

WOKINGHAM STRATEGIC FRAMEWORK MASTER PLANNING

Grazeley Growth Scenarios Report

Prepared on behalf of WBC & WBDC
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CONTENTS

EXECUTIVE SUMMARY	3	Summary of Consultation Outputs	22
1.0 INTRODUCTION	7	<i>Technical Stakeholder Workshop Outputs</i>	22
Purpose of the Strategic Framework	7	<i>Green and Blue</i>	22
Study Brief and Scope	7	<i>Transport and Environmental Health</i>	23
Role and Structure of this Report	8	<i>Community Wellbeing</i>	23
2.0 STUDY METHODOLOGY	10	<i>Utilities</i>	24
Stage 1 Project Set-up and Baseline Assessments	10	<i>Community Stakeholder Workshops</i>	24
<i>Site Environmental Studies</i>	10	<i>Strengths, Weaknesses and Opportunities</i>	24
<i>Baseline Viability</i>	10	<i>Discussion on Garden City Principles</i>	24
Stage 2 Generating Growth Scenarios	10	<i>CHLOE Concept Master Plans</i>	25
<i>Technical Workshops</i>	10	Summary of key masterplanning considerations	28
<i>Green and Blue</i>	10	Growth Scenario 1: 15,000 Homes	32
<i>Transport and Environmental Health</i>	11	<i>Master Plan</i>	32
<i>Community Wellbeing</i>	11	<i>Access & Movement</i>	34
<i>Utilities</i>	12	<i>Infrastructure requirements</i>	34
<i>Community Workshops</i>	12	Growth Scenario 2: 10,000 Homes	38
Next Stages	12	<i>Master Plan</i>	38
3.0 BASELINE VIABILITY	14	<i>Access & Movement</i>	40
Commercial Property Market	14	<i>Infrastructure requirements</i>	40
4.0 GRAZELEY	16	<i>Alternative 10,000 Home Growth Scenario</i>	41
Background and Analysis	18	Growth Scenario 3: 5,000 Homes	42
<i>Site Environmental Studies: Summary Findings</i>	18	<i>Master Plan</i>	42
<i>Flooding and Drainage</i>	18	<i>Access & Movement</i>	44
<i>Transport & Highways</i>	20	<i>Infrastructure requirements</i>	44
<i>Air Quality</i>	20	5.0 VIABILITY REVIEW	46
<i>Noise and Vibration</i>	20	LIST OF FIGURES	
<i>Geotechnical</i>	20	Figure 1: Location of Grazeley Study Site	
<i>Waste</i>	21	Figure 2: Grazeley Area of Search	
<i>Agricultural Land</i>	21	Figure 3: Grazeley Key Constraints	
<i>Ecology</i>	21	Figure 4: Grazeley Design Parameters	
<i>Heritage</i>	21	Figure 5: Grazeley Growth Scenario 1 - 15,000 Homes Concept Plan	
<i>Sustainable Resources</i>	21	Figure 6: Grazeley Growth Scenario 2 - 10,000 Homes Concept Plan	
		Figure 7: Grazeley Growth Scenario 3 - 5,000 Homes Concept Plan	
		TECHNICAL APPENDICES (BOUND SEPARATELY)	

EXECUTIVE SUMMARY

Wokingham Borough Council (WBC) and West Berkshire District Council (WBDC) are separately, and respectively, preparing a Local Plan Update (LPU) and Local Plan Review (LPR) for the period to 2036. To better understand the suitability, capacity and deliverability of potential strategic growth on land being promoted at Grazeley, which straddles the boundary of both authorities, the Councils have jointly commissioned masterplanning and supporting technical services. The outputs of the masterplanning exercise will be used to inform the respective LPU and LPR processes. It is not the role of the masterplanning study to recommend whether any of the potential locations should be allocated, but to provide evidence to inform the Councils' decision making in that regard.

The Brief for the commission requires a range of scenarios to be tested: 15,000, 10,000 and 5,000 homes.

In addition to information gained through site visits, desk-top studies and local document/policy review to understand environmental factors, current infrastructure provision and broad site capacity, a number of workshops were held to engage with technical and local community stakeholders so that local knowledge and views could be taken into account. Technical stakeholder discussions related to utilities, transport and highways, environmental health, community wellbeing (including education, health, housing and heritage) and 'green and blue' infrastructure (including drainage and flooding, green infrastructure and ecology).

A baseline viability assessment was undertaken to understand prevailing market conditions in relation to commercial and residential development within the area. Reference to current strategic scale development within WBC provided up to date market information on housing costs as this was considered the most appropriate benchmark. Subsequently, high-level viability assessments were prepared for each Growth Scenario once the individual infrastructure requirements were established.

The Growth Scenarios for Grazeley are set out in Sections 4 of this main report. In broad terms, the findings indicate the following.

Land within the Grazeley area of search is relatively unconstrained in environmental terms; key site features include the Foudry Brook and its corresponding floodplain and the historic village of Grazeley. The site sits between two movement corridors: the A33 trunk road (affording access to junction 11 of the M4) and the Reading to Basingstoke railway line. It is well related to existing employment opportunities in Reading city centre, Green Park and the Thames Valley. There appears to be strong potential for a new railway station within the site as well as an extension to the Reading Mass Rapid Transit, both of which point to an opportunity to pursue public transport orientated development. To achieve this, a bold vision has emerged of a new settlement which relates residential densities to public transport accessibility, is enhanced by generous opportunities for walking and cycling, extensive green and blue infrastructure to enhance wellbeing and placemaking, and with jobs, local services and community uses in very close proximity to homes. In addition, AWE Burghfield Detailed Emergency Planning Zone, which overlaps the area of search and has the effect of reducing the developable area by approximately 25%, indicates a need to use land very efficiently in order to achieve 15,000 homes. The viability assessment indicates that the proposition is viable over the longer term. However, extensive infrastructure requirements in the early phases to facilitate housing delivery reveal that the scheme would not be viable without external funding. Housing Infrastructure Funding (HIF) may be made available and WBC, WBDC and Reading Borough Council have made a joint application for HIF, which has progressed to the second round.

The 10,000 and 5,000 Growth Scenarios essentially decouple the elements of the 15,000 scenario which fall within each authority area. Achieving the stipulated housing numbers is dependent on similarly high densities, but these lower levels of growth would reduce the affordability of transport infrastructure in particular, and the probability of securing HIF will also diminish. The viability of 10,000 homes is therefore marginal, whilst the viability of the 5,000 scenario is achieved because major transport infrastructure, including a new station, is omitted.

A VISION FOR AN EXEMPLAR PUBLIC TRANSPORT ORIENTATED DEVELOPMENT

The unique locational qualities at Grazeley, coupled with strong potential for the delivery of rail and rapid bus travel, point to a vision of a new settlement which breaks new ground in terms of its bold approach to urban development. Greenfield development in England typically adopts a suburban character, built at c.35 dph, and largely predominated by family sized housing. Whilst schemes of a strategic scale do deliver good amounts of public open space and local schools and services commensurate with the needs of a new community, they rarely achieve an intensity of population capable of supporting high quality public transport which operates at a frequency sufficient to coax people from their cars.

Grazeley has the potential to break this mould, with early consultation indicating a willingness to consider a scheme which is more ambitious in terms of its built form and density. However, quality is an essential prerequisite, and there is broad recognition that a clear commitment from all stakeholders and the site promoters to quality across all aspects of the scheme is necessary to achieve place quality and a sustainable community. Garden city principles provide a good starting point.



The following thoughts point to the type of place Grazeley could become if there is genuine pursuit of garden city principles.

- Well designed, beautiful homes suited to 21st Century lifestyles should be available to all households regardless of type, size, tenure and ability to pay. The scale of Growth Scenario 1 would allow scope for all types of houses. Achieving higher density development indicates a greater proportion apartments and terraced homes, but these types of dwellings can be attractive to families as well as to smaller households if they offer good flexible living space and good access to greenspace and local amenities.
- A range of jobs and business opportunities should be integral to Grazeley, giving people a real chance to work and live in close proximity, and forgo the lengthy commutes which create congestion and reduce quality of life. Grazeley is well connected and will become part of a wider economic network. State of the art telecommunications will be critical in supporting entrepreneurship and investment. To accommodate all business activity, from large employers to SMEs and homeworking, and from traditional trades and professions to the as yet unknow jobs of the digital age, Grazeley should offer well designed and flexible business premises as part of a wider mix of public and community activities.



- Grazeley can support active and healthy lifestyles. The quality, design and accessibility of public open space should afford opportunities from informal recreation and children's play to formal sports and local food production. All scales of spaces, from strategic SANG down to local pocket parks, should be connected as part of a wider green infrastructure network. Everyone living and working at Grazeley should be able to see and walk to greenspace with ease and have the opportunity to grow their own food.
- Transport links within Grazeley and to the wider area can be possible without the car in the majority of cases. High quality public realm can do a great deal to encourage walking and cycling; tree lined streets, good lighting and direct routes should be provided. Bus infrastructure and good bus/rail interchange facilities should make travel by public transport convenient and comfortable. Frequent services should extend beyond the peak hour to make travel by bus and rail a genuine choice for many. Car clubs can reduce the need to own a car, but ensure access when cars prove necessary. Future proofing for electric and autonomous vehicles will be essential.
- Generous green infrastructure at Grazeley provides scope for sustainable urban drainage and net biodiversity gains. The settlement can create opportunities for flora and fauna which cannot co-exist to the same extent with intensive farming.
- Creating an infrastructure rich settlement means delivering the means to support and sustain the growth of community. Schools and adult learning, medical facilities, local shopping, meeting places, community centres, libraries, local policing, cultural venues and sports facilities must be delivered at a rate which is commensurate with the growth of the population, and to provide the trellis upon which the fledgling community can thrive. There is considerable scope for job creation in helping to establish and support community, from community development workers to teachers, maintenance workers, police community support officers, local representatives, artists, craftsmen and youth workers.
- Good design will be essential to the creation of a successful place. Buildings should be energy efficient and relevant to the age in which they are created. Water can play a clear role in creating a distinctive character and should help to create an attractive setting for homes, workplaces and recreation. The public realm will be the glue that holds the place together; it should be crafted with care and attention to detail, as well as being durable and resilient to use. Investment in good materials and tree and shrub specimens, with good aftercare, will pay dividends over the longer term.



1.0 INTRODUCTION

PURPOSE OF THE STRATEGIC FRAMEWORK MASTER PLANNING COMMISSION

- 1.1 Wokingham Borough Council (WBC) is preparing a Local Plan Update for the period to 2036. Around 280 sites have been promoted as available for development across the Borough including some locations of a scale for strategic growth. West Berkshire District Council (WBDC) is also preparing a Local Plan Review to 2036. The Grazeley sites within WBDC were amongst the 230 submitted through WBDC's 'Call for Sites'.
- 1.2 Both councils are assessing all of the sites, however to better understand the suitability, capacity and infrastructure needs of the more complex site at Grazeley (Figure 1: Location of Study Site), WBC and WBDC procured masterplanning and technical support through a competitive tender in September 2017. David Lock Associates and Peter Brett Associates were jointly appointed to undertake the evidence study.
- 1.3 In addition, WBC have commissioned work on two sites at Barkham Square and Tywford/Ruscombe. Work specifically for WBC includes the preparation of a Borough-wide Infrastructure Delivery Plan and Integrated Transport Study; the findings of this work will form part of the evidence in relation to Grazeley.
- 1.4 The outputs of the masterplanning commission will be used as evidence to support both Councils in shaping the growth strategy for their areas. Grazeley may or may not be included in subsequent iterations of the emerging LPU/LPR, both of which will be subject to public consultation at a later date.
- 1.5 For the avoidance of doubt, the masterplanning commission is not a decision-making study, nor does it commit WBC or WBDC to any particular strategy for managing growth.

