LYGHTHORNE HEATH

Delivery Strategy

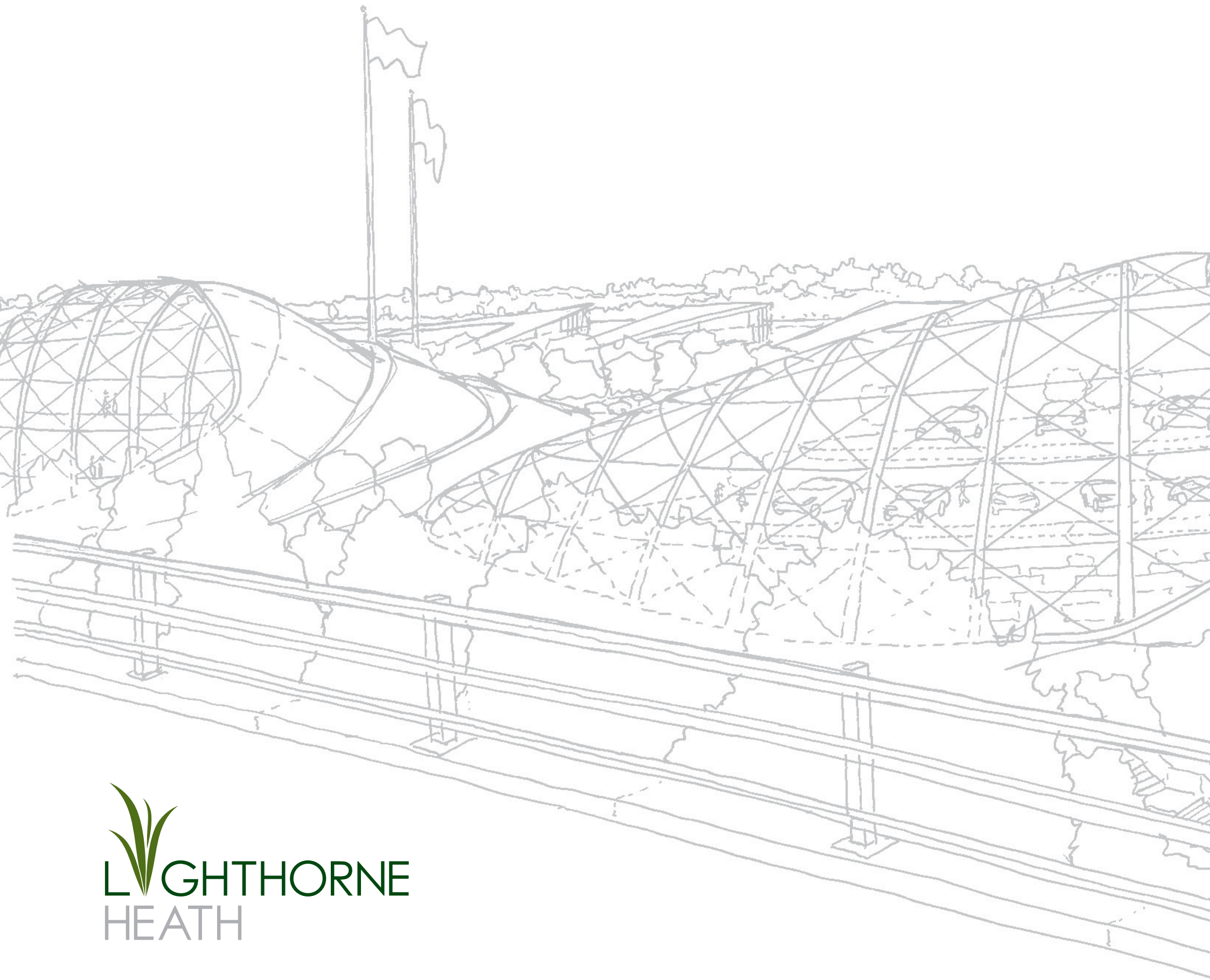
Revision A

July 2013

TOMORROW'S **GARDEN VILLAGE**

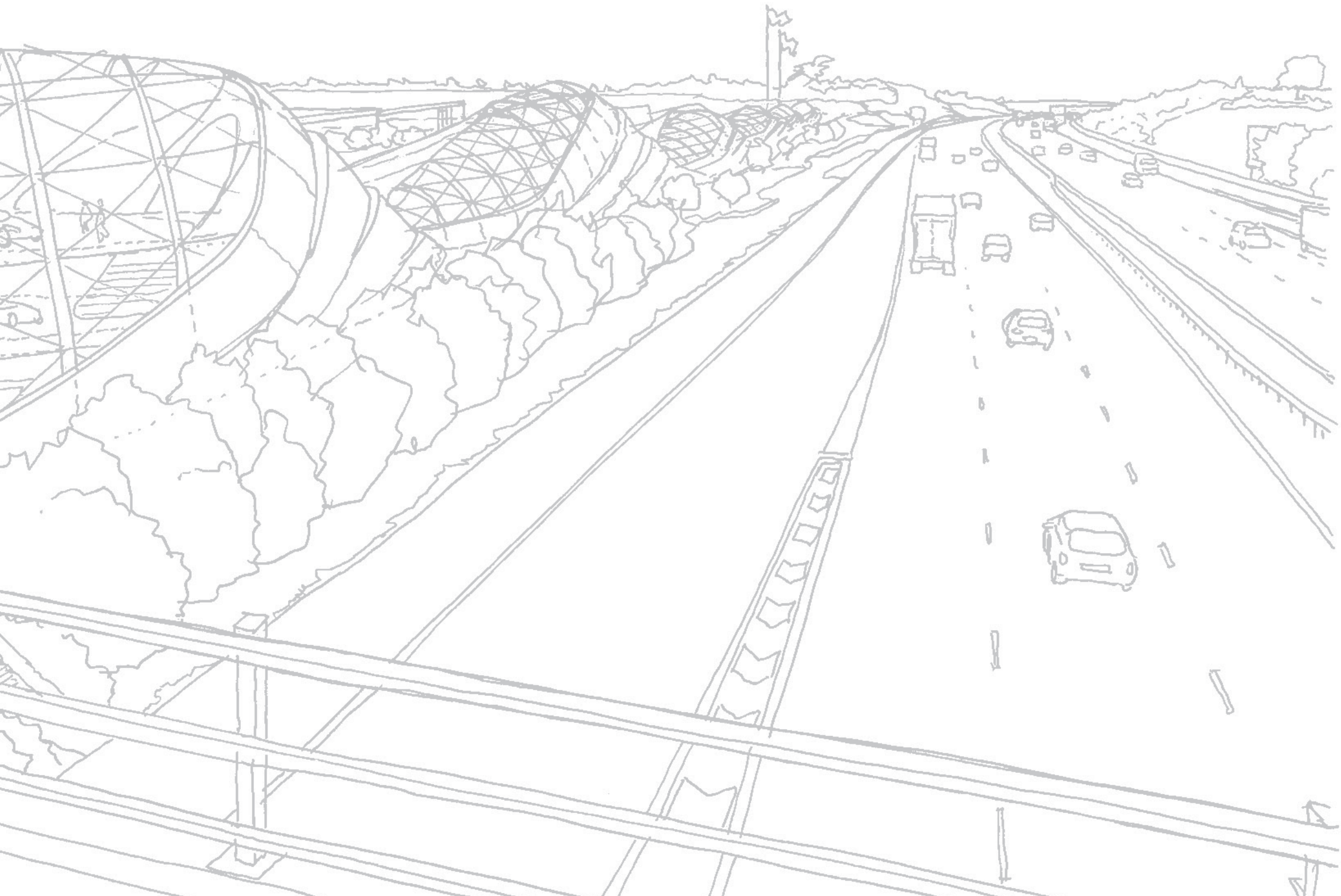
COMMERCIAL ESTATES GROUP

Bird Group



LIGHTHORNE
HEATH

TOMORROW'S GARDEN VILLAGE



LIGHTHORNE
HEATH

Contents

Introduction

Broadway Malyan on behalf of Commercial Estates Group and the Bird Group (the Consortium) submitted an **'Expression of Interest'** to Stratford-on–Avon District Council in March 2013. That submission was in response to a written request to landowners and developers from District Council officers who were in the process of developing an evidence base to assist in strategic policy development to inform the emerging Local Plan covering the period up to 2028.

The Consortium's March submission set out the context, drivers and principles behind establishing **a new settlement based upon Garden City principles at Lighthorne Heath.**

The purpose of this document is to update the masterplan and clarify the delivery timescales for three proposed new mixed use Neighbourhoods and a new employment area that comprise the new settlement. The document will also summarise additional technical work and discussions with stakeholders that have taken place since the March submission.

Importantly it also sets out common barriers to delivery on large strategic sites and provides a commentary as to why such barriers are not relevant for the delivery of this project.

The conclusion to this report establishes that at least 1,600 dwellings could be delivered within the proposed Local Plan period together with key community infrastructure including major open space, a new primary school and local Neighbourhood facilities. In addition a new knowledge based business park could be delivered together with land and contributions towards the delivery of a new secondary school / academy. Additional Neighbourhoods could deliver more growth within the Local Plan period and beyond depending upon the Council's distribution strategy. This would provide a wider range of social and community facilities commensurate with the levels associated with a small town.

LIGHTHORNE
HEATH

The Revised Masterplan

The expression of interest submitted in March identified an area of 249 Ha for the new settlement.

Following discussions with officers and following a more detail review of the Council's evidence base, specifically the landscape appraisal work, the Consortium has taken the view that significant residential development to the west of the B4100 Banbury Road, on land between Lighthorne Heath and Lighthorne, is less appropriate for residential development. To accommodate the 5,000 dwelling proposal the Consortium is proposing the inclusion of additional land to the north. The consortium has commenced discussion with the land owner. The revised masterplan area comprises 293ha.

This phasing for this revised masterplan will be set out later in this report. However, in summary, the masterplan divides into three distinct Neighbourhoods with each Neighbourhood delivering a range of supporting facilities and infrastructure.

- Up to 5,000 dwellings, delivered over the period up to and beyond 2028 creating a new population of approximately 13,000 residents.
- A Rural Service Centre and two Local Centres at the heart of each new Neighbourhood.
- Approximately 18 hectares of gateway employment space, creating 1,600 high value automotive and R&D related new jobs. Opportunity for gateway Business Hotel in this location.
- Three new Primary Feeder Schools, located within the heart of each Neighbourhood.
- A new Learning Academy for years 7 - 11 plus post 16, with strong educational links with the employment hub and nearby Universities.
- A Country Park featuring woodland walking routes within a natural wetland habitat, providing separation between the new settlement and the village of Lighthorne.
- Areas of new community woodland interwoven throughout the development, creating pockets of amenity breathing space.
- A liner community woodland, structured around Gaydon Coppice and several lakes, with heritage and art walks.
- Several new allotment areas, allowing residents to grow their own food and learning links with the primary schools.
- Retained lakes and watercourses, which contribute towards the rich landscape setting of the site.
- Green pedestrian and cycle access from the development to the wider rural footpath and bridleway network.
- Formal recreation, with sports pitches for all ages.


N
CHESTERTON WOOD
Local Centre
CHECKLEYS BRAKE
OAKHAM COPPICE
Primary School
Formal Recreation
CHESTERTON ROAD
Primary School
BADGERS COPPICE
GAYDON COPPICE
KINGSTON HOLT
Existing Primary School
LIGHTHORNE HEATH
LIGHTHORNE
Primary School
ITCHINGTON HOLT
M40
New B1 Gateway Employment
Local Centre
Rural Service Centre
Existing Employment
Formal Recreation
Learning Academy
WADE LANE
GAYDON

1.0 Barriers to Delivery on Strategic Development Sites and New Communities

Delivery of large scale strategic sites (either stand alone new settlements or urban extensions) can be complex, requiring long lead in times and complicated phasing and infrastructure delivery plans and programmes.

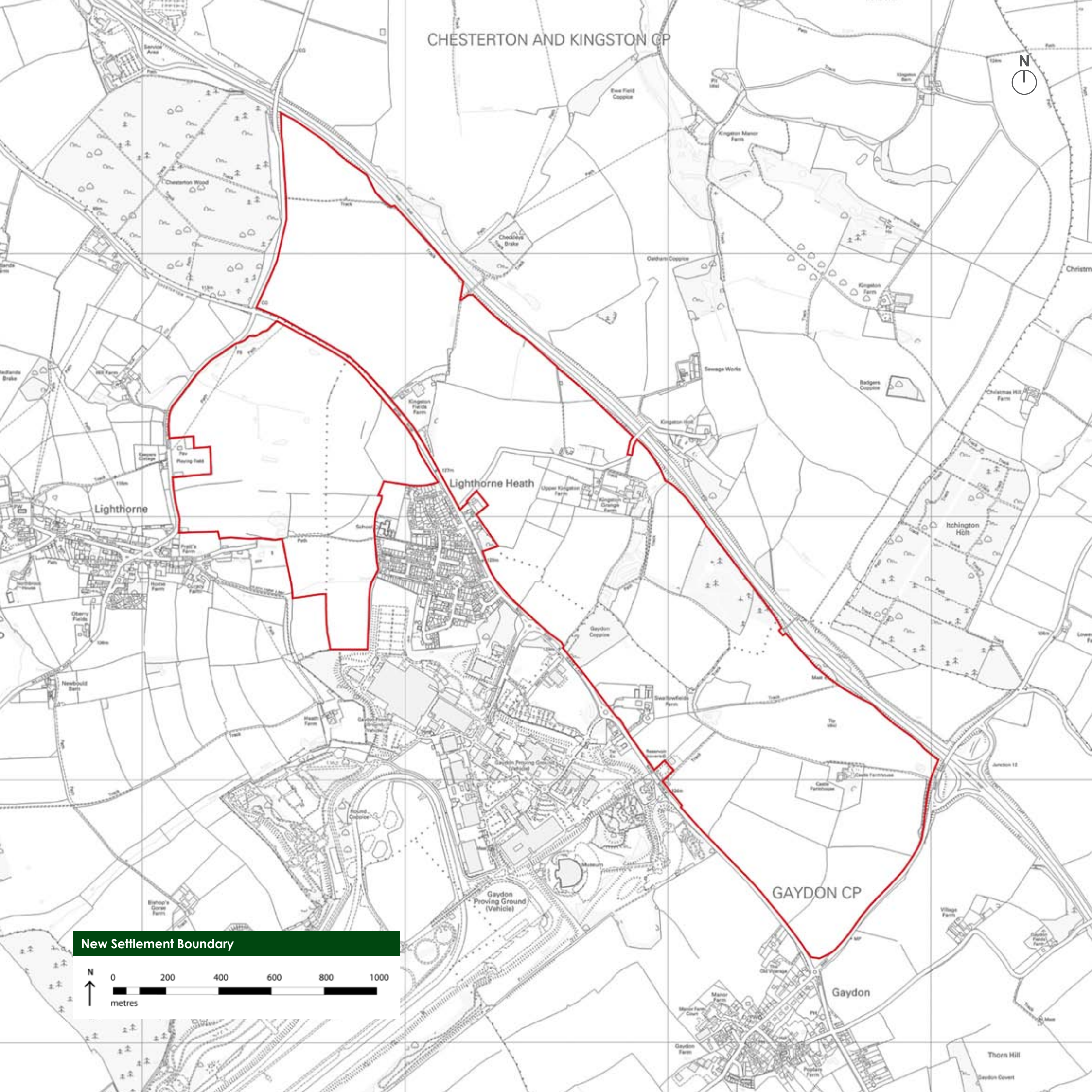
Broadway Malyan, together with Brookbanks Consulting has considerable experience of working on large scale strategic sites including:

