Doncaster Local Plan
Topic Paper 2: Flood Risk

February 2020 (Submission)
1.0 Flood Risk Background & Context

Main Sources of Flood Risk to the Borough of Doncaster

1.1 The Borough of Doncaster is served by two main river systems or catchments: the River Don in the west and the River Trent in the east. The Don’s two main tributaries are the River Rother to the south and the Dearne to the north. A further two main rivers, Ea Beck and the River Went, join the Don downstream of Doncaster. There are 33 formal washlands in the catchment and flood attenuation is also aided by a series of regulated structures. The Bentley Flood Corridor is an area of low lying land on the left bank of the River Don between the River Don and Bentley. The corridor is only active during large flood events (less than 1% frequency) and is an important flood mitigation asset that reduces the risk to large areas of Doncaster and surrounds. The River Don has a long history of flooding, notably the events of 1947 and, more recently, 2007 and 2019, although it should be noted that surface water flooding was a significant issue also. There are around 30 flood warning areas within the Borough on the Rivers Don, Dearne, Went and Ea Beck. Historically land drainage in the lower Don area has been affected by coal mining activities.

1.2 The River Trent and its catchments covers parts of the north-east, south, and south-east corner of Doncaster and is characterised by very flat modified rivers and drains (constructed to reclaim large areas of low lying land) and the presence of flood defences, as this is an area at high risk of flooding. Except for the River Idle, the main rivers of the Trent catchment within the Borough area flow in an east or north easterly direction, converging on the three parallel drains known as ‘Three Rivers’ and then Keadby pumping station, which is the common outlet for this large drainage network discharging into the River Trent. Of the River Trent tributaries, the River Torne catchment is of most relevance due to the presence of a number of built-up areas. The Torne flows to the south and east of Doncaster, between New Rossington and Bessacarr. The catchment of the Torne includes Potteric Carr internal drainage district.

1.3 As well as the main rivers, Doncaster has more than 65.2 kilometres of ordinary watercourses. The Council does maintain a small number of these ordinary watercourses, but the majority will be the responsibility of the riparian landowner to maintain, whilst others are the responsibility of the Internal Drainage Boards. The borough also has over 15 kilometres of critical ordinary watercourses such as drains, dykes and brooks. Although they have historically not been classified as “main rivers”, they are deemed to be critical because they have the potential to put large numbers of people and property at risk of flooding if not properly maintained.

1.4 Doncaster also contains the Sheffield & South Yorkshire, Stainforth & Keadby and New Junction canals. These are relevant within overall consideration of flooding as discharges into canals (e.g. surface water discharge), has the potential to impact on the structural integrity of the waterway and affect navigation. Furthermore, such discharges can also have an impact on water levels and pose a flood risk.
1.5 Different types and forms of flooding present a range of different risks and the flood hazards of speed of inundation, depth and duration of flooding can vary greatly. With climate change, the frequency, pattern and severity of flooding are expected to change and become more damaging.

**Figure 2: Flooding from all Sources**
Main River Flooding

1.6 Areas which may experience river or coastal flooding are identified on the Environment Agency’s Flood Map for Planning. There are three types of flood risk zone for river and coastal flooding, as summarised below. It should be noted that these refer to probability of flooding from rivers and the sea, but ignore the presence of flood defences:

- **Flood Risk Zone 1** – low probability – Land having a less than 1 in 1,000 annual probability of river or sea flooding (shown as clear on the Flood Map – all land outside zones 2 & 3)
- **Flood Risk Zone 2** – medium probability – land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding; or land having between a 1 in 200 and 1 in 1,000 annual probability of sea flooding (land shown in light blue on the Flood Map); and,
- **Flood Risk Zone 3a** – high probability – land having a 1 in 1,00 or greater annual probability of river flooding; or land having a 1 in 200 or greater annual probability of sea flooding (land shown as dark blue on the flood map).

In addition to the above, flood zone 3 is broken down into 2 categories, being 3a and 3b. This is not however shown on the EA Flood Map for Planning:

- **Flood Risk Zone 3b** – The Functional Floodplain – this zone comprises land where water has to flow or be stored in times of flood. Local Planning Authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the EA (not separately distinguished from zone 3a on the flood map). The Functional Floodplain has been identified through the Council’s Strategic Flood Risk Assessment Level 1 (November 2015) in agreement with the Environment Agency. The Local Plan Policy 58 (Flood Risk Management) and supporting Policies Map formally designates the extent and detailed boundaries.

1.7 These zones are based on probability not risk, with risk being the combination of the probability of flooding with the potential impact of any flood event (e.g. what might be flooded, the depth of flooding etc). Large parts of the north-east of the borough are almost entirely located in flood risk zone 3, including the Main Town of Thorne-Moorends, but also significant parts of the Main Town of Hatfield-Stainforth and large parts of the Doncaster Main Urban Area (Town Centre, Bentley, Wheatley Hall Road, Kirk Sandall). However, other settlements are also affected to varying degrees by flood risk, including the northern edge of the Main Town of Conisbrough-Denaby and eastern edge of the Main Town of Adwick-le-Street and Service Town of Carcroft-Skellow. Barnby Dun (Service Town) is also constrained by flood risk zone 3 to a large extent.
1.8 Furthermore, there are other forms of flooding which these maps do not show, for example surface water and groundwater flooding, where the Council’s Preliminary Flood Risk Assessment (July 2011) contains further information, as well as the Strategic Flood Risk Assessment Level 1 (November 2015).

**Surface Water Flooding**

1.9 Surface water flooding covers two main sources including sheet run-off from adjacent land (pluvial) and surcharging of piped drainage systems (public sewers, highway drains, etc.). Surface water flooding is prevalent across the borough though judging from the updated Flood Map for Surface Water, risk is greatest in the northern, eastern and central areas where the terrain is flatter and surface water can accumulate. However, there are certain locations where the probability and consequence of these mechanisms are more prominent due to the complex hydraulic interactions in the urban environment. Urban watercourse connectivity, sewer capacity, and the location and condition of highway gullies all have a major role to play in surface water flood risk. It should be acknowledged that once an area is flooded during a large rainfall event, it is often difficult to identify the route, cause and ultimately the source of flooding without undertaking further site specific and detailed investigations.
In summary, flooding in Doncaster is largely attributed to a number of factors, including:

- The Borough contains part of the lower Don River system. Consequently, floodwaters from the upper reaches of the River Don basin, such as Sheffield and Rotherham, travel downstream towards Doncaster as the topography changes. This is exacerbated by increased urbanisation of the Don upstream catchment and major channel modifications made to the lower Don through navigation works in past centuries;
- The low lying and flat nature of the landscape, with large parts of the Borough below sea-level and forming part of the Humberhead levels;
- There is increasing surface water run-off and drainage issues, particularly within heavily urbanised areas of the Borough (although increasingly developments contain measures to address this issue through controlled discharges of surface water); and,
- The effects of climate change are exacerbating the risk of flooding through potential rising sea levels, increased winter rainfall and the occurrence of more extreme rainfall events.

Flood Risk Roles & Responsibilities

Managing flood risk within the borough is the responsibility of a number of Risk Management Authorities as defined below:

- **Doncaster Council** is Lead Local Flood Authority and as such is responsible for the management of “Local Flood Risk” (surface-run off, ordinary watercourses and groundwater). Doncaster Council Highways are also responsible for the provision of highway drainage under the Highways Act 1980. Doncaster Council provides guidance and some degree of assistance on flooding issues, and also during a flood event. The
authority has a statutory duty under the Civil Contingencies Act 2004 to prepare, implement and manage a Flood Plan. Under Planning Legislation the authority is a statutory consultee on development and planning relating to the management of flood risk.

- **The Environment Agency** is an executive, non-departmental public body responsible to the Secretary of State for Environment, food and rural affairs. Its principal aims are to protect and improve the environment, and to promote sustainable development. Its role in Flood and Coastal Erosion Risk Management (FCERM) has two main components: Significant flood and coastal erosion risk management delivery and the strategic overview of all sources of flooding and coastal erosion. The Agency is also a statutory consultee for providing advice to planning authorities in development and flood risk; providing fluvial and coastal flood warnings; monitoring flood and coastal erosion risks and supporting emergency responders when floods occur.

- **Shire Group (Danvm Drainage Commissioners & Black Drain) & Doncaster East Drainage Boards** - These Internal Drainage Boards in Doncaster Council’s district cover an area of 273km² ha. The Drainage Boards were set up in areas of special drainage need to sustain both agricultural and developed land use. The principal function of the boards is to manage water levels in their respective areas, to minimise flood risk and supply water (irrigation) to people, property and land. As much of Doncaster’s borough is low lying and constantly at risk from flooding, the board’s main function to manage water levels within the borough is critical. The Doncaster Drainage Act 1929 (Amendment) Order 1994 places an obligation on the Coal Authority to maintain the drainage systems of any abandoned coal mines. Doncaster has a large area of mine workings. The Internal Drainage Boards maintain numerous drainage systems (pumping stations etc) on behalf of the Coal Authority.

- **Water and Sewerage Companies** - Yorkshire Water, Severn Trent Water and Anglian Water are the 3 water companies that operate within Doncaster’s area. These companies are responsible for managing the risks of flooding from water and sewerage systems. This includes the drainage of foul water, the treatment of waste and the protection of water supplies which can be placed at risk in the event of a flood. Although modern public sewers are now designed to offer some protection to properties from the risk of flooding, older sewers can become overwhelmed and result in flooding during extreme weather events.

- **Other Risk Management Authorities** - other authorities and stakeholders with no designated role under the Flood and Water Management Act (FWMA) but also have some key responsibilities for flood risk management in their own areas of discipline. These include:
  - Canals and River Trust; Network Rail; Natural England; National Farmers Union; Highways England; Utility Companies; Met Office; Association of British Insurers; and, Flood warden groups, Parish Councils, forums and community groups.
2.0 National Planning Policy Context

National Planning Policy Framework & Planning Practice Guidance

2.1 The government published its reformed national planning policy in the form of the National Planning Policy Framework (NPPF) in March 2012 with its revised Framework in July 2018 (with some further relatively minor updates in February 2019). Although considerably streamlined in comparison with the previous policy statements and guidance, the framework, alongside the online Planning Practice Guidance (PPG) that was subsequently published, still maintain the broad policy thrust of previous national policy being the risk and manage approach to flooding with application of the sequential and exceptions tests. The NPPF (2019) para. 149 in respect to planning for climate change states that:

“Plans should take a proactive approach to mitigating and adapting to climate change, taking into account the long-term implications for flood risk, coastal change, water supply, biodiversity and landscapes, and the risk of overheating from rising temperatures. Policies should support appropriate measure to ensure the future resilience of communities and infrastructure to climate change impacts, such as providing space for physical protection measures, or making provision or the possible future relocation of vulnerable development and infrastructure.”