STUDY BRIEF AND SCOPE

- 1.6 The project brief sets out the following study objectives:
 - *To deliver strategic masterplan options for potential Local Plan Strategic Development Sites. Options should be visionary, innovative, deliverable, flexible and fully integrated into the land use planning system and supported by a robust evidence base.*
 - *To deliver a Wokingham Borough-wide Infrastructure Delivery Plan (IDP) 2036 (2050) that considers the cumulative impact of all existing and potential growth on infrastructure requirements across the Borough and identifies deliverable interventions, supported by stakeholders, necessary to deal with issues like congestion on the transport network.*
 - *To support the inclusion of selected preferred options throughout the Wokingham Borough Council Local Plan Update process to adoption, and West Berkshire Council Local Plan Review to adoption.*
- 1.7 The brief also states that "Masterplan option components should include:
 - *A Strategic Framework (written statement) which sets out the aims and objectives for regeneration of the area based on analysis of the baseline data and supporting work;*
 - *A Spatial Masterplan (plans, visuals, written documentation) which develops the broad vision into three dimensional proposals; and*
 - *An Implementation Plan – A written statement addressing programme, cost and other issues.*

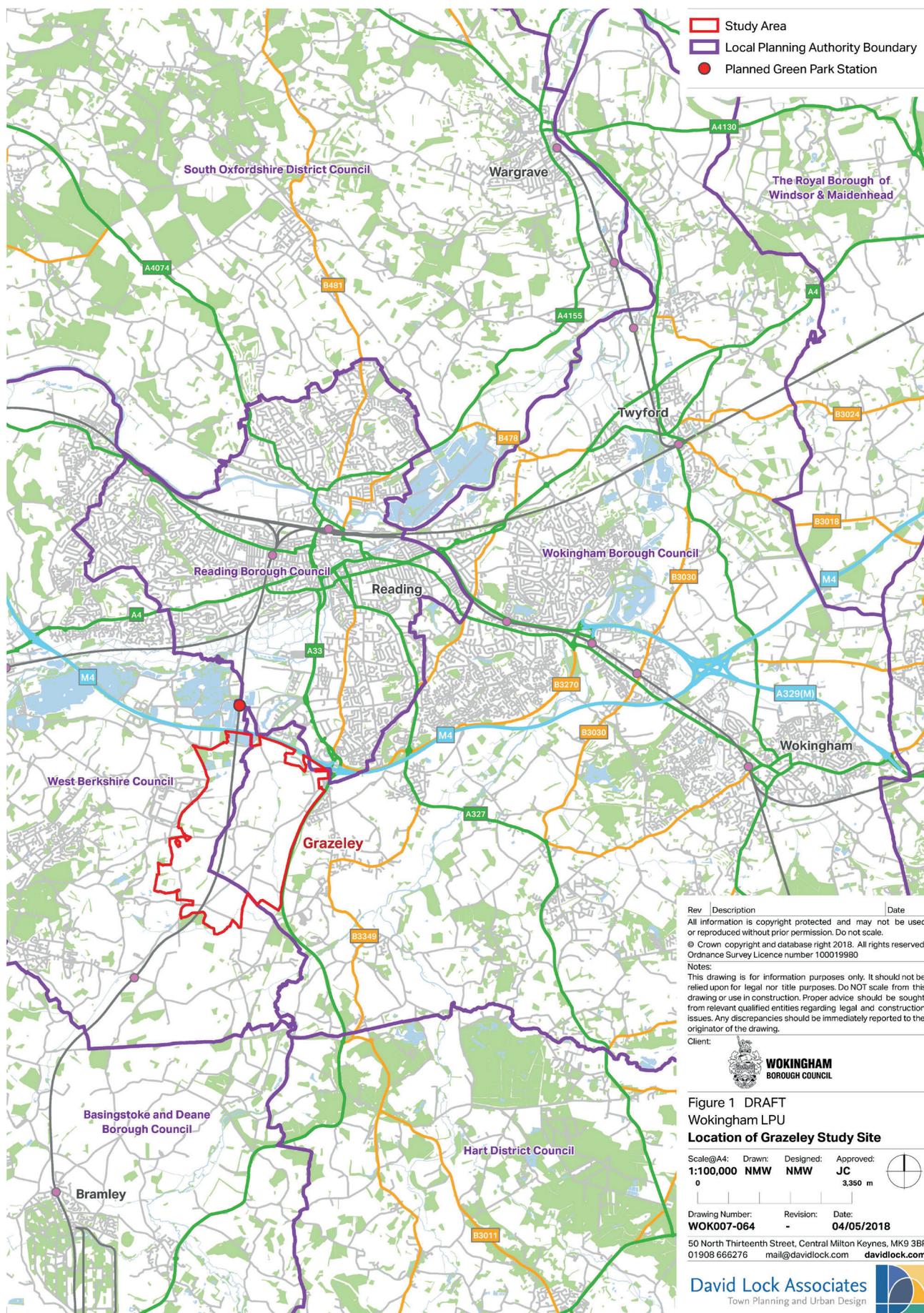
The options should be of sufficient standard to be included in Wokingham Borough Council's Local Plan Update Preferred Options Document and, in relation to Grazeley, West Berkshire District Council's Local Plan Review as appropriate.

ROLE AND STRUCTURE OF THIS REPORT

- 1.8 The brief required masterplanning to test a range of options for Grazeley:
- o 10,000 dwellings (WBC only)
 - o 5,000 dwellings (WBDC only)
 - o An overarching 15,000 dwelling option

The brief notes that “it may become apparent in the evidence gathering stage that a different scale option / options are more appropriate” for each location.

- 1.9 This report sets out the options (described as ‘growth scenarios’) in response to the brief. It explains the information used as the basis for masterplanning and it explains how consultation with both technical and community stakeholders has informed the growth scenarios. It provides a list of infrastructure requirements in relation to each growth scenario. The methodology for arriving at the growth scenarios is explained in Section 2 of the report.
- 1.10 The report aims to secure both councils’ agreement to the growth scenarios prior to non-statutory consultation during Summer 2018.
- 1.11 Section 3 sets out the baseline viability. Sections 4 address provides the following information:
- Background and Analysis
 - o Site Environmental Studies
 - Consultation Outputs
 - o Technical Stakeholder Workshops
 - o Community Stakeholder Workshops
 - Growth Scenarios
 - o Summary of key masterplanning considerations
 - o A vision for Grazeley
 - o Description and plan for each growth scenario
 - o Infrastructure requirements for each growth scenario
- 1.12 Section 7 provides a summary of the viability assessment for the growth scenarios.



- Study Area
- Local Planning Authority Boundary
- Planned Green Park Station

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Client:
WOKINGHAM BOROUGH COUNCIL

Figure 1 DRAFT
Wokingham LPU
Location of Grazeley Study Site

Scale@A4: Drawn: Designed: Approved:
 1:100,000 NMW NMW JC
 0 3,350 m

Drawing Number: Revision: Date:
WOK007-064 - **04/05/2018**

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David Lock Associates
 Town Planning and Urban Design

Figure 1: Location of Grazeley Study Site

2.0 STUDY METHODOLOGY

- 2.1 The project methodology includes a number of tasks arranged under four stages of work:
- Stage 1: Project set-up and baseline assessments
 - Stage 2: Generating growth scenarios
 - Stage 3: Identifying favoured growth scenarios if appropriate
 - Stage 4: Local Plan Update input

STAGE 1 PROJECT SET-UP AND BASELINE ASSESSMENTS

Site Environmental Studies

- 2.2 Background studies and analysis undertaken to inform work on masterplanning, infrastructure requirements and viability included:
- Desk top studies and site walkovers to establish environmental considerations;
 - A review of the Wokingham traffic model;
 - Discussions with WBDC on the status of their traffic model;
 - A review of data published by national agencies including the Environment Agency, Highways England, Natural England and Historic England;
 - Site visits to observe landform, site features, views and context; and
 - Constraints and opportunities mapping.
- 2.3 Meetings were held with the site promoters to gain an understanding of their views on the development potential at each location.

Baseline Viability

- 2.4 An analysis of the residential and commercial markets for each location was undertaken to gain an insight into the local property market dynamics, local demand and supply.
- 2.5 The Stage 1 viability exercise included a review of the Community Infrastructure Levy (CIL) for both authorities, residential sales evidence and market activity, commercial occupancy rates and recent transactions, land values based on transactional information, and perceptions of local agents and local authorities. Site specific market issues affecting each location were also examined.

STAGE 2 GENERATING GROWTH SCENARIOS

- 2.6 Stage 2 focused on masterplanning to generate growth scenarios. Technical and community stakeholder's workshops played an important role in informing the masterplanning, raising awareness of issues on-site and within the wider context, and providing the opportunity to share knowledge and opinions.

Technical Workshops

- 2.7 Technical workshops were structured around four key masterplanning considerations:

Green and Blue

- 2.8 The 'Green and Blue' workshop addressed matters relating to green infrastructure, landscape, countryside, nature and flood risk and drainage. The key objectives were to:
- identify locally consented developments and flood risk / drainage / environmental schemes;
 - understand known 'hotspots', constraints and opportunities;
 - explore any site-specific issues;
 - explore policy and design standards;
 - establish available data sets for use within the commission; and
 - discuss local perceptions and opinions in relation to the natural environment and flooding matters.
- 2.9 Representatives of the following organisations contributed to discussions:
- Environment Agency
 - Natural England
 - Berks, Bucks and Oxon Wildlife Trust
 - Wokingham Borough Council (including landscape and countryside officers)
 - West Berkshire District Council
 - Bracknell Forest Council
 - Homes England
 - AWE attended the Green and Blue workshop

Transport and Environmental Health

- 2.10 The main purpose of the workshop was to explore in broad terms the potential opportunities arising from strategic scale development, and to understand the nature of the transport improvements required to achieve sustainable development at each possible strategic development location, along with any environmental health considerations. The objectives included:
- identify locally consented developments and proposed transport and environmental schemes;
 - understand known constraints and opportunities;
 - explore any site-specific issues;
 - explore policy and design standards;
 - establish available data sets and models for use within the commission; and
 - discuss local perceptions and opinions of in relation to transport and environmental matters.
- 2.11 The Transport and Environmental Health workshop brought together representatives from the following organisations:
- Highways England
 - Network Rail Western
 - Southwest Railways
 - Great Western Railway
 - Reading Cycle Campaign
 - Wokingham Borough Council
 - West Berkshire District Council
 - Reading Borough Council
 - Bracknell Forest Council
 - Hampshire County Council
 - Homes England
 - Office for Nuclear Regulation and Ministry of Defence (in relation to AWE Burghfield)
 - Site promoters

Community Wellbeing

- 2.12 The main purpose of the Community Wellbeing workshop was to explore, in broad terms, the potential opportunities arising from strategic scale development, and to understand the nature of the social infrastructure and community facilities required to achieve sustainable development at each potential strategic development location. More specifically, the key objectives were to:
- identify current facilities, capacity constraints and opportunities for expansion;
 - understand broad requirements for on-site community facilities;
 - identify development and delivery challenges that need to be addressed;
 - explore any wider initiatives or additional community benefits arising from development;
 - explore the potential for shared infrastructure solutions borough-wide and in the wider Reading area; and
 - establish positive working relationships between stakeholders in the interest of achieving the best overall solutions.
- 2.13 Four themes were explored through the workshop:
- Education and housing
 - Health and emergency services
 - Sport and recreation
 - Community meeting spaces and cultural heritage.
- 2.14 The workshop was attended by representatives from the following organisations:
- Thames Valley Police (TVP)
 - TVP Crime Prevention Unit
 - Royal Berkshire Fire and Rescue
 - NHS Wokingham
 - Berkshire West Clinical Commissioning Group
 - Wokingham GP Alliance
 - Wokingham Borough Council (including education, housing and mental health officers)
 - West Berkshire District Council
 - Hampshire County Council
 - Homes England
 - Site promoters

Utilities

- 2.15 The workshop objectives were to:
- identify provision for utilities, capacity constraints and opportunities for reinforcement of utilities infrastructure to supply the three locations;
 - identify planned investment by the undertakers to increase capacity in the associated regions?
 - understand how future capital investment decisions will be taken in relation to the locations, in the event that they are included in the Local Plan Update;
 - explore the potential for shared infrastructure solutions borough-wide and in the wider Reading area; and
 - establish positive working relationships between stakeholders in the interest of achieving the best overall solutions.

- 2.16 The utilities workshop was attended by representatives of the following organisations:

- Thames Water
- Thames Water Treatment Works
- South Eastern Water
- Thames Waste Water
- Thames Water Networks
- SGN (gas providers)
- SSE (electricity providers)
- BT Openreach
- Wokingham Borough Council
- West Berkshire District Council
- Bracknell Forest Council
- Hampshire County Council
- Reading Borough Council
- Hampshire County Council (representing Central & Eastern Berkshire authorities through the preparation of the Joint Minerals and Waste Plan).
- AWE
- ONR

- 2.17 The findings from the workshops are discussed for each location in sections 4, 5 and 6 of this report.

Community Workshops

- 2.18 Community stakeholder workshops were attended by officer and member representatives of the organisations shown below:

- WBC
- WBDC
- Parish Councils:
 - Beech Hill
 - Burghfield
 - Shinfield
 - Stratfield Mortimer
 - Swallowfield
 - Wokefield
- Burghfield Neighbourhood Plan Group
- John Redwood MP

Workshop Activities

- 2.19 The workshop commenced with an explanation of the current Local Plan position and the masterplanning commission by council officers.
- 2.20 For the first activity, participants were divided into groups to discuss the strengths, weaknesses and opportunities of the location.
- 2.21 The workshop included a subsequent discussion about Garden City Principles as a way of responding to the proposition by WBC and WBDC. Groups prioritised what they thought to be the most important principles and expanded on how each might manifest itself in development at Grazeley.
- 2.22 Community representatives undertook an exercise using a digital tool called CHLOE. Developed in-house by David Lock Associates, CHLOE is an interactive masterplanning and reporting tool that promotes discussion and engagement by allowing its users to engage and contribute to the design process.

2.23 The main uses included in CHLOE exercises

- Residential (low density 30dph).
- Residential (higher density 45 dph or 60 dph).
- Mixed use local/district centre (50% residential/50% other).
- Employment.
- Secondary schools and/or primary schools.
- Primary schools.
- Suitable Alternative Natural Green Space (SANG).
- Sports pitches.
- Other open space (amenity space, allotments).
- Other infrastructure.

2.24 Each site was displayed on a hexagonal grid and the touch screen used to indicate the land use type for each hectare (or smaller area if set). A dashboard alerts the user to whether there is a deficit or surplus of open space types or schools according to the amount of residential use plotted.

2.25 As approaches are built up tile-by-tile using CHLOE, live updates are reported back to guide the user through the design process allowing them to make informed decisions about education provision, open space standards and other infrastructure to ensure that the development in question is sustainable and that the area's needs are met. Users can customise assumptions for each site, including: residential densities, household size and child yield and open space standards allowing different scenarios to be tested, recorded and compared. A togglable layer can show or hide the site's constraints and opportunities, such as: drainage, topography, existing nearby facilities, green infrastructure and transport to provide more detailed information to the user about the area in question.

