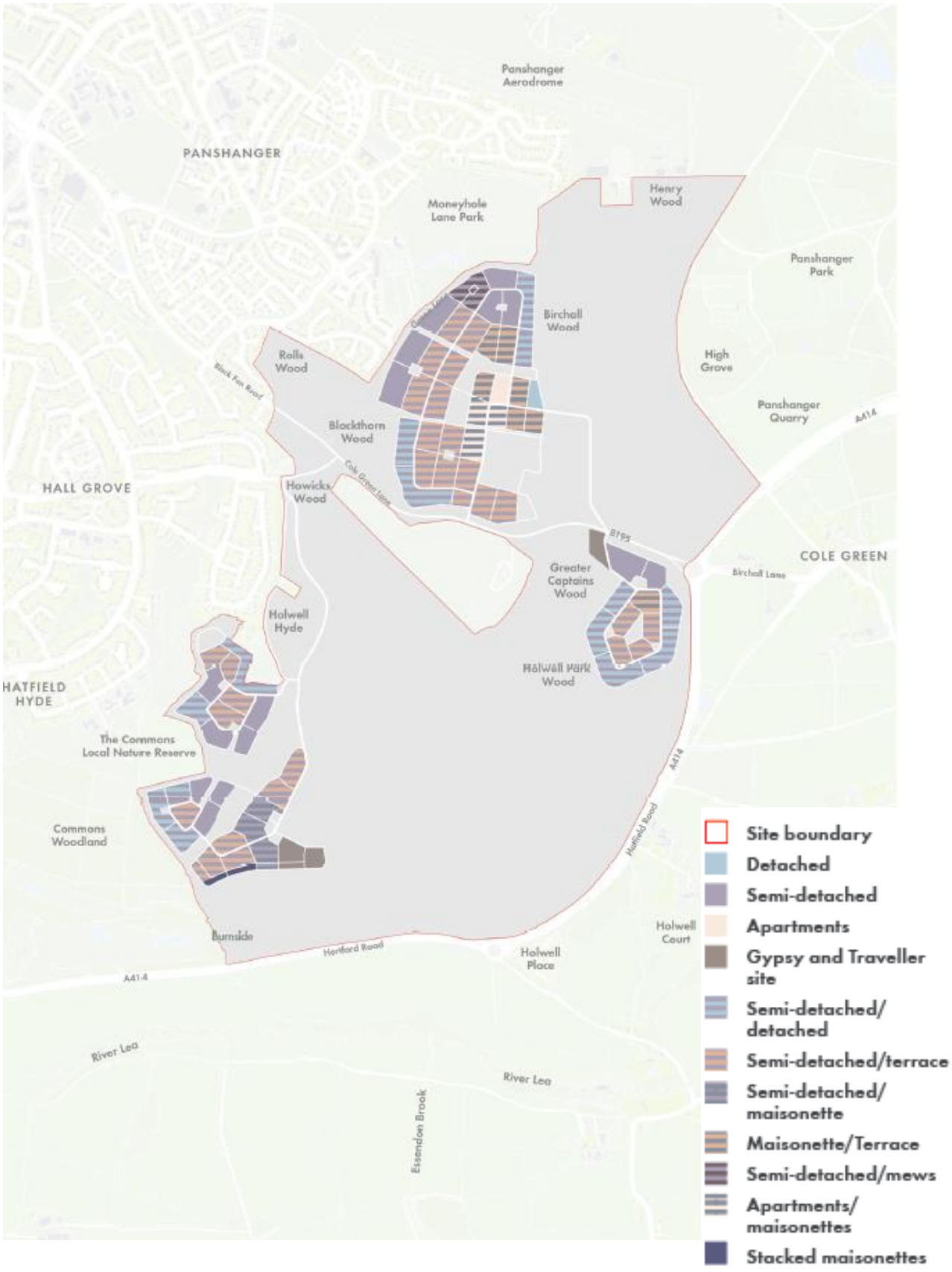
2. Maisonettes are more suited to central locations, close to the local centre and community amenities, and where height is required in the Hatfield Downs neighbourhood, to mitigate noise pollution from the Burnside waste site to the south (see more on this in the section on contextual and high-quality design).

3. Terraces and town houses are more suited to spine roads, secondary residential streets, and overlooking community green spaces.

4. Semi-detached and detached homes are more suited to tertiary and perimeter streets, which overlook more natural landscapes, such as the Green Corridor, and areas of woodland buffer.

5. Examples of each type of housing generally exist within Welwyn Garden City's original neighbourhoods, and a study of these dwellings should be undertaken during the detailed masterplanning to understand their key characteristics.

A brief profile of different housing typologies is provided in the density pages. Designs are for reference only and do not represent homes within a Garden City tradition. See section on contextual and high-quality design for more information on this.


Panshanger Aerodrome
PANSHANGER
Moneyhole Lane Park
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High Grove
Panshanger Quarry
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Blackthorn Wood
HALL GROVE
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COLE GREEN
Birchall Lane
Greater Captains Wood
Holwell Hyde
Holwell Park Wood
HATFIELD HYDE
The Commons Local Nature Reserve
Commons Woodland
Burnside
Hertford Road
A414
Holwell Court
Holwell Place
River Lea
River Lea
Essendon Brook
Site boundary
Detached
Semi-detached
Apartments
Gypsy and Traveller site
Semi-detached/ detached
Semi-detached/terrace
Semi-detached/ maisonette
Maisonette/Terrace
Semi-detached/mews
Apartments/ maisonettes
Stacked maisonettes

Housing Offer

The housing typologies developed at Birchall Garden Suburb will have a close relationship with the mixed and varied housing offer to be provided within the neighbourhoods. Both WHBC and EHDC have policy guidance within their Plans regarding housing offer, which is included below.

The plan identifying locations for different types of housing offer is intended to be indicative rather than prescriptive. However, there may well be limited locations for house types, such as later living and Gypsy and Traveller pitches, within the masterplan area.

Key Characteristics and Guidance

1. Within WH neighbourhoods, 30% of homes should be affordable. Within EH neighbourhoods, 40% of homes should be affordable. These should include affordable rent and intermediate housing.

2. Flexible homes should be provided for later living, such as retirement bungalows/apartments, flexi-care housing and/or residential care homes. These should be located close to shops and community services and to green, open space, and should consider inclusion of the sociable, communal spaces provided in successful co-living models.

3. Co-living housing models could also be considered for other groups such as younger people, families starting out in their first homes, or for all female developments. Both of which have proved popular elsewhere.

4. 11 Gypsy and Traveller pitches should be provided within WH and 4 pitches within EH. These pitches should be reasonably close to local shops and amenities but not located centrally within neighbourhoods. They should not be located directly adjacent to any operational waste sites. In each case, scope should be considered for future expansion.