- **North Basingstoke:** 2,500 dwellings
- **Barton Farm – Winchester:** 2,000 dwellings
- **Burgess Hill Northern Extension:** 3,500 dwellings
- **South Wokingham:** 2,500 dwellings
- **Basingstoke East:** 5,000 dwellings
- **Basingstoke West:** 3,500 dwellings
- **Weston-super-Mare northern extension:** 9,000 dwellings
- **Cranbrook new settlement near Exeter:** 7,500 dwellings
- **Swindon East:** 12,000 dwellings
- **North East Shrewsbury:** 600 dwellings
- **Severalls Hospital - Colchester:** 1,500 dwellings

From our extensive experience on all of these projects there are a number of key barriers to delivery that have frustrated or delayed such large sites progressing. These are:

- political and policy support;
- land ownership issues within developer consortia;
- land assembly;
- critical third party land requirements; and
- infrastructure capacity and reliance upon public investment and capital programmes for infrastructure improvement.

The next section explains these barriers in more detail. Section 3 considers these within the context of Lighthorne Heath clarifying how, in the context of this proposal, barriers to early implementation are not relevant. This is supported by technical appendices. The final section examines development phasing and delivery, concluding that Lighthorne Heath can deliver significant housing and employment within the plan period.


CHESTERTON AND KINGSTON CP
GAYDON CP
Lighthorne
Lighthorne Heath
Gaydon
N
New Settlement Boundary
0
200
400
600
800
1000
metres

Political and Policy Support

Many of the large scale sites identified on the previous page evolved through the Regional Planning process, with earlier schemes evolving through County Council Structure Plans.

It has been a long standing strategic planning principle that properly planned large scale developments can deliver a more focussed range of supporting infrastructure. However, large scale growth concentrated in a single area is inevitably contentious at the local political level – especially if such growth is imposed upon the local planning authority through a higher tier of government decision making.

Despite strategic identification in regional plans, there was and has been a hiatus in bringing forward such sites in local development plans over the last 6 years due to, amongst other things, local councils deferring decisions pending the election of the Coalition Government (and the then manifesto to abolish the regional plans and in the case of some of the above the associated strategic housing areas).

The cost of the detailed technical work required to properly plan and bring forward large scale growth areas is very high. Developers and land promoters therefore need a degree of policy certainty in advance of carrying out the preliminary and detailed work in support of such large scale developments. The last 7 years provided considerable planning policy uncertainty. Major planned new settlements and urban extensions that were being considered throughout this period have either been deleted as development options or are just receiving policy support through emerging local plans based upon the principles of the Localism agenda. The barrier to such sites coming forward is not therefore technical, but political. Stability in the political environment (which at a local level potentially means cross party consensus and support with regard to a chosen development strategy) will provide a much more attractive developer investment environment due to the simple fact that the exposure to development risk is reduced.

Political uncertainty on large sites provides delay in both decision making and developer investment. Mitigating political risk can assist in bringing forward developer investment.

Example:
Basingstoke West
Basingstoke East
Weston-super-Mare

“provide the catalyst for further economic growth and investment in the area”

Land Ownership Issues with Developer Consortia

Whilst securing an allocation for development within an adopted development plan will generally de-risk the development from political uncertainty, a site within numerous land ownerships and numerous developer interests can be exceptionally complicated to deliver.

Many areas of countryside adjacent to large built up areas have an ‘expectant’ land value due to the fact that historic precedent relating urban morphology would suggest that land will, at some point in the future, be developed. Many areas of such land are in the control of developers and / or housebuilders who wish to secure land for their future business operation. Whilst this pattern of ownership does not necessarily provide a barrier for the delivery of small sites, major strategic sites require such interests to work together seamlessly to deliver growth. This can be very difficult because, amongst other things, different landowners will have different financial expectations for their land depending upon their individual circumstances. Similarly, different housebuilders and developers will have their own financial expectations and delivery expectations. On large sites with multiple developer interests and landowner interests (all with various option agreement structures, length of time remaining on options, different minimum purchase prices etc) the legal mechanism required to bring all parties together in the delivery of an equalized and equitable solution is at best a lengthy and costly process, and at worst simply not possible. Therefore, whilst the policy environment might support growth, the legal and landownership complexity of delivery can provides a major barrier to bringing sites forward.

Example:
East Swindon
Burgess Hill
Cranbrook New Settlement

Cranbrook Masterplan

Swindon East Development Framework

Land Assembly

Related to the above, there may be instances where major areas have been identified by policy for strategic growth with the majority of landowners supportive of growth.

However, notwithstanding the issues associated with the legal mechanism to bring land interests together, there are instances where there is simply an unwilling landowner. In such instances the development industry and the local planning authority would and indeed have to endeavour to secure the land through negotiation prior to using compulsory purchase powers to secure the land. Whilst third party land can be masterplanned to avoid unwilling third parties; where an unwilling landowner controlling either a major part of a site or an area required for key infrastructure is involved, the issues become far more complex. In these instances land control would need to be fully resolved in advance of development coming forward. More importantly, lack of resolution would introduce development risk and the associated unwillingness of the development industry to invest in the detailed technical and design work until such risks have been mitigated. Again, such issues can cause significant lead in times prior to the delivery of housing on major sites notwithstanding the policy environment.

Example: North East Shrewsbury

Critical third party land requirements

Major strategic sites invariably require significant supporting infrastructure.

Accessibility and the need for new road infrastructure to mitigate the impact of development on the existing networks is common. The justification for urban growth on the grounds of facilitating a new by-pass or ring road is often cited by local planning authorities. However, in delivering the new road (if it is seen as necessary for the delivery of the development) any third party not involved in the development process has the right to a shared value (or ransom value). Third parties can, in certain instances, be avoided through masterplanning. However, certain corridors such as railway corridors or river corridors that require structures over them have a right to shared value. Again this is negotiated but the precedent set through the Stokes vs Cambridge judgement provides a starting point of 50% shared value. Within the context of landowner minimum purchase prices and other land option criteria such a premium could result in a landowner delaying bringing land forward. The delivery of many strategic sites have been delayed through shared value issues and the uncertainty this has on land values. A developer's risk in progressing technical work in advance of such issues being resolved is high. This again delays the bringing forward of such sites regardless of the policy environment.

Example: South Wokingham

Infrastructure Capacity and Necessary Improvements

Major strategic growth inevitably requires a strategic level of infrastructure provision.

Often a proportion of this provision is required to mitigate the direct impacts of the development and some provides overall betterment for the host community. Funding for such infrastructure is generally proposed by both public and private sector funding streams as the development cannot legally be required to fund the deficit in the existing social / community or transportation infrastructure. Strategic sites therefore often rely upon public sector capital programmes to deliver key infrastructure needed to facilitate growth. The availability of funding through the public sector is, especially within the current economic environment, uncertain. Within the context of developer risk such uncertainty will result in a delay in the progression of schemes until clarity and certainty of funding is agreed. The alternative to delay would be to allow phases of the strategic site to progress in advance of the infrastructure delivery. However, this will present a risk to the local planning authority in terms of overloading the infrastructure network of the local community for a period that could not be defined due to lack of certainty. This is unlikely to be politically acceptable.

Example: Severalls Hospital Colchester

Whilst road delivery is often cited as one of the most costly elements of infrastructure, other critical utility infrastructure such as sewage treatment, water supply and electricity provision can provide delays in bringing forward growth. Whilst it is a requirement for the water and electricity supply companies to service development, the level of enhancements needed need to be factored into the capital programmes of the respective companies. Whilst such issues do not provide a definitive barrier to growth, they may delay development coming forward due to the lag time in their respective improvement programmes.

Unless infrastructure funding is established at the same time as the planning policy framework for strategic growth, the delivery of strategic sites must be questioned. Indeed, many local plan inspectors have requested strategic sites be accompanied by infrastructure delivery plans demonstrating how and when major supporting infrastructure can / will be delivered. In the absence of such information the tests of soundness as required and set out by the National Planning Policy Framework will be difficult to pass.

2.0 Lighthorne Heath - No Barriers to Growth

Commercial Estates Group and the Bird Group (the Consortium) have undertaken some initial base line technical work, which together with known funding programmes and land ownership profiles demonstrate that land at **Lighthorne Heath is unique** when compared to the barriers preventing the expeditious delivery of development at other strategic locations known to the consultancy team. These are set out below.

Political and Policy Support

Whilst it is too early to gauge whether there will be universal political support for the proposals at Lighthorne Heath, the Consortium is aware that further growth at Stratford-upon-Avon will be contentious. From monitoring both Cabinet and Full Council meetings it is clear that there will not be cross party support for further expansion at Stratford-upon-Avon over and above the approved planning permission at Shottery. Further, the likely level of objection from Stratford residents will potentially strengthen local political concerns. The potential to deliver economic and residential growth in a coordinated way without impacting on the social, educational or transportation infrastructure of the principal town (by developing a new settlement concept of Lighthorne Heath) has the potential to gain cross party support.

Should this support be forthcoming through the proposed submission Local Plan, the Consortium would have the confidence to progress detailed technical and masterplanning work in the knowledge that the policy is likely to progress through to adoption.

To secure support, the Consortium would propose a Lighthorne Heath working group comprising the Consortium and its technical team together with a forum of district councillors, parish councillors and district and county council officers. It would also be likely to include local employers.

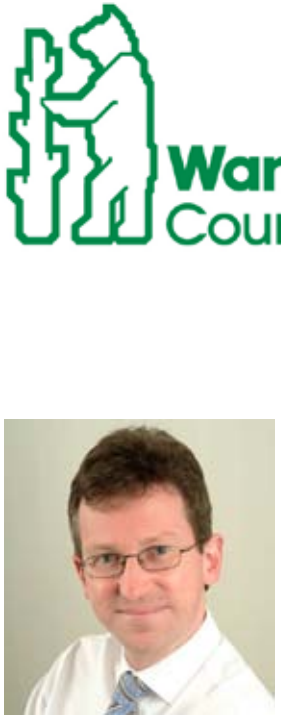
The forum would focus on resolving design and infrastructure phasing issues together with long term community governance and management – a key component of Garden City principles.

The outcome of this work would be:

- to build a partnership culture between the developer and the decision makers and stakeholders;
- to ensure that all interests are integrated into the design and community building process;
- to develop a supplementary planning guidance document and delivery plan for the new settlement in support of the Local Plan policy framework thus adding credibility and certainty to the policy; and
- provide a framework for an early phase planning application(s) to ensure application phases are coordinated within the context of an adopted masterplan.

The above process would reduce political risk (as the stakeholders would be part of the process and have ownership of the content) and provide the planning framework for planning applications to be determined as soon as the Local Plan is adopted following the Examination in Public.

Subject to allocation the Consortium considers that it can achieve broad cross party support with this proposal and as such mitigate this barrier to development.



Jeremy Wright

Chris White

Nadhim Zahawi

Key Stakeholders

Global Employers

Land Ownership

The Consortium is proposing the **delivery of three Neighbourhoods** which cumulatively will deliver around 5,000 dwellings. Phasing and delivery trajectories for the Neighbourhoods is set out in the following section. The plan opposite shows the broad Neighbourhoods areas.

Neighbourhood 1 and 2 comprise two principal landowners (White and Mann) all of which are in the control of the Consortium on an equalized land value basis. The third Neighbourhood comprises land in third party control; however the Consortium has entered into active discussions with both landowners with a view to securing control.

Neighbourhood 1 and 2 are available and can come forward immediately without prejudicing any of the infrastructure delivery aspirations should this level of growth be needed.

The important thing to note is that land assembly and an equalised development agreement is already established for the two key infrastructure reliant Neighbourhoods. Land ownership issues - this key barrier to implementation - is simply **not a barrier to growth within the context of development for the next 20 year period.** Further, land control for development beyond this period is currently being negotiated by the Consortium. However, it is not needed or necessary for the delivery for housing within the plan period.

Key

- Land Controlled by Consortium
- Neighbourhood One
- Neighbourhood Two
- Neighbourhood Three (Land control being negotiated)

Total Site Area = 293.04 ha

CHESTERTON AND KINGSTON CP

Lighthorne

Lighthorne Heath

GAYDON CP

Gaydon

Gaydon Proving Ground (Vehicle)

Chesterton Wood

Kingston Farm

Kingston Manor Farm

Sewage Works

Badgers Coppice

Christmas Hill Farm

Itchington Holt

Thorn Hill

Village Farm

Manor Farm

Gaydon Farm

Poplars Farm

Bishop's Gorse Farm

Newbould Barn

Oberry Fields

Service Area

N

0 200 400 600 800 1000

metres

Infrastructure Delivery

Roads / Highways

Appropriate road capacity to accommodate strategic growth is one of the key barriers to bringing forward strategic sites or indeed early phases of strategic growth. The proposals at Lighthorne Heath are bound by two strategic roads – the M40 with access off Junction 12, and the B4100 Banbury Road along which the proposed site has continual frontage access.