2.2 Paras. 155 - 157 go on to say that:

“Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere.

Strategic policies should be informed by a strategic flood risk assessment, and should manage flood risk from all sources. They should consider cumulative impacts in, or affecting, local areas susceptible to flooding, and take account of advice from the Environment Agency and other relevant flood risk management authorities, such as lead local flood authorities and internal drainage boards.

All plans should apply a sequential, risk-based approach to the location of development – taking into account the current and future impacts of climate change – so as to avoid, where possible, flood risk to people and property. They should do this, and manage any residual risk, by:

a) Applying the sequential test and then, if necessary, the exception test as set out below;
b) Safeguarding land from development that is required, or likely to be required, for current or future flood management;
c) Using opportunities provided by new development to reduce the causes and impacts of flooding (where appropriate through the use of natural flood management techniques); and,
d) Where climate change is expected to increase flood risk so that some existing development may not be sustainable in the long-term, seeking opportunities to relocate development, including housing, to more sustainable locations.”

What is the Sequential Test?

2.3 The sequential test is, in effect, a sieving process for potential development sites which focuses on flood risk. The approach means allocations that are within flood zone 1 are allocated before those in flood zone 2, and sites in flood zone 2 before those in flood zone 3.
Other sources of flood risk also need to be considered through the test, for example a flood zone 1 site may still have risk of surface water flooding. The NPPF states that:

“The aim of the sequential test is to steer new development to areas with the lowest risk of flooding. Development should not be allocated or permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower risk of flooding. The strategic flood risk assessment will provide the basis for applying this test. A sequential approach should be used in areas known to be at risk now or in the future from any form of flooding” (NPPF - Para.158).

Figure 5: Local Plan Sequential Approach to Site Allocation

![Local Plan Sequential Approach to Site Allocation](Source: Doncaster Strategic Flood Risk Assessment Level 1; November 2015)

What is the Exception Test?

2.4 Having first passed the sequential test, the exception test aims to provide a method of managing flood risk whilst still allowing necessary development to occur in the interests of sustainable development. The NPPF states at paras 159-161 that:

“If it is not possible for development to be located in zones with a lower risk of flooding (taking into account wider sustainable development objectives), the exception test may have to be applied. The need for the exception test will depend on the potential vulnerability of the site and the development proposed, in line with the Flood Risk Vulnerability Classification set out in national planning guidance.

The application of the exception test should be informed by a strategic or site-specific flood risk assessment, depending on whether it is being applied during plan production or at the application stage. For the exception test to be passed it should be demonstrated that:
a) The development would provide wider sustainability benefits to the community that outweigh the flood risk; and

b) The development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall."

Both elements of the exception test should be satisfied for development to be allocated or permitted."

2.5 The exception test will need to consider therefore:

- Will the development be safe? Can all the risks be designed out and can the residual risks to people and property be managed by an emergency plan or by limiting the type of land use?
- Will the site still be deliverable when considering the economic costs and design issues required to mitigate the risk, for example land raising?
- How well does the development fit with the current mix of land uses and future provision of flood management measures? Can development in the policy area reduce flood risk to other areas; will it require further more expensive provision of flood defence infrastructure?

2.6 The Strategic Flood Risk Assessment Level 1 (November 2015) provides sufficient information to undertake the sequential test in terms of flood risk from all sources, but does not provide the detailed information to comply with part 2 of the exception test. In particular, to pass part 2 requires a far more detailed assessment of residual risk. This is normally derived from undertaking a more detailed Level 2 Strategic Flood Risk Assessment to look at the most challenging site options identified in the Level 1 Assessment in greater detail, if the Level 1 Assessment has demonstrated that it is not possible to completely avoid flood risk altogether.

Flood Risk Vulnerability Classification

2.7 The online PPG sets out flood risk vulnerability classifications for various land uses as per Table 3 below. The classification acknowledges that not all land uses have the same vulnerability to flooding. Some land uses, such as residential developments, are more vulnerable to the potential loss of life and damage to personal property and possessions than retail or office developments for example.

2.8 By way of example, the table shows that within flood zone 1 all land uses are acceptable as flood risk is not considered to be a significant constraint to development. However, a flood risk assessment will be required on sites 1ha+ which will need to consider other potential sources of flood risk, such as surface water. In flood zone 3a, potentially suitable land uses are water compatible (e.g. minerals development) and less vulnerable (e.g. employment uses). More vulnerable uses (e.g. residential) and essential infrastructure uses (e.g. transport infrastructure) should only be permitted in this zone if the exception test is passed. Highly vulnerable development (e.g. caravans) should not be permitted in this zone. As the supporting notes however make clear, this is a consideration that should be looked at only after successful pass of the sequential test first. In other words, if the sequential test shows it is not possible to avoid flood risk completely, then you should look to see whether it is possible to substitute ‘less vulnerable’ land uses to the flood risk areas first and foremost before considering ‘more vulnerable’ land uses and so forth.
### PPG Table 3: Flood risk vulnerability and flood zone ‘compatibility’

<table>
<thead>
<tr>
<th>Flood Zones</th>
<th>Essential infrastructure</th>
<th>Highly vulnerable</th>
<th>More vulnerable</th>
<th>Less vulnerable</th>
<th>Water compatible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone 1</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Zone 2</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Zone 3a †</td>
<td>Exception Test required</td>
<td>X</td>
<td>Exception Test required</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Zone 3b *</td>
<td>Exception Test required *</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>✓*</td>
</tr>
</tbody>
</table>

**Key:**
- ✓ Development is appropriate
- X Development should not be permitted.

**Notes to table 3:**
- This table does not show the application of the Sequential Test which should be applied first to guide development to Flood Zone 1, then Zone 2, and then Zone 3; nor does it reflect the need to avoid flood risk from sources other than rivers and the sea;
- The Sequential and Exception Tests do not need to be applied to minor developments and changes of use, except for a change of use to a caravan, camping or chalet site, or to a mobile home or park home site;
- Some developments may contain different elements of vulnerability and the highest vulnerability category should be used, unless the development is considered in its component parts.

† In Flood Zone 3a essential infrastructure should be designed and constructed to remain operational and safe in times of flood.

"*" In Flood Zone 3b (functional floodplain) essential infrastructure that has to be there and has passed the Exception Test, and water-compatible uses, should be designed and constructed to:
- remain operational and safe for users in times of flood;
- result in no net loss of floodplain storage;
- not impede water flows and not increase flood risk elsewhere.

(*Paragraph: 067 Reference ID: 7-067-20140306 - Revision date: 06 03 2014*)
3.0 Local Policy Context

Strategic Flood Risk Assessment (Level 1 – November 2015)

3.1 As part of the evidence base for the Local Plan, the Council commissioned consultants JBA to undertake a Level 1 SFRA which was published in November 2015 and replaced the previous Level 1 Assessment published in 2009. One of the main purposes of the assessment is to understand flood risk from all sources (not just Main River flooding as per the EA Flood Zone Maps) to both the borough, and potential sites being considered through the Local Plan, and help ensure the requirements of national planning policy can be met. The study also identifies land for current and future flood management that should be safeguarded from future development. This evidence base provides the basis for the Local Plan to complete the flood risk sequential test, and sites have been assessed as part of the study. The study identifies 10 sites which are within, or partially within, the functional flood plain and recommends that these sites are withdrawn. There are also a number of sites where the assessment concludes that they should be reappraised once the Environment Agency has updated their fluvial and tidal modelling of the Lower Don. One of the other key outputs of the work is an interactive flood risk mapping tool which is available to view on the Council’s website and is of benefit to not just the Local Plan but day-to-day planning applications and the Development Management process.

Future Hydraulic Flood Modelling & Current Data Limitations for the Borough

3.2 As eluded to as part of the Strategic Flood Risk Assessment evidence base above, there are significant limitations as to what further work can be undertaken to understand the residual flood risks to the borough in more detail until further hydraulic modelling is completed by the Environment Agency. At the time of writing, the Environment Agency has provided the following update (Autumn 2019).

Table 2: EA Modelling Summary

<table>
<thead>
<tr>
<th>Model/Study</th>
<th>EA Area</th>
<th>Consultant</th>
<th>DMBC district</th>
<th>Detail</th>
<th>Timescales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper Humber Flood Risk Mapping Study</td>
<td>Yorkshire Area</td>
<td>JBA</td>
<td>River Don (downstream of the railway line Barnby Dun)</td>
<td>This study follows a review of the Humber Flood risk Management Strategy after tidal surge experienced in December 2013. The study builds upon previous work by improving understanding of tidal and fluvial interaction, floodplain interactions and the risk from defence breaches. Breach scenarios do not include an allowance for climate change.</td>
<td>Now complete</td>
</tr>
</tbody>
</table>

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1 Doncaster Council (2015) SFRA Level 1  
http://www.doncaster.gov.uk/services/planning/development-and-floodrisk

