



# Infrastructure Delivery Plan

February 2017

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## 1 INTRODUCTION

### 1.1 IDP OBJECTIVES

1.1.1 This Infrastructure Delivery Plan (IDP) has been produced in support of Newark & Sherwood District Council's Local Plan Review 2016. The purpose of the IDP is to identify the new/improved infrastructure required to facilitate planned growth within the District to the end of the plan period (2033).

1.1.2 This IDP has been prepared in consultation with the relevant infrastructure providers and adjacent local authorities. It updates the Council's 2010 IDP and identifies:

- Existing infrastructure provision and its capacity.
- The additional demands that planned growth will place on existing infrastructure.
- The new/improved infrastructure that will be required to facilitate planned growth.
- Infrastructure delivery costs, responsibilities and priorities.
- Potential funding opportunities.

1.1.3 Infrastructure requirements are summarised in a schedule in **Appendix A** to this report.

### 1.2 TYPES OF INFRASTRUCTURE

1.2.1 For the purpose of the IDP, infrastructure is defined as:

- **Social** - healthcare, education, libraries, leisure, town halls and cultural facilities
- **Waste Management** – waste collection, processing and disposal/recycling
- **Utilities** - gas, electricity, water, wastewater, telecommunications
- **Flood Risk** – flood prevention/protection/alleviation
- **Green Infrastructure** - open spaces, recreational spaces, allotments, cemeteries and playing fields
- **Transport** – public transport, walking, cycling and highways



## 1.3 STUDY AREA & CHARACTER

### Study Area

1.3.1 This IDP examines infrastructure needs within the Newark and Sherwood District of Nottinghamshire.

### Character

1.3.2 Newark and Sherwood is the largest District in Nottinghamshire and is principally rural in character. The market town of Newark-on-Trent is the largest conurbation in the District and is **located towards the District's eastern edge on the River Trent. The** next largest conurbations are the towns of Ollerton & Boughton in the northwest of the District and Southwell which is **located approximately in the centre of the District. The majority of the District's population** of 117,758 (2014 mid-year estimate) is accommodated in these towns and the former coal mining villages on the western side of the District at Bilsthorpe, Blidworth, Clipstone, Edwinstowe and Rainworth.

1.3.3 Newark and Sherwood District adjoins nine other Districts in total, three of which are in Lincolnshire (West Lindsey, North Kesteven, South Kesteven), one in Leicestershire (Melton) and five in Nottinghamshire (Rushcliffe, Gedling, Ashfield, Mansfield and Bassetlaw). These adjacent authorities have therefore been consulted **as part of N&SDC's duty to cooperate to** identify any **'cross boundary' infrastructure** issues.

## 1.4 REPORT STURCTURE

1.4.1 The IDP comprises the following sections:

- Planning policy context (Chapter 2)
- Planned growth within the District (Chapter 3)
- Baseline conditions within the District (Chapter 4)
- Future conditions within the District with planned growth in place (Chapter 5)
- A delivery plan for the identified infrastructure needs (Chapter 6)



## 2 PLANNING POLICY CONTEXT

### 2.1 NATIONAL PLANNING POLICY (NPPF)

2.1.1 This study has been prepared in accordance with the requirements of the National Planning Policy Framework (NPPF). **The NPPF contains the Government's** planning policies for England and is therefore a strong material consideration in the determination of planning applications and formation of planning policy. The NPPF promotes sustainable development and to achieve a strong, responsive and competitive economy; strong, vibrant and healthy communities and the protection of the natural, built and historic environment.

2.1.2 Paragraph seven identifies the three dimensions to sustainable development: economic, social and environmental. This theme is continued into paragraph nine which states that pursuing sustainable development involves seeking positive improvements in the quality of the built, **natural and historic environment, as well as in people's quality of life, including but not limited to:**

- replacing poor design with better design
- improving the conditions in which people live, work, travel and take leisure
- widening the choice of high quality homes

2.1.3 The NPPF advises that the social role of planning encompasses contributing to strong, vibrant and healthy communities by providing, inter alia, accessible local services that reflect the **community's needs and support its health, social and cultural well-being.**

2.1.4 Infrastructure requirements are considered in paragraph 162. This specifies that Local planning authorities should work with other authorities and providers to assess the quality and capacity of infrastructure for transport, water supply, wastewater and its treatment, energy (including heat), telecommunications, utilities, waste, health, social care, education, flood risk and coastal change management, and its ability to meet forecast demands. Planning authorities should take account of the need for strategic infrastructure including nationally significant infrastructure within their areas.



- 2.1.5 Paragraph 177 observes that it is equally important to ensure that there is a reasonable prospect that planned infrastructure is deliverable in a timely fashion. To facilitate this, it is important that local planning authorities understand district-wide infrastructure costs at the time Local Plans are drawn up.
  
- 2.1.6 In line with the NPPF this study examines physical, social and green infrastructure. No nationally significant infrastructure has been identified within the District. This study has been prepared in consultation with the relevant infrastructure providers and adjacent local authorities to **identify any 'cross boundary' issues**. And is therefore considered to comply with the requirements of the NPPF.



## 3 GROWTH PROPOSALS

### 3.1 INTRODUCTION

3.1.1 Newark & Sherwood has a fully adopted Development Plan formed by the Core Strategy and Allocation & Development Management Development Plan Documents (DPDs) which were adopted in March 2011 and July 2013 respectively. The Inspector who examined the Allocations & Development Management DPD concluded that because the plan had been prepared during the recession an early review should be conducted to test if the market had recovered enough to continue to deliver the various elements of the plan. The Council is therefore reviewing the adopted Plan with the aim of ensuring that the allocations and policies contained within the two DPDs continue to be appropriate, up-to-date and effective.

3.1.2 The results of the Strategic Housing Market Assessment and the Employment Land Feasibility Study have identified housing and employment land figures for the District for the period 2013 to 2033 (the new Plan period). The objectively assessed housing need for the District is 9,080 dwellings over the plan period. In terms of employment 83 hectares of additional employment land is required.

### 3.2 SPATIAL STRATEGY

3.2.1 The current Spatial Strategy contained within the adopted Core Strategy sets out the following approach to growth:

- The focus for growth will be the larger settlements in the District: Sub-Regional Centre of Newark Urban Area, the Service Centres of Southwell, Ollerton & Boughton, Clipstone, Rainworth and the Principal Villages of Collingham, Sutton-on-Trent, Farnsfield, Lowdham, Bilsthorpe, Edwinstowe, Blidworth.
- The principals of distribution of growth are, Supporting the Sub-Regional Centre, Regeneration and Securing Sustainable Communities.
- The Council is required to plan for 14,162 dwellings and 97-106 hectares of new employment land.
- Housing development is split 70% in the Sub-Regional Centre, 20% in service centres and 10% in Principal Villages. Employment development is divided across the 5 plan





areas and is roughly equivalent in percentage terms to the housing growth of the settlements within these areas.

### 3.3 REVIEW OF SITES AND ADDITIONAL SITES

3.3.1 The Council has reviewed the performance of plan allocations including an initial sense check of the continuing deliverability of the sites included within the adopted DPDs. The Council has concluded that the delivery of some sites is no longer certain enough for them to be included within a plan allocation and a number of these sites may therefore need to be de-allocated. Other sites where delivery is uncertain will not be relied upon as part of the plan but will still be taken into account in technical assessments.

3.3.2 A call for sites resulted in a small number of new sites coming forward, including Thoresby Colliery in Edwinstowe. For the purposes of the technical work the Council has termed former **allocations which could come forward and new sites as 'Opportunity Areas'**.

### 3.4 THE DEVELOPMENT SCENARIO

3.4.1 For the purposes of setting out a broad development scenario the following assumptions were applied by the Council:

- The Core Strategy housing and employment splits for development continue to apply
- Further development could occur on allocations and opportunity areas and this should be taken into account in the plan review
- Thoresby Colliery should be taken into account in the plan review

3.4.2 The development scenario therefore comprises three elements; the amount of deliverable development which has the benefit of planning permission, development on allocated sites and the potential for development in opportunity areas. It is acknowledged that if the Council were to seek to allocate Thoresby Colliery then that may well change the assumptions at 3.4.1 however because the scenario takes into account Thoresby Colliery as an opportunity area its impacts are already under consideration as part of this work.

3.4.3 A summary of the residential and employment growth proposed in the development scenario is as follows.



**Table 1 – Residential & Employment Growth**

Settlement	Number of Dwellings	Employment Site Area (Ha)
Sub-Regional Centre		
Newark, Balderton & Fernwood	9,370	127.91
Service Centres		
Ollerton & Boughton	935	6.75
Clipstone	800	12.00
Rainworth	368	5.50
Southwell	339	5.29
Principal Villages		
Bilsthorpe	302	23.76
Blidworth	202	1.00
Collingham	189	0.75
Edwinstowe	740	11.00
Farnsfield	208	-
Lowdham	10	-
Sutton-on-Trent	57	-
Other – not in or around major settlements	-	0.97
Totals	13,520	194.93

3.4.4 No dwellings are proposed to be allocated in other villages within the District and a comparison with the residential growth proposals assessed for the 2010 IDP shows that the overall level of residential growth across the District has reduced by 981 dwellings, with the biggest reduction being in Newark-on-Trent (-478 dwellings).

3.4.5 A comparison with the employment growth proposals assessed for the 2010 IDP shows that the overall level of employment growth across the District has increased by 95 Ha (gross site area), with the largest increases being in Newark-on-Trent (+48 Ha), Bilsthorpe (+24 Ha) and Edwinstowe (+11 Ha).

3.4.6 **Figure 1** depicts the locations of the potential residential and employment growth sites across the District and this can be found at the end of this report.



## 4 BASELINE CONDITIONS

### 4.1 INTRODUCTION

4.1.1 This section of the report describes the existing situation within the District for each category of infrastructure.

### 4.2 SOCIAL INFRASTRUCTURE

#### Community Facilities

4.2.1 Aspects to be considered within the remit of community facilities are healthcare, education, libraries, leisure, town halls and cultural facilities.

#### Primary Healthcare

4.2.2 Primary is generally the first point of contact most people have with the NHS, and is delivered by a wide range of professionals, including General Practitioners (GPs), nurses, dentists, pharmacists and opticians. Care focuses on the treatment of minor injuries and illnesses, and deals with minor surgery and the on-going management of chronic conditions. It should be noted that dentists, pharmacists and opticians are commissioned by NHS England.

4.2.3 The Newark & Sherwood Clinical Commissioning Group (NSCCG) commissions NHS primary healthcare within the District (along with other specialist healthcare). The NSCCG provides a more localised service than the larger Nottinghamshire County Primary Care Trust which it replaced in 2013.

4.2.4 The NSCCG has confirmed that it faces a number of existing operational issues such as low numbers of new GPs training, with a larger proportion retiring. It is therefore necessary for the NSCCG to consider the wider remit of health care including Primary Care, Community and Acute to seek to bring the system together to address these challenges. The NSCCG will therefore continue to work with N&SDC to identify and secure delivery of appropriate new healthcare infrastructure as development proposals come forward through the planning system.



4.2.5 There are fifteen GP Practices (based at sixteen sites) serving the District<sup>1</sup>. These offer a total of 64.28 Full Time Equivalent (FTE) GPs covering around 133,000 registered patients (see **Table 2**).

**Table 2 - Existing GP Practices within the District**

Practice	Settlement	Patients
Balderton Primary Care Centre	Balderton	5,500
Fountain Medical Centre	Newark	14,061
Barnby Gate Surgery	Newark	13,672
Lombard Medical Practice	Newark	17,924
Middleton Lodge Practice	Ollerton	12,413
Hill View Surgery	Rainworth	2,934
Rainworth Health Centre	Rainworth	6,054
Sherwood Medical Partnership - Clipstone Health Centre	Clipstone	14,499
Sherwood Medical Partnership - Farnsfield Surgery	Farnsfield	
Southwell Medical Centre	Southwell	12,109
Bilsthorpe Surgery	Bilsthorpe	3,031
Blidworth Surgery	Blidworth	11,767
Collingham Medical Centre	Collingham	6,851
Major Oak Medical Practice	Edwinstowe	6,318
The Jubilee Practice (Lowdham Medical Centre)	Lowdham	2,307
Hounsfield Surgery	Sutton-on-Trent	3,978
Total		133,418

4.2.6 The average number of registered patients per Practice is around 8,339 with an average of 0.48 FTE GPs per 1,000 patients (which is less than the national average of 0.58).

4.2.7 There are approximately 27 pharmacies located across the District which offer general advice on non-prescribed medication, recommend GP visits if required and dispense prescriptions. Dental care is available from 13 individual practices across the District which are summarised in **Table 3** on the following page.

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<sup>1</sup> The Sherwood Medical Partnership is based at the Crown Medical Centre at Forest Town, Mansfield. Although just outside of the District this still serves residents of Newark and Sherwood.



**Table 3 - Existing Dentists within the District**

Dentist	Settlement
Denticare	Newark
Special Care Dental Services	Newark
Kirkgate Dental Surgery	Newark
mydentist	Newark
London Road Dental Practice	Newark
Oasis BDR Dental Care	Newark
Collingham Dental Practice	Collingham
The Minster Dental Centre	Southwell
Southwell Dental Care	Southwell
Ropewalk Dental Care	Southwell
Hall & Purchase	Ollerton
Special Care Dental Services	Ollerton
Rainworth Dental Centre	Rainworth

4.2.8 There are around 12 opticians located across the District providing optical care.

#### Secondary Care (Hospitals)

4.2.9 Secondary care covers medical services in general and specialist hospitals for conditions that normally cannot be dealt with by primary care services. It includes a wide range of typically specialist services that are generally provided via GP referral in the first instance (such as pregnancy) or as a response to an incident (such as an emergency requiring an ambulance).

4.2.10 The only hospital within the District is Newark Hospital. This provides a minor injuries unit/urgent care centre (more serious emergencies requiring ambulance attendance will be taken to an appropriate Hospital including Kings Mill, Lincoln County, Grantham or one of the Nottingham hospitals). Other services include (but are not limited to) cardiology, gynaecology, haematology, neurology and orthopaedics.

4.2.11 Hospital facilities are provided by Sherwood Hospitals Foundation Trust (SHFT). The SFHT also operates Kings Mill and Mansfield Community Hospitals. Together these three hospitals provide complimentary services to residents of Newark and Sherwood with the majority of services being located at the largest and newest; Kings Mill Hospital.



## Education

4.2.12 Nottinghamshire County Council has a duty to provide places for children in full time education up until the age of 16. In addition, the County Council has a duty to ensure a sufficiency of pre-school places (through Play Group and/or Nursery provision) for children aged three and four years under the Childcare Act 2006. Local authorities also have a duty to provide free early education to disadvantaged two-year olds which is an extension to the entitlement for three and four year olds.

4.2.13 Newark and Sherwood is served by a mix of types of school, including Local Authority maintained and Academy schools. Academies (both primary and secondary schools) are centrally funded but provide capacity for local pupils. Parents have a duty to ensure that their children attend school and Nottinghamshire County Council has a statutory duty to make arrangements to facilitate attendance at school for eligible pupils. The provision is compliant with the duties and powers of local authorities as set out in the Education Act 1996 and the Education and Inspections Act 2006. Eligibility is assessed on a case by case basis.

## Primary Schools

4.2.14 There are 46 primary schools within the District. A full schedule of these is included in **Appendix B**.

## Secondary Schools

4.2.15 There are five existing secondary schools within the District (see **Table 4** below). These all provide education through to sixth form level.

**Table 4 - Existing Secondary Schools within the District**

Secondary School	Settlement	Ages
Dukeries Academy	Ollerton	11-18
Magnus Church of England Academy	Newark	11-18
Minster CofE School	Southwell	11-18
The Joseph Whitaker School	Rainworth	11-18
The Newark Academy	Balderton	11-18

4.2.16 A new secondary school, the Newark Toot Hill Free School, is proposed for the Newark area and will provide education for 11- 18 year olds.



4.2.17 In addition to the above schools the catchment areas of several secondary schools and colleges located in neighbouring districts also overlap and serve the District (See catchment plan in **Appendix B**). This includes the following:

- Colonel Frank Seely School, Calverton
- Carlton le Willows Academy, Gedling
- Toot Hill School, Bingham
- Tuxford Academy, Tuxford
- Garibaldi College, Clipstone, Mansfield

## Sixth Form Colleges/Tertiary Education

4.2.18 Newark College is the only dedicated tertiary provider in the District. It offers education from 16 years and upwards and includes A-levels, apprenticeships, further education and business school.