Junction 12 of the M40 currently experiences congestion through the am peak due to the significant in-commuting to the Jaguar Land Rover and the Aston Martin facilities. This results in significant queuing along the south-bound carriageway.

Warwickshire County Council has recently secured Government funding to mitigate this impact. Highway works proposed include the provision of a dual carriageway and alignment changes to the B4451 and the B4100 with a proposed new access route into the Jaguar Land Rover facility at the current access to the Heritage Centre. In addition the Highways Agency has programmed concurrent work to the M40 to include carriageway lane enhancement. All works are programmed for Completion in 2015. The Consortium is facilitating this infrastructure intervention through allowing sale of land in its control to the County Council whilst at the same time ensuring that the road design can accommodate additional traffic flows from the proposed development, including additional strategic employment development. Discussions with the County Council Highways Department have also highlighted committed transportation interventions that are needed to accommodate proposed development in Warwick District, in particular dual carriageway and junction enhancements along Europa Way, Warwick.

The figures overleaf have been produced by the Consortium's transport consultant, Brookbanks. Figure 1 (M40 southbound) demonstrate the current queuing profile (blue graph) will be significantly improved when already committed infrastructure improvements to the J12 / B4100 / B4451 have been implemented. For clarity, the purple graph shows the queuing profile with existing committed development and the green graph models the inclusion of 5,000 dwelling in addition to the planned employment. In summary, based upon currently planned and funded highway interventions, the impact upon the M40, when factoring in the proposed development, will be minimal. Figure 2 provides the same metric for the am peak northbound M40 exit slip. Figures 3 and 4 provide similar information for the pm peak.

It is important to note that in mapping these profiles no account has been undertaken for internalisation of employment related movements associated with current employment in the area i.e it assumes current commuting patterns for Jaguar Land Rover and Aston Martin employees. Clearly, over time there will be an aspiration for local residents of the new settlement to work locally. In this scenario queuing lengths will improve.

To improve the highway infrastructure further, it is intended to introduce an enhanced northbound slip road onto the M40 which will be developer funded as part of the later stages of the proposed new settlement. This new slip road will be fully provided within land under the control of the Consortium.

More localised interventions will be required at Junction 13 and Junction 14 but these are low cost and likely to involve signalised interventions to the strategic road junctions.

Appendix 2 sets out a detailed highway note prepared by Brookbanks and validated by the County Council.

In conclusion, there are no major up front road infrastructure works (not already committed) required to facilitate the delivery of the proposed new settlement. **This provides an almost unique example of major strategic growth being able to progress without significant private sector transportation investment and / or yet to be confirmed public road building investment, thus overcoming a significant barrier to delivery.**

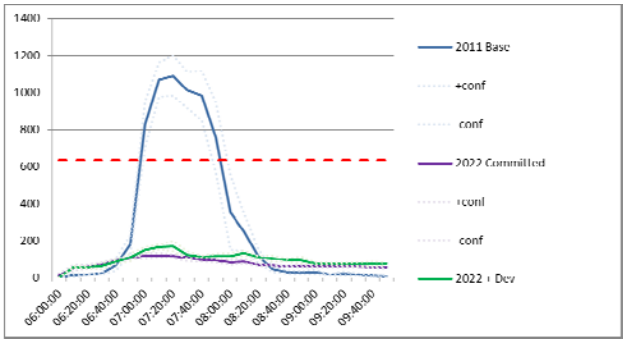


Figure 1: am peak (Southbound)

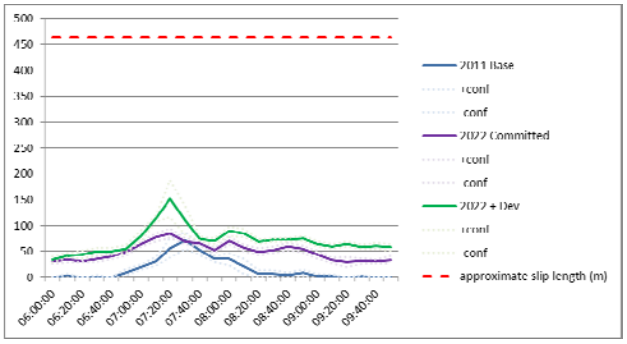


Figure 2: am peak (Northbound)

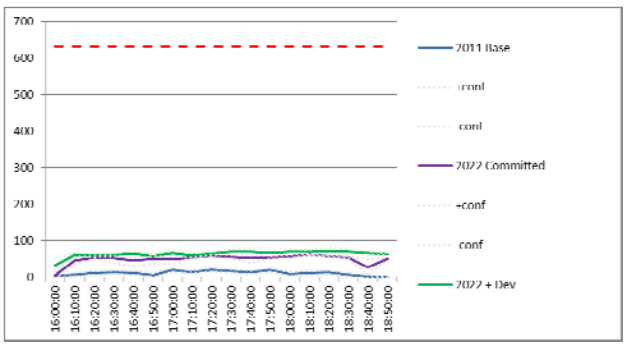


Figure 3: am peak (Northbound)

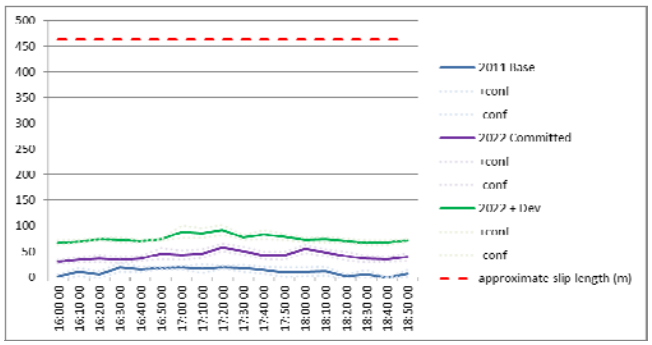


Figure 4: pm peak (Northbound)

Proposed Route and Alignment of New Link Road

Foul Water Drainage

Severn Trent Water has confirmed that the proposed development site is currently bisected by a 300mm foul sewer with a 10m easement. This sewer services the Gaydon and Lighthorne Heath area, with sewerage treated at the Gaydon and Lighthorne treatment works. There is current capacity at the works to accommodate approximately 200 new dwellings without capacity improvements.

Longer term, Severn Trent advise that a development of the scale proposed would be served by a new rising main for treatment at the Longbridge STW to the south of Warwick. This rising main would need to be requisitioned. Severn Trent will be examining capacity upgrades to this site to accommodate a number of planned development proposals in emerging development plans.

In order to accommodate the first proposed Neighbourhood (over and above the 200 dwelling headroom) it is proposed that Severn Trent will incorporate improvement works to the Gaydon / Lighthorne works in its AMP6 Business Plan. The plan will cover the period 2015 – 2020 and consultation with stakeholders commenced in April 2013. Should the Council identify growth at Lighthorne Heath a more detailed dialogue with Severn Trent will need to be undertaken. This will examine detailed development phasing and enhancement works necessary to accommodate early and later phases of growth.

Water Supply

Severn Trent Water has completed an initial study of the capabilities of their existing water supply network adjacent to the proposed development. This study has concluded that there is 20l/s capacity currently available for development. This would support the development of up to 2,000 new dwellings.

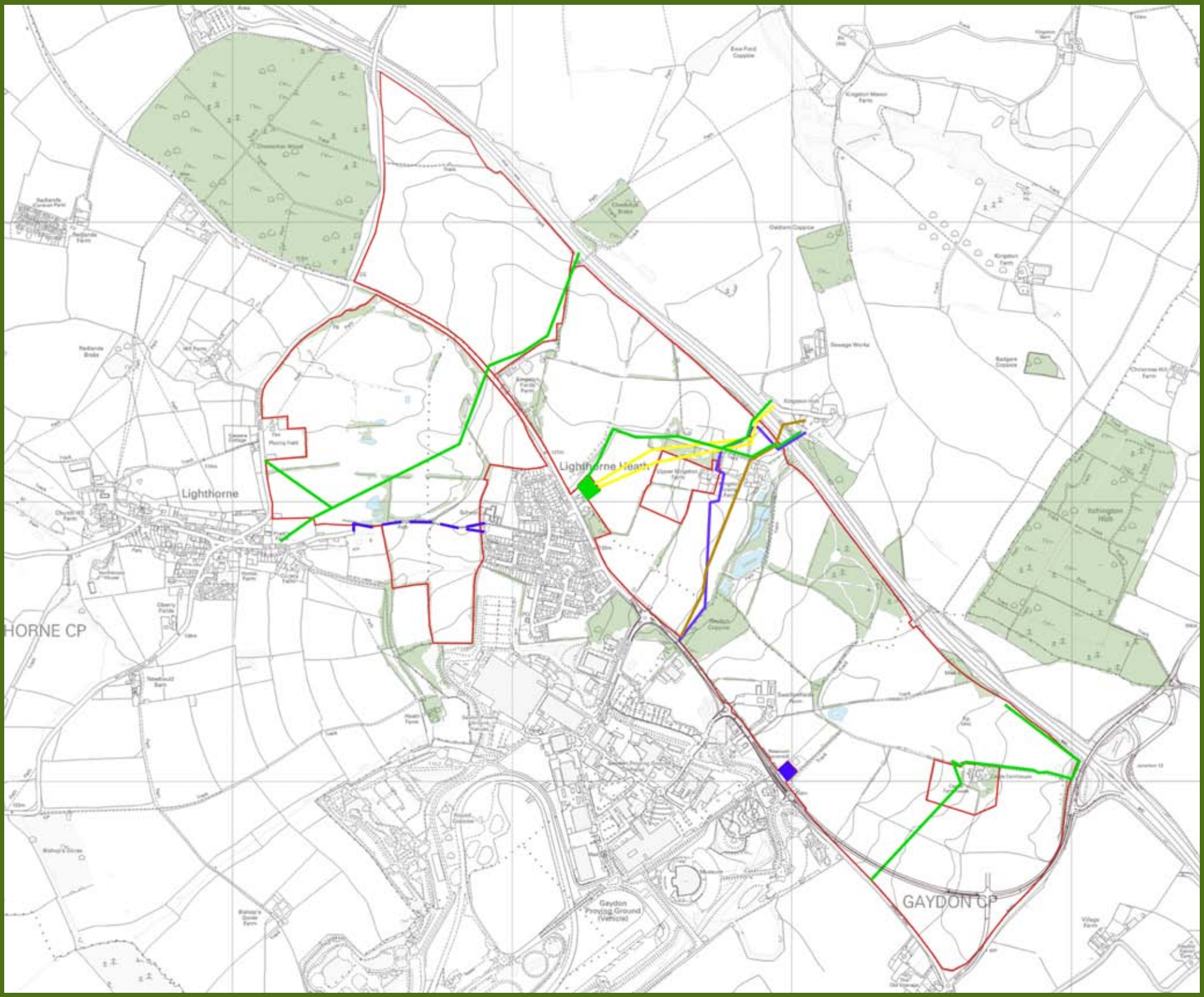
To accommodate the full proposal, reinforcements will be required to provide 1-2 km of 300mm water main along the line of the existing 300mm supply main. In addition, further reinforcements will need to be made to the local booster pumping station to ensure the development achieves the minimum head pressure for supply requirements.

Electricity Supply

Discussions with the network planner at Western Power Distribution (WPD) has confirmed that the Gaydon primary sub-station has residual capacity in the order of 4MVA, sufficient to accommodate approximately 2,000 residential units. The full development will require reinforcements in the form of upgrades to Gaydon or a new on-site primary sub-station. Either option will require over laying the 33kV route to the Harbury Grid sub-station which is approximately 5km to the north east of the site.

Gas Supply

The gas supply company has indicated that there will need to be reinforcements to the medium pressure gas supply main located to the west of the Jaguar Land Rover site. A new medium pressure gas main will need to be brought to the site and distributed via a medium to low pressure governor station located on-site. Off-site reinforcements will be provided at no cost to the developer.



Existing Services

Key

- Existing Trees and Hedgerows
- Existing Buildings
- Severn Trent Foul Sewer
- Water Supply Main
- Abandoned Supply Main
- Overhead 11kV Cable
- Overhead 33kV Cable
- Substation
- Reservoir

Sustainable Energy Solutions

For a development of the scale proposed, especially when associated with the established and proposed major employment areas, it is considered that an innovative district heating strategy could be established. This would be compatible with the sustainable objectives associated with Garden City principles. The finally agreed energy strategy for the site can be established once the planning policy framework is in place. A summary of sustainable energy options is attached as part of a technical note in Appendix 2.