2.26 Each small group was tasked with trying to achieve at least 10,000 dwellings on the site. It was made clear that the exercise was undertaken on a without prejudice basis and did not signal agreement of the development or the proposed housing numbers.

2.27 Each group provided key feedback points about the thinking behind the final output. Whilst each output is not to be taken literally as a masterplan scenario, a number of themes or ideas were taken from the exercise for further consideration in the masterplanning process. These are considered in more detail in section 4.

NEXT STAGES

2.28 The Growth Scenarios contained in this report will be subject to informal consultation to help ensure that the evidence provided in this report is robust. The final evidence will be used by WBC and WDBC, alongside other evidence studies, to prepare the strategy for growth within the Local Plan Update Preferred Options. In the event that the site forms part of the strategy for growth, further work will be undertaken with regard to that growth scenario.

3.0 BASELINE VIABILITY

COMMERCIAL PROPERTY MARKET

Overview

- 3.1 The Berkshire Functional Economic Market Area Study undertaken by Nathaniel Lichfield & Partners in February 2016 identified three functional economic areas covering the six Berkshire authorities. The West Berkshire District was identified as having its own FEMA; the Western Berkshire Core FEMA. The West Berkshire FEMA is relatively self-contained, focused around the main economic centres of Newbury, Thatcham and Theale and to a lesser extent Hungerford, with limited overlap with Swindon, the next commercial centre on the M4 corridor. It is in general most closely aligned with the Western Thames Valley sub market but is also influenced by the Upper Thames Valley sub market with links to Reading.
- 3.2 West Berkshire has a variety of employment sites ranging from large business parks and industrial estates to small rural sites converted from agricultural uses. There are particularly high concentrations of office floorspace in Newbury and Theale, and to a lesser extent Hungerford, Thatcham and New Greenham Park. Light industrial activity (B1c) is slightly more dispersed with lower concentrations in town centres and greater concentrations south of the A4, at Theale and west of Hungerford and Lambourn. The dispersal of B8 warehousing and B2 industrial space is also concentrated along the A4, at Theale, west of Lambourn and Hungerford, in proximity to Junction 14 of the M4.
- 3.3 The West Berkshire area is recognised as having a lower value profile in both office and industrial terms than the M4 markets closer to London and exhibiting a quasi-industrial character in regards to much of the demand.
- 3.4 The office market tends to be limited and localised in nature and characterised by older stock. There has been very little new development in recent years as rental levels do not support speculative development. This means that the FEMA lacks any critical mass of Grade A office accommodation, and this makes it difficult to attract and retain higher value occupiers to locate in the FEMA. Some speculative refurbishment of existing office buildings is however taking place.
- 3.5 The NLP report states that demand for industrial space remains strong and very low levels of vacancy reflect a limited supply of industrial accommodation (particularly modern, good quality space). Development of new industrial space in the FEMA has been limited in recent years, with much of the existing stock relatively dated and in need of refurbishment. Local commercial property agents report that demand for industrial premises is currently outstripping supply, and an upward trend in industrial rental values in recent years has led to new speculative industrial development being just about viable within the FEMA. The key issue going forward is a lack of new land and/or space to accommodate new development.

Future requirements

- 3.6 The Economic Development Needs Assessment (EDNA) for the West Berkshire Functional Economic Market Area (FEMA) (2016) assessed three different scenarios of future employment space requirements. These scenarios were based upon a number of approaches that reflect economic growth, past development trends and labour supply factors.
- 3.7 After making an allowance for a safety margin and replacement of ongoing employment floorspace losses, the total 'gross' B class employment space requirement related to these different scenarios for the FEMA ranges from 290,225sq.m to 379,675sq.m during the period to 2036, which implies in broad terms a need for between 65.2ha and 76.8ha of employment land (as summarised in the Table below).

Table x: Gross Employment Land Requirements (ha) for Western Berkshire FEMA by Scenario, 2013 – 2036

Uses	1. Baseline Labour Demand	2.0 Past Completion Rates	3. Labour Supply
Offices (B1a/B1b)	17.2	38.5	15.7
Industrial (B1c / B2 / B8)	58.0	38.3	49.5
Total B Class Land (ha)	75.2	76.8	65.2

- 3.8 As discussed, the Western Berkshire FEMA is relatively self-contained from a commercial property market perspective, and whilst there is inevitably some degree of overlap and interaction with other centres in the wider sub-region, this suggests that the majority of employment land requirements that have been identified for the Western Berkshire FEMA would ideally be accommodated within the FEMA itself.
- 3.9 Parts of the Western Berkshire FEMA functionally operate within the Greater Reading market, particularly those areas located close to the border with Reading Borough, such as Arlington Business Park in Theale. In so far as some growth needs of the Reading area have effectively been accommodated in West Berkshire in the past, it can be anticipated that this will continue in the future. As such, some of the employment space requirements for the FEMA would be best accommodated within these strategic locations, as opposed to other locations within the FEMA such as Newbury or Thatcham which tend to serve a different market and occupier base.

4.0 GRAZELEY

- 4.1 Through the Local Plan Update and Local Plan Review processes, a number of connected sites were promoted totalling 916 hectares to the south of Junction 4 of the M4 and west of the A33. These sites taken together comprise the area of search for the master planning exercise (Figure 2: Grazeley Area of Search). The existing village of Grazeley lies within the southern part of the area and the Reading to Basingstoke railway line bisects the area in a north-south direction. AWE Burghfield lies immediately to the west; the AWE Detailed Emergency Planning Zone (published March 2018) makes up 34% of the site. It imposes restrictions on land use with the exception of informal open space. For the purposes of this study it is assumed that land within the DEPZ is available for use as SANG and other informal open space, and consequently the area of search has been reduced by approximately 25% from 916ha to 687ha to reflect the current DEPZ boundary.
- 4.2 The site is currently being promoted by Hallam Land Management, Wilson Enterprises the Englefield Estate, and West Berkshire District Council (Property Services). Small areas within, and land adjoining, the site is owned by WBC. Collectively, these organisations have sought to secure Garden City status for the site. A series of Garden City principles have been agreed by all parties, and there is consensus that any development should be planned, designed and delivered on the basis of these principles if the site forms part of the growth strategy within the Local Plan Update.
- 4.3 The site is the subject of a current Housing Infrastructure Fund (HIF) application process, and at the time of writing has progressed to Stage 2 of the process. WBC is preparing a joint business case, with WBDC and Reading Borough Council, to submit to Ministry for Housing, Communities and Local Government (MHCLG).

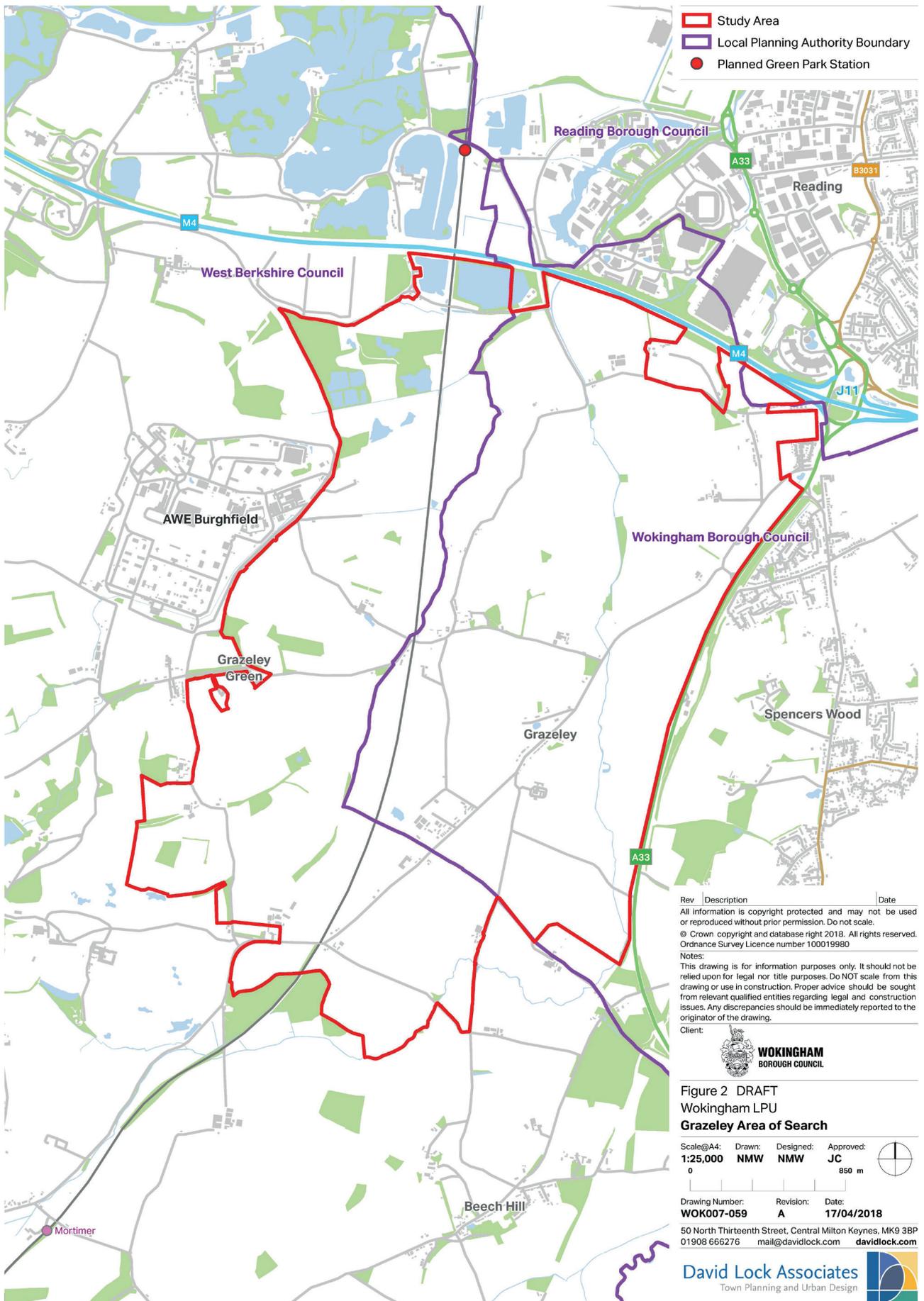


Figure 2: Grazeley Area of Search

BACKGROUND AND ANALYSIS

Site Environmental Studies: Summary Findings

- 4.4 Key site environmental constraints are shown in Figure 3 and are summarised below. The site contains no insurmountable environmental risks to development.

Flooding and Drainage

- 4.5 The principal watercourse on the site is the Foudry Brook, which flows in a northerly direction. Several tributaries flow into the brook, most notably the Burghfield Brook, which enters the site at a midway point along its western boundary. Several smaller brooks join the Burghfield Brook west of the railway line, and several other minor watercourses and drains are present. The presence of water is apparent on the site, although the Foudry Brook runs at low levels.
- 4.6 The flood map for the site is due to be updated by the Environment Agency following recent hydraulic modelling for the Grazeley area. Risk of flooding is addressed in national planning policy which ascribes categories of risk through 'zones' and identifies the relative vulnerability of different land uses. The site includes Flood Zone 1 (low probability of flooding, having a less than 1 in 1,000 annual probability of flooding, with all land uses

regarded as acceptable), Flood Zone 2 (medium probability of flooding, having between 1 in 100 and 1 in 1,000 annual probability of flooding, with essential infrastructure, water compatible uses, and less vulnerable and more vulnerable uses generally regarded as acceptable), Flood Zone 3a (high probability of flooding, having a 1 in 100 or more annual probability of flooding, with less vulnerable and water compatible uses generally permitted) and Flood Zone 3b (functional floodplain where water has to flow, with water compatible uses and essential infrastructure permissible subject to design and construction requirements). Any development should be located on land outside Flood Zone 3 and ideally in Flood Zone 1 to negate the need for a Sequential Test, the purpose of which is intended to direct development towards low flood risk areas unless exceptional circumstances are present. Detailed flood risk assessment will be required at the outline planning stage.

- 4.7 The area may be susceptible to surface water flooding in the event of extreme rainfall. The pattern of surface water flooding may be altered by development, and this would need to be addressed when surface water management is considered at the detailed master planning stage. However, this is not considered to be a significant constraint to development.