## Libraries

4.2.19 There are 14 libraries within the District. These are located at; Balderton, Bilsthorpe, Blidworth, Clipstone, Collingham, Dukeries, Edwinstowe, Farnsfield, Lowdham, Newark-on-Trent, Ollerton, Rainworth, Southwell and Sutton-on-Trent.

4.2.20 Libraries provide books audio books and public access computers for adults and children. Larger libraries such as Newark and Southwell also provide DVDs. The library service has regular activities such as Rattle, Rhyme Roll sessions for under-fives, a range of reading groups for all ages and it also offers learning and cultural events at the larger libraries.

4.2.21 The standard of provision is made in reference to the Museums, Libraries and Archives **Council's report Public Libraries, Archives** and new development: a standard approach (2008). The appropriate space standards are based on 30sqm of public space per 1,000 head of population and stock requirement of 1,532 items per 1,000 head of population.



## Museums and Galleries, Theatre and Cinema

4.2.22 There are a variety of other educational and cultural facilities across the District. These include:

- Nine museums within the District, of which the National Civil War Centre and Resource Centre are operated by the District Council
- The Palace Theatre in Newark is operated by the District Council and offers a variety of performances throughout the year.
- The Sherwood Pines Forest Park near Edwinstowe is host to a number of outdoor music concerts (Forest Live) during the summer months.
- Newark cinema, which is operated by Odeon.

## Community Centres

4.2.23 There are 63 town and village halls or other community hubs throughout the District. These often have a variety or multiple uses and can include uses such as Town or Parish Council Halls, nursery groups, community groups etc.

4.2.24 Many of the Town and Parish Councils also maintain a variety of smaller parks, commons and recreation areas.

## Indoor Leisure Centres

4.2.25 There are four leisure centres distributed throughout the District (see **Table 5** below) which are operated by Active4Today Ltd on behalf of the District Council and in Southwell's case, the Southwell Leisure Centre Trust. They are located at:

**Table 5 - Existing Leisure Centres within the District**

Leisure Centre	Settlement
Blidworth	Blidworth
Newark	Newark
Dukeries	Boughton
Southwell	Southwell

4.2.26 The leisure centres provide a range of facilities including swimming pools, fitness centre and gyms. Newark Sports & Fitness Centre opened in May 2016 replacing the 45 year old Grove Leisure Centre. It includes, an 850 square metre fitness suite, a 25m x 12.5m main swimming pool, a learner pool which is 20m x 8.5m and a three badminton court sized sports hall. The





facility is to be complemented by an outdoor sports facility known as the Newark Sports Hub on the adjacent former RHP Sports Ground. This project is being developed by a partnership of the District Council, the Town Council and local sporting groups.



## 4.3 WASTE MANAGEMENT

### Introduction

4.3.1 This section of the report examines Baseline waste arisings from Local Authority Collected Waste (LACW) – i.e. household waste - and Commercial and Industrial (C&I) waste arisings. The existing capacity of waste sorting/processing and disposal infrastructure is then identified. This information is summarised from a Waste Needs Assessment Report that can be found in **Appendix C**.

### Local Authority Collected Waste (LACW)

4.3.2 Newark and Sherwood District collects waste from its residents using:

- Green bins for collecting residual waste (non-recyclable waste);
- Silver bins for collecting mixed recyclates including cans, plastic bottles & containers, paper & cardboard; and
- Brown bins for garden waste (a chargeable service).

4.3.3 The District currently does not undertake kerbside glass collections but residents take their glass waste to bottle banks.

4.3.4 Reported collection volumes from 2010/2011 to 2015/2016 for Newark and Sherwood are presented in **Table 6** below, these include all kerbside collections, recycling collected at bring sites and recycling/composting collected through other recycling schemes.

**Table 6 - LACW tonnages, 2010/11 – 2015/16, in Newark and Sherwood**

Waste Type	2010/11	2011/12	2012/13	2013/14	2014/15	2015/2016
Dry recyclables	10,492	11,248	10,719	10,963	10,787	11,080
Garden waste	1,074	-	-	775	1,680	2,237
Residual waste	30,608	30,610	31,641	30,266	31,055	31,115
Total	42,174	41,858	42,360	42,004	43,522	44,432
% recycled & composted	27.4%	26.9%	25.3%	27.9%	28.6%	30.0%

Source: Wastedataflow



What happens to this waste?

4.3.5 The destination of the LACW in Newark and Sherwood for 2014/15 is summarised in **Table 7** below. All kerbside collected dry mixed recycling (DMR) and recyclates from Household Waste Recycling Centres (HWRC) are sent to a Material Recovery Facility (MRF) in Mansfield, where it is sorted or separated into its constituent materials for subsequent recycling. Some of the materials from the MRF are sent to facilities outside of the UK and Europe for recycling. The green/garden waste collected by the District is taken to a composting facility in Oxton. Up until May 2015, all non recyclable waste (residual waste) was sent direct to landfill. Since May 2015, **residual waste is transferred via Veolia’s transfer station in Newark to the Sheffield Energy from Waste (EfW) facility, operated by Veolia.** There is no direct landfill; however, if the EfW plant in Sheffield is closed for maintenance etc, there is provision for landfill at the Staple quarry landfill site near Newark.

**Table 7 - Destination of the LACW in Newark and Sherwood**

Kerbside Dry Mixed Recycling
MRF, Crown Farm Industrial Estate, Mansfield
UPM Kymmene (UK) Ltd (paper and pulp mill), Deeside
Morris & Co Handlers Ltd, Rossington, Doncaster
Veolia E S Cleanaway (UK), Rainham, Essex
Garden/Green Waste
Simpro Ltd (composting), Ollerton Road, Oxton, Southwell
Residual
Energy from Waste facility (Veolia), Bernard Road, Sheffield
Staple quarry and landfill, Newark

4.3.6 In 2015/2016, approximately 30% of the LACW in Newark & Sherwood was recycled or recovered, i.e. 25% dry recyclables, 5% garden waste with 70% residual waste. Overall, countywide recycling rates for LACW have slowed significantly in line with regional and national trends.



## Commercial and Industrial Waste (C&I)

- 4.3.7 Unlike LACW, there is no regular reporting done for the C&I and Construction and Demolition (C&D) waste arisings and therefore data on these wastes is not readily available. Although local authorities do provide waste collection services to businesses, the majority of the C&I waste is collected by private waste management companies and therefore not reported to local authorities. The Environment Agency, through the Waste Data Interrogator (WDI), provides data from annual returns made by private waste operators about the waste handled at their facilities. However, this data is not reliable for obtaining C&I waste estimates because the waste can pass through several facilities where it is sorted, bulked up and sent for treatment leading to double counting and overestimation of the arisings. It does, however, provide an indication of the operational waste management capacity available for this waste.
- 4.3.8 To estimate C&I waste generated by businesses, there have been regional and national surveys undertaken in previous years. The most recent national survey of C&I waste was undertaken by Defra in 2009/10, which provides C&I waste estimates at both national and regional levels. Based on the assumption that C&I arisings in Nottinghamshire declined in line with the national average, it is estimated that businesses in Nottinghamshire and Nottingham City generate approximately 900,000 tonnes of C&I waste per annum<sup>2</sup>.
- 4.3.9 As with data on estimates of C&I waste, there is limited local data on how this waste is managed. **The Environment Agency's WDI reports approximately 387,000 tonnes of Nottinghamshire's municipal and C&I waste** was sent to landfill in 2013/2014. To provide an estimate of what proportion of this was from commercial and industrial sources, 150,000 tonnes of LACW in the County that is estimated to have been sent to landfill in 2013/14 was deducted from 387,000 tonnes, giving approximately 287,000 tonnes of C&I sent to landfill by Nottinghamshire in 2013/14. This estimate is however approximate as some of the waste may have originated from outside the County and the waste produced within the County may have been sent outside of the County. There could also be some double counting due to waste passing through other facilities before its final destination.

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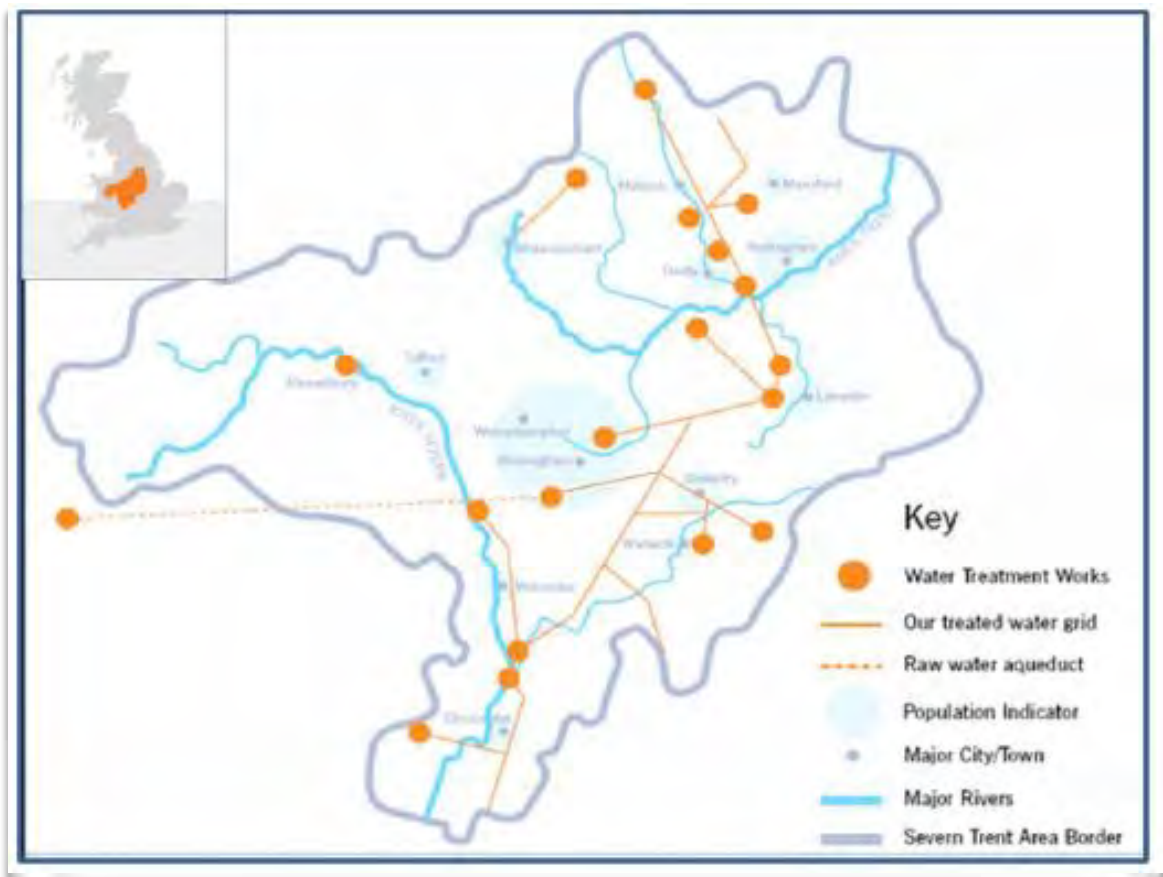
<sup>2</sup>Estimate derived from Survey of Commercial and Industrial Waste Arisings, Defra, 2010

## 4.4 UTILITIES

### Water

4.4.1 Severn Trent Water (STW) is the statutory water undertaker covering most of Newark and Sherwood District. Anglian Water (AW) has two cross-over boundary supplies, which allow bulk transfer of water from the AW Lincoln Supply Zone to the STW supply zones.

4.4.2 The Newark and Sherwood District is remote from the location of key supply resources within STW's East Midland Water Supply Zone, with the nearest water treatment works and treated water strategic main located to the west of Mansfield and Nottingham. There are no STW strategic water infrastructure or water treatment works to the east or north of Nottingham.



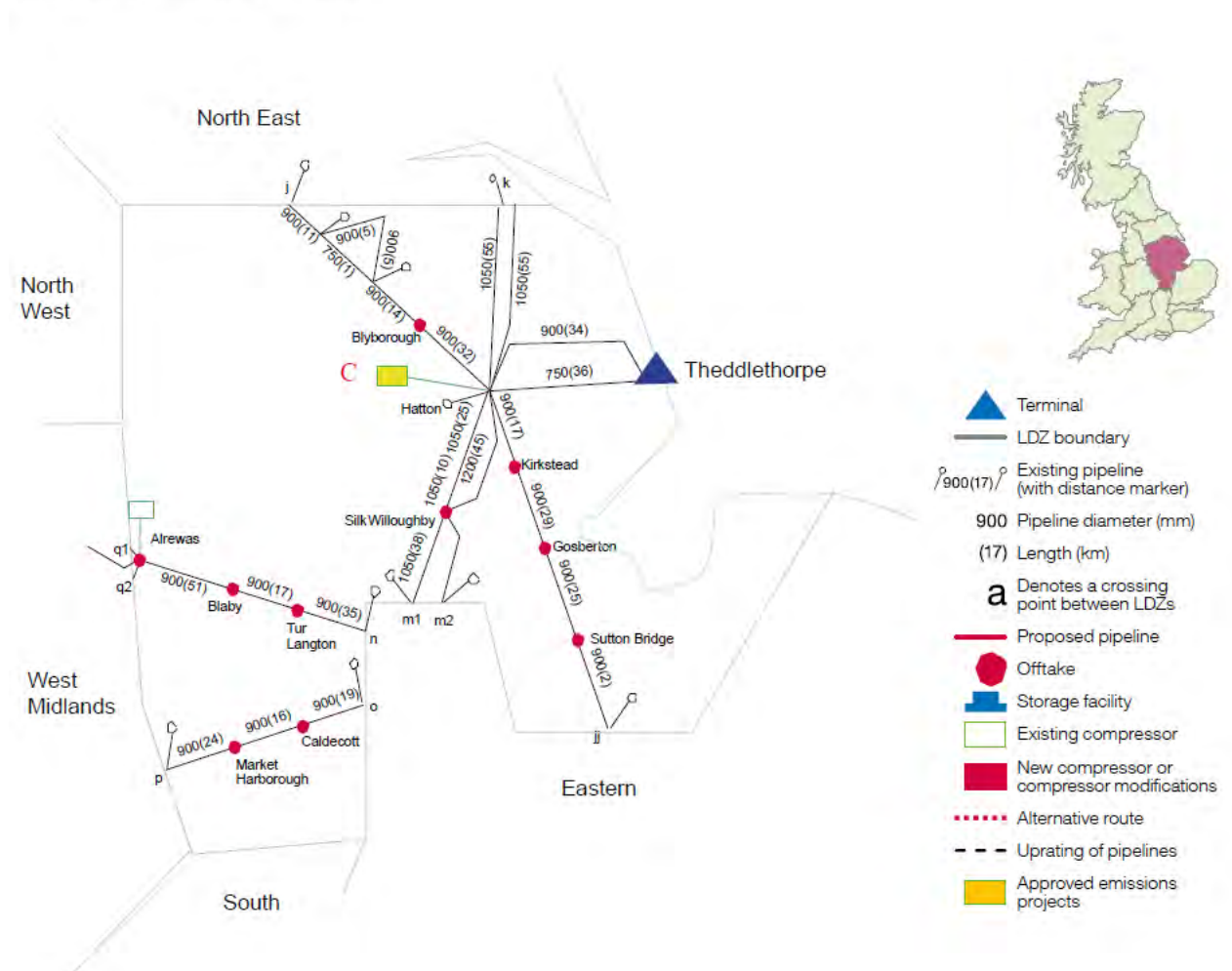
**STW Supply Network (Source: STW Water Resources Management Plan 2014)**



## Gas

- 4.4.5 National Grid Gas (NGG) have provided details of all medium pressure, intermediate pressure, local high pressure and national high pressure mains with the Newark and Sherwood District.
- 4.4.6 **NGG's** Long Term Development Statement 2015 highlights no planned capital investment schemes for the strategic high pressure gas infrastructure within the Midlands local distribution zone between 2014/15 and 2020/21.

### East Midlands (EM) – NTS



**NGG National Transmission System (Source: National Grid Gas Ten Year Statement 2015)**



## Electricity

- 4.4.7 National Grid (NG) own and operate 400kV and 275kV transmission assets within the Newark and Sherwood District. There is one NG operated grid supply point with the District, Staythorpe 400kV, which transmits electricity to Western Power Distribution (WPD) electricity infrastructure via 132kV overhead lines to 132kV to 33kV bulk supply points. 33kV services supply primary power stations where it transforms down to 11kV for distribution purposes (see electricity network plans in See **Figures 2, 3 and 4**).
- 4.4.8 There are Bulk Supply Points (BSP) at Staythorpe and Hawton, with the District; Annesley, Clipstone and Mansfield to the west of the District; Grantham and Grantham South to the east; and Asfordby and Melton to the south.