Noise

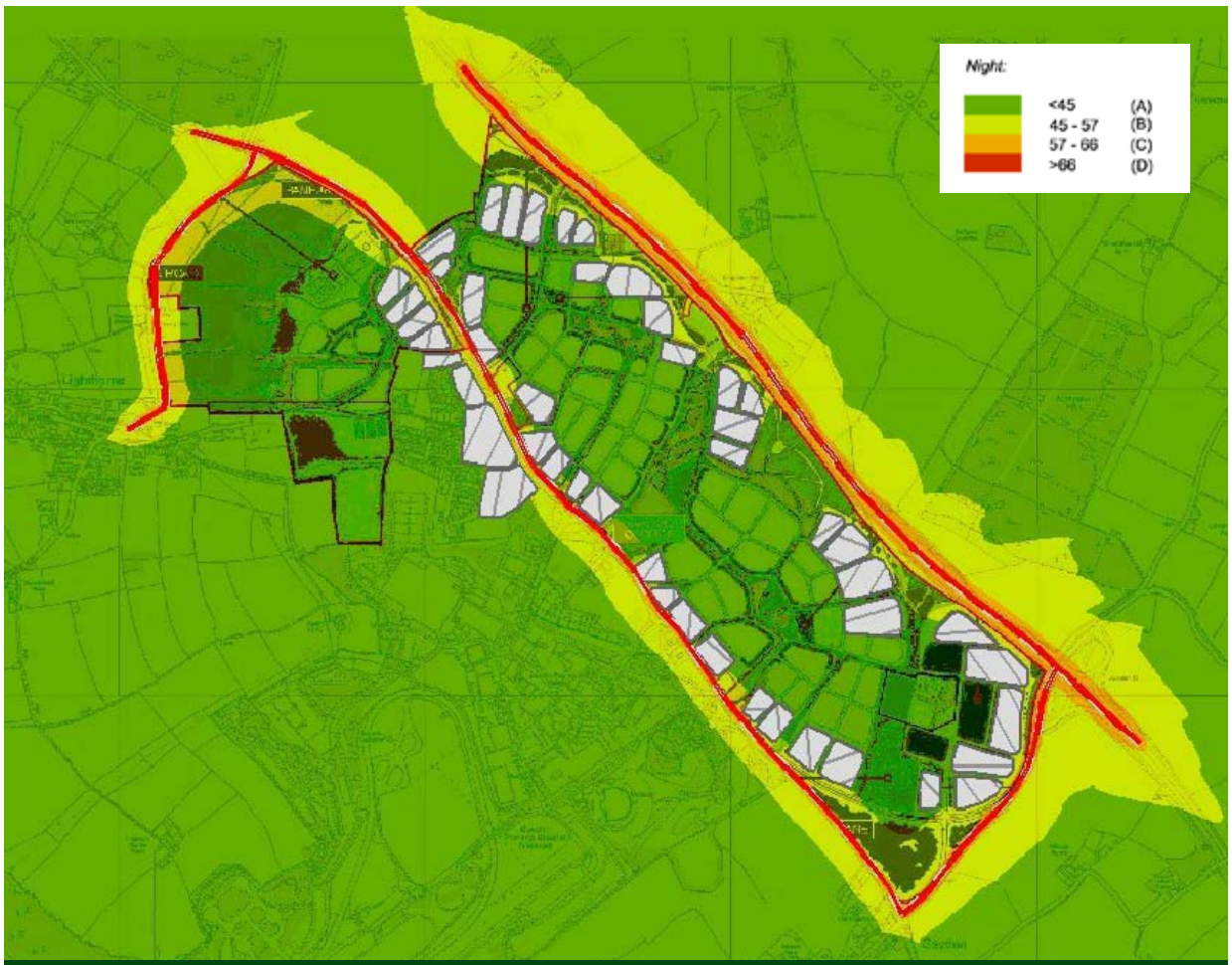
A preliminary noise assessment of the future year scenario with development has been modelled for Neighbourhood 1 and Neighbourhood 2. The NEC noise contour maps produced for the day and night time intervals can be seen below. Based upon the modelling, the majority of Neighbourhood 1 and 2 fall within NEC boundary A, with small areas of land contiguous with the main roads within NEC B and C. Modelling to include the housing areas as shown in the illustrative masterplan indicate that, without any strategic noise reduction measures (such as noise fencing or acoustic bunding) facade noise levels are 68.1 dB to 70.5 dB. This reduces to internal room daytime levels of 35.3 dB and 37.5 dB when taking into account thermal double glazing. The same exercise has been undertaken for night time levels with internal room noise levels of 24.4dB and 30.0dB with thermal double glazing. This will bring development within the appropriate range set out in the now deleted PPS24.

Noise impact of the M40 is relatively low due to the fact that the M40 is in cutting for the majority of its boundary with Neighbourhood 1 and 2.

The proposed Neighbourhood 3 has not yet been modelled. However, as part of this area is generally at grade with the M40 it is anticipated that noise attenuation bunding and landscaping would be required in order to facilitate residential development. Such works could be phased so that they are fully established in advance of residential development taking place.

The above provides a summary of the technical work carried out to date by Brookbanks Consulting. Appendix 1 sets out more detailed technical briefing notes.

Day time Noise Levels



Night time Noise Levels

Education

A development of the scale proposed would require the delivery of three primary schools (although this will depend on housing mix). It will also require a new secondary school comprising up to five forms of entry.

With regard to primary education a strategy was discussed that considered the re-location of the Lighthorne Heath single form entry primary school to a new facility as part of an integrated community hub associated with the delivery of the first new community. This would firstly replace a dated facility which is becoming a maintenance liability but more importantly it would provide Lighthorne Heath with a new public building and assist in the integration of existing and proposed communities.

In addition it was suggested that a new health facility (an aspiration for the local community) be located in this new community 'hub'. Additional primary education facilities would be provided to anchor the other two new Neighbourhoods.

With regard to secondary education, a development of the scale proposed would support a new secondary school / academy. However, there is current headroom at the Kineton Secondary School sufficient to accommodate the likely growth in student population generated by the first proposed new Neighbourhood. County officers indicated that the secondary education strategy for the area would need to be discussed in more detail with all the relevant stakeholders. However they confirmed that the comprehensive nature of the proposals presented an exciting opportunity to properly plan for education and other social infrastructure including emergency services.

Education provision and other County Council service provision was discussed at a meeting with the County Council.

Techical Summary

The above section demonstrates that the technical constraints and existing infrastructure capacity in the vicinity of the site could **accommodate in the range of up to 2,000 dwellings** in advance of any significant infrastructure upgrades, although a new primary school would need to be delivered early in the development programme.

This capacity headroom will allow early phases of development to proceed without the need for any significant technical intervention.

The technical capacity headroom, committed public sector highway improvement programmes together with the lack of any land ownership constraint results in minimal barriers to implementation.

This will ensure that the phasing of development outlined in the following section is deliverable within the context of the National Planning Policy Framework and can be relied upon for the purposes of policy formulation.

3.0 Masterplan Phasing
Neighbourhood 1

In terms of development delivery, the Consortium has assumed that should the concept of a new settlement be confirmed by the Council in its proposed Submission Local Plan (July) the Consortium would immediately commence the process of detailed masterplanning through a process to be agreed with the District Council.

Such masterplanning would include a detailed infrastructure delivery plan. This would provide the detailed technical support for the allocation through the Examination process and provide a supplementary planning framework document for the purposes of ensuring planning applications can be prepared and determined in accordance with an overall vision for the site.

The level of development that could be delivered from the site within the plan period will depend to a large extent the quantum of growth the Council need to satisfy its housing requirements. Breaking down the masterplan into three distinct Neighbourhoods, all with frontage access onto the B4100, provides the opportunity to deliver the Neighbourhoods either sequentially or in parallel. The Neighbourhoods are likely to provide differing residential typologies and densities and therefore different market demand.

Notwithstanding this, the Consortium is of the view that Neighbourhood 1 provides the logical first phase of development. This is because:

- it provides a logical extension to Lighthorne Heath Village;
- it delivers a new primary school early in the development process thus enhancing local community infrastructure;
- it can deliver major open space and green infrastructure early in the process;
- it can deliver local retail and health facilities early in the process;
- it can deliver major new knowledge based employment for the District; and
- it can provide land and contributions towards a new secondary school or academy.

In summary, delivery of the Neighbourhood 1 development will significantly enhance the access local residents and employers have to recreation and open space, education, local retail and health.

Phasing of Neighbourhood 1

July 2013 - commence masterplanning and infrastructure delivery plan for whole site.

July 2014 - Adopt Local Plan and Lighthorne Heath Development Brief and Masterplan.

September 2014 - Submit phase 1 planning application which will comprise:

- approximately 1,900 dwellings;
- a new two form entry primary school;
- an 18 Ha B1 business park;
- a new secondary school / academy;
- sports pitches, informal open space and a new Country Park; and
- local retail and health facilities.

December 2014 – approval of Phase 1.

June 2015 – approval of first reserved matters application.

2016 to 2017	100 dwellings.
2017 to 2018	100 dwellings + Primary school (form 1).
2018 to 2019	200 dwellings + Country Park and proportion of sports facilities + foul sewer upgrade.
2019 to 2020	200 dwellings + Local Retail and Health provision.
2020 to 2021	200 dwellings.
2021 to 2022	200 dwellings.
2022 to 2023	200 dwellings.
2023 to 2024	200 dwellings.
2024 to 2025	200 dwellings + Primary School form 2.
2025 to 2026	200 dwellings.
2026 to 2027	100 dwellings.

TOTAL: 1,900 dwellings

The business park would be delivered throughout the period. Land for the new secondary school could be made available at any point throughout this period.


N
Lighthorne
CP
Gaydon
Gaydon Proving Ground (Vehicle)
Thorn Hill

Masterplan Phasing
Neighbourhood 2

Phasing of Neighbourhood 2

Neighbourhood 2 could be delivered as a continuation of Neighbourhood 1 (2026 onwards) or there could be an overlap in completions. It is quite normal for a site of the scale propose in this new community to have a number of delivery outlets all producing units at the same time. However, for clarity the trajectory for Neighbourhood 2 is not based upon specific years.

Neighbourhood 2 is the transformational Neighbourhood that will deliver the retail, and service facilities that will transform Lighthorne Heath into a market town. In particular, it will deliver:

- 1,900 new dwellings
- A three form entry primary school (potentially associated with the secondary school / academy
- A new market town centre that will comprise retail, food and drink and social and community services potentially including County and District Council facilities and services.

Yr 1 100 dwellings.

Yr 2 200 dwellings + new primary school (first form) + foul sewerage capacity improvements + electricity upgrade + water supply upgrade.

Yr 3 250 dwellings (planning application for Neighbourhood 3 noise attenuation bund).

Yr 4 250 dwellings + phase 1 of town centre (commence Neighbourhood 3 bunding).

Yr 5 250 dwellings + second form of primary +additional playing field provision.

Yr 6 250 dwellings (complete Neighbourhood bunding and landscape).

Yr 7 200 dwellings + new access slip onto the M40.

Yr 8 200 dwellings.

Yr 9 100 dwellings + phase 2 (final) of town centre.

Yr 10 100 dwellings + third form of primary.

TOTAL: 1,900 dwellings


N
Lighthorne
Gaydon
Gaydon Proving Ground (Vehicle)
Christmas Hill

Masterplan Phasing
Neighbourhood 3

Phasing of Neighbourhood 3

Neighbourhood 3 will comprise 1,000 dwellings, a new two form entry primary school and a local centre. The phasing of the third Neighbourhood will need to await completion of the noise attenuation bunding that is predicted. More detailed technical work on this will be required.

Yr 1 100 dwellings.

Yr 2 200 dwellings + first form entry primary school.

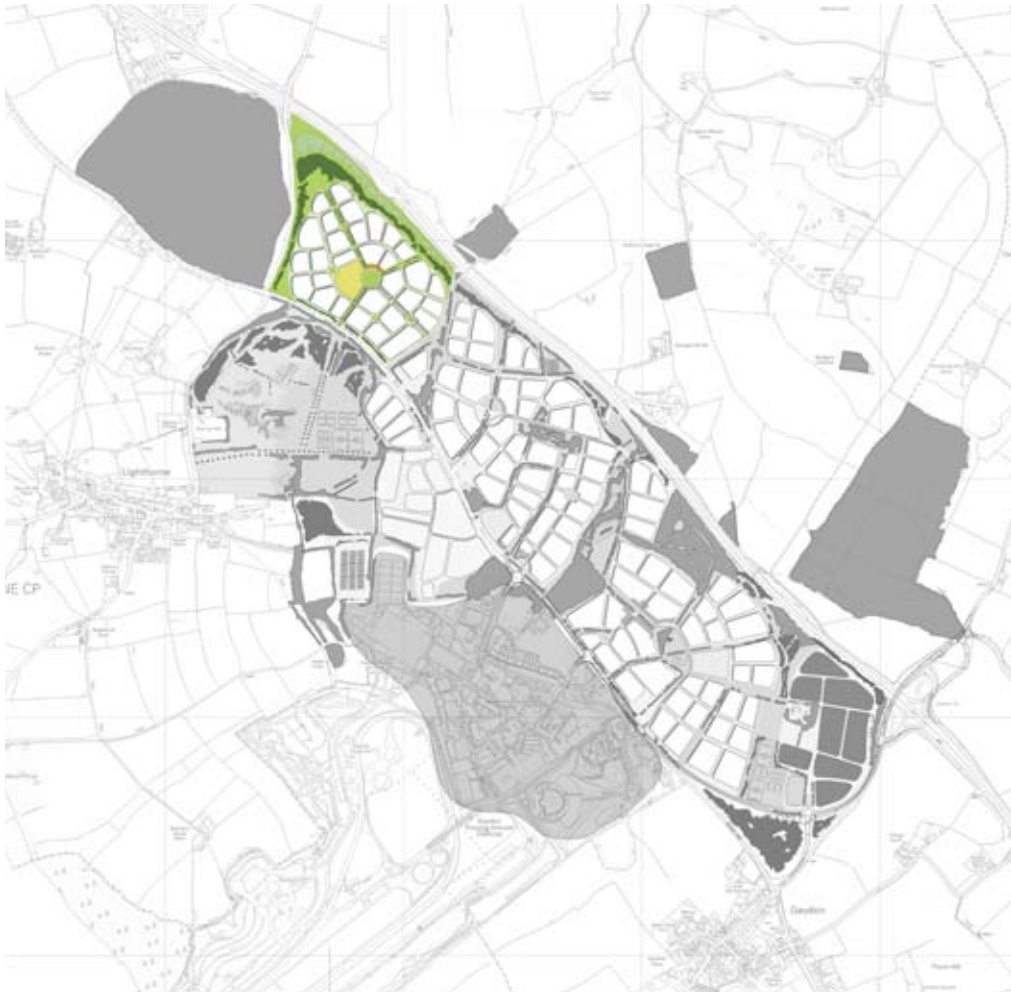
Yr 3 200 dwellings.

Yr 4 200 dwellings.

Yr 5 200 dwellings.

Yr 6 100 dwellings + second form entry primary school.

TOTAL: 1,000 dwellings



Key

Up to 5,000 dwellings, delivered over the period up to and beyond 2028 creating a new population of approximately 13,000 residents.

A Rural Service Centre and two Local Centres at the heart of each new Neighbourhood.

Approximately 17 hectares of gateway employment space, creating 1,600 high value automotive and R&D related new jobs. Opportunity for gateway Business Hotel in this location.

Three new Primary Feeder Schools, located within the heart of each Neighbourhood.