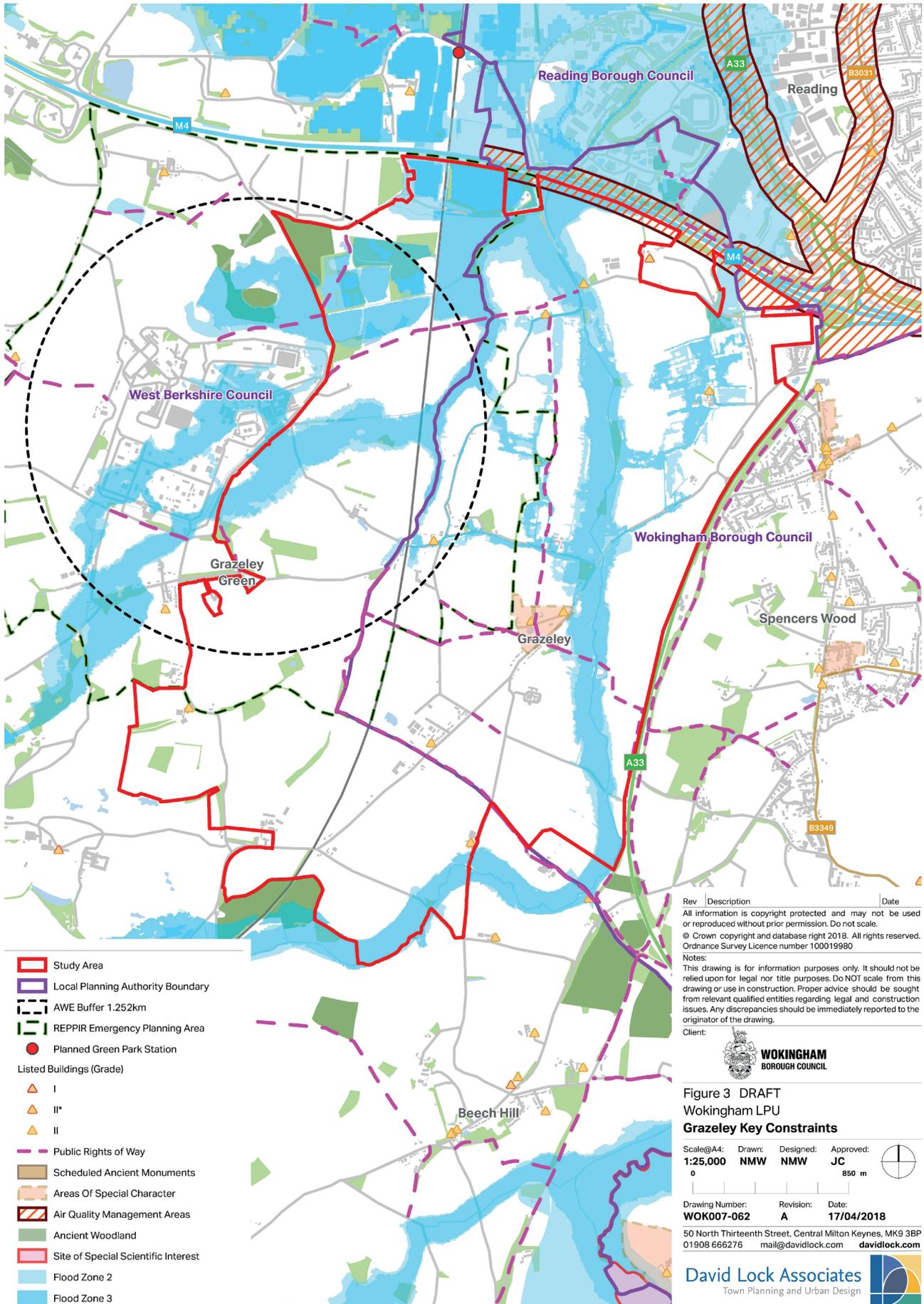


Figure 3: Grazeley Key Constraints

Transport & Highways

- 4.8 The background analysis included a review of the Thames Valley Berkshire Local Enterprise Partnership (LEP) study of the Grazeley site and the Grazeley Train Station Review, and examination of existing transport and access constraints.
- 4.9 There is consistency in the conclusions drawn in each piece of work which can be summarised as follows:
- In transport terms, Grazeley presents an opportunity for very sustainable development if significant investment in transport infrastructure is made. The location offers scope for new home building on a sizeable scale and economic growth to benefit the wider area. Investment in transport infrastructure would include the items listed below.
 - M4 crossing should be enhanced to support public transport and direct links to Green Park (a major employment destination).
 - Access to the site from the A33 would be possible. In due course any development proposals will need to take into account the findings of the current Corridor Study for M3-M4 Connectivity.
 - Reading MRT could be extended through the site to link with Mortimer Station. Interchange could be enhanced beyond the current MereOak Park and Ride facility, and there is potential for a second park and ride at the southern entrance to the location, to capture traffic travelling north towards Reading.
 - New and improved connections across the A33 would deliver better walking/cycling and public transport connections with Shinfield.
 - There is great potential to create extensive walking and cycling connections.
 - The benefits of a new railway station at Grazeley are widely recognised and it is reasonable to assume a new station can be delivered based on a minimum number of dwellings being delivered.

Air Quality

- 4.10 An Air Quality Management Area (AQMA) is in place at junction 11 of the M4 and extends westwards along the northern boundary of the site and encroaches 60m into the site. Additional traffic impact arising from development may require mitigation. Residential development would ideally be located away from AQMA and thereby away from the M4 and the northern section of the A33, however commercial development, which is less sensitive to air quality constraints could be located closer. Gradual reductions in emissions through tighter standards and a shift towards electric vehicles will help to reduce air quality problems in the future.

Noise and Vibration

- 4.11 The M4, A33 and railway line are all potential noise sources. Detailed consideration of the impact of any night-time freight movement would be required. Barrier mitigation or other screening may be needed to ensure development is within guideline levels. Residential development would ideally be located away from sources of noise and thereby away from the M4 and A33.

Geotechnical

- 4.12 The site is considered to have no major sources of contamination or hazardous ground gases due to the majority of land being used for farming. There are no geological or geomorphological features of conservation value across the site. The geoenvironmental constraints are considered very low.
- 4.13 The northern part of the site has a level of river terrace deposits which follow the floodplain of the Foudry Brook and are in a Mineral Safeguarded Zone. These deposits are believed to be shallow and may not be of sufficient quantity to warrant large scale extraction. However, any workable minerals should be extracted and used as borrow pits, e.g. in the delivery phase.

4.14 There are limited areas of low risk ground conditions due to clay deposits, which may present some construction risks, but not untypical for sites of this scale.

Waste

4.15 There is an emerging Minerals and Waste Plan for central and eastern Berkshire. The site will be subject to review for mineral deposits and possibly the search for a waste to energy facility by Hampshire County Council who currently act as the waste and mineral planning authority on behalf of WBC and the other central and eastern Berkshire authorities who are jointly preparing a Minerals and Waste Plan. WBDC is progressing its own Minerals and Waste Local Plan.

Agricultural Land

4.16 Agricultural land is classified according to its quality, productivity and versatility. Grade 1 land is 'excellent', Grade 2 'very good', Grade 3a 'good', Grade 3b 'moderate', Grade 4 'poor' and Grade 5 'very poor'. Grades 1, 2 and 3a are considered 'Best and Most Versatile' and are capable of producing the best crops. At Grazeley, the site contains some Grade 3a land, but is predominantly Grade 3b with some smaller pockets of Grade 4 land. A detailed agriculture and soils survey should be undertaken to confirm this.

Ecology

4.17 The site lies within an identified Impact Risk Zone (IRZ) for nearby areas designated as Site of Special Scientific Interest, Special Protection Area, Special Areas of Conservation and Ramsar. Additionally, the site falls within the IRZ for the Thames Basin Heaths, and most of the site is within the 5-7km of the closest part of the Heaths; consequently, any development would trigger a need for the provision of Suitable Alternative Natural Greenspace (SANG).

4.18 Much of the site is agricultural land of low ecological value. Habitat of value includes the Foudry Brook, as well as pockets of deciduous woodland (designated as Local Wildlife Sites), scattered trees, hedgerows and orchards.

4.19 Habitats on site have the potential to support a variety of species including roosting Bats, breeding Birds, Reptiles, Badgers, Great Crested Newts, Otters, Water Voles and White-clawed Crayfish. The impact of any development proposals on such habitats would need to be assessed through an Environmental Impact Assessment at the outline planning stage.

Heritage

4.20 The site includes a small number of listed buildings and associated curtilages, several of which are located within the existing village of Grazeley. The village has the potential to act as a focal point in placemaking, and consideration should be given to the manner in which new development relates to the village.

Sustainable Resources

4.21 Development would be expected to deliver high levels of resource efficient design, consistent with the requirements of WBC and WBDC guidance or policy in place at the time and comply with the Government's requirements for nearly zero energy building design.

4.22 Special regard for water consumption is needed within the Thames Valley. Thames Water and South East Water's Water Resource Management Plans highlight the need for careful balancing of future supply and demand.

SUMMARY OF CONSULTATION OUTPUTS

Technical Stakeholder Workshop Outputs

4.24 The following key points have informed the master planning process to date and can be carried forward by WBC and WBDC in the event that the site forms part of the growth strategy within the Local Plan Update and Local Plan Review.

Green and Blue

4.25 Early planning of a green and blue framework should be pursued, with clear objectives and principles established. It is estimated that up to 60% of the site may be green/blue. The implementation of green and blue infrastructure in the early phases of development should be secured. Requirements for long term landscape and water management and funding should also be considered at the design stage.

4.26 The Foudry Brook is an important structuring element and can be employed as a placemaking and value enhancing device. It has a low flow and any drainage strategy would need to consider retaining a low flow in the interests of water quality and biodiversity. There would be a requirement to prevent discharge into the brook in the first 5mm of rainfall.

4.27 A system for sustainable urban drainage to manage run-off rates should be procured. This would need to be located outside the floodplain. Any alleviation scheme could also consider the wider flooding issues including AWE Burghfield.

4.28 The Environment Agency position (and national policy) is a presumption against re-modelling floodplain purely for the purpose of increasing development land. There is, however, scope to consider how a flood plain can be reconfigured to improve flow, flood mitigation, biodiversity and recreation (and which could then mean a better development opportunity). Further information/survey work will need to inform any development proposals.

4.29 Flood risk is a matter of considerable concern for AWE Burghfield given the nature of the on-site operations and the importance of maintaining safe evacuation routes at all times. Any development would need to demonstrate that it will not have a detrimental impact on AWE Burghfield, and there is clear potential to consider how new development might be engineered to provide flood relief for AWE.

4.30 The site has been intensively farmed for many years. Remaining hedgerows and trees are scattered alongside the Foudry Brook or at field edges. These could structure a concept of green fingers emanating from the main green corridor out into development.

4.31 SANG will be required at a standard of 2ha per 1,000 population as the site lies within the 7km radius of the Thames Basin Heath SPA. SANG should provide functional connected habitat of ecological value, and wherever possible existing habitat should be retained. SANG should have a natural feel, be accessible and ideally be in a single location capable of providing a 2.3km circular walk. Delivery could be phased. Maintenance of SANG needs to be secured for 80 years.

4.32 There are no statutory nature conservation designations within the site. However, surveys to establish details of the site's ecology, and appropriate mitigation of impact will need to accompany any development proposals.

4.33 Pockets of ancient woodland exist within the site. In the event development proposals coming forward, tree surveys will be required. Opportunities exist for tree and woodland planting to shape the character of any development and provide woodland habitat.

4.34 Existing public rights of way should be retained, and where possible or appropriate they should be enhanced and extended to allow good public access for recreation.

4.35 The site is open and mainly flat, rising only in the south near Beech Hill. This means that views into and out of the area are possible.

Transport and Environmental Health

- 4.36 Means to minimise external trips by car should be considered. Lack of peak period capacity at Junction 11 indicates a need to consider additional links across the M4 for sustainable transport. There is scope to expand park and ride capacity and extend its function to 24 hours to suit work patterns and lifestyle demands. Green Park and Mortimer stations should be utilised in advance of the delivery of a new station (potentially by 5,000 completions), and any new station should not replace either Green Park or Mortimer but operate in addition.
- 4.37 Internal trips should be maximised through the on-site provision of jobs, services and facilities.
- 4.38 A clear vision for cycling should be established at the outset. Interest in a Dutch model of shared road space was expressed. Beyond the site, enhanced greenways should connect to other destinations including east of the A33.
- 4.39 Junction 11 is an Air Quality Management Area, requiring the pursuit of an Air Quality Action Plan to reduce air quality to within acceptable limits. This may be impacted by additional traffic movements arising from Grazeley.
- 4.40 Emergency evacuation routes aligned south-east/north-west for AWE Burghfield would ideally be built into the master plan.
- 4.41 Improved connections to AWE Burghfield should be created to support employees living at Grazeley.
- 4.42 Future proofing should be built in to any development – for electric vehicles, autonomous vehicles and electrification, and duelling of the railway line.
- 4.44 The Clinical Commissioning Group and National Health Service are working towards a new model of healthcare to co-locate GPs, outpatient appointments and other forms of healthcare in Health Hubs, with capacity for between 30,000 – 50,000 patients. Grazeley would be a suitable and preferred location for a new Health Hub, which could be developed in stages as the community grows.
- 4.45 There is a high level of demand for key worker housing for public sector staff and private elderly care, both of which could be met in part by strategic scale development.
- 4.46 WBDC current policy is 40% affordable housing based on a mix of 1,2,3 and 4 bed properties comprising 70% affordable rent and 30% shared ownership. It should be noted that for bordering development in Wokingham, the current requirement is for 35% affordable housing with a mix of 1,2 and 3 bed properties and the same tenure split as for WBDC.
- 4.47 Understanding about the relationship between good mental health and the built environment should inform the design of new places. Connectivity and densities similar to traditional Victorian terrace typologies are most conducive to good mental health.
- 4.48 Emergency service response times within the locality are constrained by heavy traffic volumes. Grazeley lends itself to the provision of a 'tri-service' facility for the three emergency services. Further work is needed to model future demand.
- 4.49 Community services should include community centres, library facilities, and indoor and outdoor sports provision. Local retail facilities should be provided on a scale which meets the needs and demands of a sizeable community.