**Table 8 - WPD Power Distribution (Source: East Mid's Long Term Development Statement 2015)**

Settlement	Nearest Primary Sub-Station	Bulk Supply Point (BSP)	Grid Supply Point	Firm Capacity	WPD Forecast Loading yr 2019/20
Newark	Hawton	Hawton	Staythorpe	17.98	19.5
Balderton	Hawton	Hawton	Staythorpe	17.98	19.5
Fernwood	Fernwood	Hawton	Staythorpe	4.05	24
Winthorpe and Coddington	Newark Junction	Hawton	Staythorpe	23.8	40
Collingham	Swinderby	Hawton	Staythorpe	7.22	7.6
Sutton-on-Trent	Carlton on Trent	Hawton	Staythorpe	2.69	12
Ollerton and Boughton	Ollerton	Clipstone	Chesterfield	10.56	21.75
Edwinstowe	Thoresby	Clipstone	Chesterfield	13.22	23
Clipstone	Crowns Farm	Clipstone	Chesterfield	14.88	24.6
Bilsthorpe	Bilsthorpe	Clipstone	Chesterfield	5.02	16
Rainworth	Rufford	Clipstone	Chesterfield	6.22	25
Blidworth	Blidworth	Annesley	Chesterfield	8.08	12
Farnsfield	Farnsfield	Annesley	Chesterfield	4.25	24
Southwell	Southwell	Hawton	Staythorpe	7.03	12
Lowdham	Caythorpe	Hawton	Ratcliffe	8.72	24





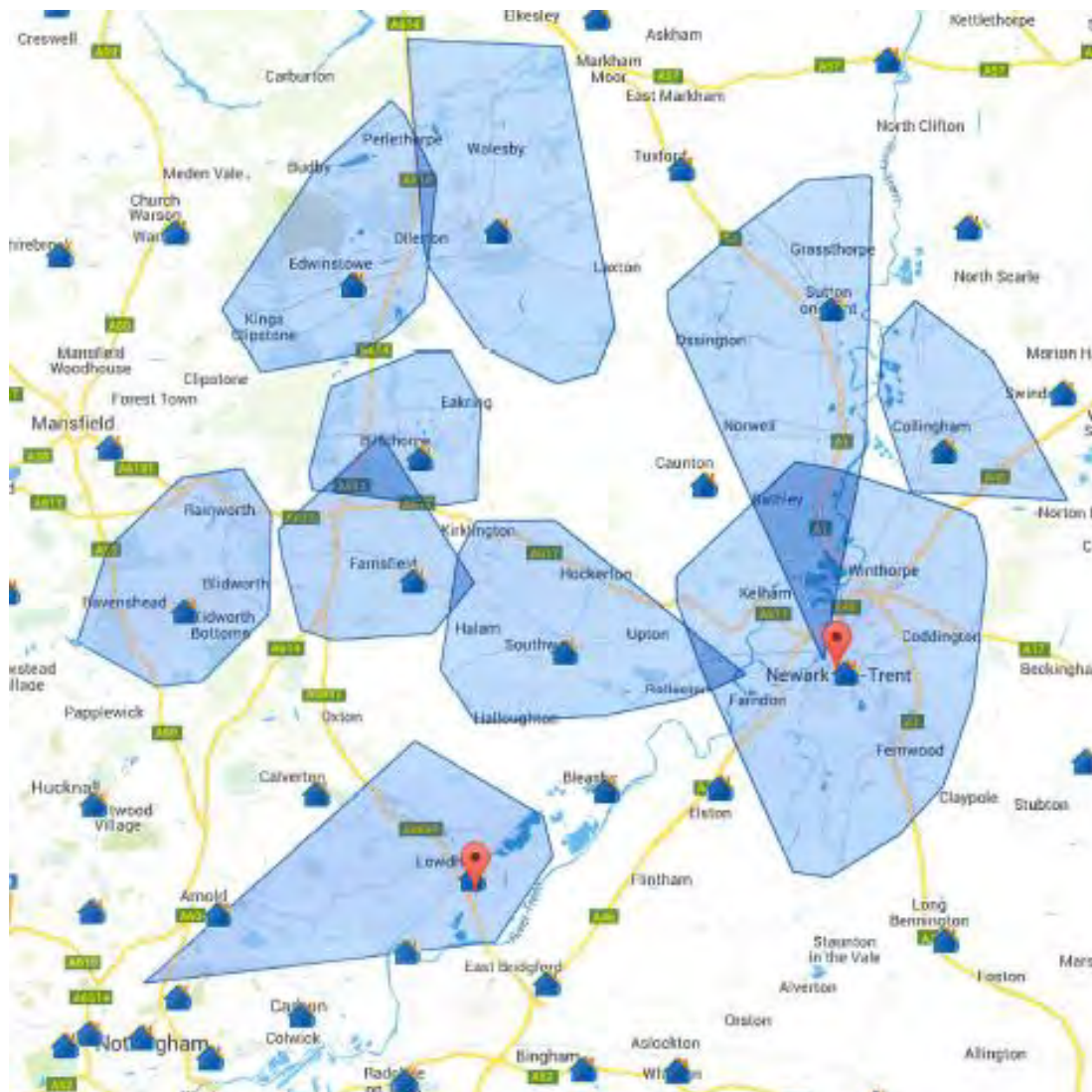
4.4.9 Hawton, Swinderby, Blidworth and Southwell are predicted to be close to their firm capacity by **the year 2020**. WPD's East Midlands Long Term Development Statement 2015 identifies that they will be carrying out reinforcement works at Swinderby to increase its firm capacity, to be completed in 2016.

4.4.10 When considering the BSP upstream of each Primary Substation, it is noted that there appears to be insufficient capacity at Hawton BSP to accommodate all development areas served by Hawton BSP. Clipstone BSP has sufficient capacity to accommodate growth in Ollerton, Boughton, Edwinstowe, Clipstone, Bilsthorpe and Rainworth.

4.4.11 **WPD's East Midlands** Long Term Development Statement 2015 confirms that there is predicted to be a deficit in capacity at Annesley 3 & 4 BSP by the year 2017 therefore any additional demand from the proposed growth cannot be accommodated by this BSP and would need to come from an alternative BSP at Hawton.

#### Telecommunications

4.4.12 **BT Openreach is the regulated 'Open Access'** Telecommunications network provider within **Newark and Sherwood District**. Other 'open access' and 'closed access' operators are available but these are not regulated in terms of duty to provide physical connections to meet growth aspirations. Existing BT Openreach coverage is summarised in the image and **Table 9** on the following pages. As can be seen from the image the majority of the built-up areas of the District are covered.



**BT Openreach Exchange – Coverage**



**Table 9 - BT Openreach Exchange – Coverage**

Settlement	Nearest BT Openreach Exchange	Currently Serving - Residential	Currently Serving – Non Residential	ASDL Enabled	SDSL Enabled	FTTC Enabled	FOTP Enabled
Newark	Newark	20871	759	Yes	Yes	Available in some areas	Available in some areas
Balderton	Newark	20871	759	Yes	Yes	Available in some areas	Available in some areas
Fernwood	Newark	20871	759	Yes	Yes	Available in some areas	Available in some areas
Winthorpe and Coddington	Newark	20871	759	Yes	Yes	Available in some areas	Available in some areas
Collingham	Collingham	1464	63	Yes	No	Available in some areas	Available in some areas
Sutton-on-Trent	Sutton-on-Trent	1129	106	Yes	No	Available in some areas	No
Ollerton and Boughton	New Ollerton	4947	253	Yes	No	Available in some areas	No
Edwinstowe	Edwinstowe	3007	156	Yes	No	Available in some areas	No
Clipstone	Edwinstowe	3007	156	Yes	No	Available in some areas	No
Bilsthorpe	Bilsthorpe	1727	69	Yes	No	Available in some areas	Available in some areas
Rainworth	Blidworth	7719	195	Yes	No	Available in some areas	Available in some areas
Blidworth	Blidworth	7719	195	Yes	No	Available in some areas	Available in some areas
Farnsfield	Farnsfield	1307	83	Yes	No	Available in some areas	No
Southwell	Southwell	3727	193	Yes	No	Available in some areas	No
Lowdham	Lowdham	1825	77	Yes	No	Available in some areas	No

**Notes:**

ASDL = Asymmetric digital subscriber line – fast data transmissions over telephone lines, generally used by private customers  
 SDSL = Symmetric digital subscriber line - fast data transmissions over telephone lines, generally used by business customers  
 FTTC = Fibre to the cabinet  
 FOTP = Fibre to the premises



## Wastewater

4.4.13 Severn Trent Water has 21 sewerage treatment works in the District and Anglian Water has one within the District and a major sewerage treatment works to the west of the District. Severn Trent Water has identified a number of sites in areas which have known capacity issues. **A copy of the full 'Red Amber Green' (RAG) consultation responses** provided by Severn Trent Water and Anglian Water can be found in **Appendix D**.

- Dale Lane, Blidworth (BL/Ho/1) – there is a history of external sewer flooding in the downstream sewerage system along Dale Lane
- Blidworth (BL/Ho/3) - Potential capacity constraints downstream
- Clipstone (13/00458/OUTM) – Insufficient capacity in Mansfield Road sewerage pumping station (SPS)
- Baulker Lane, Clipstone (CL/MU/1) – Insufficient capacity at Baulker Lane sewer overflow
- Collingham (Co/MU/1) - Insufficient capacity at Collingham/Breamer Road SPS
- Farnsfield (Fa/Ho/1) - Known flooding problem in the downstream catchment
- Fernwood (3920421, 06/01776/MAM, Ba-002, NAP 2C) - existing drainage in this area consist of small pumping stations which pump flows to Balderton waste water treatment works, existing pumping capacity will be insufficient
- Land South of Newark (10/01586/OUTM) – Insufficient capacity just upstream of Balderton STW
- Newark (04/01444/FULM, NUA/E/2, NE-006, NUA/MU/1, 07/00954/OUTM, Site 2, NUA/HO/8, 04/03121/FULM, 05/02004/OUTM, 05/01984/FULM, NUA/MU/4, NUA/MU/3, NUA/Ho/9, 10/01256/FULM, NUA/Ho/5, NUA/Ho/4, site 1, NAP2B) - known capacity issues around Newark – strategic works are underway – completion expected in 2019
- Ollerton and Boughton (01/00875/OUT, 05/02273/FULM, 03/00588/OUTM) – historic reports of flooding to properties along Newark Road
- Ollerton and Boughton (OB/MU/2) – topography indicates that this site would drain north east to a small diameter drain with insufficient capacity
- Rainworth (Ra/Ho/2) - capacity constraints in downstream network



- Sutton-on-Trent (ST/MU/1) - reports of local historic flooding in the vicinity of the development

4.4.14 Severn Trent Water has plans to upgrade the sewers in Newark with over 20km of old pipe planned to be replaced and upsized over the next three years.



## 4.5 FLOOD RISK

### Introduction

4.5.1 Flood risk arises when development and its supporting infrastructure is located in areas where the natural drainage of the land will occasionally result in standing and flowing flood water. This situation can be further exacerbated where bridges and embankments constrain the natural movement of water and where natural run-off patterns are adversely impacted by urbanisation. In addition, in conjunction with urbanisation and the management of the land for agriculture, infrastructure **is provided to artificially control flood risk. 'Main Rivers' are the administrative responsibility of the Environment Agency (EA) whereas 'Ordinary Watercourses' and other local sources of flood risk fall within the remit of the Lead Local Flood Authority, Nottinghamshire County Council.**

4.5.2 Finally, impacting all of the above, there is compelling scientific evidence to support the conclusion that flood risk is increasing as a result of human induced climate change.

### Baseline Conditions

4.5.3 In assessing the baseline situation it is necessary to briefly review the natural drainage characteristics of the area. In this respect the River Trent is dominant, with its extensive flood plains, running on a south-west to north east axis through the District. The Trent is tidally influenced downstream of Cromwell Lock. The Rivers Idle and Torn follow a similar axis to the Trent and drain the eastern part of the District. A number of significant tributaries drain into both river systems from the intervening watershed. Both the Trent and the Idle and Torne systems are components of the Humber River Basin District. The extreme east of the District drains into the Anglian River Basin District.

4.5.4 Despite the extensive nature of the flood plains of the River Trent the actual extent of urbanised land in the Trent catchment which is reliant upon flood defences is limited to parts of Farndon, an area to the west of Newark enclosed by the A46(T) and A616, parts of South Muskham and parts of Holme. There is very little reliance on formally identified flood defences for the urban areas within the Idle and Torn catchment or in the parts of the District draining into the Anglian River Basin District.



- 4.5.5 In addition to formally identified flood defences there is wider reliance on a variety of flood defence infrastructure that has been provided to enable urbanisation as noted above. This infrastructure deals primarily with surface water flood risk, as opposed to the fluvial flood risk **that arises from the 'main rivers' and 'ordinary watercourses'**.
- 4.5.6 Where significant and repeated flooding of property occurs, as is the case at Southwell in particular and also at Lowdham, it is indicative of flood risk management infrastructure inadequacy. The floods in July 2013, in particular, demonstrated the stressed nature of the flood risk management infrastructure at these locations.
- 4.5.7 In summary, although, from a hydrological perspective, the District is dominated by the River Trent, the flood risk management infrastructure associated with this main river, is not, as such, a major constraint on development. However, it is the case, that the associated large flood plains are not suitable for development. Similarly fluvial flood risk infrastructure is generally not identified as presenting a constraint to development in the Idle and Torne catchment, provided that the existing flood plains are protected. Notwithstanding the above, improved modelling techniques will continue to refine the understanding of present risks and identify areas requiring investment whilst climate change will continue to increase the size and frequency of flood flows.



## 4.6 GREEN INFRASTRUCTURE

### Introduction

- 4.6.1 Green Infrastructure is defined by Natural England as “**a strategically planned and delivered network comprising the broadest range of high quality green spaces and other environmental features. It should be designed and managed as a multifunctional resource capable of delivering those ecological services and quality of life benefits required by the communities it serves and needed to underpin sustainability.**”

### Baseline Conditions

- 4.6.2 Newark and Sherwood’s green infrastructure includes publically accessible green space ranging from large country parks such as Sherwood Forest Country Park to urban parks such as Sconce and Devon Park in Newark along with green infrastructure corridors such as the Trent valley where it runs within the District. Other types of green infrastructure includes: amenity green space including informal recreation spaces, housing green spaces and village greens; natural and semi-natural urban green spaces including woodland and scrub and wetlands; green corridors such as cycle routes and public rights of way; and green space such as allotments, cemeteries and playing fields.
- 4.6.3 Newark and Sherwood District is split into 5 landscape character areas; Sherwood, Trent Washlands, Mid Nottinghamshire Farmlands, East Nottinghamshire Sandlands and South Nottinghamshire Farmlands. The District has an internationally important site, Birklands and Bilhaugh Special Area of Conservation and numerous Sites of Special Scientific Interest (SSSIs) and Sites of Importance for Nature Conservation (SINC).
- 4.6.4 Many of the sites of nature conservation importance are located in the western side of the District where there are large areas of accessible natural and semi-natural green space and parks on land mainly associated with Sherwood Forest. A number of housing growth sites are proposed in parishes in and around Newark and existing green infrastructure provision in this area includes smaller areas of natural and semi-natural green space, public open space and the green infrastructure corridor along the Trent valley.
- 4.6.5 Existing green infrastructure provision within the District (for parishes with housing growth sites) is summarised in a matrix which can be found in **Appendix E**. This shows compliance of





the existing green infrastructure provision with green space standards in accordance with the methodology set out in Section 5.6.

- 4.6.6 The previous IDP identified the likely need for additional Green Infrastructure in the form of playing fields, amenity green spaces and open spaces within Newark, Bilsthorpe and Farnsfield areas. This review has examined the latest available evidence documents to determine any changes to the previous recommendations to address the needs of planned growth within the District to 2033.



## 4.7 TRANSPORT

### Introduction

4.7.1 The 2010 IDP report was supported by a detailed Transport Study undertaken at the same time to identify the likely implications of Local Plan growth on transport infrastructure within the District. Since the 2010 Transport Study was produced there has been little change to existing transport conditions within the District and the overall quantum and distribution of Local Plan growth now being proposed remains broadly similar to that considered in 2010. A full update to the Transport Study has therefore not been produced however; the traffic impact calculations have been updated to advise this IDP.

### Highways

4.7.2 The District has good access to regional and national transport links and is crossed by the A1 **and A46 trunk roads, as well as several 'A'-Roads** including the A614, A617 and A6097. It is also crossed by the East Coast Mainline railway with a station at Newark-on-Trent (Newark Northgate) and the Nottingham to Lincoln railway line with stations at Newark-on-Trent (Newark Castle) and local stations at Lowdham, Thurgarton, Bleasby, Fiskerton, Rolleston and Collingham.