A new Learning Academy for years 7 - 11 plus post 16, with strong educational links with the employment hub and nearby Universities.

A Country Park featuring woodland walking routes within a natural wetland habitat, providing separation between the new settlement and the village of Lighthorne.

Areas of new community woodland interwoven throughout the development, creating pockets of amenity breathing space.

A liner community woodland, structured around Gaydon Coppice and several lakes, with heritage and art walks.

Several new allotment areas, allowing residents to grow their own food and learning links with the primary schools.

Retained lakes and watercourses, which contribute towards the rich landscape setting of the site.

Green pedestrian and cycle access from the development to the wider rural footpath and bridleway network.

Formal recreation, with sports pitches for all ages.

Comprehensive Masterplan

Appendix 1
Development & Infrastructure

Land at Lighthorne Heath
Technical Note: Development & Infrastructure
9th May 2013

1 Introduction

Brookbanks Consulting Ltd is appointed by Commercial Estates Group (CEG) and Bird Group (BG) to complete various pre-planning studies to support the promotion of a potential development site at Lighthorne Heath in Warwickshire.

The objective of this technical note is to outline the findings of an assessment of potential development and infrastructure characteristics and to inform the requirements for future assessments to support a potential planning application at land. This report summarises the findings of the study and specifically considers the following matters:

- Flooding Risk and Storm Drainage
- Foul Drainage
- Existing and Proposed Services/Utilities
- Sustainability
- Noise
- Air Quality

2 Background Information

The proposed development lies between the of the M40 motorway to the east and the B4100 Banbury Road to the west. The existing villages of Gaydon, Lighthorne Heath and Lighthorne lie nearby along with major employment uses at Jaguar Land Rover (JLR) and Aston Martin (AM). The site lies largely on land that is presently in agricultural production and is indicated in Figure 2a, below.

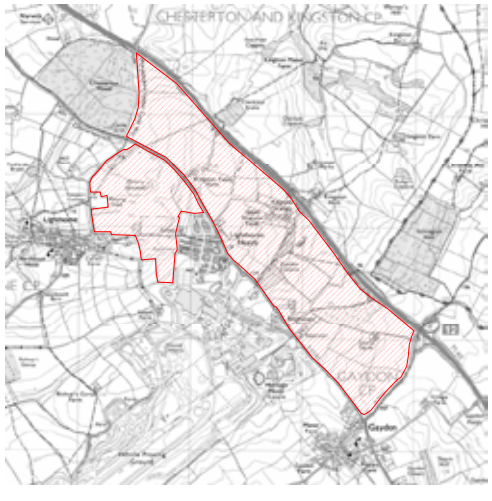


Figure 2a: Site Location

Flood Risk & Storm Drainage

Flood Risk

Reference to the Environment Agency Flood Zone Map shows that the site lies well within Flood Zone 1; being an area of Low Probability of flooding, outside both the 1 in 100 (1% AEP) and 1 in 1,000 (0.1% AEP) year flood events of the nearby Tach Brook and other main river in the area. Assessment of other potential flooding mechanisms shows the land to have a low probability of flooding from overland flow, artificial sources, ground water and sewer flooding.

Accordingly, the proposed development land lies in a preferable location for residential development when appraised in accordance with the NPPF Sequential Test and local policy. The site should be considered preferable when compared to sites lying wholly or partially within Flood Zones 2 and 3.

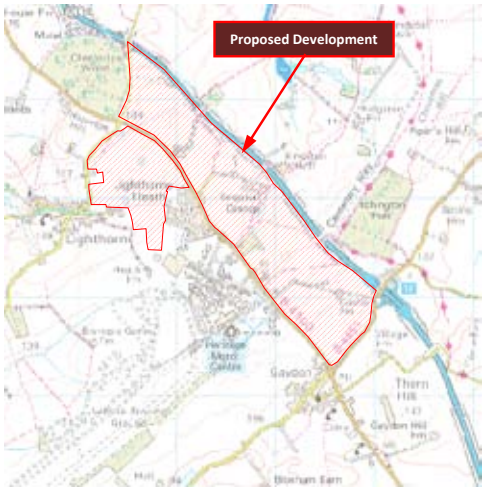


Figure 3a: EA Flood Zone Plan

Flooding from rivers without defences – 1 in 100 year (1%) event (Zone 3)
Extent of extreme flood – 1 in 1,000 year (0.1%) event (Zone 2)
Flood defences
Areas benefiting from flood defences

Any planning application will need to be supported by a Flood Risk Assessment complying with the requirements of the NPPF and the associated Technical Guide.

Storm Drainage

Preliminary investigations indicate that storm drainage across site primarily discharges a number of ordinary watercourse tributaries of the Tach Brook, which lie on the north eastern boundary of the site.

This watercourse conveys flows in a north westerly direction from much of the existing agricultural land before passing through Bishops Tachbrook and Leamington Spa before reaching a confluence with the River Avon circa 10km north of the site.

The site will need to implement a site storm water drainage system that provides Sustainable Drainage (SuDS) measures consistent with the recommendations of NPPF, local SFRA guidance and published documents in the form of CIRIA C522, C609, C697 et al.

When appraising suitable storm water discharge options for a development site, Part H of the Building Regulations 2002 (and associated guidance) provides the following search sequence for identification of the most appropriate drainage methodology.

"Rainwater from a system provided pursuant to sub-paragraphs (1) or (2) shall discharge to one of the following, listed in order of priority -

(a) an adequate soakaway or some other adequate infiltration system; or where that is not reasonably practicable,

(b) a watercourse; or where that is not reasonably practicable,

(c) a sewer. "

Site investigations have yet to be undertaken to confirm the potential of infiltration type drainage at the site. However, reference to the BGS published mapping and historic exploratory records, obtained for the purpose of this study, show ground conditions to consist of Charmouth Mudstone bedrock. While needing to be proven through intrusive investigations, the BGS records suggest it is unlikely the ground conditions will be suitable for a wholly infiltration based strategy. Nonetheless, this does not prevent the implementation of SuDS at the site.

Should infiltration drainage ultimately prove unviable, the current UK Building Regulations and associated guidance advises that the next most appropriate receptor for site run-off is to a watercourse. As such, the existing ordinary watercourse tributaries surrounding the site provide a suitable receptor for run-off from the proposed development.

A potential sketch option has been developed to inform the strategic storm water management system across the site and is shown on drawing 10192-SK-01 appended to this note. It is proposed that the drainage system will utilise SuDS to control peak discharges to no greater than the baseline rate. Given the scale of the proposed development, it will be possible implement a management system that delivers a reduction in peak discharge to the local watercourses during peak flow periods, securing valuable benefits to the nearby communities. The strategic management system shown on drawing 10192-SK-1 has been designed to provide at least a 30% reduction in peak discharges to the watercourse network during storm events.

3 Foul Drainage

Lighthorne Sewerage treatment Works presently serves the local area and lies circa 350m east of the proposed development area. A 300mm sewer, conveying flows from Lighthorne Heath village and Jaguar Landrover also bisects the site, broadly in a west to east direction.

Severn Trent Water has advised that Lighthorne STW has some residual capacity to support an initial phase of development at Lighthorne of circa 200 new homes. Beyond that, it is likely the company will wish to direct flows toward the strategic STW at Longbridge, which lies circa 10km to the north of the proposed development. The location of the sewage treatment works is shown in Figure 4a. Upgrading of Longbridge STW will then also help support the future growth ambitions for Jaguar Landrover.

Discussions with Severn Trent confirm that the Longbridge STW currently has headroom to accommodate approximately 3,500 residential units, although upgrading of the works is unconstrained in terms of the available land and environmental constraints. The company already plans certain upgrades at Longbridge STW in order to support the Warwick District Council Local Plan and has confirmed that they foresee no constraints in providing capacity for development at Lighthorne. Costs for upgrading of the STW are funded by Severn Trent Water through revenue as part of the Ofwat regulated Asset Management Plan (AMP) process. The

next AMP period runs between 2015 – 2020 and Severn Trent Water has the ability to incorporate proposals for Longbridge STW in the PR014 business plan being considered in 2014 by the regulator.

Figure 4a: Longbridge Sewage Treatment Works

Having discharged an initial phase of development to the Lighthorne STW, a new pumped main will be provided to convey flows to the Longbrdge STW. Figure 4b shows the anticipated route for the proposed foul rising main. The scale of this infrastructure upgrade is not atypical for strategic development.

The on-site foul strategy is shown on plan 10192-SK-01, appended to this note, and currently identifies three pumping stations to collect and convey flows efficiently within the site.

Figure 4b: Indicative route to treatment works

4 Existing and Proposed Services/Utilities

Being presently in agricultural use, only a number of existing utilities are present within the site. A composite service location plan, referenced 10192-SU-01, is appended to this note in Appendix 1.

Electricity - Western Power Distribution (WPD)

WPD has provided details of the 11kV and 33kV overhead cables bisecting the development area east to west, which serve the Gaydon Primary Substation. The 33kV routes provide supplies to the Gaydon Primary Substation (PS) from the Harbury Grid Substation, which lies to the north east of the site. Figure 5a, below, shows the approximate location of the substations.

Figure 5a: Substation locations

Following a meeting with the WPD network planner it has been confirmed the Gaydon PS has residual capacity in the order of 4MVA, which could supply an initial phase of the development of 2,000 residential units.

To accommodate the full development, reinforcements will be required in the form of either upgrades to Gaydon PS or a new on-site Primary Substation. Both options will require upgrading of the 33kV route to the Harbury Grid Substation, although this is straightforward process and will not delay development. The development will therefore help support strategic improvements to the electricity network in the area and help support the future growth proposals at Jaguar Landrover.

Both the 11kV and 33kV networks bisecting the development can readily by diverted beneath the ground as part of the development process.

Telecommunications - BT

BT has confirmed the location of overhead BT cables within the development area, although these can readily bedirected beneath the ground in the proposed development.

Various fibre optic telecommunication networks are available in the vicinity of the site, with Points of Presence available nearby. These networks provide a unique opportunity for the site to deliver a high quality fibre to the home network, which would provide

100-200Mbs to all dwellings. Importantly, this would deliver broadband speeds that are at least three times faster than the maximum BT is planning to deliver through their 21st Century Network, when this is eventually delivered. The superfast 100 – 200MBs network will therefore ensure the site is an ideal location to enhance homeworking and help attract the highly skilled professions as will be needed for Jaguar Landrover. At a more basic level, Fibre to the Home will allow all television services to be delivered through the communication network, avoiding the need for unsightly aerials and satellite dishes.

Water Supply - Severn Trent Water (STW)

STW confirm the presence of a number of existing water supply mains within the development area, which can be diverted as necessary to support the development proposals.

STW has completed an initial study of the capabilities of the existing water supply network adjacent to the proposed development. The findings confirm that a residual capacity of circa 20 l/s is presently available in the network, which will provide sufficient capacity for a first phase of approximately 2,000 new homes. To supply the site, a connection will be made to the 300mm existing water main adjacent to the development.

To accommodate the full site demand, reinforcements will be required by way of a new 300mm main along Banbury Road, extending to between 1 – 2 km in length. Improvements to the local pressure booster pumping station will also be necessary to ensure the development achieves the statutory minimum water pressure at each property. The proposed reinforcements are all relatively straightforward in nature and will not delay development.

Gas Supply

NG has completed an assessment of the existing network in the vicinity of the development and confirms that certain reinforcements will be necessary to supply the development. It is therefore proposed that a connection will be made to the existing medium pressure network to the west of Jaguar Land Rover.

The supply will be brought to site from this location and will be distributed via a district medium to low pressure governor station. A number of straightforward reinforcements will be required to facilitate the full anticipated load from the development, whicvh will not delay implementation. Reinforcements will be subject to an economic test, which when applied to the cost of network reinforcements, via the shallow reinforcement method, are likely to result in either a nil cost or only a small contribution toward the costs.

5 Sustainability

Following the change in Government and the recent economic downturn, further developments in National Policy are being introduced through the Plan for Growth document published by the HM Treasury in 2011. This document outlines measures that the Government is taking and strategies that will be implemented to ensure Britain's economy can recover from the recent recession and proceed to flourish without unnecessary constraints as barriers for success.

Within the Plan for Growth document it is stated that a review will be undertaken to ensure that standards and requirements are assessed based upon cost-benefit, with the intention of reducing any unnecessary duplication and inconsistency within planning policies and construction standards; and help to remove unfeasible targets that make developments financially unviable. The report goes on to say:

> **"2.296 The Government will work with industry experts to identify and reduce duplication, redundancy and inconsistency in construction standards, based on cost-benefit analyses. Recommendations will be published at Budget 2012.**

9) The Government is announcing the regulatory requirements for zero carbon homes, to apply from 2016. To ensure that it remains viable to build new houses, the Government will hold housebuilders accountable only for those carbon dioxide emissions that are covered by Building Regulations, and will provide cost-effective means through which they can do this.

2.297 The UK needs to deliver carbon savings in order to meet the Carbon Budgets to which the Government is committed. This means that the carbon footprint of new homes cannot be allowed to add to overall carbon reduction burdens.

2.298 Building Regulations cover carbon dioxide emissions from energy use through heating, fixed lighting, hot water and building services. They do not cover emissions related to energy use from cooking or from plug-in electrical appliances such as computers, as these are beyond the influence of housebuilders and will be addressed by other policies, for example the EU Emissions Trading Scheme.

2.299 The Government will introduce more realistic requirements for on-site carbon reductions, endorsing the Zero Carbon Hub's expert recommendations on the appropriate levels of on-site reductions as the starting point for future consultation, along with their advice to move to an approach based on the carbon reductions that are achieved in real life, rather than those predicted by models. This will be complemented by cost-effective options for off-site carbon reductions, relative to the Government's pricing of carbon, and Government will work with industry through consultation on how to take this forward.

The above thus indicates forthcoming amendments to national and local policies to remove unnecessary duplication of sustainability targets, placing far more emphasis and weight behind national policy and removing the significance of current local policy requirements.