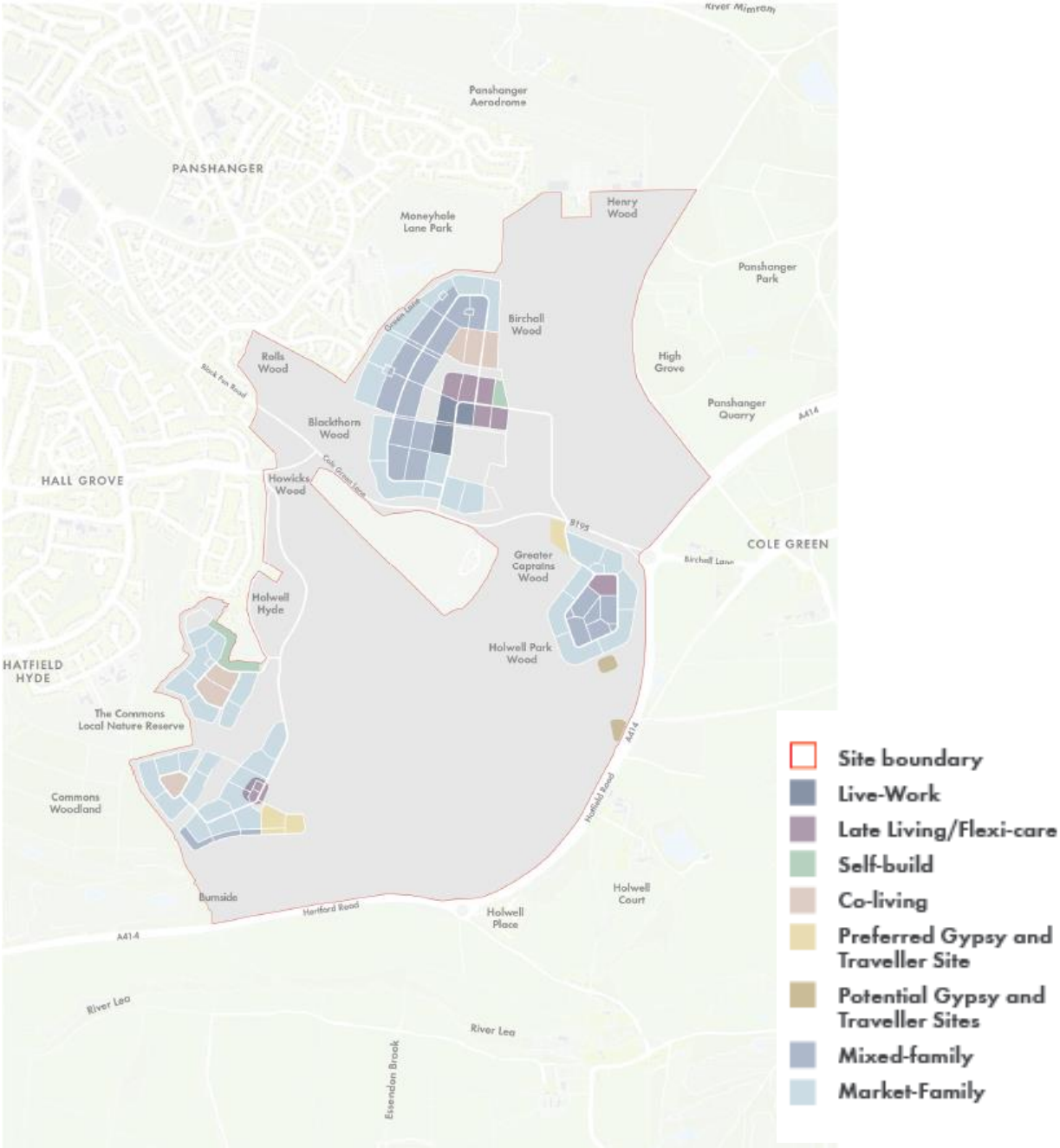
5. Whilst withdrawn from government policy, the 2008 Good Practice Guide on Designing Gypsy and Traveller Sites provides a useful steer. Contact should be made with GATE Herts during the detailed design process, to fully understand local community needs and preferences.

6. The masterplan suggests locating 11 Gypsy and Traveller pitches to the south of the primary school in the WH Hatfield Downs neighbourhood and 4 pitches close to Birchall Lane and the primary and secondary school, next to the EH Holwell Park neighbourhood. Additional pitches might be possible to the southeast of Holwell Park or close to the household waste site, should this be

decommissioned. Careful consideration and liaison with HCC would be needed regarding access to these. Direct access from the A414 is not supported by HCC.

7. Self-build and custom housing should be included within both the EH and WH areas of the masterplan. Providing these as a neighbourhood area rather than single plots and partnering with a specialist custom build developer will help to improve deliverability for these areas. Positive examples exist at Marmalade Lane, Cambridge (TOWN) and at Graven Hill, Bicester (Graven Hill Bicester Development Company).

New Ground at High Barnet and Marmalade Lane in Cambridge are successful examples of custom-build and co-living schemes.



Densities

Gross densities for the masterplan area are likely to be in the region of 30-35 dwellings per hectare (dph). This includes all roads and neighbourhood green spaces but excludes sites for the schools. Net densities are proposed to be between 30 and 60 dph. This excludes roads and local green spaces and measures density at the block scale. Slightly higher densities in areas that are well-served by shops and services provide a more sustainable approach, by establishing a critical mass of people to support these uses and by limiting the need for private cars to be used for all activities in these locations. For this to be successful, however, those local facilities must be provided and both public and active travel options must be viable, comfortable, and preferred alternatives to using a private car.

Indicative densities are set out in the plan on the following page. This is not intended to be prescriptive but to demonstrate the range of densities that will be expressed through accommodating a range of housing typologies and offer.

Key Characteristics and Guidance

1. A range of densities should be shown in a detailed masterplan, with higher densities at the local centre within the EH Birchall Gardens neighbourhood.

2. Slightly higher densities are recommended close to the primary school and community centre in the WH Hatfield Downs neighbourhood and close to the suggested local shop or small community use such as childcare within the EH Holwell Park neighbourhood.

3. Higher densities are shown in the southernmost edge of the WH Hatfield Downs neighbourhood, which is required to accommodate a solid southern facade of 14m to buffer noise from the Burnside waste facility to the south. This will equate to 3.5-4 storeys, which are therefore very likely to be maisonettes.

4. Lower densities should be included in the WH Holwell Green and Commons Wood neighbourhoods, particularly along the edge of the Green Corridor which runs between these two neighbourhoods and close to the listed Holwell Hyde Farm buildings. For this reason, custom build houses are suggested close to the farm boundary.

5. Lower densities should be included in the EH Holwell Park neighbourhood, and along the northern and western edges of the main Birchall Gardens neighbourhood, as well as close to the listed Birchall Farm buildings. For this reason, allotments are suggested close to the farm buildings.

Examples of the suggested net density levels are shown on the following pages for reference.