4.7.3 An improvement scheme to widen the A46 Trunk Road between Newark and Widmerpool to dual carriageway standard was opened to traffic in June 2012. The Newark-on-Trent bypass is therefore now the only remaining section of single carriageway road on the A46(T) between Lincoln and Leicester. The bypass and the junctions along it experience frequent traffic congestion and in the Autumn statement of 2014 the Department for Transport announced its intention to improve this section of the A46(T) as part of its Roads Investment Strategy (RIS).

4.7.4 Highways England are currently undertaking a study to identify potential improvement options with a view to developing an improvement scheme for implementation in the next roads period, RIS 2 (post 2020). The study has so far identified road safety mitigation for implementation in the interim period while a longer-term improvement solution identified.

4.7.5 As part of the Land South of Newark development a new Southern Link Road (SLR) is being provided that will link the A46(T) at Farndon (to the southwest of Newark-on-Trent) to the A1(T) at Fernwood (to the southeast of Newark-on-Trent). Work to construct the SLR commenced in 2015 and is expected to take approximately four years to complete. The SLR



will primarily serve as an access road for the Land South of Newark development but will also provide traffic relief to the highway network within the town centre.

4.7.6 The traffic effects of the A46(T) Newark to Widmerpool improvement and the SLR were taken into account in the 2010 Transport Study and have also been taken into account in this review. There are no other committed highway schemes that will have a significant effect on existing traffic conditions within the District.

4.7.7 The operation of the existing highway network within the District has been assessed following the same approach that was applied in the 2010 IDP. A detailed VISUM traffic model exists of Newark-on-Trent and this model, which is validated to a 2014 base year to the satisfaction of the highway authorities, has been used to examine the operation of the urban highway network within the town. Urban junctions that are currently already close to or over capacity in the 2014 Base Year are summarised in **Table 11** on the following page.

4.7.8 VISUM summarises junction performance in terms of Level of Service (LoS). Junction performance is graded from A (very good) to F (very poor). The definitions of the VISUM grading system are detailed in **Table 10** below.

**Table 10 – Level of Service (LoS) Grading System**

LoS	Interpretation
A-C	Free flow conditions
D	Flow is impaired by traffic density
E	Unstable operation at or very near to capacity
F	Forced or breakdown flow

4.7.9 The results in **Table 11** overleaf represent the worst performing arm at each junction and are presented for the AM and PM peak periods for the 2014 Base Year and 2014 Reference Case scenarios. The base year scenario represents traffic flows at 2014 (i.e. existing traffic conditions at 2014). The reference case scenario represents traffic flows at 2014 with committed development traffic flows taken into account (i.e. assumes all sites with planning permission at that time are complete). For the purposes of the assessment only land-use development proposals that will result in a material change to existing transport conditions within the District have been taken into account (i.e. greater than 50 dwellings or 1,500sqm of employment floor space).



**Table 11 – Urban Junctions close to, or over Capacity without Local Plan Growth**

Junction	Level of Service (LoS)			
	AM Base Year	PM Base Year	AM Reference Case	PM Reference Case
A46/ A1133 (A46 Winthorpe Roundabout)	F	E	F	F
A46/A17/ A1 (Friendly Farmer Roundabout)	F	F	F	E
A46/A1/ Lincoln Rd (Brownhills)	F	F	F	F
A46/A617/ Great N Rd (Cattlemarket)	F	F	F	F
A46/ B6166 Farndon Rd (Farndon)	F	E	F	C
Lincoln Rd/ Brunel Dr	C	D	D	E
B6166 Lincoln Rd/ Northern Rd	C	C	D	D
B6166 N Gate/ Queens Rd	D	D	E	E
Northern Rd/ Brunel Dr	A	B	B	D
Beacon Hill Rd/ Northern Rd	D	E	D	F
Queens Rd/ Sleaford Rd/ Friary Rd	C	D	D	E
Sherwood Ave/ Barnby Gate	D	D	D	E
B6326 Lombard St/ Castle Gate/ Mill Gate	C	C	E	F
B6326 London Rd/ Store Exit	B	D	B	D
Lombard St/ B6166 Portland St/ B6326 London Rd	E	E	E	F
London Rd/ Sherwood Ave/ Bowbridge Rd	E	E	F	E
London Rd/ Main Street	D	D	E	D

4.7.10 As can be seen above all of the key junctions onto the A46(T) are over capacity in one or both peak periods in both the Base Year and Reference Case scenarios. Several other junctions are close to capacity in the Base Year and the addition of committed development traffic flows makes their performance worse in the Reference Case scenario.

4.7.11 Outside of the town the VISUM model is less detailed so a spreadsheet 'model' has been used to examine the rural highway network within the District. Further details and outputs from the spreadsheet assessment can be found in **Appendix F**.

4.7.12 A summary of the performance of the rural highway network in the 2014 Base Year and 2033 Reference Case scenarios is presented in **Figure 5** and **Figure 6** respectively. The assessment compares the modelled traffic flows against the Congestion Reference Flow (CRF) value for each rural link. CRF is a highway link's theoretical traffic capacity, which is calculated taking into account its physical and traffic flow characteristics. When traffic flows on a link approach the CRF value free-flow traffic conditions break down and congestion and delays occur. For

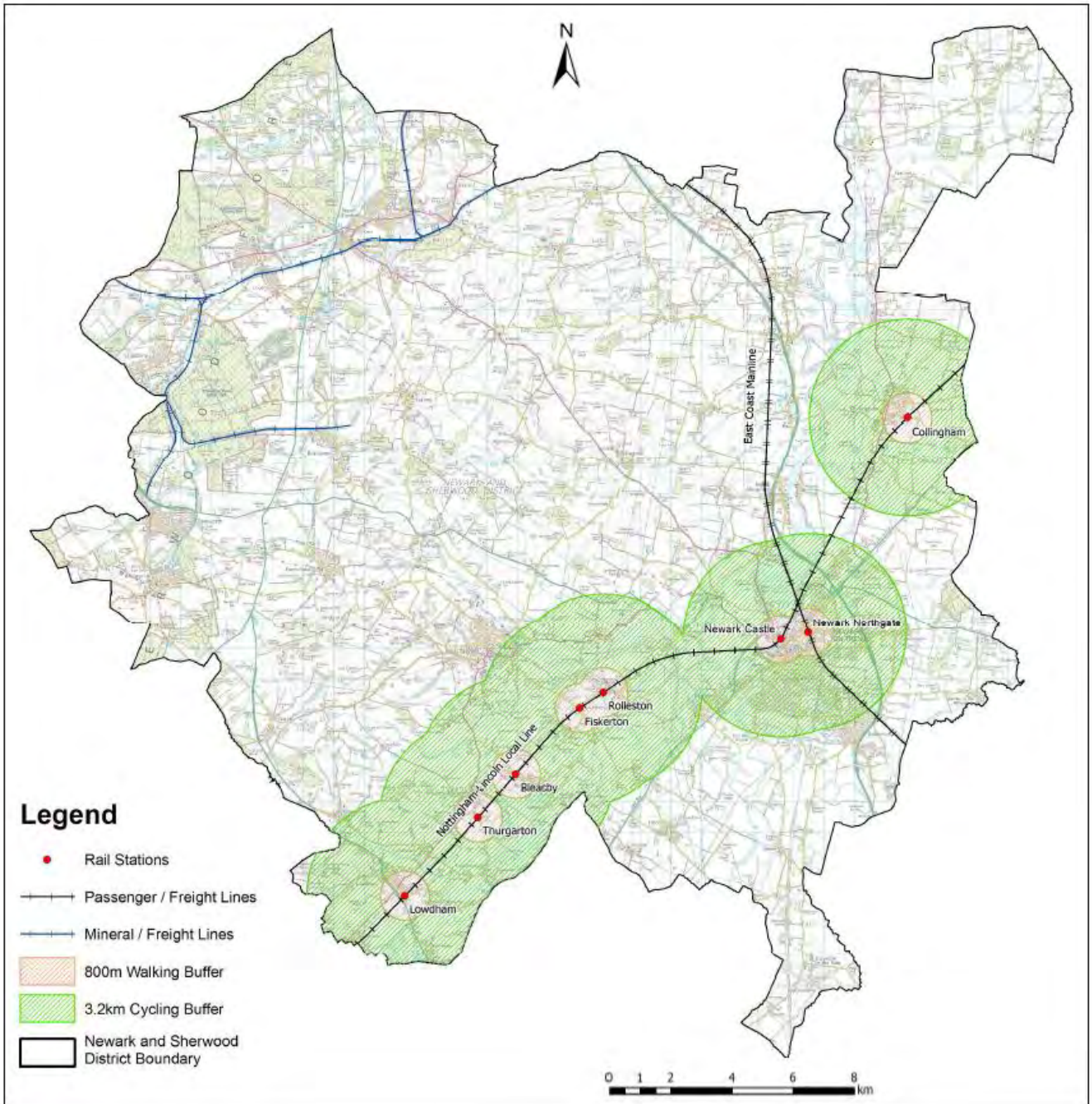


ease of reference link stress levels have been presented which are modelled traffic flows expressed as a percentage of the link CRF value. Stress levels of less than 90% are shown in green, 90%-100% in amber, and greater than 100% in red.

- 4.7.13 It should be noted that CRF is a link-based assessment and does not take into account junction capacity. However, in practice, junction operation usually determines the overall performance of a highway corridor and junctions will exceed their capacity and exhibit congestion and queuing problems long before a link does. Therefore, for the purposes of this study the key junctions on any links identified as being close to, or at capacity, have been identified for potential junction improvements as these junctions are likely to require improvement in advance of consideration of link widening/dualling.
- 4.7.14 The 2014 Base Year stress plan (**Figure 5**) indicates that all rural links within the District currently operate at less than 90% stress except for the A612 at Lowdham (97%). Whilst this link is still within its theoretical capacity it could be expected to experience less reliable journey times. Comparison with the findings of the 2010 Transport Study shows a similar finding however, at the 2008 year base applied in the 2010 study no links were identified as exceeding 90% stress except for the A46(T) to the south of Newark-on-Trent (because the 2010 study pre-dated the A46(T) Newark to Widmerpool improvement).
- 4.7.15 The addition of committed development traffic flows for the Reference Case (**Figure 6**) results in no change to the base case 97% stress identified on the A6097 through Gunthorpe to the A612 at Lowdham. All other rural links within the District are operating at less than 90% stress. This differs slightly from the findings of the 2010 Transport Study which, in addition to the A612 at Lowdham also identified the A617 through Kelham and the A6097 between the A612 at Lowdham and the B6386 at Oxtan as exceeding 90% stress in the 2026 Reference Case.
- 4.7.16 The CRF methodology has not identified any capacity issues on the links feeding into the A614/A6075 Ollerton Roundabout because there are no known existing link capacity issues at this location. However, there are existing traffic capacity issues at the junction that cause extensive queuing and delays in the peak periods. The County Council is therefore promoting a scheme of improvement at Ollerton Roundabout for construction by 2026, although this scheme does not currently feature in a firm programme for construction.

## Rail

4.7.17 Existing rail infrastructure within the District is shown in the image below:



4.7.18 Newark-on-Trent has two rail stations; Newark North Gate is located on the electrified East Coast Main Line with services provided by the Virgin Trains East Coast, and Newark Castle



station located on the Nottingham to Lincoln line with services provided by East Midlands Trains. Six other stations within the District are located on the Nottingham to Lincoln line at Lowdham, Thurgarton, Bleasby, Fiskerton, Rolleston and Collingham.

- 4.7.19 Newark North Gate station is managed by Virgin Trains East Coast and has two car parks. Information provided by Network Rail suggests that the existing station car parks already operate at capacity and any additional demand may require additional parking to be provided.
- 4.7.20 Newark Castle station is managed by East Midlands Trains and has one car park. Whilst Network Rail suggests that this particular car park operates at capacity additional car parking will continue to be available on the campus of the new District Council Headquarters opposite the station and additionally over the road at the Riverside Arena car park.
- 4.7.21 Improvements were undertaken to the level crossing on the B6362 Great North Road on the eastern side of Newark-on-Trent (adjacent to Newark Castle station) in November 2016. As part of an improvement scheme to replace signal boxes and update level crossing controls on the Nottingham to Lincoln rail line the Newark Castle level crossing was renewed to current standards and is now **controlled from Network Rail's East Midlands Control Room in Derby with** the aid of CCTV cameras and monitoring equipment. The improvements are not expected to have any detrimental impacts on road traffic using the level crossing.
- 4.7.22 From May 2015 rail services using the Nottingham to Lincoln rail line were revised which resulted in an increase from one to four trains passing through and requiring a closure of the level crossing in both the AM and PM peak hours.
- 4.7.23 There are no other known changes, or planned changes to rail infrastructure within the District since the 2010 Transport Study was undertaken.

## Bus

- 4.7.24 The District is served by a combination of commercial and financially supported bus services. The commercial network mainly comprises daytime bus services running Mondays to Saturdays between 07:00 and 19:00 hours. Nottinghamshire County Council therefore supports evening and Sunday operations where they are deemed necessary.
- 4.7.25 Stagecoach East Midlands is the dominant commercial bus operator within the District and bus services are provided from four depots at Mansfield, Worksop, Gainsborough and Newark-on-



Trent. Two other major operators within the District are **Marshall's Coaches based in Sutton-on-Trent**, and Travel Wright based in Newark. Nottingham City Transport provides one commercial service between Southwell and Nottingham.

4.7.26 The majority of bus services operating within Newark and Sherwood originate or terminate in either Newark-on-Trent or Southwell. However, there are other services serving settlements in the north and west of the District. Subsidised bus services within the District were recently reviewed by the County Council. This led to reduction in the number of buses between Newark-on-Trent and Ollerton but an increase in the number of buses between Newark-on-Trent, Norwell and Caunton, together with improved services to Fernwood.

4.7.27 During weekday daytimes, Newark-on-Trent has a relatively good bus network. There are inter-urban services to Nottingham and Mansfield and a local town network provides frequent services to the main housing areas of the town.

4.7.28 Southwell has a relatively sparse bus network. The only core inter-urban services are to Nottingham, Mansfield and Newark.

4.7.29 Newark-on-Trent is served by two coach services, both operated by National Express. Service 447 runs once daily and links Newark-on-Trent to London via Grantham; Stamford; and Peterborough, whilst Service 339 also running once daily provides links to Grimsby; Cleethorpes; Louth and Lincoln (northbound) and to Leicester; Birmingham; Cheltenham; Bristol; Taunton; Barnstaple and Westward Ho! (southbound).

4.7.30 There is one bus station within the District which is situated in the Potterdyke area off Lombard Street, Newark-on-Trent. This was upgraded as part of a retail-led regeneration project and opened in November 2011.

4.7.31 There are no other known changes, or planned changes to bus infrastructure within the District since the 2010 Transport Study was undertaken.

## Park & Ride

4.7.32 There are no existing park and ride sites within the District.





## Walking and Cycling

- 4.7.33 Footways are provided in all of the main settlements and within the majority of residential areas. As the District is largely rural, footways are not normally provided alongside carriageways in these locations due to the cost verses low levels of footfall, a lack of available width within the highway corridor and the aesthetic reason **of not wishing to 'urbanise' the countryside**. As part of the LTP the County Council provides enhanced dropped kerb crossings, new controlled crossings and footway upgrades as part of highway improvement, road safety and highway maintenance schemes.
- 4.7.34 The focus of cycling provision is around Newark-on-Trent. The town centre and its environs have a comprehensive network of dedicated cycling infrastructure, pedestrianised streets and quiet roads suitable for cycling. In recent years as Newark has expanded, the cycle network has moved outwards to cover these newer residential areas. Examples include the Beacon Hill route from the east of the town centre towards Coddington and additional facilities on London Road towards the south east of the town/Balderton area.
- 4.7.35 **Much of the rest of the District's cycling infrastructure is made up of leisure based facilities** and longer distance leisure routes are available in the form of National Cycle Network (NCN) route 64 which passes through the majority of the east of the District, joining NCN route 15 at Thoroton, before travelling to Lincoln via Newark-on-Trent.
- 4.7.36 The National Byway travels from Cotham to Newark-on-Trent sharing the same route as NCN route 64, before travelling northwest through Newark-on-Trent and onto South Muskham. The main route continues north through North Muskham, Norwell and Laxton, with an additional loop spurring westwards to Caunton, Hockerton, Southwell, Eakring before meeting the main route at Laxton.
- 4.7.37 In the area around Clipstone and Edwinstowe there are numerous off-road trails through Vicar Water, Sherwood Pines and Sherwood Forest which are ideal for leisure cycling and walking. There is also an attractive riverside cycle route between Newark Castle station and Lincoln Road Bridge in the town.