2 Doncaster Council (2015) SFRA Level 1 Interactive Flood Map  
http://doncaster.opus3.co.uk/ldf/maps/SFRA#x=459170.0007745&y=404513.49847077&scale=17500
<table>
<thead>
<tr>
<th>Area</th>
<th>Modelling Study</th>
<th>JBA</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middle and Lower Don</td>
<td>Yorkshire Area</td>
<td>JBA</td>
<td>This project reviews the EA flood mapping (i.e. flood zones),</td>
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<td>Modelling Study</td>
<td></td>
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<td>investigates defended and undefended scenarios, and takes</td>
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<td>account of the February 2016 climate change predictions. The</td>
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<td>defended model outputs have now been signed off for use and the</td>
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<td></td>
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<td>breach modelling has been scoped and is due to be run shortly.</td>
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<td>Yorkshire Area</td>
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<td>Defended modelling now signed off for use. Breach modelling</td>
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<td></td>
<td></td>
<td></td>
<td>currently being scoped</td>
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<tr>
<td>The River Torne &amp; Three</td>
<td>East Midlands Area</td>
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<td>This work models all the main rivers that drain to Keadby Pumping</td>
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<td>Rivers Modelling</td>
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<td>Station, including North Soak, South Soak, Hatfield Waste, and</td>
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<td>North level Engine. Note - This modelling should be used in</td>
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<td>conjunction with the SFRA and critical flood levels (CFL) when</td>
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<td>proposing finished floor levels.</td>
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<td></td>
<td>This modelling was completed in January 2019 and is now publicly</td>
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<td></td>
<td>available.</td>
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<tr>
<td>River Idle &amp; River Ryton</td>
<td>East Midlands Area</td>
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<td>The River Idle and River Ryton modelling - these drain to West</td>
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<td>modelling &amp;</td>
<td></td>
<td></td>
<td>Stockwith Pumping Station. Both models are trying to improve the</td>
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<tr>
<td>Isle of Axholme (IoA)</td>
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<td>EA’s flood risk data in the area, which at present is heavily reliant</td>
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<tr>
<td>Flood Risk Management</td>
<td></td>
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<td>upon a wider Isle of Axholme Flood Risk Management Strategy, which</td>
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<tr>
<td>Strategy (FRMS)</td>
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<td>was more an exercise of scenario running for the strategy, rather than</td>
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<td>specific flood risk modelling from individual watercourses.</td>
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<td></td>
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<td></td>
<td>Modelling is in the final stages and is programmed for delivery</td>
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<td>before the end of 2019.</td>
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<td>The IoA FRMS was signed off by DEFRA in 2014. Note - A letter is due to</td>
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<td>be sent back to DEFRA imminently in 2019 detailing how the EA</td>
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<td>will continue to implement the recommendations of the IoA FRMS</td>
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Figure 8: Environment Agency Existing & Planned Flood Modelling Programmes

(Source: The Environment Agency; 2019)
Strategic Flood Risk Assessment Level 2

3.3 As set out above, national policy requires a Strategic Flood Risk Assessment Level 2 to be undertaken to satisfy the requirements of the exception test at plan-making stage, if the sequential test has demonstrated that it is not possible to avoid flood risk first and foremost. As set out above, the EA are updating several hydraulic river models in and around the Doncaster area as many of the existing models are considered out of date. These updates will be used to update the EA’s Flood Map for Planning and also the functional flood plain.

3.4 Due to the timing of the EA modelling, as well as the timetable for preparing the Local Plan, the Council could not wait for the updates to the flood zones to take place and there is insufficient detailed data available to assess residual risk to key settlements and potential development sites until the EA modelling is completed. One of the main outcomes of a full Level 2 study should be to provide evidence that is needed for an assessment of feasibility (and contribute to viability assessment) of selected development sites as well as ensuring that the sites will be safe for their lifetime. As such, there is insufficient evidence available to produce an adoptable NPPF complaint Level 2 study for the time being. The Council acknowledges that, in order to assess the likelihood of potential sites passing the exception test, and therefore be compliant with NPPF, we must produce a Level 2 SFRA once the EA model updates are completed. The Council is committed to this at the earliest opportunity; however it will not be possible to have this part of the evidence base available prior to Publication and Submission/Examination of this Local Plan.

North Lincolnshire Strategic Flood Risk Assessment (November 2011\(^3\) & Update 2019)

3.5 Due to the data limitations, in discussion with the EA, the Council has been advised to draw on the North Lincolnshire SFRA (November 2011) in recent years for development sites around the Thorne-Moorends and Hatfield-Stainforth areas. This study has provided a potential floor level of up to 4.1m AOD to be used for planning purposes, with finished floor levels 300mm above this level (i.e. at 4.4m AOD). Due to residual flood risk, finished floor levels should aim to be 4.4m AOD as a starting point. However, it is acknowledged that viability issues and existing AOD may result in lower finished floor levels which will need to be confirmed through a site specific flood risk assessment and subject to agreement with Doncaster Council and the EA. Until the latest modelling is available, the Council continues to work to these as a starting point for planning applications, although it is noted that these are quite challenging levels to achieve given existing low lying nature of the area, and viability is also often at issue. The same levels would need to be assumed through the Local Plan and any new development allocations it is seeking to make in these areas. We are aware that North Lincolnshire Council have recently carried out a ‘light touch’ update to their SFRA where they have lowered the FFL requirements to 4.1mAOD. This was due to the fact that the 4.1mAOD level already incorporated approximately 600mm of resilience to account for residual uncertainty and a further 300mm was added by North Lincolnshire Council to be extra cautious. North Lincolnshire Council have decided to remove the requirement for the further 300mm.

Doncaster Development & Flood Risk Supplementary Planning Document (October 2010\(^4\))

3.6 The Supplementary Planning Document (SPD) was prepared in response to the publication of national planning policy that required the flood risk sequential and exception tests (Planning Policy Statement 25: Development & Flood Risk) to provide guidance on how


the requirements should be interpreted and applied to the Borough to reflect its local circumstances, including the Local Development Framework Core Strategy that was under preparation at that time. It should be noted that some of the technical guidance provided by the SPD has now been superseded by more up to date evidence. The SPD will need to be reviewed and re-adopted to formally sit under the Local Plan once it's adopted to provide further detail for planning applications if this level of local policy detail is still necessary post adoption of the new Local Plan.

**Local Flood Risk Management Strategy (July 2014)**

3.7 The Flood and Water Management Act (2010) gave local authorities a new role to manage local flood risk in their area. Doncaster Council, as per all local authorities, has been designated as ‘Lead Local Flood Authority’ and is required to have a Local Flood Risk Management Strategy (LFRMS) for our area in line with the national strategy. The Council adopted its LFRMS in July 2014 and its purpose is to set out a clear plan for future flood risk management in Doncaster, ensuring people, businesses, communities and other risk management authorities have an active role in how flood risk is managed. The scope of the strategy is to consider flooding from all sources, but it specifically focuses on the local flood risks from surface water run-off, groundwater and ordinary watercourses. The management of flooding from main rivers remains the responsibility of the Environment Agency.

**Flood Risk Management Plans**

3.8 Under the EU Floods Directive (2008), the EA is required to prepare Flood Risk Management Plans for flooding from main rivers, reservoirs and the sea, for all river basin districts in England, there are 10 altogether.

**Neighbourhood Plans**

3.9 Through the Localism Act, the government has given local communities new powers to have a direct say in the future development of their neighbourhood, parish or town. A Neighbourhood Plan is a planning document that guides and shapes development in the local area and is created by local people, mainly in Doncaster’s case a Town/Parish Council. Neighbourhood Plans are about local development issues. For example, where new homes and shops should go, or what places should look like. Neighbourhood Plans need to be in general conformity with national planning policy as well as the strategic local planning policies contained in the Local Plan. In Doncaster, a number of Town/Parish Councils have expressed an interest in preparing a Neighbourhood Plan, and some are already adopted, with others at various stages of the process. At the time of writing, 11 Neighbourhood Plans have either been prepared (‘made’) or are under preparation at: Burghwallis; Tickhill; Bawtry; Armthorpe; Edlington; Thorne-Moorends; Rossington; Edenthorpe; Auckley; Stainforth; and, Sprotbrough.

3.10 The Thorne-Moorends Neighbourhood Plan is the most challenging in respect to flood risk given the whole of Moorends is flood risk zone 3, and the vast majority of Thorne is also, with the exception of a relatively small developed central area of the town which is low flood risk (flood risk zone 1). The Draft Neighbourhood Plan is looking to make a small number of housing allocations within the flood risk zone 1 part of Thorne, but due to the data limitations and lack of evidence base on which to base the exception test, looking for the Local Plan to bring forward the remainder of the development needs for the area over the plan period to 2035.

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3.11 Given the data limitations are also prevalent for the Local Plan, it is proposed that the Local Plan will ensure sufficient development sites are identified to meet the settlement’s local housing need requirement of 510 dwellings and will use the draft Neighbourhood Plan allocations as a starting point. Planning permissions see an allocation towards the middle of the growth range being proposed. The Local Plan also commits the Council to commissioning a Level 2 Strategic Flood Risk Assessment at the earliest opportunity (including the potential to review the Level 1 Assessment pending the significance of the changes following the EA modelling). The Town Council could then rely on this up-to-date evidence base for flood risk to either revisit the current emerging Neighbourhood Plan, or carry out an early review of the Neighbourhood Plan depending on timescales, with a view to looking to identify and allocate additional development in the two towns in accordance with the sequential and exception Tests. Neighbourhood Plans are entitled to plan for more growth than that set out in the Local Plan. The Doncaster Local Plan acknowledges that, notwithstanding the flood risk challenges and lack of detailed data to understand the residual risks to the area, the settlement is otherwise a sustainable location for future growth and would otherwise have been expected to contribute towards the top of the economic-growth led housing requirement of around 1,020 new homes. The Draft Neighbourhood Plan also commits to an early review and the scope to do this assuming the current timetables of both the Local Plan and Neighbourhood Plan are met and concluded prior to the EA modelling being finalised first.
4.0 Approach to Local Plan Spatial Strategy, Housing & Flood Risk

4.1 The Local Plan spatial strategy has been informed by numerous evidence base documents and must also conform to national planning policy and its emphasis on bringing forward sustainable development. Although the policy context of this paper has primarily focussed on what this means in terms of development and flood risk, national policy, as well as local priorities and conditions, must consider sustainability in the round and the three key strands of social, economic and environmental sustainability.

National Planning Policy & Housing

4.2 In respect to the Local Plan’s overall approach to housing and its distribution, there is a clear emphasis through NPPF to:

- boost significantly the supply of housing; for Local Plans to meet the full objectively assessed needs for market and affordable housing; and, identify and maintain a 5-year supply of deliverable land for new dwellings;
- plan for a wide choice of high quality homes and create sustainable, inclusive, and mixed communities;
- promote sustainable development in rural areas and locate housing where it will enhance or maintain the vitality of rural communities, although isolated housing in the countryside should normally be resisted;
- allocate sites to meet identified housing need for years 6-15 of the plan period, where possible;
- demonstrate that development allocations are developable in the plan period;
- justify any loss of the Green Belt through demonstrating exceptional circumstances; and,
- follow a sequential approach to flood risk, directing new development to low risk areas over medium-high risk areas where possible.