Panshanger Aerodrome
PANSHANGER
Moneyhole Lane Park
Henry Wood
Panshanger Park
Birchall Wood
Green Lane
Rolls Wood
Black Fox Road
High Grove
Panshanger Quarry
A414
Blackthorn Wood
HALL GROVE
Howicks Wood
Cole Green Lane
B195
COLE GREEN
Birchall Lane
Greater Captains Wood
Holwell Hyde
Holwell Park Wood
HATFIELD HYDE
The Commons Local Nature Reserve
Commons Woodland
Hatfield Road
Burnside
Holwell Court
Hertford Road
Holwell Place
A41-4
River Lea
River Lea
Essendon Brook
Site boundary
Lowest (30 DPH)
Low (40 DPH)
Low-moderate (50DPH)
Moderate (50-60PH)

Profile of Development Parcel

Local Authority: Welwyn Hatfield

Neighbourhood: Commons Wood

Geometry: Formal, meandering

Gross area: 0.65 Hectares

Gross density: 30 DPH

Projected capacity: 20 dwellings

Land uses: Residential

Edge conditions: Woodland, residential, secondary road

Masterplan Guidance

Indicative capacity: 28 dwellings

Net density: 43 DPH

Amenity: Private gardens, shared garden, landscaped buffer

Building heights: 2 - 3 storeys

Building types: Detached, semi-detached houses, mews.

Profile of Development Parcel

Local Authority: East Herts

Neighbourhood: Birchall Gardens

Geometry: Orthogonal, regular

Gross area: 0.52 Hectares

Gross density: 50 DPH

Projected capacity: 26 dwellings

Land uses: Mixed

Edge conditions: Park, residential, main road

Masterplan Guidance

Indicative capacity: 45 dwellings

Net density: 86 DPH

Amenity: Shared/private gardens

Building heights: 2 - 4 storeys

Building types: Apartments.

Profile of Development Parcel

Local Authority: Welwyn Hatfield

Neighbourhood: Holwell Green

Geometry: Informal, linear

Gross area: 1.1 Hectares

Gross density: 30 DPH

Projected capacity: 20 dwellings

Land uses: Residential

Edge conditions: Woodland, residential, secondary road

Masterplan Guidance

Indicative capacity: 33 dwellings

Net density: 30 DPH

Amenity: Private gardens

Building heights: 2-2.5 storeys

Building types: custom build and detached houses.

Net Densities of 30-40 dph

Large Family Homes
Typically two to three storeys on large plots with generous and safe outdoor private amenity space. Good connections to communal or doorstep play space. Private garage spaces can be appropriate but should be adaptable for conversion, as should loft spaces.

Semi-Detached
Paired dwellings of typically two to three storeys, set back from the street and suburban in character. Off street parking with strong visual links to front, side and rear gardens. Adaptable to changing needs and lifestyles, particularly that of a family.

Net Densities of 35-50 dph

Terraces
Typically one to four storeys terraces can be converted into flats or remain as individual houses, allowing for variation in unit types along any given street. All the while maintaining the desired street condition with well-defined fronts and backs.

Mews
Intimate, low-rise style, with private front doors alternating with garage doors. Flexible options to cater to a variety of changing household sizes, needs, and lifestyles. Smaller average plot sizes can therefore achieve intermediary to high densities.

Net Densities of 50-60 dph

Terraced Apartments
Terraced apartments can cater to many needs. Lower levels can form maisonettes with private entrances or shops; whilst upper-level apartments can have private terraces and balconies. Can achieve high densities and can vary in scale to suit local context.

Local Centres
Local centres provide opportunities for apartment perimeter blocks. High densities and a critical mass can be achieved with shops at ground levels to create active fronts. Suitable in urban contexts.

Edge Conditions

The edge conditions refer to the transition or interface between the proposed development and adjacent land uses or structures. Within the masterplan there are a range of edge conditions, including woodlands, open green spaces, green amenity space including both pocket parks and allotments, new homes, schools, and local centres. These edge conditions form the characteristics of the neighbourhoods.

Key Characteristics and Guidance

1. All homes should front onto green amenity space, encouraging passive surveillance and instilling a greater sense of safety and ‘eyes on the street’ within communities.

2. Careful thought should be given to boundaries to the masterplan area with existing wooded areas or pathways. Frontage here could be along a private lane, with perforated vehicle access but continuous walking and cycling routes, to respond to the sensitive context.

3. Where homes are located adjacent to woodlands, detailed masterplans must take into consideration elements, such as daylight/sunlight, safety, and assess whether it is appropriate for homes to front or back onto woodlands. It may be appropriate to back onto existing tracks which run along the southwestern boundary of the WH Commons Wood and Hatfield Downs neighbourhoods, to retain a rural character.

4. Within the development, clear boundaries between public and private space should be provided through privet hedges or low fencing.

Contextual and High-Quality Design

Birchall Garden Suburb should be designed to the highest standards, reflecting its local context and the Garden City tradition within which it will sit; and responding to the contemporary TCPA Garden Communities principles to create new communities that are sustainable, healthy and provide a high quality of life for residents.

Key Characteristics and Guidance

1. Building design should take cues from the local vernacular of Welwyn Garden City and the surrounding villages. In terms of materials, this includes the red brickwork, painted timber and tiles found both in the neo-Georgian buildings of Welwyn Garden City and surrounding villages.

2. In terms of rooflines, these should generally be pitched or hipped, and tiled, to reflect local characteristics and help mitigate any harm to heritage assets. Rooflines should also be fragmented and avoid terraces and runs which are parallel to contour lines on any raised ground. The Garden City's original roofs tend to have generous overhangs to the building façades.

3. Welwyn Garden City's original buildings have distinctive Neo-Georgian fenestration, with large, panelled windows and this should be considered in building designs.

4. Consideration should be given to providing an articulated building line on streets, to reflect Louis de Soissons original design intent for stepping building, the L-shaped buildings from those original neighbourhoods and the bay windows provided in some original streets.

5. Building designs should not preclude contemporary interpretation of Welwyn Garden City's vernacular, making use of 21st century design innovations, particularly where these can help to mitigate and adapt to climate change.

6. Where possible, shallow, or L-shaped residential buildings should be considered, which allow for double aspect rooms, as is typical of Welwyn Garden City's original neighbourhoods.

7. Buildings should generally be two or three storeys in height. Four storeys is considered to be the maximum appropriate height and should be treated as the exception, with design attention paid to integrating these buildings with surroundings. Four storeys are only considered to be appropriate in the EH Birchall Gardens local centre and at the southern boundary of the WH Hatfield Downs neighbourhood, where height is required.

8. Half storeys are encouraged as a useful means of maximising space whilst maintaining a suitable scale and roofline.

9. Homes will benefit from good levels of natural light and ventilation, and single aspect homes will be avoided, wherever possible, particularly those with a due northerly aspect. Proposals will meet the requirements set out in WH policy SADM11 and EH policy DES4 regarding amenity and layout. For BGS, this will be a consideration for homes located close to Burnside, which will require a solid wall/building façade to mitigate noise levels.