A large range of renewable energy options are available for new development. However, when specifying a system, it is necessary to have regard to a range of considerations, such as:

- Energy demand and supply
- Cost of implementation and payback
- Visual and space / land use characteristics
- Supply of any raw materials
- Maintenance and reliability

To support growth in renewable electricity generation, Feed-in-tariffs (FITs) have been implemented within the UK energy market, making renewable energy systems that generate electricity a more appealing option to developers and home owners. The FITs have been in effect since April 2010.

FIT allows properties with renewable energy systems to generate an income from the energy produced as well as selling surplus energy back to the network provider by feeding it back into the Grid. The introduction of the FITs has signalled the end of all new applications for electrical microgeneration grants from the government. FITs are tax free and will be paid over a minimum of 10 years from the date the system is registered.

The adoption of Feed-in-Tariffs has improved the financial viability of certain technologies, particularly photovoltaic's, which were previously a costly solution in achieving Renewable Energy or CO_2 reduction criteria.

Additionally a further generation tariff is being introduced in relation to renewable technology that meets heating requirements. It is anticipated that the Renewable Heat Incentive will be introduced on a domestic level as of October 2013, this will work on the same basis as the FIT's by which the properties fitted with the technology will receive an income from each kWh generated.

The relatively recent introduction of FiT's has brought about a step change in the use of Solar Voltaic panels on many existing properties and new developments, this now being considered commonly as the preferred technology.

Other potential options are:

- Solar Water Heating
- Micro CHP
- Ground and Air Source Heat Pumps
- Biomass
- CHP / District Heating Systems

The potential beneficial technologies are briefly reviewed below.

Photovoltaic (PV): PV modules are available in a large variety of forms, including roofing tiles and glazing panels. These systems convert daylight into electrical currents that may be used to provide power to a wide range of applications.

PV systems look similar to flat plate collectors, although they provide a better energy return.

PV systems, particularly roof tiles, present an innovative and deliverable approach to delivering renewable energy. Advantages include the ability to be applied more flexibly and to create a better design solution than other technologies.

Also following on from the introduction of Feed-in-Tariffs, the application of PV has become a more attractive prospect to home owners as payback times have been reduced making the technology more feasible. However, PV still has a significant implementation cost which limits the potential for its use.

Solar Thermal Technology (Solar Water Heating (SWH)): is currently one of the most cost efficient means of providing renewable energy to residential developments. One of the most widely recognised forms of SWH is the "Flat Plate Collector", (FPC). These are broad, exposed solar irradiation absorbing panels that are commonly fitted on the roofs of residential properties, as shown on Figure 6d and 6e below. The systems collect solar energy and convert this directly into heat, which is generally used for the supply of hot water in residential properties. Alternatively, "Evacuated Tube Collectors" (ETC) can be employed; being generally thin glass tubes coupled with a heat exchange system that improves the thermal performance of the system.

FPC and ETC's technologies provide a more cost effective and versatile addition to residential energy supply than many of the other renewable energy techniques. Although ETC systems are more costly than FPC's, they offer a more efficient and reliable source of renewable energy as they are less susceptible to poor supply of direct sunlight. Both of these options offer good capital return rate, with the system being likely to pay back the cost of installation in a minimum of approximately five years. The one minor drawback is that both of these systems require specific south east or south west orientation to maximise their efficiency.

The average peak output for a solar water heating panel on a typical housing installation is 900kWh/m^2.

For maximum efficiency, solar panels should be mounted on a south facing roof at a 30^0 angle with the horizontal and away from trees, surrounding buildings and chimneys. Fortunately, the average tilt of a UK house roof is about the optimum for receiving solar energy in the UK.

A typical installation would aim to provide 60-70% of the homes annual water heating requirement.

Micro Combined Heat and Power (Micro CHP): is designed as a replacement for gas powered boilers and a supplement to mains electricity. Micro CHP units generate electricity by recycling the waste heat from a conventional boiler heating process.

Appendix 1
Development & Infrastructure

These systems rely on each boiler being fitted with the Micro CHP unit. While this is not a substantial drawback in terms of its operational value, it is generally not cost effective to implement over a large residential development. Micro CHP units can result in increased noise output and may require careful management in residential dwellings.

Baxi have now released a micro CHP unit called the 'Ecogen'. The unit costs significantly more than a traditional boiler heating system. Extensive field trials have been completed in over 400 UK homes and initial results have shown that Baxi Ecogen units can reliably satisfy up to two thirds of a typical household's electrical requirements.

This form of renewable technology will benefit from the new Feed-in-Tariffs and a typical Baxi Ecogen installation will be eligible to make10p for every kWh generated and 3p/kWH for any energy exported.

Air Source Heat Pumps: provide relatively 'low-grade' heat from the air, which is then transferred, via a compression tank, to the required source. The systems perform exceptionally well when paired with under floor heating systems.

Heat pumps require a feed of electrical energy to supply the pump which produces the heat energy. Most heat pumps produce an output based on a coefficient of performance (CoP) ratio of circa 3:1. For every 3kWh of heat energy produced 1kWh of electricity is used. Therefore, heat pumps can provide a solution to meeting Building Regulations 2010 as well as Code for Sustainable Homes Level 4.

A typical 6kW system would aim to provide the entire heating requirements for most homes.

Ground Source Heat Pumps: operate in a very similar way to ASHP; however the heat energy is sourced from the ground and has an improved CoP of up to a ratio of 4:1 when compared with air source heat pumps, providing a more efficient source of heat energy than that of ASHP. The initial cost outlay tends to be significantly higher as the systems need to be installed into the ground via boreholes or alternative below ground installations. On most sites this constraint proves prohibitively costly.

Biomass Boilers: These systems operate using an array of bio fuels such as recycled wood or virgin chippings. They can be implemented within individual properties but are often used in larger systems as a renewable energy hub for a parcel of development.

While it is technically feasible to implement biomass in residential development, the physical size of the equipment and raw material supply demands best suit installation in communally heated units or commercial developments, therefore it is considered appropriate to implement such technology within the commercial areas.

Initial installation costs are significantly greater to that of conventional gas heating systems.

However there is significant grant funding now available to offset the initial cost increase associated with Biomass systems making Biomass a feasible and affordable technology to be implemented where possible.

District Heating Systems: These systems rely on a centralised district heating centre in which a biomass or other fuel system with a back up gas supply provides the heating to properties. It is then distributed by a network of pipes, together with electricity generated from the heat output.

District Heating is regarded as the most financially economic way of achieving CfSH Levels 5 and 6 as well as anticipated Building Regulation changes for 2016; however it is an expensive technology to provide heat requirements for Levels 3 and 4.

District Heating Systems are best suited to providing the base central heating load for the development (hot water supply), with conventional gas boilers responding to the peak demands (winter space heating). These systems are not always capable of effectively meeting the demands of peak loading periods commonly experienced within residential development. However a development of this nature could provide a suitable platform to meet the heat demands of the development through a on-site District Heating System.

Renewable Energy Preferences

Figure 6a, below provides a rating of the potential technology options discussed above, having regard to the energy provided, costs of installation, site specific characteristics and having regard to design issues.

	Residential Low-Medium Density	Residential High Density (Flats)	Commercial
Solar Water Heating	1		
GSHP			
ASHP			
Micro CHP	2		
Photovoltaic	1	1	2
Biomass			1*
District Heating System	1*		

Figure 6a: Suitability of Reviewed Technologies for Proposed Development at Lighthorne Heath

1*	**Presently Preferred**
1	**Most Suitable**
2	**Highly Suitable**
	Potentially Suitable
	Least Suitable

Development at Lighthorne, being a new settlement provides what is likely to be a unique opportunity across the District to provide a District Heating system, which is able to deliver genuine and class leading delivery of energy. Other development proposals across the area are highly unlikely to be of a scale that is able to provide such benefits in a viable manner. Brookbanks has helped deliver such a system at the new community known as Cranbrook, to the east of Exeter, which are now being occupied.

6 Noise

A detailed noise assessment will need to support any future planning application to define the environment conditions across the site. Preliminary discussions with the Environmental Health Officer indicate the following legislation will need to be considered.

PPG24: Planning and Noise / NPPF

The Department of Communities and Local Government published the National Planning Policy Framework (NPPF) in March 2012. This was produced to support the reforms of the planning system and to promote sustainable growth. The NPPF has resulted in the withdrawal of PPG24. However, current thinking across most Environmental Health offices is to continue to support the PPG24 Noise Exposure Categories during the transitional stages.

PPG 24 provides advice on how the planning system can be used to minimise the adverse impact of noise without placing unnecessary restrictions on development or unduly adding to the costs and administrative burdens of business. The document contains advice to local authorities regarding the use of their planning powers to minimise the adverse impacts of noise when considering planning applications for new residential developments. Noise Exposure Categories (NECs) are identified for residential development, with recommended levels for exposure to different noise sources. These categories are shown below:

NEC Boundary	Road Traffic Noise Sources		Planning Advice
	Daytime (0700 – 2300) $L_{Aeq\ 16hr}$ dB	Nighttime (2300 – 0700) $L_{Aeq\ 16hr}$ dB	
A	<55	<45	Noise need not be considered as a determining factor in granting planning permission, although noise at the high end of the category should not be regarded as a desirable level.
B	55 – 63	45-57	Noise should be taken into account when determining planning applications and, where appropriate, conditions imposed to ensure an adequate level of protection against noise.
C	63 – 72	57-66	Planning permission should not normally be granted. Where it is considered that permission should be given, for example because there are no quieter sites available, conditions should be imposed to ensure a commensurate level of protection against noise.
D	>72	66>	Planning permission should normally be refused.

Figure 7a: PPG 24 NEC categories

British Standard 8233:1999; Sound Insulation and Noise Reduction for Buildings

BS8233 gives recommendations for the control of noise in and around buildings and suggests appropriate criteria and internal noise limits for habitable rooms of residential dwellings. In accordance with the requirements of BS8233, the following internal and daytime noise limits will need to be met with sensitive rooms of the residential dwellings:

- 30dB $L_{Aeq\ (16\ hour)}$ during the daytime in living rooms
- 30dB $L_{Aeq\ (8\ hour)}$ during the night time in bedroom areas
- 45dB L_{AMAX} should not be exceeded during the night-time in bedroom areas

Noise Monitoring

Environmental noise monitoring will need to be carried out in the form of a noise survey adjacent to the existing Jaguar Land Rover site. The measurements will need to be taken at regular intervals over a typical 24 hour period and assessed against the relevant noise standards.

Noise Assessment

A preliminary noise level assessment of the future year with development has been completed using the computer modelling software SoundPLAN. This noise model has incorporated digital terrain mapping (DTM) level data for the proposed site and its immediate environment, thus incorporating all the pertinent site features and the levels of the roads. Past experience suggests, based on the nature and location of the site, traffic noise is expected to be the dominant noise source. Traffic flows have therefore been obtained from the Highways Agency TRADS site, which identifies the present day and future traffic levels. These flows have been used to assess the impacts on the environment.

The NEC noise contour maps produced for the day time and night time intervals can be seen on BCL drawing 10192-NM-01 – see Appendix 2.

Based upon the modeling undertaken the future scenario shows the majority of the site to lie within NEC boundaries A, with small strips along the main roads within NEC B and C. Potential housing locations fronting the M40 and Banbury Road have been selected within the model, these indicate that the daytime façade noise levels are 68.1dB and 70.5dB respectively. These reduce to 35.3dB and 37.5dB when taking into account noise reductions through thermal double glazing, representing a reasonable internal noise standard. The same has also been completed for the night time levels indicating 57.4dB and 63.0dB, thus reducing to 24.4dB and 30.0dB with thermal double glazing, allowing a good internal noise standard during the night in bedrooms.

In order to provide an acceptable noise environment, the properties within these boundaries will require nothing more than the standard thermal double glazing. PPG24 states that this will provide a sound insulation performance of 33bB(A).

Any development within the small strips of land contained within NEC C may require further mitigation. However, the layout of the development may be able to accommodate this area and internal arrangements of properties can also account for this environment. For example, consideration can be given to the internal layout of the properties such that sensitive locations i.e. bedrooms, are located to avoid facing onto the M40 and Banbury Road directly and finally consideration should be given to orienting buildings to minimise windows that face onto the noise source.

7 Air Quality

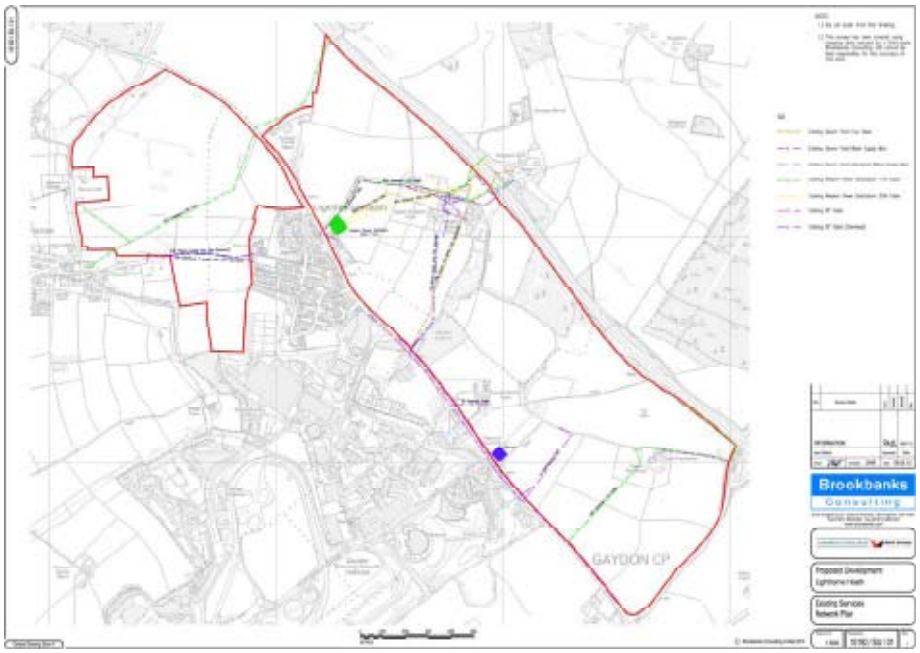
Assessment of Air Quality

Background pollutant concentrations in the area are below relevant objectives for both nitrogen dioxide and particulate matter.