Objectively Assessed Need for Housing

4.3 The Local Plan’s housing requirement was first established through the 2015 Housing Needs Assessment which provided an objectively assessed housing need target for the borough of 920 new homes per year. In July 2017, an Appeal decision by a Planning Inspector (Westminster Drive, Dunsville) ruled that the Appellant’s view that the objectively assessed housing need should be 1,370 homes per annum was more robust and reliable than the Council’s 920 homes per year (although this was successfully overturned through the subsequent High Court challenge). Simultaneously, the Council was faced with another Appeal for the refusal of a planning application (Mere Lane, Edenthorpe) where the Council’s 920 target was again being challenged. Given these Appeals, it was necessary to update the employment and housing evidence base to ensure the Local Plan was informed by up to date and robust information.

4.4 Late 2017, the Council commissioned Peter Brett Associates to update the economic forecasting and housing needs for the borough. This work was finished in June 2018 and was published as part of the September 2018 Local Plan consultation. The report was prepared during a period when the Government’s policy approach to calculating objectively assessed housing need was in a state of flux with a move towards a standard methodology for calculating local housing need, but with much of the confirmed detail unavailable at that point in time (including exactly when the standard methodology would come into effect) so needed to consider both the current and proposed methods.

4.5 The starting point was the Government’s new method for assessing housing need. This methodology provides a standardised means of calculating housing need for all Councils in
the country. For Doncaster, it showed that (at that time) the housing need was 585 new homes per year. The standard methodology requirement should be considered as the minimum starting point in establishing a need figure, and for some Authorities it may be appropriate to apply an economic uplift to produce a higher figure which takes account of anticipated growth and infrastructure investment, such as the case with Doncaster.

4.6 The 2014 population projections predicted that there is insufficient people in the borough to meet labour demand for either of the 2 scenarios forecasted, and therefore to ensure economic growth can be achieved the borough requires a larger population and therefore housing growth as well which is above the 2014 projections. The report calculates the additional population required to meet the jobs-led growth and then converts that population into housing using the 2014 household projections in respect to household formation rates and sizes.

4.7 This concluded that the Borough’s objectively assessed housing need requirement would be 912 new homes per year, so a difference of only 8 homes per year compared to the 920 target. The objectively assessed housing need of 912 was so similar to the target of 920 (which had been subject to previous local plan consultation already) that it justified retaining the 920 target for the purposes of allocating sites in the local plan for housing.

4.8 Duty to Cooperate discussions have not identified the need to plan for any shortfall in housing provision from any other local authority area, and likewise the borough is planning to meet all of its OAN within the borough as authorities have confirmed that they are unable to accommodate any of Doncaster’s housing need at present.

**Settlement Audit**

4.9 The Settlement Audit (December 2015; updated 2017\(^6\)) provides an up-to-date picture of service provision across the borough. It identifies 12 key services (6 primary and 6 secondary) and provides an audit of these for each community; this reveals a clear hierarchy of settlements in terms of size and service function:

i) The Main Urban Area of Doncaster (including the Town Centre and surrounding commercial and industrial areas and residential suburbs) is a sub-regional centre that provides services for the whole borough and beyond.

ii) 7 Main Towns with populations around and above 10,000 each have 10 or more of the 12 key services. These are:

1) Adwick-le-Street;
2) Armthorpe;
3) Conisbrough-Denaby;
4) Hatfield-Stainforth (including Dunscroft & Dunsville);
5) Mexborough;
6) Rossington; and,
7) Thorne-Moorends.

iii) 6 smaller coalfield and market towns and villages with populations of 3,400 - 8,300 provide at least 7 of the key services and 4 large villages with populations over 1,000 each provide 4 or 5 key services. These are:

1) Bawtry;
2) Tickhill;
3) Askern;
4) Edlington;

\(^6\) Settlement Audit Update (2017) [http://www.doncaster.gov.uk/services/planning/settlement-audit](http://www.doncaster.gov.uk/services/planning/settlement-audit)
5) Sprotbrough;  
6) Carcroft-Skellow;  
7) Barnby Dun;  
8) Auckley-Hayfield Green;  
9) Finningley; and,  
10) Barnburgh-Harlington

4.10 All these settlements are considered to have a service function, that is they have at least 4 of the 12 key services of which at least 2 are primary key services (as defined in the Settlement Audit). Elsewhere there are a further 40 Defined Villages, and a number of villages and hamlets that do not have a defined settlement boundary and are washed over by Green Belt or Countryside Policy Area. All of the 40 Defined Villages, and undefined settlements, are not considered sustainable settlements in line with national policy to direct new housing allocations towards the allocated supply and are therefore not considered any further.

**Housing & Economic Land Availability Assessment**

4.11 The HELAA (Updated 2018) identifies the housing potential of settlements based on an initial assessment of land available, primarily sites put forward through the ‘call for sites’ stage, but also other sources of supply such as planning permissions and existing sites allocated for housing in the development plan, but not yet advanced to permission status. The settlements identified by the Settlement Audit are set out below with the headline deliverable/developable supply broken down by constraint, including flood risk (Table 4). In brief, and specifically in relation to flood risk:

- at the Doncaster Main Urban Area there are 45,218 units on sites that are not at risk of flooding, or 72% of the potential supply for the settlement;
- all of the Main Towns have in excess of 1,200 units on sites that are not at risk of flooding, with the exception of Thorne-Moorends where just 200 units not at risk of flooding have been identified which reflects the fact that the vast majority of the settlement, and its surrounding area, are within flood risk zone 3;
- the Service Towns all have a potential supply of non-flood risk sites, all of the capacity at Barnburgh-Harlington, Edlington, and Sprotbrough, and virtually all at Tickhill and Bawtry, is on Flood Risk Zone 1. 78% of the potential supply (659 dwellings) at Barnby Dun is on high flood risk sites;
- HELAA also identifies a significant supply of sites with permission, including sites under construction, as at 1st April 2018. There are 12,293 units identified, of which the vast majority (10,119 units) are deliverable/developable in the first 15 years. 6,291 units are deliverable 0-5 but the 5-Year Land Supply Statement makes any necessary discounting of this supply based on a ‘policy-on’ position. The majority of the supply beyond the first 15 years is attributed to a single large mixed-use project at Hatfield-Stainforth known as Unity which includes 3,100 new homes.

4.12 Although the HELAA is an important part of the Local Plan evidence base and provides some initial indication of land availability and its potential constraints, it is a ‘policy-off’ assessment and sites need to be considered further in terms of not just flood risk, but also other site constraints (e.g. access) as well as national/local policy constraints (Green Belt, competing land uses etc) and further work on sustainability and viability in order to ascertain properly whether a site should be allocated in the Local Plan. HELAA does however give an indication that the Main Town of Thorne-Moorends and Service Town of Barnby Dun have

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7 Housing & Economic Land Availability Assessment (2018)  
challenges with very few sites that are free from flood risk constraint regardless of wider Planning considerations.

### Table 4: Housing Deliverable/Developable Supply by Site Type/Constraint

<table>
<thead>
<tr>
<th></th>
<th>Total Deliverable/Developable Supply (First 15 Years)</th>
<th>Green Belt Units</th>
<th>%</th>
<th>Flood Zone 1 Units</th>
<th>%</th>
<th>Flood Zone 2 Units</th>
<th>%</th>
<th>Flood Zone 3 (a) Units</th>
<th>%</th>
<th>Flood Zone 3 (b) Units</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Doncaster Borough Total</strong></td>
<td>63047</td>
<td>23029</td>
<td>37</td>
<td>45218</td>
<td>72</td>
<td>3369</td>
<td>5</td>
<td>14370</td>
<td>23</td>
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<td><strong>Doncaster Urban Area</strong></td>
<td>17273</td>
<td>6191</td>
<td>36</td>
<td>13084</td>
<td>76</td>
<td>1048</td>
<td>6</td>
<td>3109</td>
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<tr>
<td><strong>Main Towns Total</strong></td>
<td>23219</td>
<td>4822</td>
<td>21</td>
<td>13638</td>
<td>59</td>
<td>1181</td>
<td>5</td>
<td>8359</td>
<td>36</td>
<td>54</td>
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<tr>
<td><strong>Adwick-le-Street/Woodlands</strong></td>
<td>1894</td>
<td>1331</td>
<td>70</td>
<td>1577</td>
<td>83</td>
<td>209</td>
<td>11</td>
<td>108</td>
<td>6</td>
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<td><strong>Armthorpe</strong></td>
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<td>0</td>
<td>2203</td>
<td>60</td>
<td>193</td>
<td>5</td>
<td>1270</td>
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<td><strong>Conisbrough-Denaby</strong></td>
<td>2499</td>
<td>1734</td>
<td>69</td>
<td>2094</td>
<td>84</td>
<td>106</td>
<td>4</td>
<td>246</td>
<td>10</td>
<td>52</td>
<td>2</td>
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<tr>
<td><strong>Hatfield - Stainforth (inc Dunsforth &amp; Dunsville)</strong></td>
<td>5833</td>
<td>0</td>
<td>0</td>
<td>3221</td>
<td>55</td>
<td>239</td>
<td>4</td>
<td>2373</td>
<td>41</td>
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<tr>
<td><strong>Mexborough</strong></td>
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<td>769</td>
<td>54</td>
<td>1280</td>
<td>89</td>
<td>45</td>
<td>3</td>
<td>108</td>
<td>8</td>
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<td><strong>Rossington</strong></td>
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<td>3064</td>
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<td>387</td>
<td>11</td>
<td>113</td>
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<tr>
<td><strong>Thorne - Moorends</strong></td>
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<td>0</td>
<td>200</td>
<td>5</td>
<td>2</td>
<td>0</td>
<td>4143</td>
<td>95</td>
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<tr>
<td><strong>Service Towns/Villages Total</strong></td>
<td>12822</td>
<td>5707</td>
<td>45</td>
<td>10473</td>
<td>82</td>
<td>837</td>
<td>7</td>
<td>1508</td>
<td>12</td>
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<td><strong>Askern</strong></td>
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<td>585</td>
<td>45</td>
<td>795</td>
<td>62</td>
<td>488</td>
<td>38</td>
<td>9</td>
<td>1</td>
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</tr>
<tr>
<td><strong>Auckley-Hayfield Green</strong></td>
<td>2445</td>
<td>0</td>
<td>0</td>
<td>2265</td>
<td>93</td>
<td>56</td>
<td>2</td>
<td>124</td>
<td>5</td>
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<tr>
<td><strong>Barnburgh-Harlington</strong></td>
<td>214</td>
<td>189</td>
<td>88</td>
<td>213</td>
<td>100</td>
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<tr>
<td><strong>Barnby Dun</strong></td>
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<td>1040</td>
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<td>1254</td>
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<td>34</td>
<td>3</td>
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<tr>
<td><strong>Carcroft - Skellow</strong></td>
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<td>1297</td>
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<td>731</td>
<td>54</td>
<td>99</td>
<td>7</td>
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<td>39</td>
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<td><strong>Edlington</strong></td>
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<td>1423</td>
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<tr>
<td><strong>Finningley</strong></td>
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<td><strong>Sprotbrough</strong></td>
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<td>700</td>
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<td><strong>Tickhill</strong></td>
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</tr>
</tbody>
</table>