10. In the WH Hatfield Downs neighbourhood, a building's façade may be required to form the noise barrier to the Burnside waste site. If this is required, it will be important for these homes to have windows to the southern façade. These would be for non-habitable rooms such as kitchens and bathrooms and would be non-openable but will provide valuable daylight for these homes. Innovative layouts should be explored, such as open kitchen-diners or open plan living, meaning that light can fill the space from the south, while ventilation is afforded from windows on the northern facade. It is expected that the approach to these homes should be explored further, with innovative design solutions to building and internal layouts encouraged. Establishing L-shaped buildings with stepped northern façades will enable side and front windows and encourage more light and airflow in these homes.

4.7 GREEN INFRASTRUCTURE STRATEGY

Integrating with Strategic Green Infrastructure

Birchall Garden suburb is well-placed within a rich and varied strategic network of green space and connections that surround Welwyn Garden City. Masterplans and subsequent new development should consider these strategic assets and how best to provide good connections to these places for new residents.

Welwyn Garden City Centenary Circular Walk runs along the western boundary of Birchall Garden Suburb, and this should be signposted, with investment in the route for the benefit of residents.

Other strategic natural spaces that provide both amenities, but also valuable habitat spaces include:

- Panshanger Park historic gardens to the east.
- Moneyhole Lane Park, Caponfield Park, and King George V playing fields, all to the west.
- Tewinbury SSSI and Archers Green River Valley to the north.
- Commons Wood and Home Park to the southwest.

National Cycle Route 61 runs through BGS and provides good onward links to Sherrardspark Wood and Stanborough Park on the west side of Welwyn Garden City. It will be important for master planners to work with WHBC and HCC to strengthen the strategic cycle routes between BGS and both Welwyn Garden City and Hatfield town centres and rail stations. Indicative routes are shown on the plan, but routes would need to be tested and explored with HCC.

Local Green Connections

The masterplan retains existing green connections, identifies areas where these need to be improved, and suggests new connections where these will be of value to existing and new communities.

Key Characteristics and Guidance

New and improved connections include:

1. A connection north to the proposed Panshanger Airfield neighbourhood and Tewinbury SSSI beyond this.

2. A retained and enhanced route from Panshanger through Birchall Gardens to Birchall Wood and onto to Panshanger Park.

3. A new green route through Birchall Gardens connecting Blackthorn Wood with Birchall Wood.

4. Green connections through the central park area, which converge at the highest point to provide views to the south of Essendon Ridge. This area will be an appropriate point for seating and public art.

5. Investment in Cole Green Way cycle and walking route, including the underpass beneath the A414.

6. Links to the north and south of The Commons LNR which connect new neighbourhoods with Commons Woodland and Caponfield Park.

7. Routes along the edge of Holwell Hyde Brook and within the 100m Green Corridor, balancing access here with wildlife habitat considerations.

Detailed masterplans should give consideration to these local green connections and similarly provide a continuous network of green links within the Birchall Garden Suburb area.

Community Green Space

The masterplan proposes a range of community focused green and open spaces that can support the physical and mental well-being of residents and contribute to a high-quality environment. These include:

1. The retention and enhancement of existing tree clusters and hedgerows to inform routes and spaces of the neighbourhoods and retain mature vegetation.

2. The large central park through which the Green Corridor runs. This has walking trails, viewpoints, and wildlife observation.

3. Neighbourhood green spaces with playable landscapes and natural exercise equipment for residents. These have been prioritised with three functions:

- Co-located with local centres, to provide sociable spaces close to shops and amenities

- Connected to green fingers which in turn link to broader green infrastructure

- Centrally within neighbourhoods, to provide an even distribution of green spaces

These spaces should be designed with community activity in mind and the potential to host events such as neighbourhood picnics, May Day activities or other bank holiday activities.

4. Community sports pitches next to the Birchall Gardens larger neighbourhood.

5. Allotments for each group of neighbourhoods, often buffering sensitive landscape or heritage features, to avoid building close to these areas. Allotments are also located between new and existing neighbourhoods to bring these communities together.

6. A community orchard alongside the Birchall Gardens neighbourhood, within the Green Corridor area, and possibly between WH neighbourhoods, within the Green Corridor.

7. Nature trails with incidental play and walking trails within local woodland.

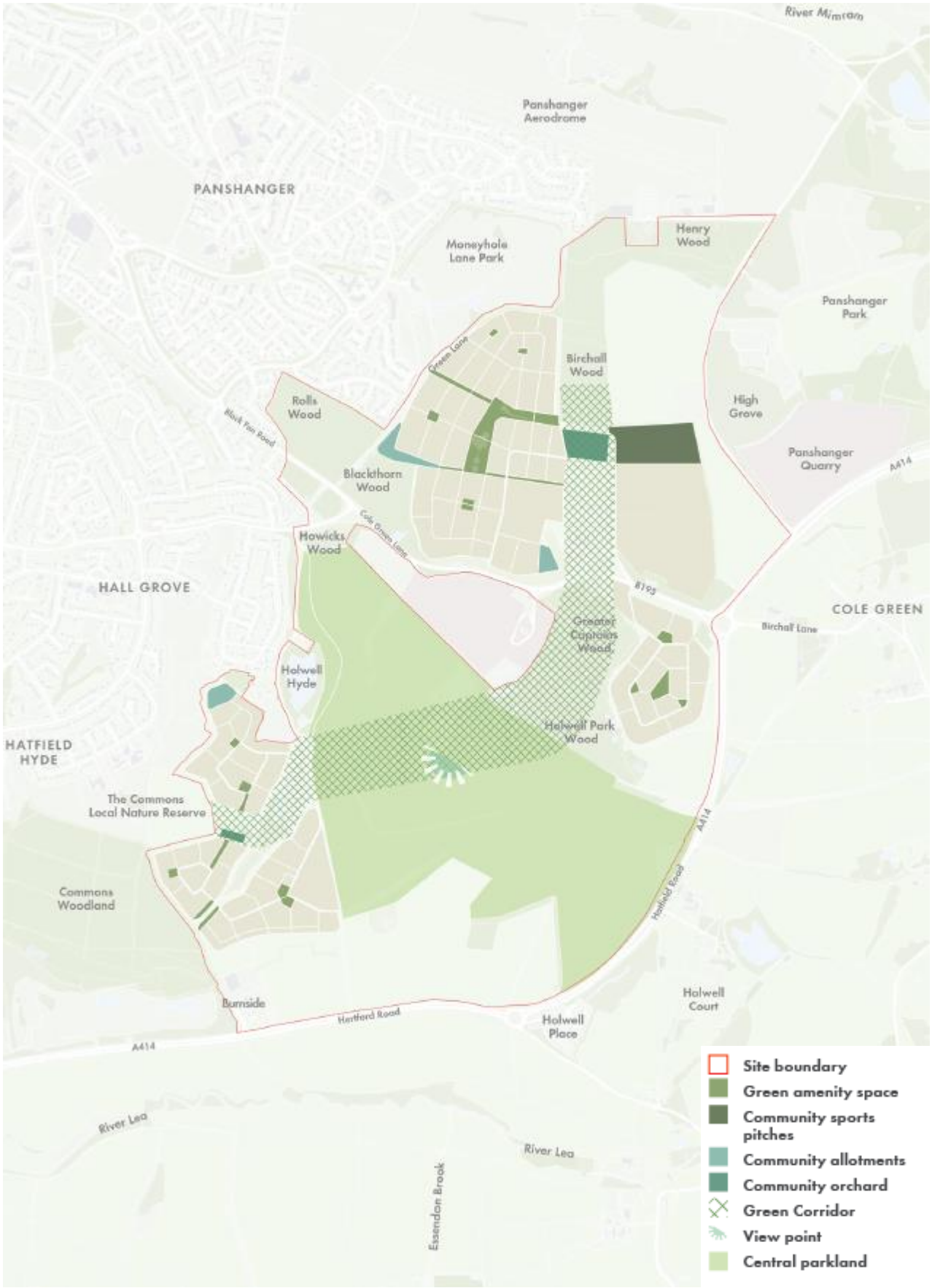
8. Improved waterside routes and spaces, with natural paths running alongside these.