## 5 FUTURE CONDITIONS

### 5.1 INTRODUCTION

5.1.1 This section of the report describes the forecast situation within the District for each category of infrastructure once the planned growth has been delivered.

### 5.2 SOCIO-ECONOMIC INFRASTRUCTURE

5.2.1 The increase in demand for socio-economic related infrastructure is directly linked to increase in population. The assumed increase in population by 2032 is derived from the projected number of dwellings multiplied by the average persons per household for the District<sup>3</sup>. The planned increase in dwellings is estimated to result in a population increase of 29,880 people over the plan period.

#### Primary Healthcare

5.2.2 The ratio of full time equivalent (FTE) GPs to registered patients has been applied as an indicator of the capacity of GP Practices within the District. The NHS Choices website<sup>4</sup> states:

*"There is no recommended number of FTE GPs per 1,000 patients per practice, recognising the differing needs of the registered patients of GP practices. GP practices plan and utilise their workforce to best meet the needs of their patients.*

*It can be noted for comparison, that the average number of FTE GPs per 1,000 patients per practice in England is 0.58."*

5.2.3 Registered patient numbers and numbers of FTE GPs for each Practice within the District have been taken **from "General and Personal Medical Services, England 2005-2015, as at 30<sup>th</sup> September" data which is published every six months by the NHS.** The data used was published on April 27<sup>th</sup> 2016 and is the most up to date information available at the time of

<sup>3</sup> Taken as an average of 2.2 persons per household for the District at 2034, from the Department for Communities and Local Government 2014-Based Household Projections in England, 2014 to 2029 (July 2016)

<sup>4</sup> Source: NHS Choices website (<http://www.nhs.uk/Scorecard/Pages/IndicatorFacts.aspx?MetricId=100063>)



writing. However, it should be noted that this data represents a 'snap shot' of existing conditions at the date of publication and patient and FTE GP numbers will fluctuate regularly.

- 5.2.4 Consultation with the NHS confirms that rural practices could be expected to have lower ratios of GPs to patients than practices in built-up areas. The modern health care workforce now includes other health professionals who have prescribing (limited) rights, so it is difficult to make a judgement on capacity by looking at GP to patient ratios alone. However, as a general rule the provision of 0.50 to 0.33 FTE GPs per 1,000 head of population is regarded as being satisfactory provision. This equates to approximately one GP per 2,000 to 3,000 registered patients.
- 5.2.5 For the purposes of this study a ratio of up to 0.33 FTE GPs per 1,000 head of population has been applied as an approximate indicator of the upper end of the range of satisfactory provision. This is equivalent to up to 3,000 patients per GP. For comparison the national average of 0.58 FTE GPs per 1,000 registered patients is equivalent to 1,724 patients per GP.
- 5.2.6 Across the district the average number of registered patients per GP is 2,075 (see **Table 12** on the following page) which is higher than the national average but less than 3,000 patients per GP. On this basis it could be concluded that the aggregate GP provision across the District is adequate to serve the number of existing registered patients, which would be supported by the fact that all Practices within the District are currently accepting new patients.
- 5.2.7 However, aggregate figures do not take into account local circumstances such as the spatial distribution of the local population, the popularity of particular Practices, Practice accessibility, socio-economic factors (e.g. areas with a higher percentage of elderly patients or very young children could generate a greater demand for healthcare provision), or other local contributory factors.
- 5.2.8 From **Table 12** on the following page it can be seen that the majority of Practices across the District currently have less than 3,000 registered patients per FTE GP. However, based on the available data the Rainworth Health Centre and the Bilsthorpe Surgery both exceed this threshold.
- 5.2.9 For ease of reference a Red/Amber/Green colour coding has been applied in **Table 12** for the number of registered patients served by each FTE GP where:



**Green:** <2,000 = **Approx'** Consistent with national average (i.e. some spare capacity)  
**Amber:** >2,000<3,000 = Exceeds national average but still considered acceptable  
**Red:** >3,000 = Upper threshold exceeded (i.e. over capacity)

**Table 12 – Existing Registered Patients per FTE GP by Practice**

Practice	Location	Patients	FTE GPs	Patients/GP
Balderton Primary Care Centre	Balderton	5,500	3.20	1,719
Fountain Medical Centre	Newark	14,061	5.20	2,704
Barnby Gate Surgery	Newark	13,672	8.00	1,709
Lombard Medical Practice	Newark	17,924	8.44	2,123
Middleton Lodge Practice	Ollerton	12,413	4.91	2,530
Hill View Surgery	Rainworth	2,934	2.07	1,420
Rainworth Health Centre	Rainworth	6,054	1.65	3,662
Sherwood Medical Partnership (Clipstone Health Centre & Farnsfield Surgery)	Clipstone	14,499	6.00	2,417
	Farnsfield			
Southwell Medical Centre	Southwell	12,109	7.40	1,636
Bilthorpe Surgery	Bilthorpe	3,031	1.00	3,031
Blidworth Surgery	Blidworth	11,767	5.71	2,062
Collingham Medical Centre	Collingham	6,851	4.00	1,713
Major Oak Medical Practice	Edwinstowe	6,318	3.47	1,822
The Jubilee Practice (Lowdham Medical Centre)	Lowdham	2,307	1.00	2,307
Hounsfield Surgery	Sutton-on-Trent	3,978	2.24	1,776
Total		133,418	64.28	2,075

**Note:** Patient and FTE GP numbers taken from NHS GP level data published April 27<sup>th</sup> 2016

- 5.2.10 As can be seen from **Table 12** a total of seven Practices within the District have patient/GP ratios that are approximately consistent with the national average. A total of eight Practices have ratios that exceed the national average however, six of these are still considered to be within an acceptable range (i.e. less than 3,000 patients per GP).
- 5.2.11 There are two practices with more than 3,000 registered patients per GP (Rainworth Health Centre and Bilthorpe Surgery) and two practices with more than 2,500 registered patients per GP (Fountain Medical Centre in Newark and Middleton Lodge Practice in Ollerton).
- 5.2.12 The following table summarises the future demand expected due to Local plan development and the number of additional FTE GPs that are likely to be required to meet the additional demand.



**Table 13 – Future GP Demand Due to Local Plan Development**

Practice	Location	Existing Patients	No. of Existing FTE GPs	FTE GPs Required to meet Existing Demand	Existing Shortfall/Surplus	Population Increase due to Local Plan Development (Note 1)	New FTE GPs Required (Note 3)
Balderton Primary Care Centre	Newark/ Balderton	51,157	24.8	25.6	0.7	20,614	10.3
Fountain Medical Centre							
Barnby Gate Surgery							
Lombard Medical Practice							
Middleton Lodge Practice	Ollerton	12,413	4.9	6.2	1.3	2,057	1.0
Hill View Surgery	Rainworth	8,988	3.7	4.5	0.8	810	0.4
Rainworth Health Centre							
Sherwood Medical Partnership (Clipstone Health Centre & Farnsfield Surgery)	Clipstone	14,499	6.0	7.2	1.2	2,218	1.1
	Farnsfield						
Southwell Medical Centre	Southwell	12,109	7.4	6.1	-1.3	746	0
Bilthorpe Surgery	Bilthorpe	3,031	1.0	1.5	0.5	664	0.3
Blidworth Surgery	Blidworth	11,767	5.7	5.9	0.2	444	0.2
Collingham Medical Centre	Collingham	6,851	4.0	3.4	-0.6	416	0
Major Oak Medical Practice	Edwinstowe	6,318	3.5	3.2	-0.3	1,628	0.5
The Jubilee Practice (Lowdham Medical Centre)	Lowdham	2,307	1.0	1.2	0.2	22	0
Hounsfield Surgery	Sutton-on-Trent	3,978	2.2	2.0	-0.3	125	0
		133,418	64.3	66.7	2.4	29,744	13.9

**Notes:**

1. Taken as an average of 2.2 persons per household for the District at 2034, from the Department for Communities and Local Government 2014-Based Household Projections in England, 2014 to 2029 (July 2016).
2. All new residents assumed to register with a local GP.
3. FTE GPs required to meet additional demand due to development estimated on a basis of 2,000 registered patients per GP. Where existing GP capacity exceeds the increased demand no new provision is assumed to be required.
4. GP Figures represent Full Time Equivalent (FTE).

5.2.13 When considered on a location basis and taking into account the additional demand on healthcare due to development (i.e. not addressing existing shortfalls) there is a requirement for 13.9 additional FTE GPs across the District with the key demands located within Newark/Balderton, Clipstone and Ollerton. For the purposes of calculating the above estimate a ratio of 2,000 patients per GP has been applied as an indicator of acceptable provision. However, as noted earlier ratios can exceed this level without detriment to patient care.

5.2.14 The scale of planned development in Newark is likely to require the provision of approximately 10 new FTE GPs in Newark-on-Trent which will require new/extended Practices to be delivered. New or extended Practices are also likely to be required in Ollerton and Clipstone to meet the forecast demand. In Ollerton it is understood that the existing Practice is already



under pressure and in need of new premises. A new Practice to meet future demands is therefore considered likely at this location. In Clipstone it may be possible to accommodate the additional demand through increased FTE staffing levels at the Clipstone Health Centre, subject to available capacity. At other locations across the District it is expected that the forecast increase in demand could be met by existing Practices by increasing FTE staff where necessary.

## Primary Education

- 5.2.15 The County Council, as the Local Education Authority allows for primary school places on the basis of 21 school places per 100 dwellings. Using this ratio it is estimated that an additional 2,839 primary school places would be required to 2032 to meet the additional demands of Local Plan development.
- 5.2.16 Newark & Sherwood District currently demonstrates an excess capacity of 473<sup>5</sup> primary school places (based upon the present number of students, as recorded in January 2016 – See table in **Appendix B**).

**Table 14 – Additional Primary Education Demand**

Sub-Regional Centre / Service Centre / Principal Villages	Primary School Places Required
Newark, Balderton & Fernwood	1,968
Ollerton & Boughton	196
Clipstone	168
Rainworth	77
Southwell	71
Bilsthorpe	63
Blidworth	42
Collingham	40
Edwinstowe	155
Farnsfield	44
Lowdham	2
Sutton-on-Trent	12
<b>Total</b>	<b>2,839</b>

- 5.2.17 Subtracting the available capacity from the forecast number of places summarised above would leave a residual 2,366 places that will need to be found. This is discussed further in Section 6.

<sup>5</sup> School place data taken from Department for Education EduBase2, as of January 2016.



## Secondary Education

- 5.2.18 The County Council allows for secondary school places on the basis of 16 school places per 100 dwellings. Using this assumption it is estimated that an additional 2,163 school places would be required to 2032.
- 5.2.19 Newark & Sherwood District currently demonstrates an excess capacity of 694 secondary school places<sup>6</sup> (based upon the present number of students, as recorded in January 2016 and excluding the planned Newark Toot Hill Free School – See table in **Appendix B**).

**Table 15 – Additional Secondary Education Demand**

Sub-Regional Centre / Service Centre / Principal Villages	Secondary School Places Required
Newark, Balderton & Fernwood	1,499
Ollerton & Boughton	150
Clipstone	128
Rainworth	59
Southwell	54
Bilsthorpe	48
Blidworth	32
Collingham	30
Edwinstowe	118
Farnsfield	33
Lowdham	2
Sutton-on-Trent	9
<b>Total</b>	<b>2,163</b>

- 5.2.20 This leaves a residual figure of 1,469 secondary school places to be found across the District. However NCC has advised that this may not be spread evenly across all schools and in certain localities there are shortages of school places and in others there are surpluses. These **“hotspots” are not fixed, they can occur at short notice in response to local circumstances** such as Ofsted outcomes, economic factors such as employment opportunities and short-term demographic changes such as migration. NCC should therefore be consulted as new development comes forward through the planning application process to determine the availability of school places at that time.

<sup>6</sup> School place data taken from Department for Education EduBase2, as of January 2016.



## Libraries

- 5.2.21 Nottinghamshire County Council has confirmed that library provision is currently adequate and that the Council is not proposing to extend existing or build new libraries within the District. Where existing library buildings have limited capacity to accommodate additional demand, additional stock may be accommodated by the reconfiguration of the library concerned. This would be subject to confirmation at the time of the planning application.
- 5.2.22 The County Council assumes 1,532 stock items per 1,000 head of population and a level of floor space provision equating to 30 square metres per 1,000 per head of population. This equates to 3.38 stock items per new dwelling or 66 square metres of floor space per 1,000 dwellings. Applying this to the planned residential development gives:

**Table 16 – Library Provision**

Location	Dwellings	Floor Space (Sqm)	Library Stock (Items)
Newark, Balderton & Fernwood	9,370	618	34,452
Ollerton & Boughton	935	62	3,438
Clipstone	800	53	2,941
Rainworth	368	24	1,353
Southwell	339	22	1,246
Bilsthorpe	302	20	1,110
Blidworth	202	13	743
Collingham	189	12	695
Edwinstowe	740	49	2,721
Farnsfield	208	14	765
Lowdham	10	1	37
Sutton-on-Trent	57	4	210
<b>Total</b>	<b>13,520</b>	<b>892</b>	<b>49,710</b>





## 5.3 WASTE MANAGEMENT

### Waste Management Capacity

5.3.1 The capacity of waste management facilities in Nottinghamshire and Newark and Sherwood **has been compiled using information from the Environment Agency's** Waste Data Interrogator (WDI) on permitted sites, the Council's records on sites with existing planning permission for **waste management use and Nottinghamshire's Minerals and Waste Annual Monitoring Report, 2013/14**. Full details of the assessment can be found in the Waste Needs Assessment Report in **Appendix C**.

5.3.2 Since the adoption of the Waste Core Strategy, the revised National Planning policy for waste amended the assessment of future capacity requirements to be based on only those facilities that are actually operational at the time of the assessment as being the more reliable measure of available capacity. Therefore, for purposes of this report, only facilities that are already operational have been considered for analysis. These include the following main facility types:

- Landfill
- Incineration with energy recovery (EfW)
- Waste Transfer Stations (WTS)
- Materials Recovery Facilities (MRFs)
- Composting and other organic recycling plants (e.g. anaerobic digestion)
- Recycling facilities

5.3.3 Note that facilities of waste recycle reprocessors such as glass recyclers, paper recyclers (i.e. B1 users from a planning perspective), which are also exempt from waste licensing, has not been included in this analysis.

5.3.4 **Table 17** on the following page provides a summary of the waste management capacity available within Nottinghamshire and Newark and Sherwood as of December 2014.



**Table 17 - Summary of Available Waste Management Capacity as of 2014**

Waste Management Method	Available Capacity (Tonnes)	
	Nottinghamshire	Newark and Sherwood
Landfill (non-hazardous)	1,760,000	870,000
Landfill (inert)	3,680,000	-
Landfill (inert - restricted user)	450,000	450,000
Landfill (ash disposal)	3,400,000	-
Composting	82,000	59,000
Anaerobic Digestion	221,000	16,000
MRFs	744,000	-
Transfer stations	391,000	143,00
Recycling - glass	30,000	-
Recycling - wood	76,000	18,000
Recycling - aggregates	970,000	17,000
Recycling - metal	87,000	70,000
HWRCs	97,500	12,500

Nottinghamshire County and Newark and Sherwood District Capacities - Landfill

- 5.3.5 There is a Countywide non-hazardous landfill capacity of some 1.76 million cubic metres (equivalent to 1.5 million tonnes at an average bulk density of 0.85 tonnes/cubic metre), with capacity in Newark and Sherwood District at 870,000 cubic metres (equivalent to approximately 740,000 tonnes at an average bulk density of 0.85 tonnes/cubic metre).
- 5.3.6 In 2013/2014, approximately 150,000 tonnes of municipal waste and an estimated 240,000 tonnes of C&I waste (Minerals and Waste Annual Monitoring Report, 2013/2014) was sent to landfill in Nottinghamshire. Based on these input rates and capacity of non-hazardous landfill in Nottinghamshire, the available void in the County would be filled in approximately 4 years.
- 5.3.7 There is currently very limited capacity for landfill in the County as towards the end of 2014 **significant permitted disposal capacity was lost when two of the County’s remaining non-hazardous landfill sites, at Dorket Head Landfill near Arnold and Carton Forest Landfill near Worksop, closed, leaving only two remaining non-hazardous landfill sites near Newark and Retford.** Taking account of these losses, remaining non-hazardous capacity is now estimated to be less than 2 million cubic metres.