(Source: HELAA 2018 Update)
Local Plan Issues & Options Consultation & Sustainability Appraisal

4.13 During summer 2015, the Council consulted on an early statutory stage of the Local Plan process known as the Issues & Options (July 2015\(^8\)) which set out 3 broad options for where to direct growth across the borough to meet the plan’s vision, aims and objectives. 3 further Options (New Settlement; Low Growth/Environmental Protection Strategy; and a Total Dispersal Strategy) were identified but rejected as being reasonable options to progress further. Therefore the 3 main Options were:

- Option 1 was to continue with the existing Local Development Framework Core Strategy;
- Option 2 set out a less dispersed approach than the Core Strategy with a fewer number of towns and villages targeted for growth;
- Option 3 set out a more dispersed approach than Options 1 & 2 with more towns and villages targeted for growth.

4.14 The Sustainability Appraisal (SA July 2015\(^9\)) process identified that overall Option 2 was considered to be the most sustainable of the strategic options in terms of distributing growth and development across the borough; Option 1 was also identified as being suitable and deliverable. Options 1, 2 and 3 all will help reduce social exclusion, poverty and disadvantage through directing growth to areas in need of regeneration and investment with good access to jobs and services. However, a more dispersed pattern of growth could also dilute benefits associated with achieving a larger critical mass and lead to higher levels of car usage and longer journey times.

4.15 Specifically in relation to flood risk (objective 11), all 3 options were identified as performing the same by the SA with score of +/- of potential effects, so potential positive and significant negative effects predicted from all 3 options. All 3 options are seen to perform positively through helping to combat the need to travel by non-sustainable modes via directing development to our most sustainable settlements, with a good range of services and facilities, and thus helping to reduce greenhouse gas emissions and the effects of climate change which is likely to lead to increased flooding in the future. However, there are potential negative effects also which reflects the significant constraints that the borough has in terms of flood risk to some of its towns and settlements such as Thorne-Moorends where virtually any future growth and development would require land at risk of flooding. However, the actual effects for this objective will depend on far further levels of detail around site availability and wider Local Plan planning considerations which have been informed by further iterations of SA.

Local Plan Homes & Settlements Consultation & Sustainability Appraisal

4.16 Following the Issues & Options consultation, a further consultation was undertaken in spring 2016 (Homes & Settlements 2016\(^10\)) to set out the preferred approach for distributing new housing in light of the feedback from the consultation of the 3 strategic growth options. In summary, feedback from the summer Issues & Options 2015 consultation set out 2 clear messages:

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The larger and more sustainable urban areas ought to be the main focus for housing growth and this should include making good use of brownfield sites including sites in flood zones provided these are, or could be made, safe; and,

Local housing needs should be met locally and this should extend to those smaller settlements that provide a good range of services; there was recognition that this larger spread of locations should provide for a better mix and choice of sites and would include sites in parts of the borough that would likely prove more attractive to the housing market and so improve the delivery of new homes.

4.17 The responses supported strongly Options 1 and 2 but there was significant support for providing housing close to where services were available to meet local need. There was also support for various forms of a hybrid option. There was very little support for the other 3 rejected options. The consultation responses were assessed alongside the SA and a hybrid approach/Option has been taken forward which looks to direct the economic-led housing growth to the larger and more sustainable urban areas (as per Option 1 and especially Option 2) and local housing needs are distributed to a wider range of service towns and villages as per Option 3. The hybrid option has been subject to further SA (March 2016) and, overall for SA objective 11: manage & adapt to climate change, the hybrid option is predicted to score the same positive/significant negative effects as already identified for the 3 original strategic options (+/-).

4.18 Meeting local housing needs locally is an important principle that is reflected in the local plan aims and objectives and supports sustainability principles. It is proposed that this can provide the basis for exceptional circumstances to take land out of the Green Belt where there are no non-Green Belt options or where such options are demonstrably less sustainable. It is proposed that it can also provide the basis for allocating housing sites in flood risk areas provided sites are, or can be made, safe.

4.19 The economic-led housing growth is to be distributed to Doncaster and the Main Towns only, not on a pro-rata basis but in accordance with growth ranges that will provide some flexibility to select the most sustainable and deliverable sites across these settlements. The Settlement Audit shows that Doncaster and the seven Main Towns are clearly larger than, and have a greater service function than, other settlements in the borough. It is proposed that 60-70% of the economic-led housing growth is directed to Doncaster Main Urban Area in recognition of its status as a sub-regional centre that serves the whole borough and a wider catchment. It is proposed that up to 10% of the economic-led housing growth is distributed to each of the Main Towns.

4.20 The exact distribution of the allocation of the economic-led housing growth element across Doncaster Main Urban Area and the Main Towns will be in accordance with the site selection methodology. This comprises a sustainability appraisal of sites but also has regard to the findings of HELAA, the distribution of existing planning permissions (that are sustainable and deliverable), progress with neighbourhood plans, a sequential approach to flood risk and the need to demonstrate exceptional circumstances to justify taking land out of the Green Belt. Exact allocations in the Main Towns can therefore range completely from 0% to 10%.

Draft Policies & Proposed Sites Consultation – September 2018

4.21 This consultation retained the approach consulted on through the Homes & Settlements stage above. The consultation identified that is has been possible to meet the strategy’s housing numbers and distribution, in line with the settlement hierarchy, through the use of permissioned sites in flood zones (where they are deliverable/developable and will be safe for their occupiers) and through only allocating additional housing sites on sites at low risk of
flooding (or reduction is capacity for sites where there is a small element of flood zone 3 on the site – see sites section). As such, it has not been necessary to look at bringing forward flood zone 2/3 housing sites to meet local housing need as the requirements for each town/village have been met, notwithstanding the problems of doing so anyway given the data limitations and lack of Level 2 SFRA.

Publication – August 2019

4.22 Following the 2018 consultation, housing supply in the Local Plan has been updated in line with the latest monitoring (April 2018) and the plan period has been extended to 2035 in line with NPPF changes in 2018 that makes clear that there should be a minimum of 15 years left of the plan period from date of adoption. Completions during the first 3 years of the plan period have been deducted from the plan period housing requirement and the residual requirement allocated on sites in line with the previous consultations set out above.
5.0 Approach to Local Plan Spatial Strategy, Employment & Flood Risk

**National Planning Policy & Employment**

5.1 In respect to Local Plan’s and their overall approach to employment and its distribution, national planning policy has a clear emphasis on:

- planning proactively and supporting sustainable economic growth to create jobs and prosperity to meet the development needs of businesses and support an economy that’s fit for the 21st century;
- addressing potential barriers to investment (poor environment; lack of infrastructure; services or housing) whilst not overburdening investment through planning policy contributions;
- setting a clear economic vision and strategy for the area with criteria (or strategic sites identified) for local and inward investment to match the strategy and meet anticipated needs over the plan period;
- supporting the expansion/contraction of existing businesses, whilst planning for new/emerging sectors;
- drawing up flexible policies to allow for non-anticipated development in the plan and allow a rapid response to changes in economic circumstances;
- planning positively for the location, promotion and expansion of clusters or networks of knowledge driven, creative or high technology industries;
- identifying priority areas for economic regeneration, infrastructure provision and environmental enhancement;
- facilitating flexible working practices such as the integration of residential and commercial uses within the same unit;
- avoiding the long-term protection of sites where there is no reasonable prospect of a site being delivered for that use;
- demonstrate that development allocations are developable in the plan period;
- justifying any loss of the Green Belt through demonstrating exceptional circumstances; and,
- following a sequential approach to flood risk, directing new development to low risk areas over medium-high risk areas where possible, but taking into account wider sustainability issues.

**Employment Land Needs Assessment 2019 Update**

5.2 An independent economic forecast for Doncaster for the new Local Plan period resulted in an employment land requirement figure of 481 hectares being set, using a specific Doncaster based methodology as set out in full in the Employment Land Needs Assessment 2019 Update. The ‘Jobs Led’ scenario has been selected for the Local Plan which is considered ambitious but realistic. Evidence of land take up and jobs growth for the period 2015 to 2018 suggests that Doncaster is on target to meet the 1% jobs growth per annum. The requirement figure comprises 409 ha based on forecast jobs growth up to 2032 (a 1% per annum rate) plus an additional 72 ha ‘pro-rata’ for the extension of the plan period to 2035 (i.e. three additional years). This figure of 481 ha is used in the Local Plan to determine planning policy as well as the amount of allocated land required. The allocations will need to meet that requirement whilst taking the amount of extant planning permissions into account.

5.3 Generally, land towards the North East of the borough falls within Flood Zones 2 or 3. There are other smaller instances of flood risk in the borough outside of this general area. Before potential allocations could be identified to meet the employment land requirement, a flood risk sequential test needed to be applied and justified to demonstrate how flood risk avoidance informed the overall approach to employment land distribution. Each employment land use category is addressed in turn below:
**B1 Offices**

5.4 B1 Offices are proposed to be predominately within Doncaster town centre but also within other town centres (Mexborough and Thorne), and Doncaster Sheffield Airport (aviation related uses) and Local Centres. A separate sequential test will be required for town centre uses including offices to ensure the vitality of town centres.