9. Detailed masterplans should provide a similar hierarchy of open spaces with ample opportunity for active and passive enjoyment by residents of all ages. Examples and precedents of these types of spaces are provided on the following page.

10. Community green spaces should be considered early in the masterplan process and delivered in early stages to support the community and help establish positive social relationships.

Community Green Space Examples

- Community orchard with information board
- Incidental play in community green space
- Allotments
- Exposing the waterside
- Natural materials in play
- Trails with signage and wayfinding
- Woodland trails with natural materials
- Dedicated playgrounds
- Play streets and pocket squares.


River Mimram
Panshanger Aerodrome
PANSHANGER
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HALL GROVE
B195
COLE GREEN
Birchall Lane
Greater Captains Wood
Holwell Hyde
Holwell Park Wood
HATFIELD HYDE
The Commons Local Nature Reserve
A414
Hatfield Road
Commons Woodland
Burnside
Holwell Court
Hertford Road
Holwell Place
A414
River Lea
River Lea
Essendon Brook
Site boundary
Green amenity space
Community sports pitches
Community allotments
Community orchard
Green Corridor
View point
Central parkland

The Green Corridor

The Green Corridor, as promoted by the WHBC Local Plan under policy SP12 and identified by the LUC masterplan, runs through the site and forms part of a strategic Green Corridor that wraps around the southern edge of Welwyn Garden City. The corridor connects open spaces and parks and provides both a continuous walking route for respectful appreciation of natural spaces around Welwyn Garden City and supports biodiversity in the area.

Key Characteristics and Guidance

1. The Green Corridor must be a minimum of 100m in width at all points and will play an important role in providing habitat continuity between The Commons LNR and open green space to the east.

2. Access should be provided to the Green Corridor from surrounding neighbourhoods with routes then running along the edge of the corridor and limited routes through the corridor. This access should come in the form of green fingers from within neighbourhoods, where possible.

3. Access beyond the Green Corridor as it traverses the central parkland should be limited to key paths, with areas protected for wildlife such as ground nesting birds.

4. However, at the highpoint where routes converge, potential exists to establish a seating area and incorporate public art and/or interpretive information at the high point where routes meet, identified on the plan

5. Enhancement of the Green Corridor will include tree planting, including possible creation of orchards to at the northern point by Birchall Wood, and potentially in a small area between WH neighbourhoods.

6. Habitat continuity will have to be supported through the inclusion of wildlife or badger tunnels beneath the spine road providing access to the WH neighbourhoods. This should be considered carefully to coordinate with transport planning to accommodate buses on this route.

7. Further work is required to fully understand the relationship between the Green Corridor and the natural habitats associated with the river corridors of the River Lea and River Mimram. This should be explored at the detailed masterplanning stage.

Biodiversity

Biodiversity and habitat enhancement plays a key role in the masterplan's landscape framework. The masterplan aims to protect existing habitats and proposes the introduction of new habitats, promoting ecology, biodiversity, and wildlife.

Key Characteristics and Guidance

1. Detailed masterplans should demonstrate a thorough understanding of key common or protected species supported within the area, particularly within the LNR, ancient woodland Green Corridor and central park. These include barn owls, ground nesting birds, badgers, and great crested newts.

2. Masterplans should establish an approach to developing nature networks within the Birchall Garden Suburb area, following guidance from Natural England and the 10 principles needed for this.

3. Proposals should be developed in dialogue with HCC Ecology to ensure that the design process addresses ecological considerations.

4. Management of The Commons LNR should be given special consideration, including how to manage human access to this and how to maintain habitat continuity between this and the central parkland, including under the spine route to access the WH neighbourhoods.

5. Ancient hedgerows should be re-established within the central parkland, along with tree planting at key areas, as identified in the LUC Green Corridor Masterplan. Detailed masterplans should review and take account of proposals within the Green Corridor Masterplan.

6. Tree planting should be enhanced, and landscape buffers provided where the edge of development runs adjacent to existing LNRs, local wildlife sites, ancient woodland, and water corridors.

7. A 5m high planted bund is required to mitigate noise pollution from both Burnside and Cole Green Lane waste sites. These should be planted, and careful consideration given to how these can support local species and contribute to the biodiversity of the area.