## Energy from Waste (EfW)

- 5.3.8 There is currently one EfW facility in Nottinghamshire, the Eastcroft Incinerator in Nottingham, with a permitted energy recovery capacity of 260,000 tonnes per annum. However, this capacity includes 100,000 tonnes per annum that has not yet been built. The facility is able to take both commercial and municipal waste.
- 5.3.9 LACW residual waste from Newark and Sherwood District is currently sent to an EfW facility in Sheffield, operated by Veolia, with a permitted capacity of approximately 245,000 tonnes per annum and there are contractual arrangements in place to treat up to 60,000 tonnes of **Nottinghamshire's residual waste until 2033.**
- 5.3.10 Outside of the County, there are other facilities that could be used such as the 120,000 tonnes per annum facility under construction in Doncaster, the 150,000 tonnes per annum fully operational facility in Lincolnshire, the 300,000 tonne (proposed 180,000 tonnes municipal, 120,000 tonnes East Midlands C&I) EfW facility at Shepshed in Leicestershire that was granted permission in 2012 and permission for increased capacity of 350,000 tonnes per annum approved in October 2014, expected to be operational by 2018/19 and the 190,000 tonnes per annum facility in Derby, currently under construction.

## Organic Waste Recycling (Composting, Anaerobic Digestion)

- 5.3.11 There is a total composting capacity (for both C&I and municipal waste) of 82,000 tonnes in Nottinghamshire of which approximately 59,000 tonnes is in Newark and Sherwood and 221,000 tonnes of anaerobic digestion capacity, of which 16,000 tonnes is in Newark and Sherwood. There is 58,000 tonnes per annum of composting capacity available for municipal waste in Nottinghamshire, of which 55,000 tonnes is in Newark and Sherwood.

## Material Recovery Facilities (MRFs)

- 5.3.12 Where recyclates such as plastics, metals, paper, cardboard, glass are collected as mixed **streams, or "co-mingled", MRFs are required to separate the individual material streams so they can be reprocessed and/or reused. Similarly "dirty MRFs" can be used to separate** recyclates from residual waste streams.
- 5.3.13 There are currently no MRFs in Newark and Sherwood District. The District currently sends its dry mixed recyclates to the MRF in Mansfield, as do all other WCAs in Nottinghamshire. There



is no end date on the planning permission for the MRF, however, the PFI contract runs until 2033, after which there could be different contractual arrangements. The total available MRF capacity in Nottinghamshire is approximately 744,000 tonnes.

## Transfer Stations

5.3.14 Nottinghamshire has considerable provision for transfer and bulking stations including facilities for hazardous, clinical, LACW and C&I wastes. The majority of transfer stations handle C&I and municipal waste. The total available capacity for transfer station in Nottinghamshire is approximately 390,000 tonnes, of which 140,000 tonnes is in the Newark and Sherwood District. Of the total transfer station capacity in Nottinghamshire, 280,000 tonnes is for C&I and municipal waste, of which 83,000 tonnes is located in Newark and Sherwood District.

5.3.15 According to the Waste Core Strategy, four sites in Nottinghamshire are used to bulk up waste from HWRCs and kerbside collections and manage an estimated 50,000 tonnes of municipal waste. A new municipal waste transfer station in Newark that became operational in 2015 addresses any shortfall in this part of the County.

## Recycling Capacity

5.3.16 There is recycling capacity for glass, wood, metal and aggregate of approximately 1.2 million tonnes in Nottinghamshire, of which approximately 88,000 tonnes is in Newark and Sherwood. The majority of this capacity is for C&I and construction and demolition waste, with approximately 40,000 tonnes per annum capacity currently available for municipal waste.

## Household Waste Recycling Centre (HWRC) Capacity

5.3.17 The available operating capacity of HWRCs (as of December 2014) is a total of approximately 97,500 tonnes per annum in Nottinghamshire, of which 12,500 tonnes per annum is within Newark and Sherwood. The County completed a long term programme of improvements to its network of HWRCs, including the development of the new sites at Worksop and Newark.



## 5.4 UTILITIES

### Introduction

5.4.1 The provision of strategic utility infrastructure (gas, water, electricity and waste water) to serve new development is the responsibility of the respective infrastructure providers who have a legal duty to provide these services to their customers. The utility companies therefore plan for and fund strategic network enhancements/extensions to cater for the development identified in adopted Local Plans as part of their 5-year planning cycles. The responsibility for local connections between the strategic utility networks and individual developments rests with developers and is typically delivered and funded as part of the development.

### Water

5.4.2 Severn Trent Water and Anglian Water have each produced a 25 year plan (Water Resource Management Plan) to maintain a secure balance between water supply and demand. As a result no anticipated strategic water supply shortfalls have been identified that would affect the local plan growth proposed within the District.

5.4.3 For providing water to specific developments, the requirements are more localised and subject to detailed network modelling. It is usual that this infrastructure is identified on a site-by-site basis as planning applications come forward. Any local constraints would need to be identified and addressed (at the developer's expense) before development could proceed.

### Gas

5.4.4 National Grid Gas (NGG) has confirmed that there are robust gas networks within the proximity of all of the settlements where growth is proposed. The capacity of existing gas infrastructure is therefore not considered to be a barrier to growth over the plan period. The accumulative effects of a large number of additional loads on the existing gas network may overload upstream systems, in which case reinforcements would then be necessary. NGG would identify and deliver any strategic upgrades required as part of their 5-year planning cycle. Local connections to individual developments would be identified on a site-by-site basis as planning applications come forward and **provided at the developer's expense.**



## Electricity

- 5.4.5 Western Power Distribution (WPD) are obliged to publish a Long Term Development Statement. This statement contains information on all strategic assets, capacity and forecast demands and is a good indicator of whether works are planned that will benefit future development.
- 5.4.6 Forecast demands do not actively capture new development projects allocated in Local Plans unless an offer has been accepted thus reserving network capacity. WPD will not forward fund network reinforcement attributable to new development until actually triggered by a formal new connection application.
- 5.4.7 WPD has confirmed that a new primary sub-station has been built at Fernwood. This will continue to supply the Fernwood area and any new connections in the Newark area will likely have a point of connection here, as the sub-station at Hawton has nearly reached capacity.
- 5.4.8 Connections to the Newark Junction sub-station for sites to its south would likely mean a new crossing of the railway line or river would be required. This could be costly and time constraining.
- 5.4.9 Several of the proposed growth areas are situated on old colliery sites. In these cases there is spare capacity on the primary sub-stations as they used to supply the collieries which have now closed.
- 5.4.10 No new primary substations are therefore anticipated to be required to accommodate the growth proposed within the District during the plan period.
- 5.4.11 Local electrical connections between sub-stations and individual developments would be identified on a site-by-site basis as planning applications come forward and any local upgrades required would be funded by the developer.



## Telecoms

- 5.4.12 There are existing BT Openreach networks within the proximity of all of the settlements where growth is proposed within the plan period. The capacity of existing BT Openreach infrastructure is therefore not considered to be a barrier to growth.
- 5.4.13 Bt Openreach is currently rolling out a programme to bring fibre optic connections between exchanges and each of their street cabinets; this programme is known as Fibre to the Cabinet or FTTC for short and will deliver superfast broadband. FTTC offers significantly faster broadband data speeds than connections comprising all copper wire (in FTTC only the final connection from the street cabinet to individual properties is via copper cable). All exchanges within the District are FTTC enabled. In addition, BT Openreach announced in February 2016 that Fibre to the Premises (FTTP) will be provided for free for all housing developments of 100+ dwellings (FTTP provides a fibre optic link between the exchange and each property).

## Wastewater

- 5.4.14 Severn Trent has provided a summary of where development proposals are likely to impact on sewerage infrastructure capacity (see **Appendix D**). There are known issues to the south of Newark in the Balderton and Fernwood areas. Severn Trent Water is already in discussion with developers in this area to ensure additional sewerage network capacity is provided to align with development phasing.
- 5.4.15 Significant improvement works are also planned over the next five years to address widespread sewerage network capacity issues across Newark-on-Trent (see improvement scheme poster in **Appendix D**).
- 5.4.16 Other development areas will be assessed at the planning application stage once flow rates and connection points can be confirmed.
- 5.4.17 As part of their underlying duty to provide effectual drainage Severn Trent is reviewing what upgrades may be required to existing sewerage treatment works to meet the demand from Local Plan growth across the District. Upgrade works have already been undertaken at Balderton with further works at Boughton and Southwell planned for completion over the next five years to meet environmental obligations and to accommodate projected demands.



## 5.5 FLOOD PROTECTION

5.5.1 Local Plan development within the District can only come forwards in compliance with the requirements of the National Planning Policy Framework (NPPF) Sequential Test in respect of flood risk (see NPPF Paragraphs 100 and 101). Specifically, this requires that development be:

- located outside of Flood Zones 2 and 3, and;
- outside of Flood Zone 2 and 3 areas that are reliant on formal fluvial defences.

Unless a Strategic Flood Risk Assessment (SFRA) has demonstrated that the Local Plan growth cannot be achieved without incursion into these areas. A SFRA in support of the revised Local Plan is being prepared concurrently with the IDP.

5.5.2 The Environment Agency (EA) has identified in the River Trent Catchment Flood Management Plan that the impact of climate change is a key issue for the River Trent. In the light of revised guidance to assess the impacts of climate change, as part of the SFRA review, the River Trent model has been re-run to assess the impacts on new development (the future situation) along the Trent Valley in the future climate change scenarios agreed as appropriate to the catchment by the Environment Agency. The outcome of this assessment demonstrates that the future situation can largely be accommodated without incursion into Flood Zones 2 and 3 (defended or otherwise) as will exist in the future climate change scenarios along the Trent valley.

5.5.3 However, there are a number of sites in south Newark (10/01586/OUTM and 07/01840/OUTM) and west Newark (05/01789/FULM, 05/01984/FULM, 05/02004/OUTM, 07/00954/OUTM and NuA/HO/2) which will have significant incursion into either Flood Zone 2 or 3. Similarly, most of the sites in the Trent valley villages north of Newark are in Flood Zones 2 or 3. However, the degree of incursion in the most extreme relevant climate change scenario tested is not significantly greater than in the present day scenario. This is largely because the width of the River Trent flood plain is such that a significant increase in flow volume only results in a very small increase in flood extent. If the Sequential Test conclusion is that these sites are required to deliver Local Plan development then any development on these sites will need to demonstrate the Exception Test.

5.5.4 The only site in the Torne and Idle catchment where inclusion to enable delivery of the future situation presents a Sequential and Exception Test issue is OB/MU/1 in Ollerton. The inclusion





of this site as a means to achieve the future situation requires examination by a Level 2 SFRA assessment.

5.5.5 The application of the Sequential Test is predominantly in respect of fluvial flood risk. However, the NPPF (paragraph 100) also requires:

*'Safeguarding land from development that is required for current flood management.'* and  
*'Using opportunities offered by new development to reduce the causes and impacts of flooding.'*

These principles will apply to all new development proposed in the revised Local Plan and therefore the future situation will not impose any greater strain on flood risk management infrastructure or the requirement for publicly funded new flood defence infrastructure. Instead future development is likely to contribute to the enhancement of flood risk management infrastructure. This approach will be of particular significance in Southwell and Lowdham.



## 5.6 GREEN INFRASTRUCTURE

5.6.1 The assessment process and methodology used to determine changes in green infrastructure provision under the planned growth within the **District's local plan period is set out in the paragraphs below**. The methodology follows that used in the production of the 2010 IDP and includes information provided in the District Council's **open space and green infrastructure evidence base studies**.

### Assessment Methodology

5.6.2 Open space and green infrastructure evidence base for the District is provided in the following documents:

- A Green Infrastructure Strategy for Newark & Sherwood February 2010
- N&SDC Community Greenspace Provision Improvement Plans March 2010
- Newark & Sherwood District Green Spaces Strategy 2007 – 2012
- Newark and Sherwood District Council Playing Pitch Strategy 2014

5.6.3 NPPF defines Open Space as:

*"All open space of public value, including not just land, but also areas of water (such as rivers, canals, lakes and reservoirs) which offer important opportunities for sport and recreation and can act as a visual amenity."*

5.6.4 Green Space is defined within the Newark & Sherwood Green Spaces Strategy 2007 – 2012 as:

*"All open green spaces which are either publically accessible or of public value, including parks, ornamental gardens, amenity areas and wilder areas of natural green space and woodlands."*

5.6.5 The Newark & Sherwood Green Spaces Strategy 2007 – 2012 considers seven different types of green space including:

- Parks and gardens;
- Natural and semi-natural green space;
- Outdoor sports facilities;
- Amenity green space;
- Provision for children and young people;



- Allotments and community gardens; and
- Cemeteries and closed churchyards

5.6.6 For the purposes of this IDP and for assessing green infrastructure provision for the local plan period, assumptions have been made on the range of open space types that fall within the green space typology listed above, as follows:

- Parks and gardens – including regional parks, country parks, registered parks and gardens, and historic parks and gardens;
- Natural and semi-natural green space – including woodlands, open access land, national nature reserves, local nature reserves, sites of special scientific interest, special areas of conservation, special protection areas, sites of interest in nature conservation, RSPB reserve, Woodland Trust sites, green corridors including public rights of way, national trails and cycleways, rivers and water bodies;
- Outdoor sports facilities – including playing fields, tennis courts, bowling greens, sports ground, recreation ground and other outdoor sports areas;
- Amenity green space – including town and village greens, doorstep greens, millennium greens and other public open space;
- Provision for children and young people – including play areas and skate/BMX parks
- Allotments and community gardens; and
- Cemeteries and churchyards

5.6.7 In order to identify the green infrastructure required to facilitate growth within the District to the end of the plan period, the existing green infrastructure provision and proposed housing growth for the District has been measured against appropriate green space standards.

5.6.8 Green Space provision standards are set out in the Newark & Sherwood District Green Spaces Strategy 2007- 2012 and Newark & Sherwood Green Space Provision Improvement Plans (2010). The provision standards include open space population standards and open space distance standards which are summarised in **Table 18** and **Table 19** on the following page.



**Table 18 - Newark & Sherwood Local Provision Standards**

Open Space Type	Standard (Area of Provision per 1,000 head of Population)
Parks and gardens	0.6 – 0.8ha per 1,000 population
Natural and semi-natural green spaces	10ha per 1,000 population
Outdoor sports facilities	2.5ha per 1,000 population
Amenity green space	0.6ha per 1,000 population
Provision for children and young people	0.75ha per 1,000 population
Allotments and Community Gardens	0.5ha per 1,000 population
Cemeteries and Churchyards	0.5ha per 1,000 population

5.6.9 The population based standards have been applied at a parish level in accordance with the existing Newark & Sherwood green infrastructure evidence base documents. Existing parish populations have been taken from the 2011 census. Potential increases in population under the planned growth within the District have been calculated using the predicted housing numbers provided by the Council, assuming an average occupation of 2.2<sup>7</sup> persons for each household during the plan period.

5.6.10 It is not necessary to extrapolate compliance with population standards to the individual IDP sites, as the measurement against the standard occurs at a parish level. Potential population increases under the planned growth could take place at any of the IDP sites within the parish. Where IDP sites cross parish boundaries the increase in population was allocated in proportion with the area of the IDP site in each parish.

**Table 19 – Newark & Sherwood Open Space Distance Standards**

Open Space Categorisation	Size Guideline (ha)	Distance from Homes
Regional Park	Over 60	Up to 30km
District Park	10-60	Up to 15km
Town Park/playing field	4-10	Up to 3km
Neighbourhood Park/Playing field	2-4	Up to 1km
Local Playing Fields	0.5 – 2	Up to 500m
Pocket Playing Field	0.2 – 0.5	Up to 300m
Natural and semi-natural green spaces	-	All residents being within 300m of provision

<sup>7</sup> Taken as an average of 2.2 persons per household for the District at 2034, from the Department for Communities and Local Government 2014-Based Household Projections in England, 2014 to 2029 (July 2016).



- 5.6.11 Individual IDP sites and clusters have been assessed for compliance against the above distance standards through the creation of appropriately sized buffers surrounding the IDP sites, for example a 30km buffer for a Regional Park over 60ha in size and a 15km buffer for a District Park 10-60ha in size.
- 5.6.12 In addition to **Newark & Sherwood’s green space standards** a number of other recognised green infrastructure standards have been used to assess the green infrastructure requirements for the local plan period. This includes **Natural England’s Greenspace Standards** and **Woodland Trust Access Standards** as set out below and as used in the production of the Council’s 2010 IDP.