5.5 The Local Plan identifies a town centre boundary which reflects the Town Centre Masterplan as endorsed by the Council’s Executive. Map A: Employment Areas of Search for Offices, Business and General industrial and Storage and Distribution shows the preferred locations for office uses.

**B2 Business and General Industrial**

5.6 These uses are considered suitable within various locations in the borough where there is good connectivity to the Main Urban Area, and Main Towns including sites at Doncaster Sheffield Airport/Aero Centre Yorkshire, Unity and Carcroft Common and where all other relevant planning policy considerations are satisfied. It is therefore proposed to define an area of search for new business and general industrial (B1 b & c and B2) allocations within a defined sustainable travel distance from the outer boundary of existing urban areas. The boundary of urban areas is defined by the existing Green Belt and Countryside Policy Area boundaries as set by the Unitary Development Plan (July 1998).

5.7 This area of search is defined to allow for reasonable walking distances from the edge of existing urban areas to places of work. The Local Plan’s Sustainability Appraisal Site Assessment Methodology, in defining access to buffers for access to town centres / schools/ GP surgeries, etc., uses Institution of Highways & Transportation (IHT) guidance and includes recommendations for ‘commuting’ for a 500 metre “desirable” walking distance, a 1000 metre “acceptable” walking distance and a ‘preferred maximum’ walking distance of 2000 metres.

5.8 On balance it is considered appropriate to use a 500 metre walking distance from the outer boundary of existing urban areas to define a search area for Business and General Industrial uses.

5.9 Map A: Employment Areas of Search shows the existing urban areas and the 500 metre buffer zone.

**B8 Storage and Distribution**

5.10 This use is directed to the M18 corridor taking account of previous levels of delivery, market requirements and demand, and available road capacity. This approach supports national policy. The development of these sites signals the significant shift from Doncaster’s traditional industrial role to one taking advantage of its historical position on the national road transport network.

5.11 Sheffield City Region policy also supports growth in logistics in the east of Doncaster. One of the key themes of the City Region Transport Strategy is improving connectivity to improve business efficiency and productivity recognising the role of Doncaster at the heart of the Sheffield City Region logistics sector and it seeks to further enhance this role. This policy seeks to take advantage of:

- availability of multi modal transport infrastructure, in particular iPort, Doncaster Sheffield Airport, Doncaster Railport and Doncaster Town centre Bus/Train Interchange;
- access to the Humber Ports;
• access to the strategic road network;
• availability of sites capable of accommodating large footprint buildings.

5.12 This approach has been supported by workshops held during the preparation of the Employment Land Needs Assessment (ELNA)\textsuperscript{11}. The ELNA also highlights the recent growth in employment land along the Borough’s motorway corridors especially the M18 where there is no capacity constraints unlike the A1(M) corridor.

5.13 A boundary has been defined of an area to apply the sequential test for B8 warehousing and distribution uses in the M18 corridor as follows:

• Analysis of development over the last 10 years has shown that B8 developments are located within approximately 1km of motorway junctions (on both the A1 and M18).
• The opening of the Great Yorkshire Way (formally FARRRS) corridor and the existing airport which are supported by the Local Plan and Sheffield City Region Growth Plan.
• Access to urban areas that contain large pools of labour that will serve the types of job available in distribution. Such labour, due to low wage costs, will require use of public access, walking and cycling distances.

5.14 The M18 corridor is therefore defined by a 1km travel distance (using a radius) from motorway junctions which represent the prime locations for B8 type development. Access to the M18 junctions can also be achieved via certain major road links, avoiding residential areas and other sensitive land uses and, where these are in turn served by major roundabouts/junctions to the road link, a further search area is defined based on a travel distance (using a radius) of 500 metres at the roundabout/junction furthest from the motorway. (The distance is reduced from 1000 metres to 500 metres in recognition that access to the M18 is not direct).

5.15 This includes land at Doncaster Sheffield Airport/ Aero Centre Yorkshire in recognition of the access provided by the Great Yorkshire Way link road which provides direct access to the M18.

5.16 As access is required to urban areas and its public transport accessibility, the eastern side of the M18 is excluded from the M18 boundary between junction 3 and 5.

5.17 Map A: Employment Areas of Search shows the resulting area of search based on the figures above.

\textsuperscript{11} Market Intelligence Workshop held April 2015, page 25 of the Employment Land Need Assessment 2015
Map A: Employment Areas of Search for Offices, Business and General Industrial and Storage and Distribution
6.0 Approach to Areas of Search for Renewable Wind Energy Generation

6.1 The Local Plan Policies Map identifies Areas of Search for potential renewable energy generation in relation to wind power (as identified in Figure 11 below also). These areas have been identified by technical evidence base studies. The Doncaster Renewable and Low Carbon Energy Study explored the technical potential for ‘large scale’ wind energy developments. The term ‘large scale wind’ describes the development of commercial scale wind turbines and wind farms. These typically comprise turbines of 1 MW or more with hub heights of circa 100m or more. To be considered commercially viable, wind speeds greater than 6.0m/s at 100m are needed. The majority of Doncaster has a high enough average annual wind speed to ensure that wind turbine development is economically viable. Although the speeds for wind across Doncaster appear to be technically viable, there are a number of other practical, social and environmental constraints that need to be considered. The process of physical constraint mapping has been used to identify which sites are likely to have potential for large wind turbine location. The sieve mapping process is available at Appendix 1.

6.2 Landscape character is important as it often informs much of the debate around wind development. There are two principal landscape types in Doncaster- the South Magnesian Limestone, and the Humberhead Levels. The Doncaster Landscape Character Assessment highlights potential areas of moderate landscape sensitivity where wind power schemes may be more suitable. It also highlights areas that will be sensitive to such development, particularly parts of the Green Belt in the west, the airport in the east and the internationally important Thorne and Hatfield Moors. Generally, the Magnesian Limestone areas, as well as the flood plain surrounding the former Thorpe Marsh Power Station are considered to be of moderate capacity for wind development. However, the Magnesian Limestone areas are located within the Green belt where development is only permitted under exceptional circumstances. As well as being Green Belt, the limestone ridge areas identified contain a number of important country houses and parklands as well our distinctive limestone villages. Elsewhere, the Humberhead Levels are considered to have low landscape capacity for wind turbines. Omitting these areas of low landscape capacity reduces the theoretical land available for wind development and reduces the potential technical installed capacity.

6.3 Therefore, the designated Area of Search for Wind Energy Developments proposed on the Policies Map focuses on directing ‘large scale’ wind turbines to the less sensitive locations within the Don flood plain. Given the requirement for such proposals to be located in areas with minimum commercially viable wind speeds, and the potential impact such development can have on the landscape as well as other planning considerations eluded to above, it is not considered that such schemes can be located anywhere else in the borough. Although there is potential therefore for future wind turbine developments to be located in a flood risk area, and further to this the River Don functional flood plain, it is not considered possible for such uses to be located elsewhere within the borough. In line with national policy therefore, it can be demonstrated that it is not possible to locate this type of development in non-flood risk areas, and the sequential test for the designated Area of Search can be considered as being passed. Although planning applications for wind turbines will not therefore need to undertake a sequential test as part of the Development Management stage, they should still consider a sequential approach to layout of the development so, if possible and consistent with wider planning objectives, they are directed to areas of the site that are least vulnerable to flooding in line with Policy 58: Flood Risk Management.

6.4 In Flood Zone 3b (functional floodplain) ‘essential infrastructure’ such as wind turbines have to pass the exception test to show that it will provide wider sustainability benefits to the community that outweigh flood risk. Proposals will need to show how the development will remain operational at times of flood, and that it will be safe for its lifetime, without increasing flood risk elsewhere in line with both national policy and the requirements of Policy 58: Flood Risk Management. A Site Specific Flood Risk Assessment will also be required as part of the application and will be integral to informing this. Although this area of search is preferential, further detailed feasibility studies would have to consider a number of additional siting
constraints as part of any planning application and meet the criteria of Policy 60: Wind Energy Developments.

Figure 11: Area of Search for Potential Renewable Wind Energy Generation
7.0 Minerals Sites & Areas of Search

7.1 National planning practice guidance states:

“Waste and mineral planning authorities need to take account of flood risk when allocating land for development. They should prepare their plan policies with regard to any available Strategic Flood Risk Assessments. The location of Mineral Safeguarding Areas and site allocations, in particular in relation to sand and gravel workings which are often located in functional floodplains, need to be identified. It is possible to explore benefits, such as restoring mineral working located in flood risk areas to increase flood water storage, which can also enhance the natural environment. Partnership working on joint Strategic Flood Risk Assessments offers the best opportunity to identify and realise these opportunities” (Paragraph: 008 Reference ID: 7-008-20140306 – Revision date: 06 03 2014).

“…Waste and mineral planning authorities should apply the sequential approach to the allocation of sites for waste management and, where possible, mineral extraction and processing. It should also be recognised that mineral deposits have to be worked where they are (and sand and gravel extraction is defined as ‘water-compatible development’ in table 2, acknowledging that these deposits are often in flood risk areas). However, mineral working should not increase flood risk elsewhere and needs to be designed, worked and restored accordingly. Mineral workings can be large and may afford opportunities for applying the sequential approach at the site level. It may be possible to locate ancillary facilities such as processing plant and offices in areas at lowest flood risk. Sequential working and restoration can be designed to reduce flood risk by providing flood storage and attenuation. This is likely to be most effective at a strategic (county) scale” (Paragraph: 018 Reference ID: 7-018-20140306 - Revision date: 06 03 2014).

7.2 Sand and gravel workings are classed by national policy as being ‘water compatible’ whereas all other minerals working and processing development is classified as being ‘less vulnerable’. All are considered appropriate development in flood risk areas if successful pass of the sequential test can be demonstrated first; with the exception of flood zone 3b where only sand and gravel workings (which are classified as water compatible) are considered appropriate. In a similar manner to wind energy generation discussed above, minerals are a natural resource and can only be mined/extracted where they are found in the ground. Pure layers of fluvioglacial (sharp) sand and gravel are a rare commodity in Doncaster.