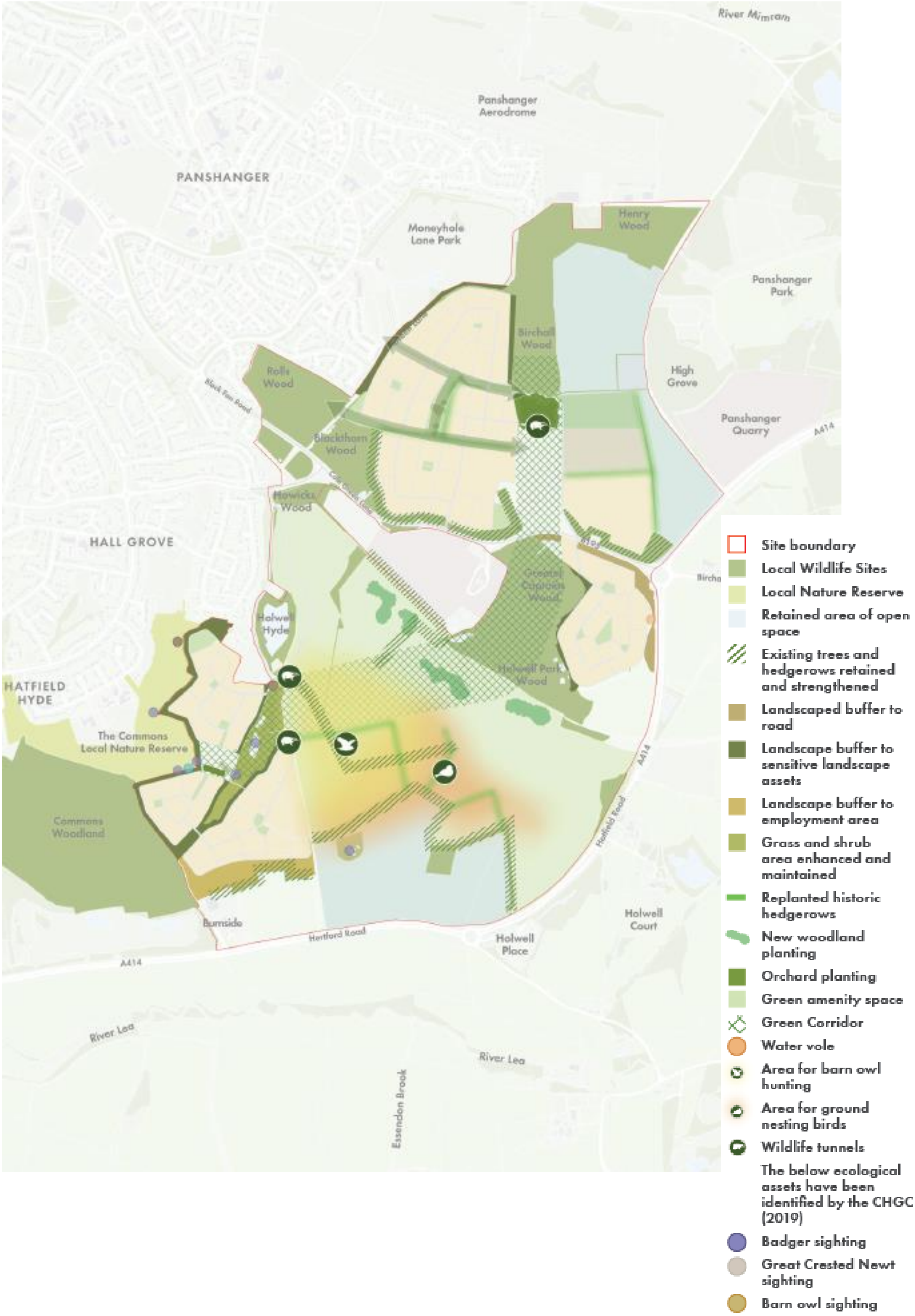
8. Proposals will be required to identify clear strategies to manage invasive non-native species through the preparation of a Construction Environment Management Plan. Proposals for planting should be reviewed with the Council with a view to agreeing appropriate native species.

9. Ground contamination from the former landfill site and the potential for leaching needs to be thoroughly understood at detailed masterplan stage and inform designs. A detailed assessment and remediation strategy will be required.

10. Proposals for public realm and buildings should maintain dark environments, with appropriate specification of lighting during construction and operational stages. This is vital for biodiversity and proposals should consider any potential impact on ecology including bats. Lighting for routes through the Green Corridor will be particularly sensitive and low-level lighting should be used.

11. Homes should also play a role in supporting biodiversity, through inclusion of swift boxes and other measures such as planting shrubs in gardens, and provision of small holes in fences to allow passages for wildlife. This should be explored through detailed masterplans.

12. A biodiversity management and maintenance programme should be proposed during the detailed masterplanning stage, to ensure that habitats are not degraded over time.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HATFIELD HYDE
The Commons Local Nature Reserve
Commons Woodland
Burnside
Hertford Road
Hatfield Road
Holwell Place
Holwell Court
River Lea
Essendon Brook
Site boundary
Local Wildlife Sites
Local Nature Reserve
Retained area of open space
Existing trees and hedgerows retained and strengthened
Landscaped buffer to road
Landscape buffer to sensitive landscape assets
Landscape buffer to employment area
Grass and shrub area enhanced and maintained
Replanted historic hedgerows
New woodland planting
Orchard planting
Green amenity space
Green Corridor
Water vole
Area for barn owl hunting
Area for ground nesting birds
Wildlife tunnels
The below ecological assets have been identified by the CHGC (2019)
Badger sighting
Great Crested Newt sighting
Barn owl sighting

Blue Infrastructure and Climate Resilience

It will be important for Birchall Garden Suburb to be designed and developed with climate resilience in mind, with measures to mitigate the impacts of climate change and to adapt to changing weather conditions. Establishing a network of sustainable urban drainage systems (SuDS) and shaded areas within the neighbourhoods will be central to this.

Key Characteristics and Guidance

1. Sustainable drainage solutions should work with the natural topography of the landscape and existing waterways, including Holwell Hyde Brook and Hatfield Hyde Brook, and take account of the drainage basins of the River Mimram and River Lea.

2. A minimum of 8m landscape buffers should be provided either side of Holwell Hyde brook.

3. Sustainable urban drainage should be incorporated within the design of residential neighbourhoods, with this taken into account for the design of street sections. SuDS can take many forms throughout the development, including swales, wildflower basins and turfs, bio-retention tree pits and permeable surfacing for play areas and for driveways.

4. The 'grey infrastructure' of asphalt for roads and parking areas can significantly limit sustainable drainage and increase the carbon footprint of masterplans and subsequent development. Careful thought should, therefore, be given to how to design these spaces efficiently to limit this impact.

5. Tree planting provides visual interest and health and wellbeing benefits but will also play an important role in climate adaptation through establishing both shade and drainage. A detailed tree planting plan should be prepared at the detailed masterplan stage to identify the location, role and suitable species for street tree and local green space planting.

4.8 SUSTAINABILITY STRATEGY

Sustainable Design and Construction

Sustainable principles should be embedded throughout the design and build process to deliver high quality and considered buildings for Birchall Garden Suburb.

Key Characteristics and Guidance

1. Development should be designed to target ultra-low energy performance standards, such as Passivhaus.

2. Development must incorporate Passivhaus Design Principles.

3. Development must be 100% fossil-fuel free, prioritising heat pump and other highly efficient heating/cooling delivery systems.

4. All new development should maximise on-site renewable generation, where the energy use intensity exceeds 35 or 55 kWh/m2/yr for domestic and non-domestic buildings respectively.

5. All development should include details of how quality of construction is being upheld.

6. All development regardless of scale should take steps to reduce its embodied carbon.

7. All development should achieve LETI Band C for its whole life carbon.

8. Where possible, development should consider reclaimed materials for new build.

9. New Development must conduct post-occupancy evaluations on all buildings to validate predicted energy consumption.

Supporting Sustainable Lifestyles

Enabling all residents and users of Birchall Garden Suburb to maintain a sustainable lifestyle is key to creating a happy, healthy, and resilient community.