**Table 20 – Natural England Accessible Natural Greenspace Standards**

Natural England Accessible Greenspace Standards
At least 1 hectare of Local Nature Reserve should be provided per 1,000 head of population.
There should be at least one accessible 20 hectare green space site within 2 km from home.
There should be one accessible 100 hectare green space site within 5 km.
There should be one accessible 500 hectare green space within 10 km.

**Table 21 – Woodland Trust Woodland Access Standards**

Woodland Trust Woodland Access Standards
There should be at least one area of accessible woodland of no less than 20 hectares within 4 kilometres (8 kilometres <b>round trip</b> ) of <b>people’s homes</b> .

## Assessment Assumptions and Limitations

- 5.6.13 The Green Infrastructure assessment has involved obtaining green infrastructure datasets for the range of open space types referred to within the assessment methodology above for analysis within Geographic Information System (GIS) software. These datasets include geographic information about the natural environment from across government and obtained from websites such as [magic.defra.gov.uk](http://magic.defra.gov.uk) along with district level datasets obtained from N&SDC, including those used **for the District’s open space and green** infrastructure Development Plan evidence base studies. The datasets include information provided as areas, point data and polyline data.



- 5.6.14 Datasets for public rights of way, national trails and cycleways are available for use as polyline data only and this information is therefore appropriate for use to check provision against the Newark & Sherwood Open Space Distance Standards, but unsuitable to check provision against the Newark & Sherwood Local Provision Standards where the provision is measured in area per 1,000 head of population.
- 5.6.15 Compliance with provision of Local Nature Reserves, rivers and water bodies with the agreed green space standards has been reported separately (within the matrices in **Appendix E**) from compliance of provision of natural and semi-natural green space for consistency with the previous IDP reporting and to allow assessment against the appropriate green space standards.
- 5.6.16 For assessment of compliance of green infrastructure provision with the Newark & Sherwood Open Space Distance Standards, the following have been included for analysis within Geographic Information System (GIS) software:
- The District Park open space categorisation includes country parks and registered parks and gardens datasets along with the N&SDC public open space and parks and gardens datasets (with inclusion as appropriate to the size guideline of the standard)
  - The Town Park/Playing Field, Neighbourhood Park/Playing Field, Local Playing Fields and Pocket Playing Fields open space categorisation includes town or village greens, doorstep greens, millennium greens, registered parks and gardens datasets along with **the N&SDC public open space, parks and gardens, outdoor sports facilities and children's play area datasets** (with inclusion as appropriate to the size guideline of the standard)
- 5.6.17 For the purposes of assessment against the Newark and Sherwood Local Provision Standards, the amenity green space, open space type includes doorstep green and millennium greens datasets along with the N&SDC Amenity Green Space. Assessment of provision of outdoor sports facilities, provision for children and young people, allotments and cemeteries included **use of the N&SDC outdoor sports facilities, children's play, allotments and cemetery/churchyard datasets** respectively.
- 5.6.18 The **Appendix E matrix includes a column titled 'Miscellaneous' which reports on areas of open space** (within each parish as relevant) from the N&SDC public open space dataset which have not been assigned to a particular open space type due to lack of insufficient information



on the area of land. The miscellaneous column is included to allow for analysis of green infrastructure as appropriate.

5.6.19 **The assessment has not involved a 'ground-truth' exercise to confirm whether all of the green and open space considered in the assessment is publically accessible.** It is recommended that prior to any planning decisions being made, or detailed site designs created, a detailed assessment of accessible green space is made to ensure that the true level of compliance is known and future predictions are adequately informed. Further and more detailed information can be found in the N&SDC Community Greenspace Provision Improvement Plans March 2010. It should also be noted that whilst some areas of green infrastructure, e.g. woodland, may not be accessible, the green infrastructure asset can be of value in the visual amenity benefits it provides.

## Reporting of Findings

5.6.20 The findings of the assessment of green infrastructure provision for growth within the District to the end of the local plan period are reported within the Green Infrastructure matrices in **Appendix E**. A 'traffic light' colour system is used within the schedule to indicate the following:

- **Green** – green infrastructure provision meets the standard required for that particular green infrastructure feature;
- **Amber** – there is some green infrastructure provision however this existing provision falls below the levels required by the standards; and
- **Red** – there is no provision for this type of green infrastructure.

5.6.21 Within **Appendix E** the Green Infrastructure matrices report the following:

- Baseline compliance of the existing green infrastructure provision with the green space standards;
- Compliance of the existing green infrastructure and growth within the District with the green space standards; and

A map illustrating those parishes that will have changes in green infrastructure provision under the planned growth for the District during the local plan period can also be found in **Appendix E**.



## Assessment Results

- 5.6.22 The Green Space Standards by Parish Matrix – 2011 Population Data (**Appendix E**) summarises compliance of the existing green infrastructure provision with green space standards and shows that in general green infrastructure is provided in one form of open space type or another across every parish where housing growth is proposed in the District. Within the parishes of Balderton and Newark however there is limited provision of a number of the green infrastructure open space types, where provision generally falls below the levels required by the green space standards.
- 5.6.23 Overall the provision of natural and semi-natural green space (including rivers and water bodies) across the parishes where housing growth is proposed meets with the green space provision standards, again with the exception of Newark and Balderton.
- 5.6.24 The Green Space Standards by Parish Matrix – 2033 Future Year Population Data (**Appendix E**) summarises compliance of the existing green infrastructure and growth within the District with the green space standards) shows where there will be a change in green infrastructure provision due to the proposed housing growth in the District as measured against appropriate green space standards. This includes parishes where the current green infrastructure provision meets the agreed green space standards but Local Plan development will cause this provision to fall below the levels required by the standards. Where this change or shortfall is predicted to occur, cells within the matrix are bordered in red.
- 5.6.25 Changes in green infrastructure provision as a result of the proposed growth are noted in a number of parishes within the District and include a change in the provision of natural and semi-natural green space (including rivers and water bodies) as measured against the green space standards within Fernwood to the south of Newark. Changes in the provision of Outdoor Sports Facilities as a result of the proposed growth are noted in Balderton, Collingham, Ollerton and Boughton, and Southwell. Within Newark and Southwell there will be a change in the provision of the parks and gardens open space type as a result of the planned growth whilst at Clipstone there will be a shortfall in the provision of amenity green space. Changes in provision of cemeteries and churchyards are noted in Ollerton and Boughton.
- 5.6.26 Compliance with distance standards shows that there is sufficient provision of district and regional park open space categorisation within the District (i.e. open space greater than 60 ha





in size up to 30km from homes within the growth sites and open space between 10 and 60 ha in size up to 15km from homes within the growth sites). There is a shortfall in smaller areas of public open space (i.e. between 0.2 and 2 ha up to 300m and 500m of the growth sites) in many parishes within the District and in particular a shortfall of pocket playing fields, 0.2-0.5ha in size within 300m of the housing growth sites.



## 5.7 TRANSPORT

### Highways

5.7.1 The Newark-on-Trent VISUM model has been used to assess the traffic effects of the revised Local Plan growth on the highway network within the town. Level of Service (LOS) junction performance results are presented in **Table 22** below (see paragraph 4.7.8 on page 32 for explanation of LOS) and represent the worst performing arm of each junction.

**Table 22 – Urban Junctions close to, or over Capacity with Local Plan Growth**

Junction	Level of Service (LOS)					
	Base Year AM	Base Year PM	Ref Case AM	Ref Case PM	With Growth AM	With Growth PM
A46 / A1133 (A46 Winthorpe Roundabout)	F	E	F	E	F	F
A17 / A46 / A1 (Friendly Farmer Roundabout)	F	E	F	E	F	F
A46 / A1 / Lincoln Rd (Brownhills)	F	F	F	F	F	F
A46 / A617 / Great N Rd (Cattlemarket)	F	F	F	F	F	F
A46 / B6166 Farndon Rd (Farndon)	F	E	F	C	E	D
Lincoln Rd / Brunel Dr	C	D	D	E	D	F
A616 Great N Road / Ollerton Rd/ Main St/Kelham Lane	A	A	B	A	D	D
B6166 Lincoln Rd / Northern Rd	C	C	D	D	D	E
B6166 N Gate / Queens Rd	D	D	E	E	F	E
Great North Rd / North Gate / Castle Gate (Beastmarket Hill)	C	C	C	C	D	C
Northern Rd / Brunel Dr	A	C	B	D	C	F
Beacon Hill Rd / Northern Rd	D	E	D	E	F	F
Queens Rd / Sleaford Rd / Friary Rd	C	D	C	E	D	F
Sherwood Ave / Barnby Gate	D	D	D	E	D	F
B6326 Lombard St / Castle Gate / Mill Gate	C	C	E	E	F	F
B6326 London Rd / Store Exit	B	D	B	D	B	D
Lombard St / B6166 Portland St / B6326 London Rd	E	E	E	F	E	F
B6326 London Rd / Lime Grove	A	B	C	A	E	B
London Rd / Sherwood Ave / Bowbridge Rd	E	E	F	F	F	F
Coddington Rd / Barnby Rd	A	A	A	A	A	D
London Rd / Main Street	D	D	D	D	F	E



- 5.7.2 Note that **Table 22** only presents results for junctions that exhibit LOS results of 'D' or worse in any scenario tested (i.e. only junctions expected to experience congestion). For ease of comparison the results for the 2014 Base Year and 2014 Reference Case scenarios (from **Table 11** on page 33) are repeated.
- 5.7.3 The addition of Local Plan growth results in seven additional junctions being forecast to experience congestion and delays in one or both peak periods compared to the Reference Case. Fifteen other junctions are also forecast to experience worsening of traffic conditions due to Local Plan growth.
- 5.7.4 The 2010 Transport Study identified a number of junctions that would require improvement to **accommodate Local Plan growth. These junctions were subsequently included in the Council's Regulation 123 List** for improvements funded by Community Infrastructure Levy (CIL).
- 5.7.5 For the Newark-on-Trent area there are 18 highway infrastructure schemes on the Regulation 123 List which are all junction improvements except for two; A1(T) bridge widening and A46(T) link capacity improvements on the Newark bypass. A comparison has been undertaken between these scheme and the junctions identified by the latest VISUM modelling as requiring potential improvement. This comparison is presented in **Table 23** on the following page.
- 5.7.6 Three junction improvement schemes that were identified by the 2010 IDP have since been delivered and have therefore been removed from the Regulation 123 list. These were:
- London Road/Main Street Junction, Balderton
  - London Road, Bowbridge Road Junction, Newark
  - Bowbridge Road, Hawton Lane, Newark
- 5.7.7 Of the 18 junctions on the current Regulation 123 list (July 2016) 13 have been identified by the latest VISUM modelling with the exceptions being:
- A1 Overbridge widening, Fernwood, Newark
  - A46 Link Capacity, Newark
  - Castle Gate, Stodman Street Junction, Newark
  - Bowbridge Road, Boundary Road Junction, Newark
  - Queens Road, Kings Road Junction, Newark



**Table 23 – Comparison against Regulation 123 List (July 2016)**

Urban Junctions on the Regulation 123 List		Identified by Latest Modelling?
CIL No.	Location	
1	A1 Overbridge widening, Fernwood, Newark	No
2	A46/A617 Cattle Market Roundabout, Newark	Yes
3	A1/A17 'Friendly Farmer' Roundabout, Newark	Yes
4	A1/A46 Brownhills Roundabout, Newark	Yes
5	A46 Link Capacity, Newark	No
6	London Road, Portland Street Junction, Newark	Yes
7	Barnby Gate, Sherwood Avenue Junction, Newark	Yes
8	Barnby Road / Coddington Road Junction (East of A1) Newark	Yes
9	Lincoln Road, Brunel Drive Junction, Newark	Yes
10	Lincoln Road, Northern Road Junction, Newark	Yes
11	Castle Gate, Lombard Street Junction, Newark	Yes
12	Castle Gate, Stodman Street Junction, Newark	No
13	Bowbridge Road, Boundary Road Junction, Newark	No
14	Beacon Hill Road, Northern Road Junction, Newark	Yes
15	Sleaford Road / Friary Road Junction, Newark	Yes
16	Queens Road, Kings Road Junction, Newark	No
17	Great North Road / North Gate / Castle Gate Roundabout (Beastmarket Hill)	Yes
18	Queens Road / North Gate	Yes

5.7.8 The A1 Overbridge widening at Fernwood is a recent addition to the Regulation 123 List that has been identified through transport assessment work associated with proposed development in the Fernwood area. As this is required to address a link capacity issue it has not been identified by the LOS assessment results which relate to junction performance. Similarly the A46(T) link capacity improvement at Newark was identified by the 2010 Transport Study to address known link capacity issues on the A46(T) Newark Bypass.

5.7.9 Since the A46(T) Newark to Widmerpool improvement was opened to traffic in June 2012 the A46(T) Newark Bypass between Farndon and Winthorpe remains the only single carriageway section of the A46(T) between Leicester and Lincoln. This acts as a 'bottle-neck' to through traffic and regular congestion and delays are observed at the A46(T)/A617 'Cattle Market' and at the A1(T)/A56(T) 'Brownhills' and 'Winthorpe' roundabouts.

5.7.10 In the Autumn statement of 2014 the Department for Transport announced its intention to improve this section of the A46(T) as part of its Roads Investment Strategy (RIS). To:

*"Improve A46/A1 junction to remove pinch point and upgrade to dual carriageway to continue the A46 Newark to Widmerpool improvement so that it reaches the A1"*



- 5.7.10.1 Highways England are currently undertaking a study to identify potential improvement options with a view to developing an improvement scheme for implementation in the next roads period, RIS 2 (post 2020). The study has so far identified road safety mitigation for implementation in the interim period while a longer-term improvement solution identified
- 5.7.11 The remaining three junctions that are on the Regulation 123 List but not identified by the latest modelling are:
- Castle Gate, Stodman Street Junction, Newark
  - Bowbridge Road, Boundary Road Junction, Newark
  - Queens Road, Kings Road Junction, Newark
- 5.7.12 It should be noted that since the 2010 assessment that formed the basis for the Regulation 123 List the VISUM model has been significantly enhanced with changes including:
- Updated base traffic flows and model validation
  - Model updated to VISUM version 15
  - **Improved coding of 'main nodes' to more accurately reflect junction performance**
  - Different assumptions for future year growth
  - New infrastructure, particularly in the Fernwood area, that affects background traffic routing patterns
- 5.7.13 The three junctions listed above are forecast to operate satisfactorily in the latest VISUM model which therefore suggests they should be removed from the Regulation 123 List. Observation of the LOS results in **Table 22** also suggests that the following junctions could also be considered for removal from the **Regulation 123 List as they both only exhibit a 'D' LOS** (Flow impaired by traffic density) in only one peak period at 2033 with the addition of Local Plan development:
- Great North Road / North Gate / Castle Gate Roundabout (Beastmarket Hill)
  - Coddington Road/Barnby Road
- 5.7.14 The operation of both of these junctions is forecast to be satisfactory in all other scenarios so it is recommended that these junctions be removed from the Regulation 123 List and their operation be monitored.



- 5.7.15 The latest VISUM modelling has also identified the following urban junctions for potential improvement to accommodate Local Plan growth that are not already included on the Regulation 123 List (these junctions are discussed further in **Section 6.7**):
- A46(T)/A1133/Drove Lane (A46 Winthorpe Roundabout), Winthorpe
  - B6325 Great North Road/A616 Ollerton Road/Main Street, South Muskham
  - Northern Rd/Brunel Drive, Newark
  - B6326 London Road/ASDA Store Exit (Potterdyke development), Newark
  - B6326 London Road/Lime Grove, Newark
  - A46(T)/B6166 Farndon Road, Newark (**Note:** NCC has advised that the operation of this junction should be monitored post completion of the SLR that will tie into the A46(T) at a new roundabout just to the south of this junction.)
- 5.7.16 Several of these additional junctions have been identified as a result of the VISUM model being refined and better calibrated in the Fernwood area as part of recent work to assess the effects of development proposals in this area. Others are a result of the change in traffic patterns due to the revised Local Plan growth scenario, which although this results in a net reduction of 478 dwellings within Newark-on-Trent it also results in a net increase of 48 hectares of employment development within the town.
- 5.7.17 For the highway network outside of Newark-on-Trent the same **spreadsheet 'model'** methodology that was used in the 2010 Transport Study has been applied (see paragraph 4.7.11 on page 33 and **Appendix F** for details). However, rather than assigning Local Plan development trips onto the highway network manually using route planning software (as for the 2010 assessment) the VISUM model has been used instead.
- 5.7.18 Outside of the urban area of Newark-on-Trent the VISUM model contains no base traffic flows however the wider rural highway network of the District is represented within the model and is sufficiently detailed to enable simple trip assignment to be undertaken. Local Plan development trips on the rural highway network have therefore been assigned within VISUM **using an 'All-or-Nothing' assignment. This means that between any origin-destination pair, all trips for that pair are assigned to the lowest cost route, with costs calculated from an empty network. This corresponds to free-flow speeds when only travel time is considered, as is the case here. Within the model free-flow speeds have been set as the existing mandatory speed limits on the**



rural network for simplicity and to encourage routing on to major highway links. **Figure 4** presents the results of this assessment.