Community Wellbeing

- 4.43 A settlement of 15,000 homes would generate a need for two secondary schools and seven primary schools (comprising four 3FE and three 2FE schools) on site. Provision for apprenticeships and training schemes in conjunction with local colleges should also be explored.
- 4.50 Opportunities for job creation and economic growth should be considered. Incubator hubs and business start-up premises should be provided.

Utilities

- 4.51 The workshop confirmed that there are no incumbents to development. Investment can be made to ensure the provision of utilities to the site including potable water, foul water drainage, electricity, gas and telecommunications. In time the supply of electricity for electric vehicles will need to be addressed. However, this is not a site-specific issue and applies generally regardless of the location of new growth.
- 4.52 Several supply lines cross the site, and any requirements for easements and stand-off will need to be considered at the point at which development proposals are brought forward. This includes a high-pressure gas main in the north of the site and overhead electricity cables.

Community Stakeholder Workshops

Strengths, Weaknesses and Opportunities

- 4.53 Workshop participants identified a range of issues which are relevant to the master planning exercise.
- 4.54 There was broad recognition of the traffic problems in the area, with comments about the potential for additional traffic lanes on the M4 and on the A33 to the south of the site to address congestion. The rural nature of the area currently leads to high levels of car dependency, especially as local services have diminished. Workshop participants prioritised the retention of Mortimer Station alongside any new Grazeley station and would not welcome a relocation of Mortimer station to the Grazeley site.
- 4.55 Investment in adequate levels of infrastructure is regarded as an essential pre-requisite of strategic scale development. Progress on the HIF bid is welcome. Infrastructure should be timed so that it is in place when needed, and to establish good travel habits from the outset. Good health facilities, schools and appropriate levels of shopping will be needed.

- 4.56 Economic growth should be planned alongside new homes. Opportunities for business development, from large employers to Small and Medium-sized Enterprises (SMEs) and home working to reduce travel demand should be provided. Large employment facilities should be located close to junction 11 and along the A33 to provide a protective barrier against noise and vehicle emissions for homes.
- 4.57 Green infrastructure should be accessible to the public. Open space should be integral to residential layouts and could ensure an attractive setting for higher density development.
- 4.58 The limited amount of development on the site at present opens up the possibility of contemporary house design, and higher densities would be possible in places in conjunction with green and blue infrastructure; the opportunity for canals to create an attractive setting for development was raised. The heritage of the area should not be overlooked, and the future setting of Grazeley village warrants careful consideration.
- 4.59 Housing affordability is widely recognised as a problem. Development on a strategic scale should cater for all incomes and provide a range of tenures. Homes built by the local authority would be welcome, and a return to local authority mortgages was raised as a possibility.
- 4.60 There is clear acknowledgement of the constraints imposed by floodplain, AWE Burghfield and the M4 AQMA. This will determine areas that are unsuitable for housing.

Discussion on Garden City Principles

- 4.61 Four groups discussed which Garden City principles should be prioritised; the top priorities for each group are recorded in the table opposite.

Group 1	Group 2	Group 3	Group 4
1. Strong local jobs offer for sustainable employment opportunities.	1. High quality design, with development structured around neighbourhoods.	1. Excellent connectivity to strategic links and the development of a strong local jobs offer.	1. A strong local identity and cultural offer, with civic functions should be pursued.
2. Taking advantage of existing and planned infrastructure including MRT and rail links.	2. A clear sense of character and identity of its own, with variable densities and live/work units.	2. High quality green infrastructure and provision for leisure including indoor sports facilities.	2. Higher density development which would allow more greenspace to be created. Buildings should be of very high quality.
3. Utilising the watercourses to create interest, recreation and ecological habitat.	3. A range of tenures including council-built homes.	3. A range of housing and tenures to achieve a balanced community, to include self-build plots.	3. Greenspace should be abundant and cater for wildlife, food production and green links beyond the site.
	4. Integrated transport systems and timely provision of infrastructure.		
All groups highlighted the importance of a strong vision, strong local leadership and involvement in the development process. A single body should be responsible for the delivery of the development. A new Town Council may be warranted in time.			

CHLOE Concept Master Plans

4.62 The workshop included an afternoon workshop session of interactive master planning using the 'CHLOE' master planning tool. Community representatives worked in a number of small groups (facilitated by the project team) to prepare master plan proposals for the Grazeley site. Whilst differences in approach were demonstrated between the groups, a number of key issues arose from the CHLOE master planning workshop including the following points and themes.

4.63 AWE Burghfield, emergency planning zone: all groups ruled out development within the DEPZ. The DEPZ runs across local authority boundaries. Land uses proposed within and immediately adjacent to the DEPZ offered some master plan design thoughts, notably with strategic scale provision of formal open space - potentially in the form of Sports Hub(s), SANG and informal open space.

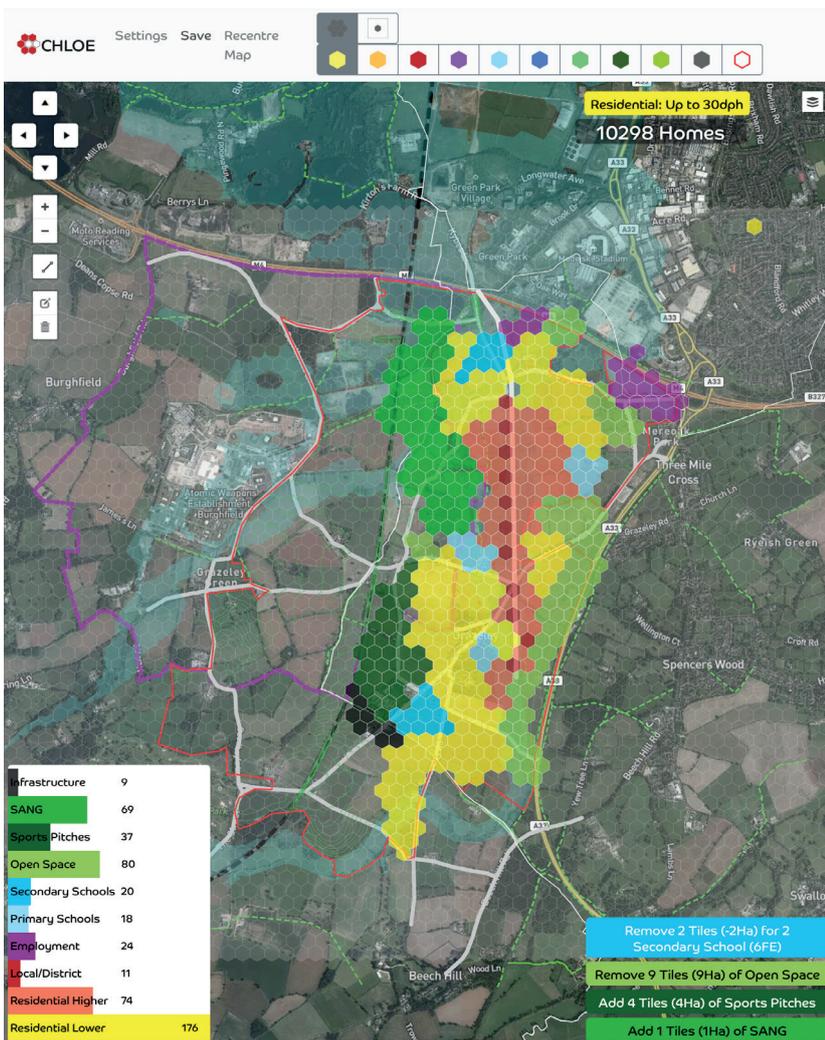
4.64 Strategic Green Infrastructure: All groups illustrated high level design proposals for strategic green infrastructure, commonly in the form of 'Green Landscape Corridors' that either aligned with constraints (e.g. landscape set around water courses, flood zones, the AWE DEPZ and adjacent to strategic road and rail routes) and/or as strategic level connections across the site, providing a setting for development and connections into the wider network of strategic Green Infrastructure (e.g. links to water bodies and recreation associated with aggregates extraction to the north of the study area).

4.65 An example workshop master plan generated using CHLOE is shown below. It illustrates the approach of allocating green infrastructure landscape uses within and immediately adjacent to site constraints (including the AWE DEPZ, east of the A33 and associated with areas of flood risk).

4.66 *Residential Density*: it was notable that most of the groups included reasonably large areas of higher residential density development. The CHLOE tool applied an average residential density of 60 dwellings per hectare (dph) for areas of higher density development (compared to an average of 30 dph for areas of lower residential density). The creation of master plans with large areas of higher density development, in some cases larger in area than lower density even (see example below), was generally identified as a means of using land efficiently and creating a form of sustainable development. The workshop participants quickly realised that when the site constraints have been taken account of (notably the factors listed above

- no development within the AWE emergency planning zone nor within floodzones) that the residual land area for new homes was smaller than first anticipated, therefore housing density is a key issue to be addressed.

4.67 A second example workshop master plan generated using CHLOE is shown below. It illustrates the approach of large areas of higher residential density housing (av. 60dph) as shown with the areas of pink colour. In this example the higher density housing is significantly larger than the lower density housing, both in terms of area and number of homes provided.

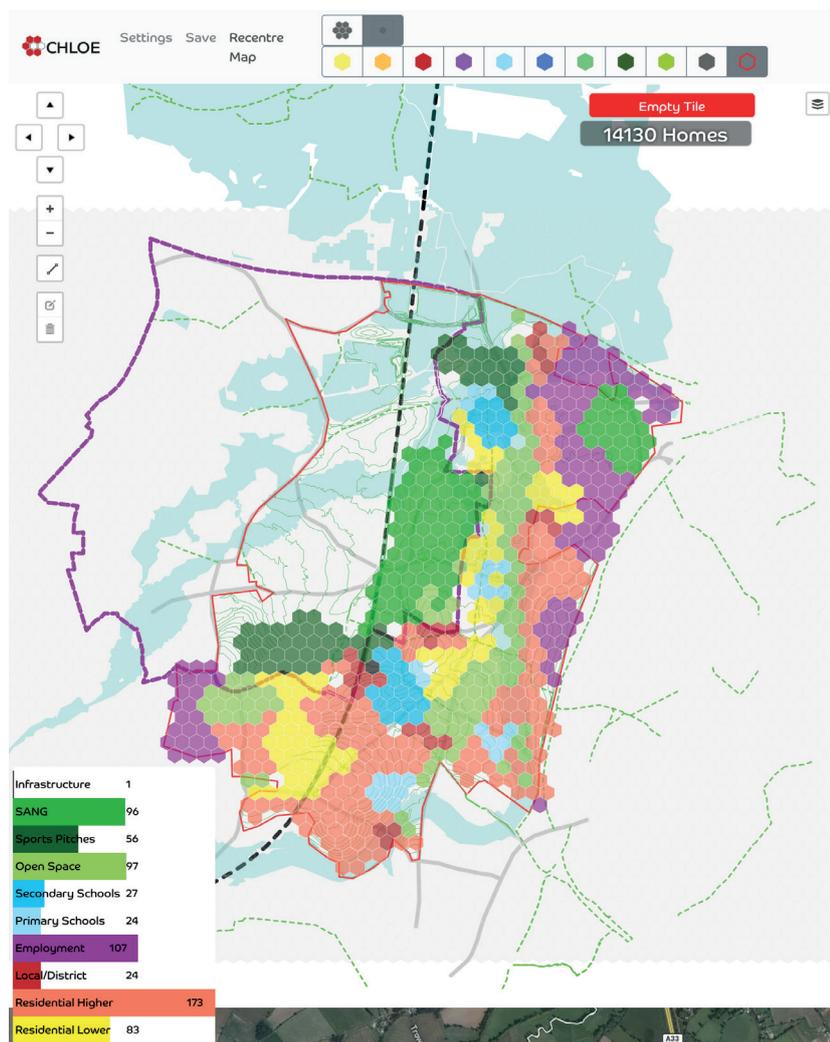


Grazeley workshop - CHLOE master planning tool output: Plan 5

4.68 *Employment:* a consistent master plan design approach across most of the CHLOE workshop groups was the creation of significant areas of employment (c. 20ha + in many cases) close to the M4 motorway junction 11 at the northern end of the site study area. This approach was seen to have benefits of access (via the motorway) and links to existing business and commercial employment to the north of M4 junction 11 (Green Park, Madejski Stadium & surrounds) and the planned Green Park Station. It would also act to mitigate the impact of motorway noise and traffic emissions on residential areas by forming a suitable barrier.

4.69 *A new Railway Station as Hub:* a number of groups proposed a new railway station within the site, both as an element of strategic infrastructure to aid access and movement and also as the anchor to a proposed hub of activity – a Local, Neighbourhood or District Centre as a focus of mixed use development with the highest density housing and a concentration of other supporting land uses and community infrastructure.

4.70 *Education:* all groups showed a number of education sites (for primary and secondary schools) dispersed across the site study area. The location varied across the different groups' proposals, some showing schools associated with hubs of mixed use activity, infrastructure (new railway station) and higher density housing.