Key Characteristics and Guidance

1. Providing homes with sufficient recycling storage and clear signage on what may be recycled and how to do so correctly.

2. Active travel routes, such as segregated cycle lanes, must be available. Where not possible, evidence must be given.

3. Provide accessible, covered cycle storage space either within buildings or secure exterior areas.

4. Amenities should be available to all residential development within an adequate distance that active modes are the preferred travel option.

5. Provide access to open and green spaces, including ecologically diverse streets and parks.

6. Provide adequate area to serve allotments and community orchards. These could be either self-governed or maintained centrally.

7. Create community spaces which can serve multiple groups and purposes.

Future-Proofed and Resilient Neighbourhoods

Birchall Garden Suburb should include resilient places that allow for changing demographics, future growth, and the impacts of climate change including flood risk and water availability, with durable landscape and building design planned for generations to come. This should include anticipation of the opportunities presented by technological change and energy use.

Key Characteristics and Guidance

1. All development should use the Good Homes Alliance Early Stage Overheating Risk Tool and follow all recommendations from the tool's scoring results.

2. Compliance with future weather scenarios, such as DSY2 and DSY3, should be carried out as part of each dynamic overheating assessment completed.

3. Sustainable Urban Drainage systems (SuDs) should be designed in conjunction with Birchall Garden Suburb's blue infrastructure strategic framework.

4. Designs should endeavour to make all buildings highly water-efficient including rainwater harvesting and recycling of grey-water.

5. No new domestic development should exceed 110 L/person/day. Non-domestic development should not exceed 10 L/person/day.

6. All development should be designed with flexibility / adaptation of space in mind. I.e. future extensions or re-purposing.

7. Exploration of micro-grids should be done as part of reducing power draw from the National Grid.

8. Co-location of heating and cooling demands should be assessed to encourage the sharing of rejected heat / coolth.

9. New Development must conduct post-occupancy evaluations on all buildings to validate predicted energy consumption.

4.9 THE NEIGHBOURHOODS

Birchall Gardens (EH)

• Large contemporary garden suburb including secondary and primary schools as well as a local centre that would serve surrounding neighbourhoods.

• Two points of access from Cole Green Lane form a primary loop road connecting the non-residential uses towards the south and east of the site.

• A secondary loop road connects the wider residential areas to the primary loop.

• The neighbourhood is structured around long, continuous, and gently curved streets (reminiscent of central Welwyn Garden City).

• These produce regular, well-proportioned, and flexible development parcels that can achieve a range of housing types and densities.

• The prevailing grain of development is oriented north-south to maximise daylight to gardens and streets, making the streetscape character of Birchall Gardens more formal.

• A network of small green open spaces form set pieces and provide residents with nearby amenity and play areas.

• Existing footpaths and desire lines between the Panshanger neighbourhood and Birchall Wood have been strengthened via new formal landscape corridors (reminiscent of Parkway).

• Mature trees at the heart of the site have been retained within a new, enhanced park setting.

• New homes front onto Birchall Wood and Moneyhole Lane Park with restricted vehicular access along the periphery of the neighbourhood.

• New inner residential streets will be tree-lined and two-sided with continuous building frontages.

Holwell Park (EH)

• Small neighbourhood nestled within new and existing woodland.

• A single point of access from Cole Green Lane forming a primary loop road that services every street.

• New pedestrian and cycle crossings over Cole Green Lane would ensure that residents of Howell Park would rely on Birchall Gardens as its local centre.

• Organised around a new local park (Howell Park) with streets that emanate from it in a radial and/or concentric manner.

• More compact and informal development parcels that are better suited to detached and semi-detached housing at modest densities.

• The informality, absence of repetition and lack of a prevailing grain makes the streetscape character more differentiated and distinctive.

• Smaller green open spaces form set pieces and provide residents with nearby amenity and play areas.

• Mature trees at the heart of the site have been retained within a new, enhanced park setting (Howell Park) which is the focus of the neighbourhood.

• New homes front onto Greater Captain's Wood and Howell Park Wood with restricted vehicular access along the periphery of the neighbourhood.

• New inner residential streets will be tree-lined and two-sided with staggered building frontages relating to the curvature of streets.

Hatfield Downs (WH)

• More central WH neighbourhood, incorporating primary school and community centre.

• Framed by new parkland, Hatfield Hyde Brook, and buffer to south.

• A single point of access from Holwell Hyde Lane.

• New multi-modal crossings over Hatfield Hyde Brook.

• Neighbourhood structure informed by the site's geometry and edge conditions (woodland, parkland, and buffer).

• Streets emanate from spine road in regular development parcels, suited to semi-detached, terraces and maisonette at mid-densities.

• Stacked maisonettes likely to be needed as part of Burnside buffer.

• The neighbourhood benefits from good access to nearby green open spaces smaller amenity/play areas will be provided for residents.

• New homes will face Hatfield Hyde Brook.

• The setting of Hatfield Hyde Brook will be enhanced.

• New inner residential streets will be tree-lined and two-sided with continuous building frontages.

• Continuous pedestrian and cycle link between larger blocks included.

Holwell Green (WH)

• Small residential neighbourhood encircled by significant natural infrastructure (Commons Nature Reserve, Holwell Hyde, Hatfield Hyde Brook, Green Corridor).

• A single point of access from Holwell Hyde Lane to the north of the Green Corridor, forming a primary loop road that services every street in the neighbourhood.

• New pedestrian and cycle crossings (and potential restricted vehicular access) through the Green Corridor via Commons Wood would ensure that residents of Holwell Green can rely on Hatfield Downs for their local school and community needs.

• New pedestrian linkages to the nearby Hall Grove local centre along the edge of the Commons Nature Reserve will better integrate the neighbourhood with its surroundings.

• The structure of the neighbourhood is informed by the site's complex geometry and its various edge conditions (allotments, woodland, parkland, and waterway).

• This results in more irregular development parcels that are suited to detached, semi-detached and custom build housing at more modest densities.

• The irregularity and lack of a prevailing grain makes the streetscape character of Holwell Green more informal and distinctive.

• The neighbourhood benefits from good access to nearby green open spaces and smaller amenity/play areas will be provided for residents.

• New homes will back onto Holwell Hyde Farm - these could be custom build at lower densities.

• Elsewhere, new homes will front onto Hatfield Hyde Brook and the new Green Corridor with restricted vehicular access along the periphery of the neighbourhood.

• The setting of Hatfield Hyde Brook will be enhanced via a wider landscape corridor, which is maintained to avoid existing issues such as littering and fly tipping, to ensure that it becomes an attractive natural feature.

• New inner residential streets will be tree-lined and two-sided with staggered building frontages relating to the geometry of the street network.

Commons Wood

• Small residential neighbourhood encircled by significant green and blue infrastructure (The Commons Wood, Commons Nature Reserve, Hatfield Hyde Brook, and the new Green Corridor).

• A single point of access from the extension of Holwell Hyde Lane (that traverses Hatfield Downs) forms a primary loop road that services every street in the neighbourhood.