8.0 Site Sequential Testing & Exception Test (Where Required) – Housing & Employment

8.1 As well as demonstrating that the approach to the Local Plan spatial strategy has been informed by a sequential approach to avoidance of flood risk, there is also the need to look at individual sites through further sequential testing and, if necessary exception test, in line with national planning policy.

8.2 However, this forms just one stage of the wider Local Plan site selection methodology which must look at flood risk in the round with other Planning and sustainability considerations in order to ensure that the Local Plan meets both the borough’s development needs for the plan period, as well as subsequently identifying the most sustainable sites to accommodate this growth and distribution accordingly. In the interests of keeping all the stages of the site selection process in as few separate documents as possible, please see section 5a of the Site Selection Methodology & Results Report 2019 (https://www.doncaster.gov.uk/services/planning/local-plan-site-selection-methodology-consultation) for the findings from this important stage of the process. However, by way of a brief summary:
Housing Sites Flood Risk Sequential Test Summary Findings (exclusive of Planning Permissions)

<table>
<thead>
<tr>
<th>Settlement</th>
<th>Number of Sites (Capacity) at Outset of Sequential Test</th>
<th>Number of Sites (Capacity) Failed First Sift of Sequential Test</th>
<th>Number of Sites (Capacity) Passed First Sift of Sequential Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doncaster Urban Area</td>
<td>61 (15,343 units)</td>
<td>15 (2,120 units)</td>
<td>46 (13,223 units)</td>
</tr>
<tr>
<td>Adwick-le-Street-Woodlands</td>
<td>10 (1,457 units)</td>
<td>5 (744 units)</td>
<td>5 (713 units)</td>
</tr>
<tr>
<td>Conisbrough-Denaby</td>
<td>15 (14,878 units)</td>
<td>3 (352 units)</td>
<td>12 (14,526 units)</td>
</tr>
<tr>
<td>Hatfield-Stainforth (Inc Dunsingle &amp; Dunscroft)</td>
<td>37 (4,652 units)</td>
<td>18 (2,122 units)</td>
<td>19 (2,530 units)</td>
</tr>
<tr>
<td>Mexborough</td>
<td>9 (1,288 units)</td>
<td>1 (82 units)</td>
<td>8 (1,206 units)</td>
</tr>
<tr>
<td>Rossington</td>
<td>12 (7,466 units)</td>
<td>3 (385 units)</td>
<td>9 (7,081 units)</td>
</tr>
<tr>
<td>Thorne-Moorends</td>
<td>31 (3,769 units)</td>
<td>28 (3,705 units)</td>
<td>3 (64 units)</td>
</tr>
<tr>
<td>Askern</td>
<td>7 (652 units)</td>
<td>2 (133 units)</td>
<td>5 (519 units)</td>
</tr>
<tr>
<td>Auckley-Hayfield Green</td>
<td>14 (4,100 units)</td>
<td>3 (228 units)</td>
<td>11 (3,873 units)</td>
</tr>
<tr>
<td>Barnburgh-Harlington</td>
<td>5 (210 units)</td>
<td>0 (0 units)</td>
<td>5 (210 units)</td>
</tr>
<tr>
<td>Barnby Dun</td>
<td>8 (836 units)</td>
<td>8 (836 units)</td>
<td>0 (0 units)</td>
</tr>
<tr>
<td>Bawtry</td>
<td>15 (1,608 units)</td>
<td>1 (72 units)</td>
<td>8 (1,536 units)</td>
</tr>
<tr>
<td>Carcroft-Skelow</td>
<td>11 (1,352 units)</td>
<td>9 (1012 units)</td>
<td>2 (340 units)</td>
</tr>
<tr>
<td>Edlington</td>
<td>7 (801 units)</td>
<td>0 (0 units)</td>
<td>7 (801 units)</td>
</tr>
<tr>
<td>Finningley</td>
<td>10 (2,063 units)</td>
<td>1 (581 units)</td>
<td>9 (1,482 units)</td>
</tr>
<tr>
<td>Sprotbrough</td>
<td>4 (702 units)</td>
<td>0 (0 units)</td>
<td>4 (702 units)</td>
</tr>
<tr>
<td>Tickhill</td>
<td>16 (1,136 units)</td>
<td>0 (0 units)</td>
<td>16 (1,136 units)</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>272 (62,312 units)</strong></td>
<td><strong>97 (12,372 units)</strong></td>
<td><strong>175 (49,941 units)</strong></td>
</tr>
</tbody>
</table>

8.3 175 sites equating to 49,941 units have passed the first sift of the sequential test with 97 sites (12,372 units) failing the first sift. Most settlements in the growth hierarchy have a significant supply compared to the housing requirements set out at Stage 3. However, all of the sites at the Service Village of Barnby Dun have failed the sequential test first sift, and the majority of sites at the Main Town of Thorne-Moorends have also with just 3 sites equating to 64 units passing the test. There are no sites that fail the first sift of the sequential test at the 4 Service Towns/Villages of: Barnburgh-Harlington; Edlington, Sprotbrough; and, Tickhill.

8.4 Further consideration of the sites at Thorne-Moorends and Barnby Dun through a second sift of the sequential test (undertaken as part of the overall settlement’s write up in the site selection methodology) has justified that a site can be allocated at Barnby Dun and an additional 2 sites at Thorne-Moorends. The former has a large site (Ref 147) with an area that is flood risk zone 1 so has been supported with a reduced capacity and developer requirements that state no built development will be supported in the part of the site that is flood risk zone 3. Likewise a site at Thorne (Ref 396) has a similar constraint to just the northern area of the site. A further site (Ref 081/343) has a planning application pending at the time of drafting which has undertaken the sequential and exception tests with a site specific flood risk assessment and mitigation identified so is also being supported as an allocation.
### Employment Sites Flood Risk Sequential Test Summary Findings (exclusive of Planning Permissions)

<table>
<thead>
<tr>
<th></th>
<th>Number of Sites</th>
<th>Gross site area (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sites and capacity at outset of Sequential Test</td>
<td>54</td>
<td>2104</td>
</tr>
<tr>
<td>Failed First sift of Sequential Test</td>
<td>31</td>
<td>1365</td>
</tr>
<tr>
<td>Passed First sift of Sequential Test</td>
<td>23</td>
<td>739</td>
</tr>
</tbody>
</table>

8.5 23 employment sites with a gross site area of 739 hectares have passed the first sift of the sequential test. For reasons set out in the site selection methodology and results report, the Local Plan supports an allocation in flood risk zone 3 at Thorne (Ref 001) and Carcroft Common (Ref: 441).
9.0 Local Plan Detailed Policies

9.1 Chapter 14 of the Local Plan (Climate Change, Mineral Resources & Energy) contains 2 detailed planning policies directly relating to managing development from all sources of flood risk; being Policy 57: Drainage, and Policy 58: Flood Risk Management.

Policy 57: Drainage

9.2 Policy 57 seeks to ensure all development proposals that come forward incorporate satisfactory measures for dealing with drainage impacts to ensure waste water and surface water run-off are managed appropriately and to reduce flood risk to existing communities. The policy has been worked up in collaboration with the Council’s Drainage Team in their role as the Lead Local Flood Authority (LLFA).

Policy 58: Flood Risk Management

9.3 Policy 58 Part B designates the functional flood plain through Doncaster with the detailed boundaries and extents being identified on the Policies Map and reflects the agreed boundaries as per the Strategic Flood Risk Assessment Level 1 (SFRA - 2015). The area has been identified in accordance with the methodology set out in the SFRA and where national planning policy will be strictly applied to ensure there is sufficient capacity to store water during times of flood whilst helping to protect surrounding areas and property from flooding.

9.4 Part C of the policy sets out how the sequential test should be applied to planning applications on sites not allocated through the Local Plan (windfalls) in line with national planning policy’s sequential approach to flood risk. Appendix 2 of this Topic Paper sets out the justification for the approach for each development type/land use.

9.5 Part D sets out the need for development in flood risk areas (following successful pass of the sequential and exception tests) to accord with the latest mitigation and development requirements as identified in the SFRA with a number of Residual Flood Risk areas identified on the Policies Map; indeed this will in itself go some way to assisting with compliance of part 2 of the exception tests. Given the imminent data/modelling that the EA are undertaking it was felt that the Local Plan policy would have a very short shelf life if detailed policies were included for each residual area. Instead, the policy directs the applicant to the latest evidence base and the Council has a commitment in the Local Plan to keep the evidence base on flood risk up-to-date as and when the modelling becomes available as this is likely to revise the understanding of both residual risks and appropriate mitigation during the plan period.

9.6 As per the above, the policy has been derived in consultation with all relevant stakeholders, including the LLFA and EA.
10. Duty to Cooperate & Flood Risk

10.1 The duty to cooperate was created in the Localism Act 2011, and amends the Planning and Compulsory Purchase Act 2004. It places a legal duty on the Council and other public bodies to engage constructively, actively and on an on-going basis to maximise the effectiveness of Local Plan preparation in the context of strategic cross boundary matters. The Environment Agency are of course the main prescribed body most relevant to flood risk management and strategic planning and the Local Plan, although river catchments and sources of flood risk are complex and can cross many local authority boundaries and cover large geographical areas.

10.2 From the outset of the decision to prepare a new single Local Plan in autumn 2014, the Council has actively engaged with the Environment Agency on the commissioning and preparation of our flood risk evidence base as well as policy drafting and decisions on site allocations. Some examples include:

- Regular meetings and correspondence between the Council and Environment Agency Officers from both the Yorkshire & East Midlands Areas;
- Sharing briefs for the Strategic Flood Risk Assessment evidence base before procurement as well as reviewing iterations of the study and agreement to sign-off including the methodology, extent and detailed boundaries for identification of the functional flood plain;
- The Environment Agency has been part of the Housing & Economic Land Availability Assessment Stakeholder Group, as well as attended the Stakeholder Workshop for the Whole Plan Viability Testing evidence base;
- Responses to the formal statutory and informal consultation stages of the Local Plan preparation (2015, 2016, 2018 & 2019);
- Review and critique of draft Local Plan policies in relation to flood risk, both strategic and detailed policies, ensuring that it has been an iterative process and that proposed policies are compliant with all relevant policy and will ensure flood risk is managed effectively in the borough;
- Review and critique of this Local Plan Flood Risk Topic Paper, including flood risk sequential approach to spatial strategy and settlement hierarchy;
- Review and critique of the Site Selection Methodology consultation paper (November 2015).