Grazeley workshop - CHLOE master planning tool output: Plan 6

SUMMARY OF KEY MASTER PLANNING CONSIDERATIONS

- 4.71 The following summary represents a synthesis of the Stage 1 findings and the key points arising from the consultation workshops, which give rise to several important master planning considerations.
- 4.72 The site comprises a large expanse of arable farmland within proximity of major sources of employment at Reading and AWE Burghfield. It is well located to transport infrastructure including junction 11 of the M4, the existing station at Mortimer and future station at Green Park and is also served by Reading Mass Rapid Transit scheme (MRT) via the Mere oak Park & Ride. The benefits of the location, alongside the relatively limited environmental constraints to development, indicate that subject to appropriate master planning and appropriate mitigation the site could offer the potential for sustainable development.
- 4.73 The study brief seeks a visionary approach to the master planning so that ideas about high-quality development and placemaking can be captured. The following considerations, which emerged through the background analysis and consultation, and are illustrated in Figure 4, have informed the master planning in response to this requirement. The application of Garden City principles to the site is considered appropriate and beneficial, if there continues to be firm commitment from all parties.
- 4.74 The AWE Burghfield DEPZ effectively dictates that no built development can occur within its boundary (limited and low levels of low density employment and informal use such as SANG may be considered acceptable, subject to risk assessment processes). Discussions with AWE and the Office for Nuclear Regulation (ONR) have also highlighted a preference for broad distribution of population (as opposed to high concentrations in limited locations), and the importance of good routes to cater for an evacuation event.
- 4.75 The DEPZ has the effect of reducing the overall area of search by approximately 25% and elongating it in a north-south direction between the railway and the A33. This will influence the configuration of development between two key movement corridors, albeit access to each will be determined by limited opportunities to locate a new station outside the DEPZ and limited opportunities to create new junctions on the A33.
- 4.76 The proximity of employment at AWE Burghfield, Green Park and Reading Town Centre, amongst other locations, indicate the potential for living and working in proximity, and that excellent connections to these locations by sustainable modes should be secured. To achieve this the master plan should look to strengthen and extend physical connections, whilst configuring new development to maximise the number of people living within easy access of those connections.
- 4.77 Careful consideration should be given to residential densities. There is an opportunity for a bold approach here, given the characteristics and advantages of the location, along with scope to use greenfield land very efficiently, and the potential to generate a critical mass of people to ensure a vibrant and mixed community as well as helping to make transport services and local businesses more viable over the longer term.
- 4.78 Improved connections may include upgrades to the existing bridges across the railway and M4 to ensure their suitability for public transport, walking and cycling. In addition, there is scope to connect across the A33 to link communities at Three Mile Cross and Spencers Wood with Grazeley. With the provision of new internal road infrastructure to serve the development, existing lanes may be downgraded to form a network of pedestrian and cycleways.

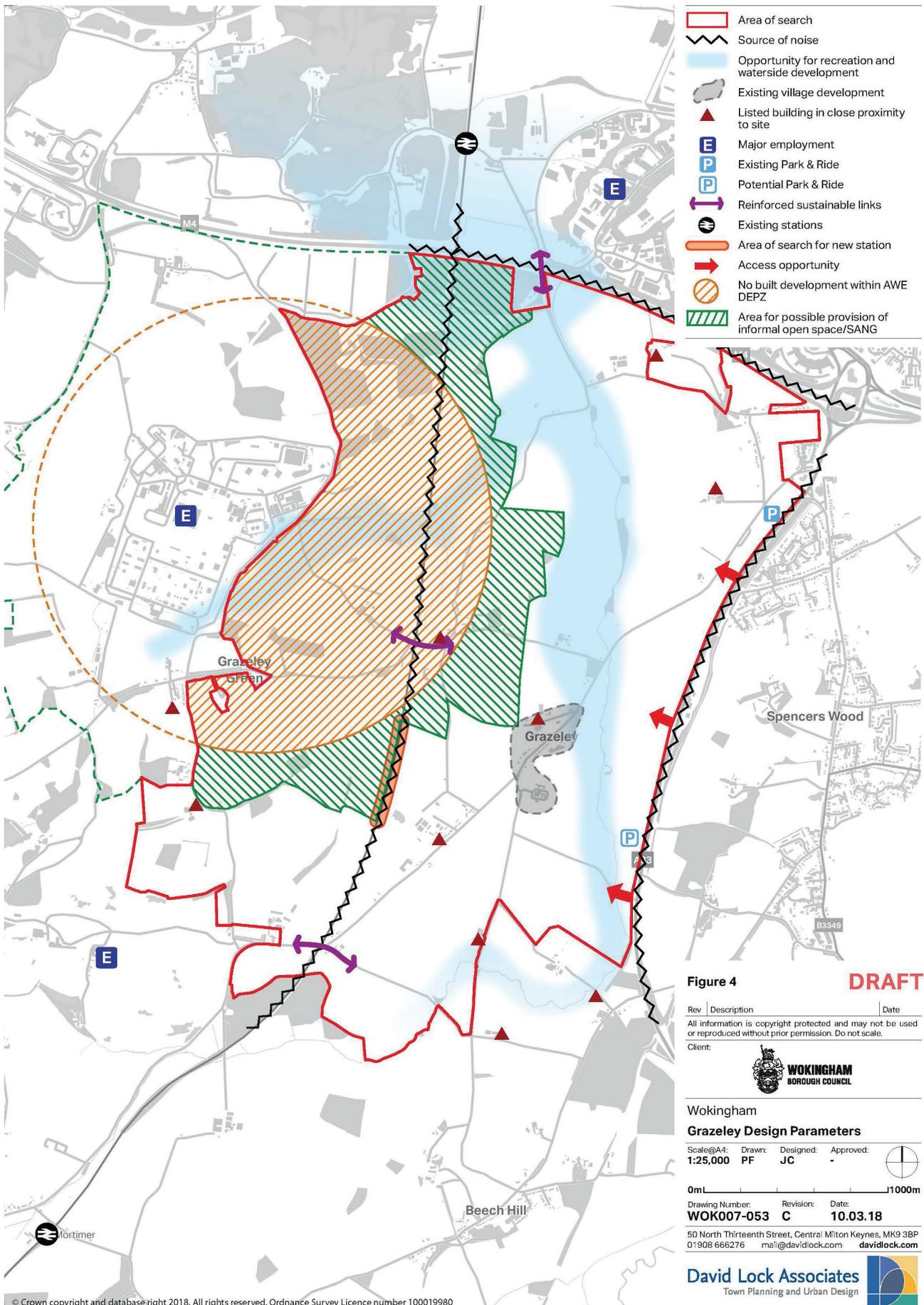


Figure 4 **DRAFT**

Rev	Description	Date
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Client:  **WOKINGHAM BOROUGH COUNCIL**

Wokingham
Grazeley Design Parameters

Scale@A4: Drawn: Designed: Approved:
 1:25,000 PF JC -

0m 1000m

Drawing Number: Revision: Date:
WOK007-053 C 10.03.18

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 Town Planning and Urban Design 

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Figure 4: Grazeley Design Parameters

- 4.79 To the east there is scope to break the severance of the A33 by providing new east/west walking, cycling and public transport links to Shinfield, Three Mile Cross and Spencers Wood.
- 4.80 There is clear potential for a new station from Grazeley to link with Reading (and onwards to London, the west and the North) and Basingstoke to the south. Potential locations for a new station are effectively limited to those outside the DEPZ, and therefore lie within the southern part of the site.
- 4.81 Excellent transport connections and the growth in homes indicate that new employment opportunities could be delivered at the site. In particular, proximity to Junction 11, Green Park and a major conference and training venue at Wokefield Park suggest that job creation could be an integral part of growth at Grazeley. A combination of opportunities, from significant inward investment through to premises for SMEs and provision for home-working or community hub working could be created if a scheme of significant scale were to be achieved.
- 4.82 Promoting the use of rail access into Reading may also include better access to Mortimer and Green Park stations by sustainable modes.
- 4.83 Principal road access into the site from the A33 indicates a need for new junctions, and the possible requirement for improved road access adjacent to Mere oak Park and Ride. However, these need to be considered in the context of a hierarchy and priority for public transport provision. There is scope to explore the potential for additional park and ride provision within the southern area of the site to capture journeys from the A33 south, thus releasing capacity at Mere oak for M4 users.
- 4.84 The railway, A33 and M4 are sources of noise. The need to mitigate the impact of noise on residential properties has implications for the configuration of land uses within the site, including the potential to locate employment uses where they can form a sound barrier between noise sources and living environments.
- 4.85 The Foudry Brook offers the opportunity to integrate water into the master plan. The brook's continuous and linear presence through the site means that it would be within walking distance of a large number of homes. Aligning green infrastructure with the brook would offer scope to manage flood potential and provide opportunities for informal recreation. Reconfiguration of the floodplain may be permissible; given the scale of the site an opportunity exists to consider different ways in which water can bring character to the development.
- 4.86 Existing pockets of development within the site including Grazeley village have the potential to act as a focus for placemaking. Consideration should be given to the protection of the village character and the village's future role in the context of large scale development. Grazeley primary school, village hall and existing employment areas such as Diddenham Park could provide community facilities and access to jobs in the early phases of the scheme.
- 4.87 Considerable investment in schools, open space, community facilities and local services will be needed to support a development of this scale. The location of these elements can reinforce good placemaking, help foster a sense of community, and enable easy and safe travel by walking and cycling.

- 4.88 The site is relatively flat, but not without features. Hedgerows cross the site, generally in a north-west / south-east direction, giving protection against prevailing winds. Several mature trees and pockets of woodland add character, and it is worth considering how mature vegetation can be retained and enlarged as part of landscape framework.
- 4.89 The flatness of the site indicates that development will be visible from the surrounding area. Successful integration of the development, particularly areas of higher density development, into the wider landscape will demand an ambitious approach to architectural, landscape and environmental design.
- 4.90 In summary, the following factors are relevant:
- The location presents the opportunity for a development with excellent sustainable transport connections. The scale of the site indicates that alongside new homes, there is good potential for business growth. Grazeley should be considered as a destination for employment, as well as an origin of employees.
 - Higher than typical residential densities would help to maximise the potential of the location. This signals the possible need for different approach to home design and housing mix, with a higher proportion of bespoke design and more apartments and terraced forms than might normally be found on greenfield developments.
 - A comprehensive approach to green and blue infrastructure should be pursued to ensure the early delivery of recreation, flood mitigation and sustainable urban drainage, SANG and ecological habitat. Opportunities for food production should be sought. The landscape should be designed to ensure good long-term management and maintenance. Some use of land within the AWE DEPZ may be suitable for low levels of recreation use.

Growth Scenario 1: 15,000 HOMES

- 4.91 The master planning exercise for Grazeley supports the proposition that the site can accommodate 15,000 homes and associated land uses. However, given the impact of AWE Burghfield DEPZ on the area of search, the achievement of 15,000 dwellings is likely to be dependent on a different approach to development densities and placemaking than that which would typically be the case in a greenfield location. In itself this is conceivable and would represent the efficient use of land and a concentration of population capable of supporting public transport and local services.
- 4.92 Consultation with community representatives to date indicates a willingness to see a development of higher residential densities and a more contemporary, urban character, subject to good design and the timely delivery of quality infrastructure. This points to a scheme which is highly walkable, well connected by public transport and potentially with a large proportion of apartments and terraced housing.
- 4.93 Development on the basis of Garden City principles is a credible objective for a development of this scale, and the principles in themselves should be used to guide a clear and articulate vision for Grazeley in the event that the Council decide to progress the allocation. The vision should explain the type of place that is sought. Scope to reference similar high quality, high density settlements outside of the main metropolitan centres is limited in the UK, although Cambridge offers some useful exemplars for higher density greenfield development. A vision could include an account of the desired place quality and opportunities to be made available in terms of housing mix and tenure, scope for employment and business investment, the ambition to create an infrastructure rich development, and the importance of natural greenspace, community wellbeing and environmental sustainability.

Master Plan

- 4.94 The master plan (Figure 5) includes the following features:
- Key structuring elements include the Foudry Brook and its corresponding floodplain, a proposed alignment for MRT to connect the MereOak Park & Ride, a proposed new Grazeley Station and a further park & ride within the south of the site.
 - There is generous provision of SANG and informal open space within the AWE DEPZ. This dominates the western area of the site, with the railway line acting as an edge to publicly accessible open space. The provision of generous amounts of public open space could enhance the overall quality of the development, offering scope for outdoor activity, food production, ecological habitat and biodiversity, residential amenity and sustainable urban drainage. Open space should be accessible and will need to be designed and maintained to a high standard if it is to enhance the quality of life for the Borough's residents.
 - Business uses are clustered adjacent to Junction 11 and alongside the M4 to form a protective barrier against noise and vehicle emissions, and to take advantage of the proximity of the strategic road network and Green Park.
 - Development is concentrated in two locations north and south within the site. Within the northern area, existing floodplain is designed to create an urban setting based around a series of canals. Residential densities are assumed to be high, with an overall average of c. 60 dph. One secondary school and four primary schools are provided, along with a district centre providing retail and community uses.
 - Within the southern area, the majority of which falls within WBDC, an intense urban quarter around a new station and MRT route is proposed. This area includes space for retail, community uses, business and higher density residential development of 80-100dph. The area includes one secondary school and three primary schools.
 - Areas of woodland and hedgerows help to structure the site at a more local level.