• New multi-modal crossings over Hatfield Hyde Brook would ensure that residents of Commons Wood can rely on Hatfield Downs as their local centre.

• New pedestrian and cycle crossings (and potential restricted vehicular access) through the Green Corridor could better integrate Commons Wood with the Holwell Green and Hall Grove neighbourhoods.

• The structure of the neighbourhood is informed by the loop road, the site's geometry, and its different edge conditions (woodland, parkland, and waterway).

• Streets emanate from the loop road in a radial and/or concentric manner resulting in compact, rounded, and regular development parcels that are suited to detached and semi-detached housing at more modest densities.

• The repeated curvature and lack of a prevailing grain makes the streetscape character of Commons Wood both familiar and informal.

• The neighbourhood benefits from good access to nearby green open spaces and smaller amenity/play areas will be provided for residents.

• New homes will be outward facing towards the Commons Nature Reserve, Hatfield Hyde Brook, and the new Green Corridor with restricted vehicular access along the periphery of the neighbourhood.

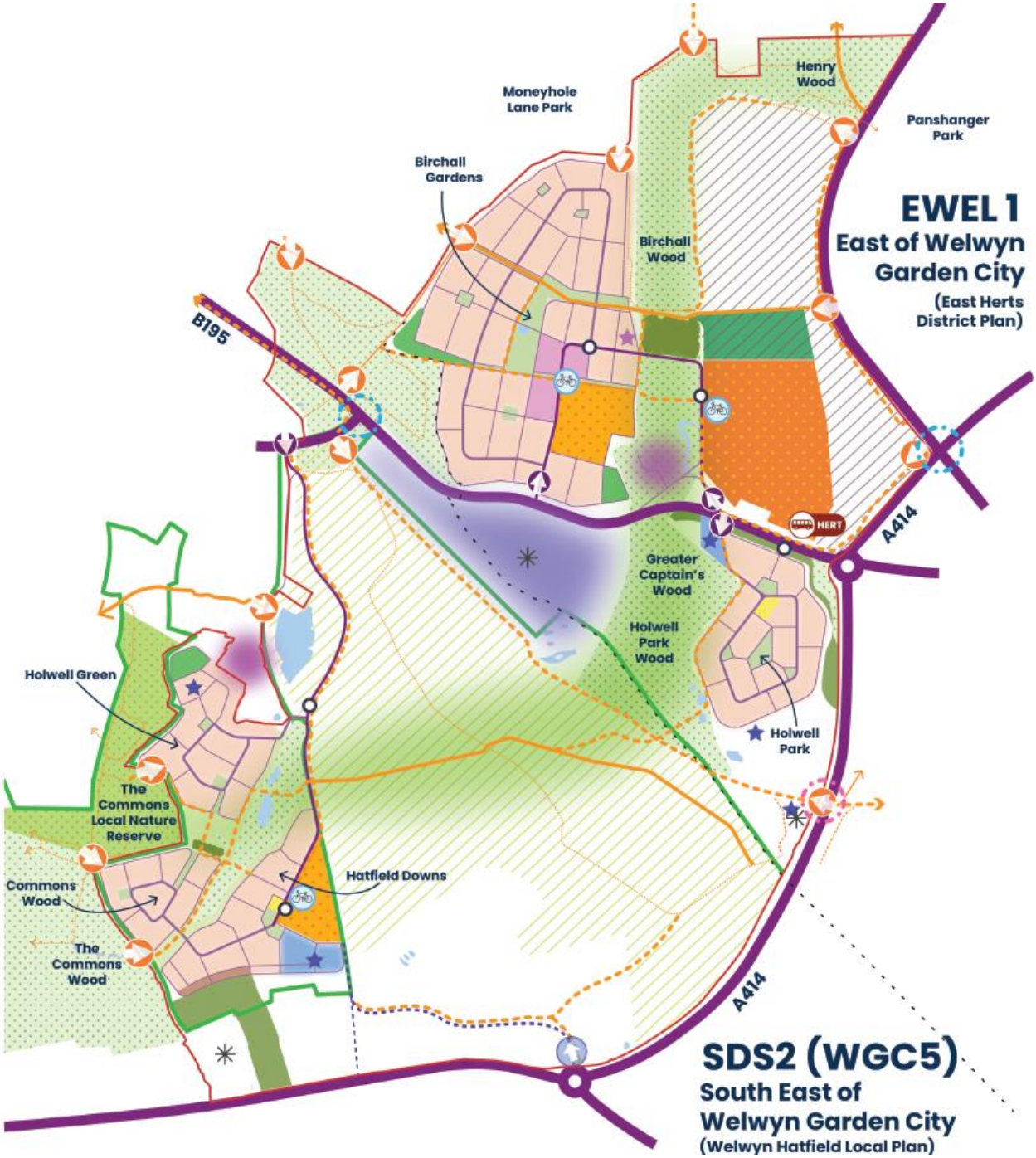
• The setting of Hatfield Hyde Brook will be enhanced via a wider landscape corridor, which is maintained to avoid existing issues such as littering and fly-tipping, to ensure that it becomes an attractive natural feature, with new pedestrian and cycle crossings.

• New inner residential streets will be tree-lined and two-sided with continuous building frontages emphasising the street network.

4.10 SUMMARY

The summary masterplan diagram pulls together the various strands for the masterplan strategies covering movement, landscape, uses, activities, and placemaking. This enables the various elements to be read together and highlights particular relationships, such as between uses and activities and open spaces.

The diagram is designed with the same graphic language as the Local Planning Authority strategic policy diagrams, to clearly identify where refinement and adjustment has been made to those diagrams.



- Borough/District Boundary
- Policy Area Boundary
- Existing Road/Access Route
- Main Vehicular Access Route
- Secondary Vehicular Access Route
- Tertiary Vehicular Access Route
- Existing Public Right of Way
- Existing footpath
- Existing byway
- Non-Motorised Access Route (footpath/cycle path/bridleway
- Cycle parking
- Vehicular Access Point
- Non Vehicular Access Point
- Emergency Vehicular Access point
- Emergency service access and bus route
- Proposed upgrade to highway junction
- Proposed upgrade to underpass
- Bus stops
- Potential HERT bus stop
- Area for residential development
- Area of higher apartments near Burnside employment area
- Potential location for Gypsy and Traveller site
- Preferred location for Gypsy and Traveller site
- Area for self-build plots
- Local centre
- Amenities
- Site for primary school
- Site for secondary school
- Community playing fields / pitches
- Pocket park
- Allotment Site
- Green Corridor
- Green Belt Boundary
- Green Buffer
- Existing Wildlife/Landscape feature
- The Commons Local Nature Reserve
- Community orchards
- Existing water body/course
- Parkland
- Heritage Asset Buffer Zone
- Protect Setting of Listed Building
- Existing Waste Management Facility
- Area for Employment Development

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