10.3 In respect to other duty to cooperate bodies, the Council has worked in conjunction with our Lead Local Flood Authority colleagues and much of the Local Plan flood risk evidence base has been commissioned in conjunction with them. As with the Environment Agency, Local Plan evidence base documents and policies have been drafted collaboratively and circulated as part of an on-going iterative process.

10.4 As well as general dialogue and conversations with our neighbouring and Sheffield City Region authorities as part of wider Duty to Cooperate requirements, more specifically the Council has also shared the draft Strategic Flood Risk Assessment Level 1 for comment before the study was signed-off and published given flood risk does not stop at local authority boundaries. Due to the data issues for the Isle of Axholme, and part reliance on the North Lincolnshire Strategic Flood Risk Assessment for information on residual risks to settlements such as Thorne-Moorends in the interim, we have also had more detailed discussions with Planning and Drainage colleagues at North Lincolnshire Council about this evidence as well as our/their emerging thinking for the future once more detailed modelling is completed by the Environment Agency.
Appendix 1: Renewable Wind Energy Generation Sieve Mapping

A1.1 The Council commissioned consultants AECOM to undertake a Renewable and Low Carbon Energy Study (July 2012) for the borough. Part of this study undertook a GIS sieve mapping exercise to identify an area of search for potential large wind turbine locations using the following methodology.

A1.2 The process of physical constraint mapping has been used to identify which sites are likely to have potential for large wind turbine location. Through GIS analysis, the constraints that have been included are listed below, shown in figure 26 and conform with the DECC guidance:

- Non-accessible areas
  - Roads (A, B and motorways)
  - Railways
  - Water bodies
  - Built up areas
  - Airports

- Exclusion areas
  - Ancient semi-natural woodland
  - Sites of historic interest (but no buffer to be applied)
  - Buffer around road and rail line = turbine tip height +10%
  - Buffer around built up areas = 600m
  - Buffer around airports and airfields = 5km
  - Civil Air Traffic Control constraints

- Designated landscape and nature conservation areas, including the following classifications.
  - National Park
  - AONB
  - SAC
  - SSSI
  - RAMSAR
  - SPA
  - NNR
  - SINC
  - BAP habitats

A1.3 Combining the windspeed plan with the constraints mapping the maximum potential capacity for wind energy across Doncaster has been determined to be 298MW. As figure 27 demonstrate, it remains relatively well distributed with large potential area to the north of Doncaster, between the settlements of Sykehouse, Fishlake, and Moss. In addition there are large areas of potential situated to the northeast. However, these are disrupted by road infrastructure. The remaining areas of potential are numerous. However are represented as individual/isolated pockets of development.

A1.4 The map assumes a 600-metre buffer from all existing residential development. This is to allow for impacts such as noise and shadow flicker which may affect residents. In reality, this is a conservative buffer and it may be possible to develop turbines closer to residential development if it can be demonstrated that noise and flicker can be controlled (there are established methodologies for doing this such as the ETSU-R-97 assessment procedure for noise). It can be seen from the map that the 600m buffer has a significant impact on the land area availability for wind turbines. Because this buffer zone can be reduced in many cases without any adverse impact on residents, and because it is not a physical constraint, a more
A realistic view of technical potential can be estimated by removing this buffer from individual homes (but retaining for groups of homes in towns and villages).

A1.5 Similarly, restrictions due to air movements are also becoming less stringent as technological improvements on turbine and radar design progress. For example, Vestas, the world’s largest wind turbine manufacturer has recently unveiled “stealth turbines”. These turbines use technology developed for stealth bomber aircraft to effectively make wind farms invisible to radar. In the meantime, while stealth turbines are being developed, there are other technologies that can mitigate radar issues. Furthermore, another recent development is in the area of 3D holographic radar, where a patch from one radar is fed into another, and the two images are fused together thus providing a complete picture. Robin Hood Airport has recently upgraded the radar systems it uses and as such, this may open up significant areas of potential in the south east of the Borough which are currently highlights as under Civil Aviation Authority Restrictions.

A1.6 Although landscape character is not included in the DECC methodology, as by nature it includes a level of subjectivity, it often informs much of the debate around wind development. The Doncaster Landscape Character Assessment highlights there are two principal landscape classifications across Doncaster, the South Magnesian Limestone, and the Humberhead Levels. It also makes a judgement about their capacity to accommodate wind development (see figure 28). Generally, the Magnesian Limestone areas, as well as the flood plain surrounding the former Thorpe Marsh Power Station are considered to be of moderate capacity for wind development. Elsewhere, the Humberhead Levels is considered to have low landscape capacity for wind turbines. Omitting these areas of low capacity from the assessment of potential would reduce land available for wind development from 158km² to 32 km² (see figure 29) and reducing the technical installed capacity to around 59MW.
Figure 25: Potentially viable wind speeds across Doncaster
Figure 26: Practical and Physical Constraints
Figure 27: Practical viable wind resource
Figure 28: Doncaster landscape capacity for wind development
Figure 29: Practical wind resource in areas of moderate landscape capacity for wind development
Figure 30: Area of Search for Potential Renewable Wind Energy Generation
### Appendix 2: Justification for Approach to Sequential Testing for Windfall Developments as set out in Policy 58 Part C

<table>
<thead>
<tr>
<th>Development/ Land Use</th>
<th>Area of Search</th>
<th>Justification</th>
<th>Key Evidence</th>
</tr>
</thead>
</table>
| Housing; and business and general industrial (B1 & B2 Uses) | Elsewhere within the same settlement | • The Local Plan identifies a sustainable settlement hierarchy which by its very nature sets out the most sustainable locations for new development which have the best access to services and facilities, including public transport and reducing the need and dependency for travel by modes such as private car;  
• The overall approach of the Local Plan has been subject to a robust Sustainability Appraisal process;  
• Although allocations have been made to meet the plan period development need, NPPF is clear that housing supply should be boosted so these are minimums rather than ceilings;  
• Some of the settlements have a housing growth range where the top of the range has not been met (for example Thorne-Moorends) and Neighbourhood Plans may be looking to allocate for more growth than the local plan in line with NPPF/PPG, and/or alternatively windfall development will help meet the top of the range over the course of the plan period in some of the borough’s settlements that are otherwise very sustainable locations;  
• Although sufficient allocations have been identified for the plan period’s development need not relying on windfall sites, the 5-Year Housing Land Supply statement does make a windfall allowance and this forms an important source of additional supply to help ensure a 5-year supply can be demonstrated throughout the plan period. Failure to be able to show will result in the tilted balance in favour of NPPF and determining applications in line with the presumption in favour which are likely to be speculative applications not in accordance with the local plan spatial strategy and at odds with NPPF’s development-plan led approach;  
• NPPF is clear of the need to ensure efficient use of land and infilling and development on windfall sites ensures that such | NPPF/PPG (2019)  
Settlement Audit (2017)  
Local Plan Sustainability Appraisal (2019)  
Local Plan, in particular Policies 2&3  
Doncaster Housing Background & Strategy Paper (August 2019)  
Settlement Background Paper (2018)  
Local Plan Retail Strategy Paper (July 2019) & District and Local Centres Survey (July 2019) |
- Sites, many also being brownfield, can be redeveloped and often be an improvement in terms of flood resistance and resilience that the existing use(s);
  - Efficient use of land and infilling also helps support the vitality and viability of existing centres and sustain services;
  - Windfall sites often provide opportunity for mixed use developments where less vulnerable uses such as retail and offices can/are often directed to ground floor with more vulnerable residential uses above;
  - More vulnerable housing uses still have the ‘safety net’ of the exception test to comply with which must demonstrate that the development will be safe for its lifetime and not increase flood risk elsewhere thus applications can still be refused on this part should the development ultimately not be considered as appropriate/safe/mitigating risks;
  - In terms of employment, then these are identified as less vulnerable uses in flood risk areas;

<table>
<thead>
<tr>
<th>Office</th>
<th>Elsewhere within the Town Centre where the development is being proposed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Offices are proposed to be predominately within Doncaster town centre but also within other town centres (Mexborough and Thorne), and Doncaster Sheffield Airport (aviation related uses) and Local Centres;</td>
</tr>
<tr>
<td></td>
<td>A separate (town centre uses) sequential test will be required for town centre uses including offices to ensure the vitality of town centres;</td>
</tr>
<tr>
<td></td>
<td>The Local Plan identifies a town centre boundary which reflects the Town Centre Masterplan as endorsed by the Council’s Executive.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Retail</th>
<th>Elsewhere within the settlement’s town/district/ local centre or where a settlement does not have a retail area defined on the Policies Map,</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Retail uses are required to be directed to existing centres to ensure vitality and viability of our centres in an era of ever changing retail habits with a shift to online shopping;</td>
</tr>
<tr>
<td></td>
<td>Directing such uses to existing centres supports wider Planning and sustainability objectives such as tending to be places with the greatest level of accessibility and ability to support multi-purpose and linked trips;</td>
</tr>
<tr>
<td>elsewhere within the same settlement as per the proposal</td>
<td>• Supporting town centres generates local employment, promotes beneficial competition and creates attractive, healthier and safer centres;</td>
</tr>
<tr>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Mixed-use</td>
<td>Needs to justify scheme should be considered as a single proposal or otherwise separate out uses and in line with the above</td>
</tr>
<tr>
<td></td>
<td>• As per the above</td>
</tr>
<tr>
<td>All other proposals</td>
<td>Normally a borough-wide search unless a case can be made to narrow due to certain locational needs of the development or specific catchment requirements</td>
</tr>
<tr>
<td></td>
<td>• This is the opening stance taken through national planning policy, although the policy does allow for an individual justification to be made to reflect truly geographical or locational needs of development, for example a clear catchment such as a new fire or ambulance station that has a set emergency response time to abide by.</td>
</tr>
</tbody>
</table>