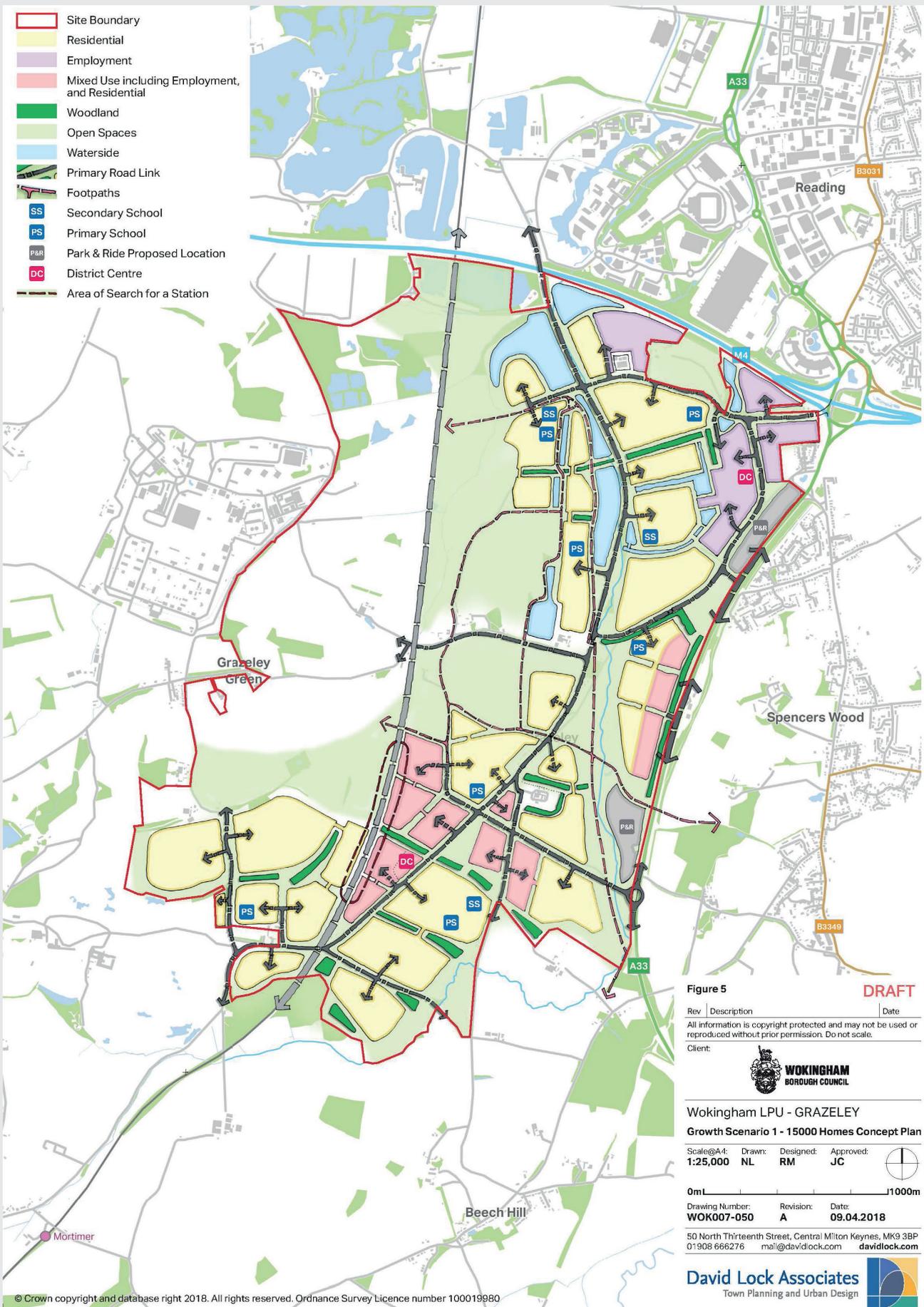


Figure 5 DRAFT

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Client:

WOKINGHAM BOROUGH COUNCIL

Wokingham LPU - GRAZELEY
 Growth Scenario 1 - 15000 Homes Concept Plan

Scale@A4: Drawn: NL Designed: RM Approved: JC
 1:25,000

0m 1000m
 Drawing Number: WOK007-050 Revision: A Date: 09.04.2018

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 Town Planning and Urban Design

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Figure 5: Grazeley Growth Scenario 1 - 15,000 Homes Concept Plan

Growth Scenario 1: 15,000 HOMES

Access & Movement

4.95 Analysis of the access and movement patterns arising from Grazeley Growth Scenario 1 indicate that 48% of journeys from the site would be to Reading during AM and PM peak travel periods. Whilst most users are likely to travel by car based on current choice and behaviour, greater use of sustainable transport could be supported by the provision of a new station, improved bus services, an extension to MRT and additional park and ride facilities. In addition, during the AM peak, there is scope for trips to the north (6%), Maidenhead and Slough (9%), London (95%), Bracknell (6%) and Wokingham (5%) to be made by train via Reading station. Overall, a total of 35% of AM peak trips could be made by train if a new station is developed. Convenient bus travel from within Grazeley to the new station would further encourage rail use.

4.96 The following provisions are made for access and movement:

- An area of search for a new station is outlined. This is located 2km north of Mortimer Station. A new station would include a new station car park (1,000 spaces) and public transport interchange.
- New bus services and associated bus stop infrastructure to support the development.
- A route for an MRT extension is provided to serve two park and ride facilities (Mere oak and an additional facility) and the proposed station. The MRT route would also function as a primary access road, and a network of secondary and tertiary streets would give access into residential areas.
- M4 junction improvements (junctions 10-12) and upgrades to the current A33 junction.
- New junctions on the A33 provide access into the site including to a new park and ride is located adjacent to the southern junction.
- Railway crossings are assumed to be upgraded and potentially increased in number. The M4 crossing to connect to Green Park and the Kennet and Avon Canal is also enhanced. Crossings over the A33 to connect to existing villages would further enhance sustainable travel choices.
- Public rights of way are retained, enhanced and extended where appropriate. A network of footpaths and cycleways will provide access throughout the site.
- My Journey Travel Planning is assumed to support residents in their use of sustainable travel.

Infrastructure requirements

4.97 The following summary of infrastructure requirements has been identified. It is assumed that land for schools, community buildings and sustainable transport infrastructure, as well as affordable housing will be delivered via a S106

agreement. HIF funding will be needed in the early phases of delivery to ensure infrastructure can be provided at a rate which is commensurate with the early growth of the community, and to fund major infrastructure items including a new station. Items identified in the HIF process are noted in the table below:

Infrastructure Required	Indicative Funding
Highway Access	
New access junctions and A33 upgrades	Developer (HIF)
Internal residential roads	Developer
Primary road to function as MRT route	Developer (HIF)
Off-site highway and junction works to enhance capacity	Developer
Public footpaths to connect to existing	Developer
Railway and M4 crossing upgrades	CIL / Developer (HIF)
M4 Junction 11 upgrade	CIL/Developer (HIF)
Sustainable Transport	
My Journey Travel Planning	Developer
Bus services and bus stop infrastructure	Developer
Public transport strategy including expansion of MRT services	Developer
Station, station car park and public transport interchange	CIL (HIF)
New Park & Ride	Developer/CIL (HIF)
MRT Extension	CIL (HIF)
Off-site pedestrian and cycle improvements	Developer
Strategic Flood Alleviation	
Site preparation and drainage works	Developer
Utilities	
Energy, water and waste	Providers + Developer
Education	
7 primary schools	CIL (HIF)
2 secondary schools	CIL
Further education & adult learning	CIL
Public Open Space	
SANG	CIL
Allotments	CIL
Children's play	Developer
On-site parks and amenity space	Developer
Sports pitches	CIL
Community facilities	
Community centres, indoor sports & library provision	CIL

Growth Scenario 2: 10,000 HOMES

4.98 The provision of 10,000 homes on land within Wokingham Borough can be achieved by adopting an equally bold and ambitious approach to development character, density and intensity. The application of Garden City principles is an appropriate objective.

Master Plan

- 4.99 The master plan (Figure 6) contains the following features:
- Key structuring elements include the Foundry Brook and its corresponding floodplain, a proposed alignment for MRT to connect the Mere oak Park & Ride, a proposed new Grazeley Station and a further park & ride within the south of the site.
 - There is generous provision of SANG and informal open space within the AWE DEPZ. This dominates the western area of the site, with the railway line acting as an edge to publicly accessible open space.
 - Business uses are clustered adjacent to Junction 11 and alongside the M4 to form a protective barrier against noise and vehicle emissions, and to take advantage of the proximity of the strategic road network and Green Park.
 - Most of the development is concentrated in the north of the site, with a smaller area of development to the south; the two are separated by a green connection linking the SANG and existing communities to the east of the A33. Within the northern area, existing floodplain is designed to create an urban setting based around a series of canals. Residential densities are assumed to be high, with an overall average of c. 60 dph. One 6FE and one 8FE secondary school and five primary schools (comprised of two 3FE and two 2FE schools) are provided, along with a district centre providing retail and community uses.
 - Within the southern area, a new station is proposed. This area includes space for retail, community uses, business and higher density residential development at 80-100 dph. The area includes one 3FE primary school.

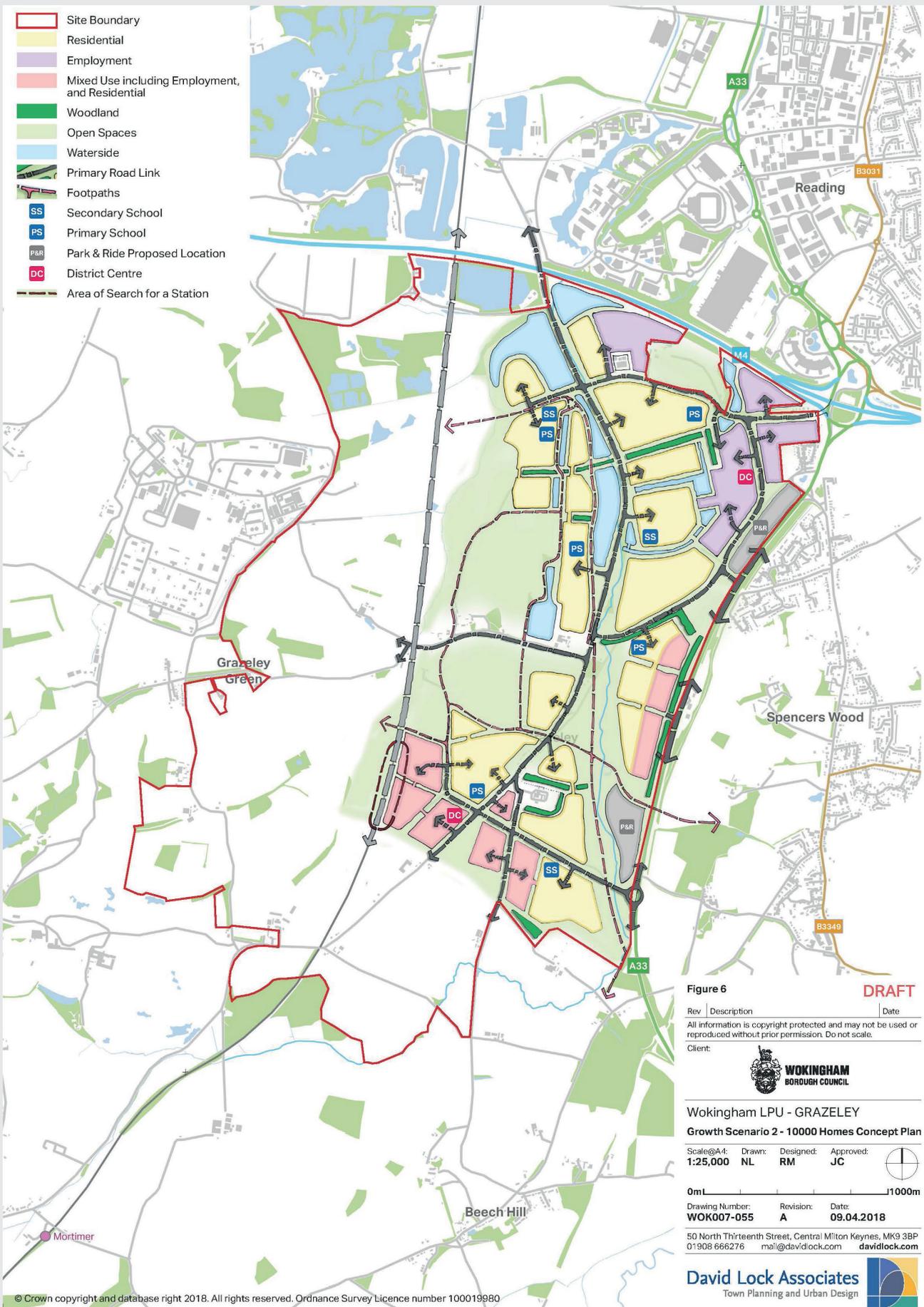


Figure 6 DRAFT

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Client:

WOKINGHAM BOROUGH COUNCIL

Wokingham LPU - GRAZELEY
 Growth Scenario 2 - 10000 Homes Concept Plan

Scale@A4: Drawn: Designed: Approved:
 1:25,000 NL RM JC

0m 1000m
 Drawing Number: Revision: Date:
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Figure 6: Grazeley Growth Scenario 2 - 10,000 Homes Concept Plan

Growth Scenario 2: 10,000 HOMES

Access & Movement

- 4.100 Trip distribution patterns for Grazeley Scenario 2 are expected to be the same as for Scenario 1, but the scale of movement will reduce given the decrease in housing numbers.
- 4.101 The following access and movement arrangements are proposed:
- An area of search for a new station is outlined. This is located more than 2km north of Mortimer Station. However, it sits at the edge of the AWE DEPZ, and further work is needed to confirm the acceptability of the location. The station would include a new station car park for 1,000 cars and a public transport interchange.
 - A route for MRT is provided to serve two park and ride facilities and the station. The MRT route would also function as a primary access road, and a network of secondary and tertiary streets would give access into residential areas.
 - Enhanced bus services to serve the development.
 - New junctions on the A33 provide access into the site at its southern edge and at a midway point. The new park and ride is located adjacent to the southern junction. Potential enhancements to and crossings of the A33.
 - M4 junction improvements (junctions 10-12).
 - Railway crossings are assumed to be upgraded, as is the M4 crossing to afford better access to Green Park.
 - Public rights of way are retained, enhanced and extended as appropriate. New pedestrian and cycle ways will create access throughout the site.
 - My Journey Travel Planning is assumed to help residents plan their travel by sustainable modes.