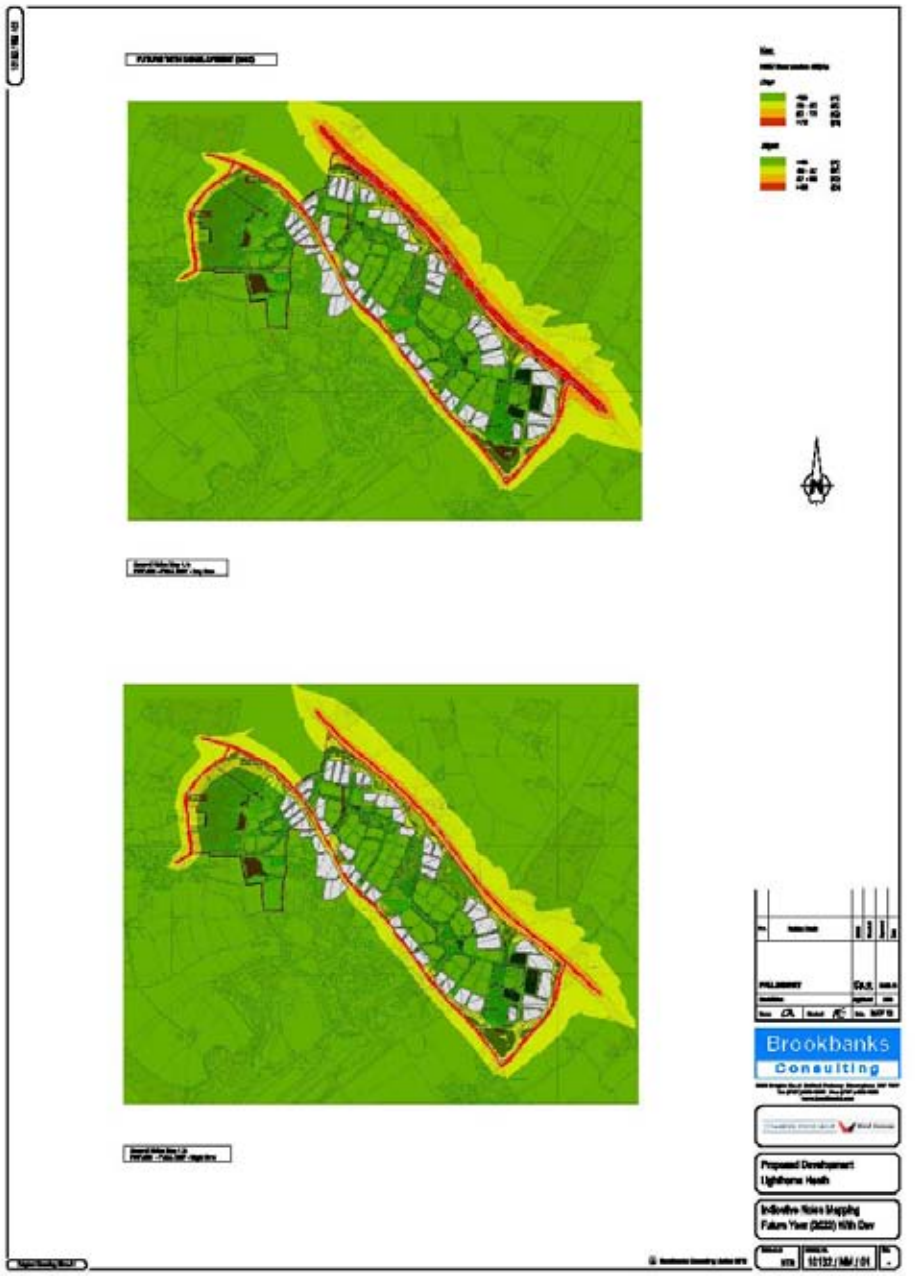
The highest pollutant concentrations at the site will be directly adjacent to the M40 motorway, however, concentrations of nitrogen dioxide (the key traffic related pollutant of concern) will reduce rapidly with distance from the carriageway. It is therefore considered that any stand-off distance required for noise mitigation would also be adequate for air quality, although this would be confirmed by detailed modelling.

There is potential that the Local Authority may request air quality monitoring to verify any modelling assessments for planning purposes. Such monitoring (if required) would need to be carried out for a minimum of 3 months in order to obtain representative data.

A preliminary review the local envions suggests constraints in relation to the construction phase are negligible.



Appendix 1: Composite service location plan (10192-SU-01).



Appendix 2: BCL drawing 10192-NM-01, Indicative Noise Mapping

Appendix 2
Traffic Modelling

Land at Lighthorne Heath
Technical Note: Traffic Modelling
13th May 2013

1 Introduction

Brookbanks Consulting Ltd (BCL) is appointed by Commercial Estates Group (CEG) and Bird Group (BG) to complete various pre-planning studies to support the promotion of a potential development site at Lighthorne Heath in Warwickshire.

The objective of this technical note is to provide an update of the recently commissioned traffic modeling that has reviewed the operation of the road network adjacent to the proposed site. This work considers the impact of the proposed development of circa 5,000 new homes, employment land uses and associated schools and ancillary use on the proposed Junction 12 M40 Motorway to Jaguar Land Rover improvement works and the wider highway network.

This note has been produced by BCL to summarise the modelling findings, but has been discussed with, and agreed by WCC and Arup (WCC modelling Term Consultant). A copy of the supporting e.mail is attached at the end of this note.

2 Background Information

Lighthorne Heath Proposals

The proposed development lies between the of the M40 motorway to the east and the B4100 Banbury Road to the west. The existing villages of Gaydon, Lighthorne Heath and Lighthorne lie nearby along with major employment uses at Jaguar Land Rover (JLR) and Aston Martin (AM). The site lies largely on land that is presently in agricultural production and is indicated in Figure 2a, below.

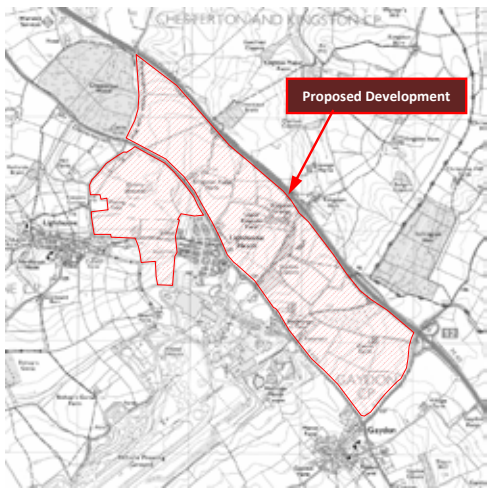


Figure 2a: Site Location

It is proposed to develop a residential development of up to 5,000 dwellings together with 18 hectares of high-tech employment land uses and ancillary education, leisure, retail and medical land uses. A conceptual plan of the proposals is indicated below in Figure 2b.

Figure 2b: Development at Lighthorne Heath

Junction 12 Intervention

JLR and AM have class leading, high-tech, facilities adjacent to the proposed development area, employing significant numbers in research, development and production of motorcars. A significant lack of housing is apparent within the hinterland of these works, which results in the majority of workers travelling from adjacent conurbations of Banbury, Warwick, Stratford-upon Avon, Leamington Spa, Birmingham and Coventry. This travel to work pattern results in high traffic volumes, especially in the morning peak, between the Strategic Road Network (SRN) and JLR / AM works and indeed along the B4100 Banbury Road. As a result, vehicular queuing is often observed for extended lengths at the J12 southbound off-ramp, resulting in safety concerns.

To mitigate the current level of queuing and any predicted increase due to future growth (extant and planned) at the JLR site, Warwickshire County Council (WCC) has developed proposed intervention works to improve the operation of J12 and the B4451 and B4100 leading through to JLR.
The improvement will:

- Maximise the width across the motorway to provide an additional lane
- Increase capacity on the northbound on / off slip
- Increase the length of the southbound on / off slip
- Signalise the slip road junctions
- Provide a new road dual carriageway route from J12 into JLR, bypassing the Gaydon Roundabout at the B4100 / B4451

The proposed scheme is shown illustratively below in Figure 2c.

Figure 2c: M40 Junction 12 intervention

The proposed interventions have been robustly tested through WCC's M40 Paramics traffic model. The results of this modelling show significant reductions in delay and queuing between the M40 and JLR.

At the time of writing, WCC has secured funding toward the scheme through the Chancellor's Autumn 2012 statement and has approval to progress the scheme. The Highway's Agency intend implementing the improvements at Junction 12, whereas WCC will design and manage a separate scheme between the M40 and JLR.

Land owners for the proposed development scheme are supportive of the highway improvements and have collaborated with WCC in making the land available for the required improvements. This approach will avoid the need for WCC to progress a Compulsory Purchase Order to deliver scheme and therefore allow this important improvement to be secured up to twelve months earlier.

While helping to support the important need for new homes across Stratford-on-Avon District in at a very sustainable location with existing employment uses, the delivery of housing within Lighthorne Heath will result in various transport and sustainability related benefits which will:

- provide greater land-use synergy in the area, whereby the current demand for travel is reduced by providing a full range of workplace, retail, education and leisure facilities;
- result in reduced travel distances between housing, workplaces, retail businesses, and other amenities. The proposed development is expected to result in a significant decrease in travel to work distances as workers at JLR progressively relocate into the new community;
- provide a well-designed community that encourages walking, cycling and high levels of accessibility through good design, resulting in reduced transportation costs; and
- locate the a new community where the highway network is intrinsically less constrained when compared with the existing primary settlements.

With development, comes the potential increase in trips within the road network. For a major new settlement such as that being proposed at Lighthorne Heath, it is necessary to assess the potential impacts. For this development, it is also important to assess the impact on the proposed M40 J12 through to JLR improvement works.

3 Paramics Modelling – Background Assumptions

Introduction

In support of the proposed M40 J12 through to JLR improvements, Arup and WCC has developed a validated and calibrated Paramics model, assessing the operation of the local network in the present day and in the future, when the improvements are complete. BCL has worked with Arup and WCC to augment this model to assess the impacts of the development proposals on the local and strategic highway network.

Traffic Generation

At the time of writing, it is considered that the development will deliver up to 5,000 new homes of mixed types and tenure. A development of this size will provide both market and affordable types of housing. The TRICS database has been assessed to identify trip rates for both market and affordable housing, as identified below.

Trips	AM Peak			PM Peak		
	In	Out	Total	In	Out	Total
Private Housing Trip Rate	0.153	0.427	0.580	0.396	0.238	0.684
Social Housing trip rate	0.125	0.235	0.360	0.286	0.176	0.462

Figure 3a: Vehicle Trip Generation – Source TRICS 2012a

For the purposes of this assessment, it is assumed that circa 30% affordable housing could be delivered, resulting in an overall trip rate as indicated below.

Trips	AM Peak			PM Peak		
	In	Out	Total	In	Out	Total
Overall vehicle trip rates	0.145	0.369	0.514	0.363	0.219	0.617

Figure 3b: Blended Residential Vehicle Trip Rate

At the time of writing, it is considered that the ancillary uses will not generate any external traffic. These land uses will be predominantly serve the residential elements of the development, resulting in an internalisation of trips from the residential uses in the new settlement. On this basis it is appropriate at this stage to assume that only the residential element will generate potential external trips. The total external vehicle trips are indicated below.

Trips	AM Peak			PM Peak		
	In	Out	Total	In	Out	Total
External vehicle trips - 5,000 units	725	1845	2570	1815	1095	3085

Figure 3c: Vehicle Trips

In relation to outbound trips from the residential uses, in peak periods, the most likely destination for generated trips is to school and work, both of which are delivered integral to the proposed development. Therefore, it is reasonable to assume that a proportion of the residential traffic generated by this development will not travel externally to the development.

Through discussions with WCC, it has presently been assumed that 30% of the total trips generated by the development will be internal, as indicated below. This is considered robust as this does not make any allowance for any reduction in existing trips currently on the network. The delivery of substantial housing adjacent to JLR / AM will no doubt result in progressive migration of staff presently commuting from across the region into Lighthorne Heath, thereby reducing trips on the SRN and local network. At this stage, for the purposes of being conservative in approach, this reducing effect on the network has not been included.

Trips	AM Peak			PM Peak		
	In	Out	Total	In	Out	Total
External Trips	508	1292	1799	1271	767	2160
Infernal Trips	218	554	771	545	329	926

Figure 3d: External and Internal trips

These trips, agreed with WCC, have been incorporated into WCC's M40 Paramics model and run to appraise the impacts in the present day and future year, when capacity improvements have been completed.

The current modelling also contains assumptions regarding the employment site, whilst there is an argument that this will be served in entirety by the new residential site, for the purposes of ensure that the testing is a robust as possible, 70% of the employment trips have also bee assigned within the modelling. The B1 trips rates adopted conform to those adopted during previous phases of the Warwick District Council (WDC) Strategic Transport Assessment (STA).

The AM and PM peak hour trip rates are presented within the following Table:

Trips	AM Peak			PM Peak		
	In	Out	Total	In	Out	Total
B1 Employment Trip Rate	1.3	0.24	1.54	0.18	1.11	1.29
Less Internalisation	0.91	0.168	1.078	0.126	0.777	0.903

The PARAMICS model has been developed to encompass the entire AM (06:00 to 10:00) and PM (16:00 to 19:00) time periods although the 06:00 to 07:00 period within the model represents a loading period and is necessary to ensure that, within the base model, the queue formation at the J12 SB off-slip reflects what has been observed on street.

Development trips have therefore been assigned within the model across the entire 07:00 to 10:00 and 16:00 to 19:00 time periods. The resultant hourly trip generation that has been assigned within the model is presented within the following table:

Time Period	Residential		Employment		Total
	In	Out	In	Out	
0700 to 0800	242	836	301	65	1444
0800 to 0900	506	1293	541	100	2440
0900 to 1000	577	654	314	88	1634
1600 to 1700	1044	695	90	404	2233
1700 to 1800	1271	768	75	462	2576
1800 to 1900	876	730	38	165	1809

At this stage it is believed that these trip rates represent a robust interpretation of the likely development trip generation figures. Although a 30% reduction for internalisation has been applied no additional adjustments in response to potential public transport measures have been made. Furthermore, the proximity of the significant employment site at JLR/AML will inevitably lead to a reduction in the trip generation associated with the JLR/AML development that has not currently been considered within the modelling.

4 Paramics Assessment

Network Capacity

Initial stages of the Paramics modelling demonstrated that a number of strategic improvements that are appropriate to the scale and quantum of the development will be necessary to the existing highway in order to facilitate the proposed growth. Proposed improvement scheme have therefore been developed where the existing network is constrained and incorporated into the model to demonstrate viability of the proposals. The proposed improvements are as follows:

- Minor enhancements to the proposed new link between the M40 and JLR. These improvements have already been incorporated into the final WCC scheme design as a result of the modelling, to ensure the road will not require any further enhancements.
- A new northbound entry slip road at the M40 Junction 12, to maintain capacity that is currently being enhanced.
- Improvements to the M40 Junction 13 slip roads at the junction with the B4100 Banbury Road. This restricted movement junction already has a poor safety history and limited capacity for vehicles leaving and entering the M40. It is proposed to signalise the slip roads at the B4100, which will improve safety and capacity.
- Improvements at the Greys Mallory roundabout on the B4100 and Europa Way in Warwick and the M40 Managed Motorways improvements between Junction 12 and 15 of the M40. These strategic improvements are proposed to be incorporated in an adopted Transport Strategy underpinning the forthcoming Warwick District Council Local Plan.
- Minor junction improvements along the B4100 to the north of the site.

Importantly, with the proposed interventions in place, the Paramics model predicts that the local and strategic highway network will have capacity to support the planned growth. No significant deterioration in the operation of the network is observed, furthermore, the network conditions within the modelling still represent an improvement against those that are currently experienced today.

Given the implementation of the J12 through to JLR improvements together with the intrinsic and somewhat unutilised capacity of the wider highway network in the area of Lighthorne, the scale of the network improvements are significantly less than might normally be expected of a strategic settlement of this scale. This is further enhanced by the complimentary nature of the flow of traffic from the site and the flow of traffic into the JLR/AML sites. Within the AM the peak influx of traffic towards the JLR/AML sites occurs within the 07:00 to 09:00 period. At the same time the majority of traffic generation associated with the proposed development is exiting in the opposite direction. Similarly within the PM whilst JLR/AML traffic is exiting the site the traffic associated with the development is largely inbound traffic.

The proposed scheme at J12 includes substantial capacity enhancements to enable JLR/AMl associated traffic to enter the site in the AM and exit the site in the PM. The exit capacity is severely underutilised within the AM period as is the entry capacity within the PM. The nature of the trip generation associated with the development is such that it makes best use of the available spare capacity.

Appendix 2
Traffic Modelling

Journey Time Assessments

Output from the Paramics model provide an estimation of journey times across key routes. The impact on average journey times can be compared between the 'with' and 'without' development scenario tests, to identify the impacts of the development. The critical routes in relation to this assessment are:

- Route A - Junction 14 and Junction 12 of the M40
- Route B - Junction 12 to the roundabout at Gaydon
- Route C - Roundabout at Gaydon to the AM access roundabout

Figure 4a: Journey time results

Route A - Junction 14 and Junction 12 of the M40

The following figures indicate the results of the journey time in the morning and evening peak period respectively along Route A.

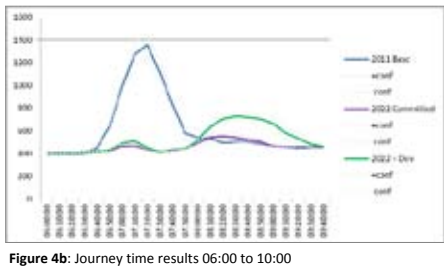


Figure 4b: Journey time results 06:00 to 10:00

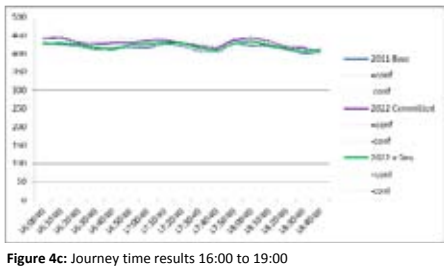


Figure 4c: Journey time results 16:00 to 19:00

Most notably, the blue line in Figure 4b highlights traffic delays presently experienced in the morning peak during the arrival of the JLR / AM workforce. The journey time peaks at 1361 seconds at 07:20 with corresponding queues back from the slip road onto the M40 at Junction 12. The purple and green lines demonstrate journey times after the J12 intervention is included, with and without development respectively. Journey time is improved considerably without any significant deterioration due to the proposed development.

Route B - Junction 12 to the roundabout at Gaydon

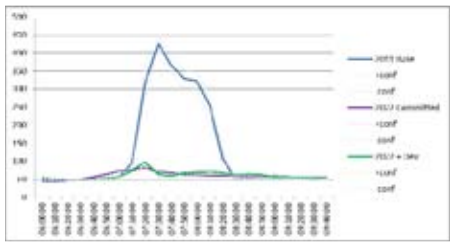


Figure 4d: Journey time results 06:00 to 10:00

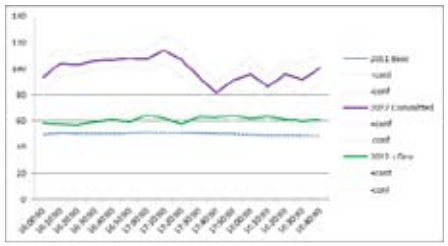


Figure 4e: Journey time results 16:00 to 19:00

Again, the blue line highlights significant traffic delays along Route B, being experienced in the morning peak during the arrival of the JLR / AM workforce. The journey time peaks at 441 seconds at 07:30. The purple line demonstrates that once the J12 intervention is implemented, journey time is improved considerably. With the addition of the proposed development, the green line demonstrates no significant deterioration in journey times.

Route C - Roundabout at Gaydon to the AM access roundabout

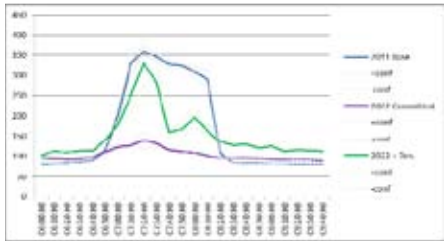


Figure 4f: Journey time results 06:00 to 10:00

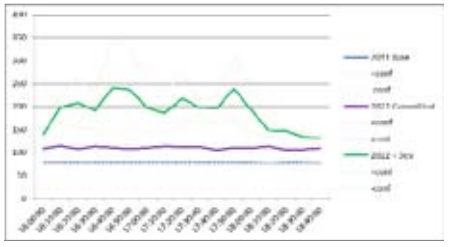


Figure 4g: Journey time results 16:00 to 19:00

In the present day on Route C, Paramics again highlights significant traffic delays experienced in the morning peak during the arrival of the JLR / AM workforce. The journey time peaks at 360 seconds at 07:20. This also demonstrates that once the J12 intervention is included within the traffic model this improves the journey time considerably.

The scheme has been designed to cater for the JLR traffic and assumes that traffic volumes associated with the JLR/AML sites remain unchanged in response to the new development when, in reality it would be expected that these would reduce. Furthermore the arrival rate of trips associated with the JLR/AML site (both existing and extant permission) assumes that the travel pattern will mirror that which is currently observed in so far as there is a noticeable peak in the arrival rate of traffic between 07:15 to 07:45.

Some of this is most likely to be influenced by the conditions on the external road network which mean that currently staff have to plan their departure time such that it takes account of the heavy queuing that currently exists on the network and the associated delays. There is a distinct possibility that when the J12 scheme is delivered the arrival rate will smooth out across the 07:00 to 09:00 period rather than being as concentrated as is currently assumed within the modelling.

Figure 4f does indicate that there is a peak in the level of delay experienced within this section of the network when the development and accompanying intervention measures are included within the modelling but the levels of delay do not exceed those which are experienced currently. Furthermore, as has been mentioned previously the likelihood of staff retiming their

journeys in response to revised network conditions is not considered within the current round of modelling and as such should be considered as likely to reflect a worst case impact.

This section covers the road section where the JLR / AM traffic would start to reduce in volume such that the Lighthorne Heath traffic would be the predominate traffic source, such that this delay is the natural part of development delivery.

The effect of the development is more noticeable within this section as this will include the site access junctions and therefore there is a concentration of trips, however once the development is included there is no significant deterioration in journey times.

Queue Lengths

The Paramics model has also been used to model the predicted vehicular queue lengths leaving the M40 motorway at Junction 12.

The queue length assessments are shown graphically below.

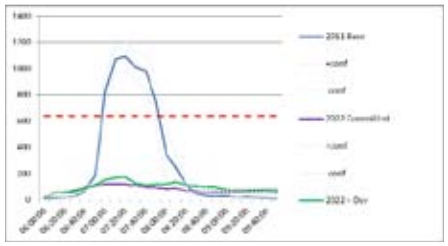


Figure 5a: Queue length southbound 06:00 to 10:00

Figure 5b: Queue length southbound 16:00 to 18:00

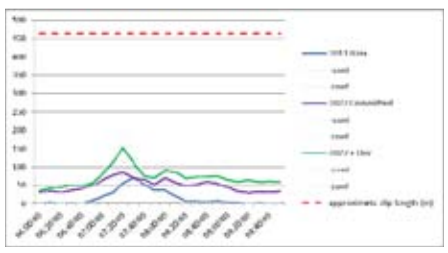


Figure 5c: Queue length northbound 06:00 to 10:00

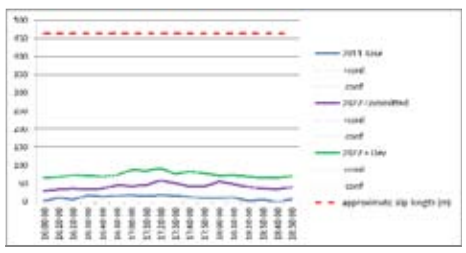


Figure 5d: Queue length northbound 16:00 to 18:00

Notably, the blue line in Figure 5a shows present day queues on the southbound exit at Junction 12 exceeding the length of the slip road (shown dotted red), resulting in unacceptable and unsafe stationary traffic on the motorway. The queue peaks at 7:20am at nearly 1,100m. Once the improvements are introduced, queuing is substantially reduced to acceptable limits in the morning and afternoon peak periods on both slip roads leaving the motorway. The green lines, showing development related impacts on the network, demonstrate no significant impacts when compared to the post J12 improvment scheme.

5 Summary

A development consisting circa 5,000 new homes, 18 hectares of employment and associated community uses is proposed at Lighthorne Heath. Transportation assessments have been completed to assess the impacts of the proposed development. A validated and calibrated Paramics traffic model prepared by Warwickshire County Council has been used to assess the proposals.

Present day results show significant queuing on the M40 at Junction 12 and the route into JLR, which reflects the conditions currently being experienced. An improvement scheme for Junction 12 and the route into JLR is in the process of being designed and implemented by Warwickshire County Council and the Highways Agency. The Paramics model demonstrates significant journey time improvements and queue length safety enhancements resulting from the scheme.

With a number of proposed highway improvements in place, the Paramics model predicts that the local and strategic highway network will have capacity to support the planned growth with no significant deterioration in the operation of the network is observed.

The proposed highway improvements are:

- Minor enhancements to the proposed new link between the M40 and JLR. These improvements have already been incorporated into the final WCC scheme design as a result of the modelling, to ensure the road will not require any further enhancements.
- A new northbound entry slip road at the M40 Junction 12, to maintain capacity that is currently being enhanced.
- Improvements to the M40 Junction 13 slip roads at the junction with the B4100 Banbury Road. This restricted movement junction already has a poor safety history and limited capacity for vehicles leaving and entering the M40. It is proposed to signalise the slip roads at the B4100, which will improve safety and capacity.
- Improvements at the Greys Mallory roundabout on the B4100 and Europa Way in Warwick and the M40 Managed Motorways improvements between Junction 12 and 15 of the M40. These strategic improvements are proposed to be incorporated in an adopted Transport Strategy underpinning the forthcoming Warwick District Council Local Plan.
- Minor junction improvements along the B4100 to the north of the site.

Given the implementation of the J12 through to JLR improvements and intrinsic and somewhat unutilised capacity of the wider highway network in the area of Lighthorne Heath, the scale of the network improvements are significantly less than might normally be expected of a strategic settlement of this scale. A new settlement can therefore be supported at Lighthorne Heath with readily deliverable and financially viable improvements to the existing highway network.

Appendix 2
Traffic Modelling

Appendix

E.mail validation of note from Warwickshire County Council.

From: Alan Law [mailto:alanlaw@warwickshire.gov.uk]
Sent: 21 May 2013 10:15
To: Andy Eggleston
Cc: Paul Boileau; Roger Newham; Dave Neale; Nick Dauncey; James Edwards
Subject: Re: Lighthorne Heath 10192TN05

WCC can confirm that the Technical note **10192TN05v2** has been reviewed and accepted. WCC are satisfied that the note is a true reflection of the elements of preliminary inputs to the modelling works as agreed. WCC is in agreement with the following points;

- access has been permitted to the WCC M40 corridor model which includes the proposed J12 scheme
- that funding for this scheme is at the final stages of being realised
- that the initial inputs for a strategic assessment of the Lighthorne Heath development proposals have been agreed, including trip rates and internalisation, however further discussion on these inputs will be required before moving forward to a more detailed modelling exercise
- that the proposed mitigation is broadly in line with that expected to be required, however further detailed analysis will be necessary and will have to include assessment of the local and strategic county network, this may include use of various strategic models that will assist in the assessment of impacts beyond the boundaries of the M40 corridor model

WCC will require significantly more modelling evidence and may require that existing models are updated and/or extended to ensure the full development impacts are captured and mitigated. As such WCC does not propose to comment on the validity of the modelling outputs at this stage. However the initial assessment of the development proposal does suggest that a development of this size could be delivered in the identified area assuming that appropriate mitigation is provided.

Kind Regards

Alan

LIGHTHORNE
HEATH

LIGHTHORNE HEATH

TOMORROW'S
GARDEN VILLAGE

COMMERCIAL ESTATES GROUP

Bird Group

Brookbanks Consulting

Nexus Planning