Infrastructure requirements

- 4.102 Infrastructure requirements are listed below. HIF funding is unlikely to be available for a development of 10,000 dwellings.

Infrastructure Required	Indicative Funding
Highway Access	
New access junctions and A33 upgrades	Developer
Internal residential roads	Developer
Primary road to function as MRT route	Developer
Off-site highway and junction works to enhance capacity	Developer
Public footpaths to connect to existing	Developer
Railway and M4 crossing upgrades	CIL / Developer
M4 Junction upgrades	CIL/Developer
Sustainable Transport	
My Journey Travel Planning	Developer
Bus service and bus stop infrastructure	Developer
Public transport strategy including expansion of services	Developer
Station, station car park and public transport interchange	CIL
Off-site pedestrian and cycle routes	Developer
New Park and Ride	CIL/Developer
MRT extension	CIL
Strategic Flood Alleviation	
Site preparation and drainage works	Developer
Utilities	
Energy, water and waste	Providers + Developer
Education	
5 2FE primary schools	CIL
2 secondary schools	CIL
Further education & adult learning	CIL
Public Open Space	
SANG	CIL
Allotments	CIL
Children's play	Developer
On-site parks and amenity space	Developer
Sports pitches	CIL
Community facilities	
Community centres, indoor sports & library provision	CIL

Alternative 10,000 Home Growth Scenario

4.103 Growth Scenario 2 identifies how 10,000 homes might be achieved in WBC. In the event that WBC and WBDC decided to pursue a 10,000-dwelling option across the whole area of search it would be possible, subject to density adjustments, to utilise the master plan for Growth Scenario 1. The infrastructure requirements for Growth Scenario 2 would be relevant.

Growth Scenario 3: 5,000 HOMES

4.104 The 5,000-home scenario is contained within WBDC. It assumes higher density development as per Growth Scenarios 1 and 2. It should be noted that the Area of Search within West Berkshire does not include a boundary with the A33, and therefore the creation of a new primary road access is dependent on land within Wokingham Borough.

Master Plan

- 4.105 The master plan (Figure 7) can be described as follows:
- The railway line divides the site into two parts, whilst the Foudry Brook creates a perimeter to development to the south and east.
 - SANG and informal open space are located within the AWE EPZ. This is located in the north-western part of the site, and improved crossing of the railway is assumed to ensure public access to informal open space for residents living east of the railway line.
 - Residential densities are assumed to be high, with an overall average of c. 60 dph. One secondary school and three primary schools (one 3FE and two 2FE) are provided, along with a district centre providing retail and community uses.
 - An intense urban quarter at the heart of the development is proposed. This area includes space for retail, community uses, business and higher density residential development at 80-100 dph.
 - Areas of woodland and hedgerows help to structure the site at a more local level.

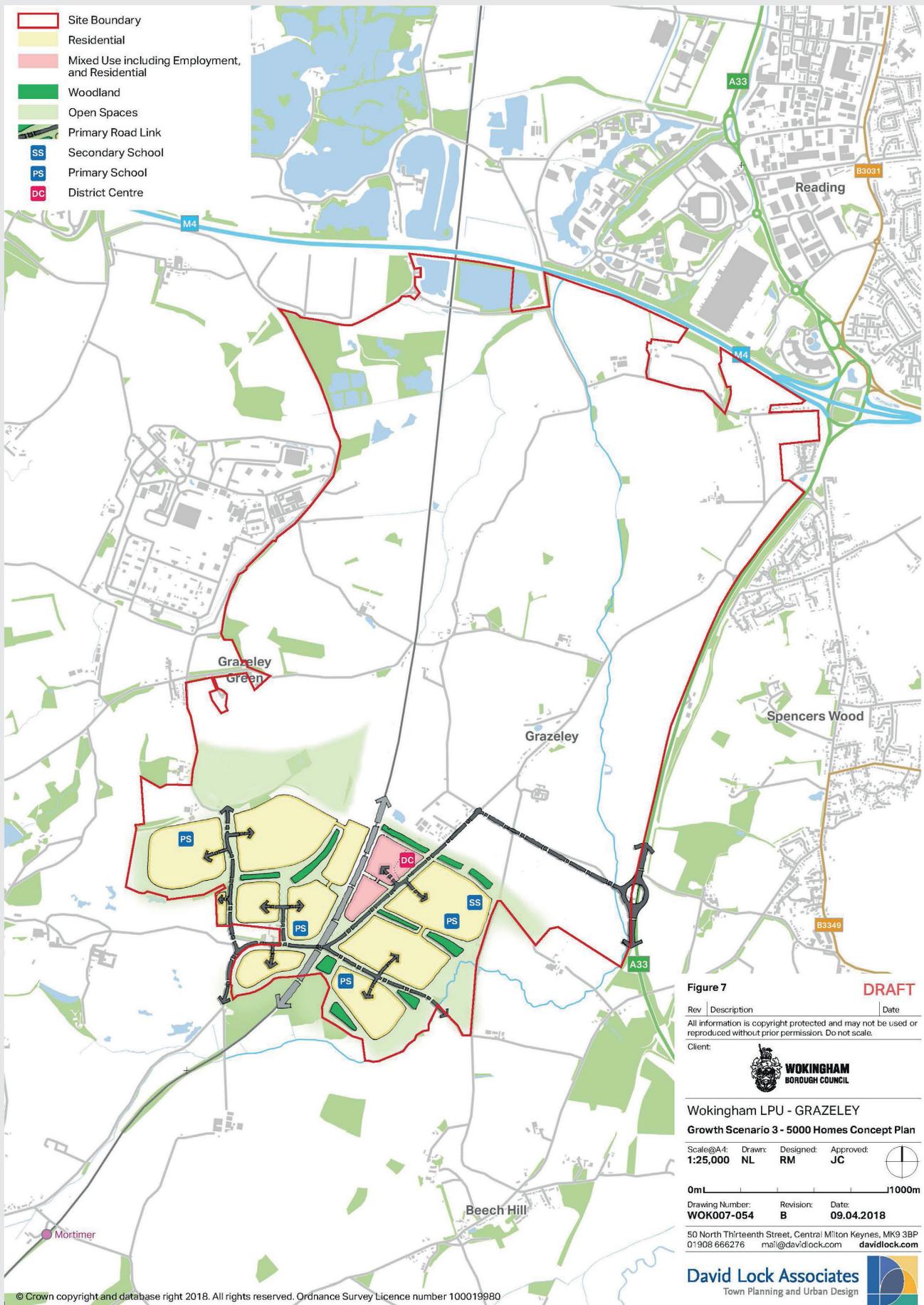


Figure 7

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Client:



Wokingham LPU - GRAZELEY
 Growth Scenario 3 - 5000 Homes Concept Plan

Scale@A4: Drawn: NL Designed: RM Approved: JC



0m 1000m

Drawing Number: WOK007-054 Revision: B Date: 09.04.2018

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Figure 7: Grazeley Growth Scenario 3 - 5,000 Homes Concept Plan

Growth Scenario 3: 5,000 HOMES

Access & Movement

- 4.106 Trip distribution patterns for Grazeley Growth Scenario 3 are expected to be similar to Scenarios 2 and 3. However, trips will reduce given the reduced number of homes. Opportunities for rail travel will be reduced.
- 4.107 The following access and movement arrangements are included. Whilst opportunities for sustainable travel are less extensive (a station would be very unlikely), a requirement to promote travel by alternative modes would be equally valid for a development of 5,000 homes.
- Upgrades to the A33 junction and potential to expand the Mere oak Park and Ride, subject to WBC's agreement.
 - A new junction is created on the A33, giving access across land in Wokingham Borough to the development and providing the potential for bus and vehicular access.
 - Routes for walking and cycling would be provided within the development, and also to connect beyond the site to Mortimer Station.
 - My Journey Travel Planning is assumed to help residents use sustainable transport for their journeys.

Infrastructure requirements

- 4.108 The following infrastructure requirements have been identified:

Infrastructure Required	Indicative Funding
<i>Highway Access</i>	
New access junctions with adjoining highways	Developer
Internal residential roads	Developer
Off-site highway and junction works to enhance capacity	Developer
Public footpaths to connect to existing	Developer
Railway crossing upgrades	CIL / Developer
<i>Sustainable Transport</i>	
My Journey Travel Planning	Developer
Bus service and bus stop infrastructure	Developer
Public transport strategy including expansion of services	Developer
Off-site pedestrian and cycle routes	Developer
Potential improved access to Mortimer Station	Developer
<i>Strategic Flood Alleviation</i>	
Site preparation and drainage works	Developer
<i>Utilities</i>	
Energy, Water and Waste	Providers + Developer
<i>Education</i>	
3 2FE primary schools	CIL
1 secondary school	CIL
Further education & adult learning	CIL
<i>Public Open Space</i>	
SANG	CIL
Allotments	CIL
Children's play	Developer
On-site parks and amenity space	Developer
Sports pitches	CIL
<i>Community facilities</i>	
Community centres, indoor sports & library provision	CIL

5.0 VIABILITY REVIEW

- 5.1 The LPU and LPR must be supported by evidence which demonstrates the viability of development and infrastructure provision; unless schemes are deemed to be affordable, capable of delivering policy compliant measures including affordable housing, and generating an acceptable level of developer profit (without which there is no incentive to build), it would not be appropriate to pursue their allocation.
- 5.2 High level viability appraisals have been carried out based on the assumptions set out separately for each potential growth location, including the identified infrastructure items required to support and enable development. A Residual Land Value has been derived, which has then been compared to the benchmark land value applied to greenfield sites in the CIL viability studies carried out for the setting of the Wokingham Borough CIL. This was originally set at £300,000 per hectare but has been increased by the same indexation as CIL over the period since the CIL baseline figures were set and has therefore been tested at a relatively high hurdle rate of £375,000 per hectare.
- 5.3 This benchmark land value is set at a level which is intended to indicate that if this is exceeded, then development is viable, and will provide an appropriate incentive for a landowner to sell their land. It is considerably in excess of Existing Use Value in each of the locations considered.
- 5.4 This has been tested at a baseline level of appraisal, assuming a cautious level of value, and a relatively full level of cost. Two sensitivity tests have then been carried out:
- The first reflects the average Build Cost Information Service (BCIS) costs per M2 adjusted to disregard the provision of single storey development, and to reflect flatted development at no more than 5 storeys, and houses at no more than 3 storeys. This marginally reduces the cost per square metre from the baseline at £1,474 per M2 to £1,459 per M2. This could reasonably be further reduced at Grazeley to reflect the influence of the Reading market, where average costs are marginally lower again than the evidence indicates for Wokingham.
 - The second test builds on the first and reflects the fact that the evidence for sales values is largely based on Land Registry data, which is somewhat out of date by the time it is available. A marginal increase of circa 2.5% per M3 of sales value has been allowed to reflect the impact of this, and that in the baseline an uplift of only 7% over second-hand values has been included to reflect that these will be new homes. The values assumed for market, social rent and intermediate affordable for each location are set out at the end of the summary table below.

5.5 The table below uses a traffic light system to show where development is viable against the benchmark land value test (amber and green), and where it is not viable (red).

5.6 The Amber setting reflects a residual land value that is above the Benchmark Land Value, but by no more than 20%, suggesting it is more marginal than those in green, where the benchmark land value has been exceeded by more than 20%.

5.7 In each test, all policy requirements including CIL and affordable housing provision have been accounted for, and a market level of developer's profit has been allowed.

5.8 The table indicates that at Grazeley, only the larger 10,000 and 15,000 options indicate viability against the Benchmark Land Value test. The initial phases indicate a loss, largely due to the timing of investment needed in the upfront utilities infrastructure, which reinforces the importance of early support through HIF.

5.9 It should also be noted that the analysis excludes the cost of offsite works that will be funded via CIL or through HIF funding. This is particularly relevant to Grazeley where the scale of off-site infrastructure required indicates a strong case for early investment to secure housing delivery.

Table 1: Viability outcomes - LPU Strategic Master planning options

Grazeley units	Baseline cautious	Realistic	Slightly Optimistic
5,000	Red	Red	Red
7,000	Red	Red	Red
10,000	Red	Red	Red
15,000	Red	Red	Green

Key:

Benchmark Land Value £375,000 per ha	
Red	Below Benchmark Land Value
Yellow	Benchmark Land Value + up to 20%
Green	Benchmark Land Value + > 20%



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