5.7.19 The addition of Local Plan development traffic results in an additional six links approaching or exceeding capacity by 2033 (over and above the Reference Case). These are:

- The A617 through Kelham village (91%)
- The A617 between the A46(T) and Kelham Village (94%)
- The A614 between its junctions with the A6097 Oxtan Bypass & the C1 Mansfield Road at the 'White Post' roundabout (107%)
- The A614 between its junctions with the A617 and the C13 Deerdale Lane at Eakring (105%)
- A614 between its junctions with the C13 Deerdale Lane at Eakring & the B6034 to the south of Ollerton (101%)
- A614 between its junctions with the B6034 to the south of Ollerton and the C57 Rufford Lane, Ollerton (101%)

5.7.20 A summary of the critical links on the rural highway network that are forecast to meet or exceed 90% stress in any scenario is presented as follows.

**Table 24 – Critical Links**

Link Description	Approx' Link Lengths (km)	Percentage Link 'Stress'		
		2014 Base	2033 Base + Committed	2033 Base + Committed + Growth
A617 through Kelham Village	1.87	65%	71%	91%
A617 between Newark & Kelham	2.75	65%	72%	94%
A6097 between A46(T) & A612	5.00	97%	97%	97%
A614 between A6097 & C1	2.00	66%	73%	107%
A614 between A617 & C13	3.60	63%	71%	105%
A614 between C13 and B6034	3.00	61%	69%	101%
A614 between B6034 & C57 Rufford Lane	0.50	79%	83%	101%

**Note:** Highest values used where there is more than one value on a route

5.7.21 Based on the assumption that junctions will exceed their capacity and exhibit congestion and queuing problems long before a link does the 2010 Transport Study identified the key junctions on all links identified as being close to, or at capacity (i.e. all junctions on links with 90% or greater stress in any scenario) as requiring improvement to accommodate Local Plan growth.



5.7.22 Through this process the 2010 Transport Study identified a number of junctions outside of Newark-on-Trent that would require improvement to accommodate Local Plan growth. These **junctions were subsequently included in the Council’s Regulation 123 List** for improvements funded by Community Infrastructure Levy (CIL).

5.7.23 A total of seven junctions were identified for CIL funding on the highway network outside of Newark-on-Trent and a comparison has been undertaken between these junctions and the results of the latest network ‘stress’ plan assessment. This comparison is presented in **Table 25** below.

**Table 25 – Comparison against Regulation 123 List (July 2016)**

Junctions outside of Newark-on-Trent on the Regulation 123 List		Corresponding Links Identified by the Latest ‘Stress’ Test?
CIL No.	Location	
22	Church Gate / West Gate / Kings Street Junction, Southwell	No
23	A6097 / A612 Lowdham Junction	Yes
24	A614 Mickledale Lane Junction	Yes
25	A614, C1 Junction White Post Roundabout	Yes
26	A614, B6030 Junction South Ollerton	No
27	A614, C13 Deerdale Lane Road Junction, Eakring	Yes
28	A6097 / B6386 Oxtou Junction	No

5.7.24 As can be seen above the change in pattern of traffic impacts on the rural network since the **2010 assessment suggests that the highway links where CIL junction ref’ 22, 26 and 28** are located will not meet or exceed their capacity. The respective highest ‘stress’ levels on links adjacent to these junctions are 60% (ref 22), 82% (ref 26) and 84% (ref 28) which therefore suggests these improvements should be removed from the Regulation 123 List.

5.7.25 Comparing against the findings of the 2010 Transport Study the stress plans at the end of the Plan period with all Local Plan development in place are broadly very similar. Slight differences are observed on the A614 and A6097 corridors, within Southwell and on the A617 at Kelham. which all reflect the reasons for these changes are due to:

- Updated base traffic flow data.
- Change in the distribution of Local Plan development across the District. In particular the proposed inclusion of 740 residential dwellings at Edwinstowe (460 more than assessed in 2010) plus proposed employment at Edwinstowe and Ollerton and Boughton (11Ha and 6.75Ha respectively) that were not included in the 2010 assessment.





- Use of the VISUM model to assign Local Plan development trips onto the rural highway network instead of assigning trips manually using route planning software (as for the 2010 assessment).

5.7.26 The assessment identifies the A617 between Newark and Kelham as approaching capacity (94%) by 2033 with Local Plan development in place and the A617 through Kelham village as being close to capacity (91%). The 2010 Transport Study identified similar impacts on this section of the A617 and identified that link capacity improvements may be required, probably in the form of a revised wide-single or dual carriageway aligned to the south of Kelham, north of Averham with a new bridge crossing the River Trent.

5.7.27 Nottinghamshire County Council (NCC) has been safeguarding the route for a bypass of Kelham village for several years and this is identified in the Implementation Plan (2015 to 2018) of the Nottinghamshire Local Transport Plan 3 (April 2011 to March 2026) where it is included **in a list of "major and significant schemes which require further investigation before the County Council can decide whether the scheme route will be abandoned or safeguarded"**. The scheme is listed as a bypass with a new bridge over the River Trent with a cost of £15m to be funded by the County Council and the D2N2 LEP.

5.7.28 The key constraint on this section of the A617 is the existing bridge over the River Trent which is narrow with poor carriageway alignment. Delivering increased traffic capacity is therefore dependent upon provision of the Kelham Bypass scheme.

5.7.29 The conclusions of the 2010 IDP were that delivery of the A617 Kelham Bypass would be reliant upon DfT/NCC funding and that greater benefits would be achieved by improving other areas of the highway network using CIL funding. As a result the A617 Kelham Bypass scheme was not included on the Regulation 123 List for CIL funding. **The County Council's current view** is that now Highways England have committed to upgrading the A46(T) Newark Relief Road the A617 at Kelham becomes one of the key deficiencies on the local highway network and this scheme should be added to the CIL Regulation 123 list for full or partial funding.

5.7.30 The results of the latest assessment suggest that the following additional key junctions should therefore be considered for inclusion on the Regulation 123 List for potential improvement. These are discussed further in **Section 6.7**:

- A614/A6097 Oxtun Bypass



- A614/A617 'Lockwell Hill' Roundabout (recently improved by NCC and therefore not seen as a priority for further improvement)
- A614/B6034 to the south of Ollerton
- A614/ C57 Rufford Lane at Ollerton

5.7.31 In summary the findings of this latest modelling work suggest that the Regulation 123 List should comprise the following highway schemes (see **Section 6.7** for rationale):

**Table 26 – Highway Schemes for CIL Funding**

Location	Already on CIL Regulation 123 List (July 2016)?	Reg 123 List No.
<b>Urban Junctions</b>		
A1 Overbridge widening, Fernwood, Newark	Yes	1
A46(T)/A1133/Drove Lane (A46 Winthorpe Roundabout), Winthorpe	No	-
London Road, Portland Street Junction, Newark	Yes	6
Barnby Gate, Sherwood Avenue Junction, Newark	Yes	7
Lincoln Road, Brunel Drive Junction, Newark	Yes	9
Lincoln Road, Northern Road Junction, Newark	Yes	10
Castle Gate, Lombard Street Junction, Newark	Yes	11
Beacon Hill Road, Northern Road Junction, Newark	Yes	14
Sleaford Road / Friary Road Junction, Newark	Yes	15
Queens Road / North Gate	Yes	18
Northern Rd/Brunel Drive, Newark	No	-
<b>Rural Junctions/Links</b>		
A6097 / A612 Lowdham Junction	Yes	23
A614 Mickledale Lane Junction	Yes	24
A614, C1 Junction White Post Roundabout	Yes	25
A614, C13 Deerdale Lane Road Junction, Eakring	Yes	27
A614/A6097 Oxton Bypass	No	-
Kelham Bypass Scheme (including new bridge over the River Trent)	No	-

## Rail, Bus Cycling & Walking

5.7.32 The increase in person trips due to the latest Local Plan growth has been estimated using the same methodology as was applied in the 2010 Transport Study. This applied person trip generation rates that were agreed with the local highway authority, Nottinghamshire County Council (NCC) to the proposed residential and employment growth. Modal splits taken from the 2001 Census were then applied to estimate trips by each relevant mode of travel (i.e. car, bus, rail, walking & cycling). This calculation has been repeated for the latest development proposals using 2011 Census modal splits. Details of the calculation can be found in **Appendix F**.



5.7.33 Using this methodology the forecast increase in trips by rail, bus, cycling and walking due to planned residential and employment growth is as summarised in **Table 27** on the following page.

**Table 27 – Estimated Increase in AM Peak Two-Way Person Trips by Mode**

AM Peak	Train	Bus/Coach	Bicycle	Walking
2016 Estimate	435	675	1,851	3,752
2010 Estimate	215	740	1,727	2,306
Difference	+220	-65	+124	+1,446

**Note:** An element of 'double counting' will be present between residential and employment trips, however the above estimates are considered to provide a robust guide to the approximate order of increase in travel by these modes.

5.7.34 The reasons for the variations seen in **Table 27** are primarily due to the differences between the 2001 and 2011 Census data modal splits, plus the changes to the proposed residential and employment growth within the District (i.e. a net reduction of 981 dwellings and a net increase of 95 Ha of employment land across the District in comparison to the 2010 study).

5.7.35 Compared to the 2010 assessment a large increase in walking is forecast together with modest increases in forecast train use and cycling. A small reduction in bus use is forecast. The findings of the 2010 Transport Study for these modes have therefore been reviewed and are considered to remain appropriate. These are summarised as follows:

- **Bus** – Across the District it is anticipated that forecast demands would be largely accommodated by existing services. However, developers may be required to fund improvements to existing bus services (via S106 Agreements) to help mitigate the direct transport impacts of developments. Details will need to be determined as part of the planning application process.
- **Rail** - The anticipated increased demand for rail travel should be accommodated on existing services and would be insufficient to itself justify any improvements to rail infrastructure or services. However, there may be additional demand for car parking at Newark North Gate and Newark Castle stations which may require additional car parking capacity to be provided.
- **Cycling** – the forecast increase in cycling is focused in Newark-on-Trent and represents a large increase in cycle activity in the AM peak hour. Developers will therefore be required to deliver new/improved cycle infrastructure to provide cycle access to development sites and to provide safe connections to the existing cycle network,



including the provision of new crossing facilities, capacity enhancements and other appropriate cycle infrastructure, where necessary. Significant developments should be provided with adequate facilities for cyclists, such as secure and covered cycle parking, changing facilities and internal access roads which give priority to cycles and pedestrians wherever possible. New infrastructure connections from developments onto the existing cycle network will be required, including new controlled crossings at locations where major roads create barriers for cyclists and pedestrians. It is expected that developers will fund the provision of new/improved cycle infrastructure (via S106 Agreements) to help mitigate the direct transport impacts of developments. Details will need to be determined as part of the planning application process. In general the extensive existing cycling network in Newark-on-Trent should be able to accommodate the forecast increase in users. Some carriageway reallocation or shared surfacing may be required to give pedestrians and cyclists more priority on major routes around the town centre. However, the majority of the corridors into Newark-on-Trent and its environs already have excellent facilities for these users. Forecast cycling trips in rural settlements are not significant and would be accommodated on existing cycling infrastructure (where available) with suitable developer funded enhancements, as appropriate.

- **Walking** - Walking trips are also focused within Newark-on-Trent in the AM peak hour. As for the cycling trips these would be spread across the urban area and would be accommodated on existing infrastructure with developer-funded enhancements provided on a site-by-site basis, as appropriate. Facilities should be included to connect developments to existing footways and where appropriate provide additional crossing facilities. Consideration of gradients for wheelchair users and pushchair users should be made. Personal security and street lighting is also of importance for pedestrian trips, as well as ensuring that footways are wide enough to accommodate the increased levels of usage, particularly at bus stops. At sites where there may be high levels of visitors, direction signing to bus and train interchanges may be appropriate in order to encourage walking to these locations ahead of the use of private car. Forecast walking trips in rural settlements are low and would be accommodated on existing infrastructure with suitable developer funded enhancements, as appropriate.



## 6 DELIVERY PLAN

### 6.1 INTRODUCTION

6.1.1 This section of the report summarises the infrastructure required to support the planned growth and identifies costs, delivery responsibilities, delivery priorities and potential funding opportunities for each category of infrastructure. Infrastructure requirements are summarised in a schedule that can be found in **Appendix A**.

### 6.2 SOCIO-ECONOMIC INFRASTRUCTURE

#### Primary Healthcare

6.2.1 Where new development places extra demand on the local healthcare provision contributions may be sought for the following:

- New health facilities (these may be co-located with other health or social care providers)
- Construction costs for additional facilities / extensions, adaptations or alterations

6.2.2 The NHS has confirmed that the core estate will be prioritised (i.e. Lift & PFI) and financial contributions may be used to re-configure these sites as well as others, pending locality. This may include parts of the main hospital, to cope with demand based on clinical need. Contributions will be assessed on existing health infrastructure first. If all core estate and supporting estate is full with capacity, it is at this point developers working jointly with the health system will be expected to provide additional infrastructure to match need.

6.2.3 The highest levels of residential development are proposed in the Newark sub-regional centre, and in the service centres of Ollerton & Boughton and Clipstone. Demand for healthcare is therefore correspondingly highest in these areas of the District. Planned residential development in all other areas is relatively low (see **Table 1** on page 7).

6.2.4 The scale of planned development in Newark is expected to generate the need for approximately 10 new full time equivalent (FTE) GPs. The District Council has recently secured funding towards the provision of a new three GP Practice as part of the planning obligations for a major residential development at Fernwood. This leaves the requirement for contributions towards the provision of seven further FTE GPs within the town (see **Table 13** on page 42).



- 6.2.5 The NHS has confirmed that workforce issues are a challenge for primary care and that ongoing liaison with the District Council will be required to ensure that new health facilities to meet the demands created by new development are adequately resourced.
- 6.2.6 In Ollerton & Boughton it is understood that the existing single Practice serving the town is already under pressure and in need of new premises. Financial contributions should therefore be sought from developers towards the provision of approximately two new FTE GPs in new/extended facilities to meet anticipated future demand in the town.
- 6.2.7 Clipstone is served by the Crown Medical Centre operated by the Sherwood Medical Practice. It is a new facility that opened in September 2015. For the purposes of this assessment it has been assumed that it will be possible to accommodate forecast additional demands in the Clipstone area through increased FTE staffing levels at the existing Health Centre.
- 6.2.8 At all other locations across the District it is expected that the forecast increase in demand will be met by existing Practices by increasing FTE staffing levels where necessary.
- 6.2.9 The cost of expanding existing Practices has been estimated based on a contribution of £950<sup>8</sup> per dwelling for the settlement where the new development is proposed and the calculations are summarised below.

**Table 28 – Estimated Developer Contribution Costs towards Healthcare**

Settlement	Proposed Number of Dwellings	Developer Contribution Cost (£950 per dwelling)
<b>Sub-Regional Centre</b>		
Newark, Balderton & Fernwood	8,320 (See Note)	£7,904,000
<b>Service Centres</b>		
Ollerton & Boughton	935	£888,250
Clipstone	800	£760,000
Rainworth	368	£349,600
Southwell	339	£0
<b>Principal Villages</b>		
Bilsthorpe	302	£286,900
Blidworth	202	£191,900
Collingham	189	£0
Edwinstowe	740	£703,000

<sup>8</sup> Contribution cost of £950 per dwelling towards new/improved GP Practices provided by NHS England.



Farnsfield	208	£197,600
Lowdham	10	£0
Sutton-on-Trent	57	£0
Other – not in or around major settlements	-	£0
<b>Totals</b>	<b>13,520</b>	<b>£11,281,250</b>

**Note:**

1. For the purposes of the calculation the dwelling numbers for Newark, Balderton and Fernwood exclude 1,050 dwellings at Fernwood for which a health care contribution has recently been secured as part of a planning permission.

## Education

6.2.10 As discussed in Section 5.2, the Local Education Authority determines future pupil numbers generated by new development on the basis of:

- 21 primary places per 100 dwellings
- 16 secondary places per 100 dwellings

6.2.11 Therefore 1,000 new dwellings would generate a need for a one-form entry (210 pupils) primary school, and 8,000 new dwellings would generate the need for a 1,280 pupil secondary school. However, where existing schools cannot be extended to increase capacity new primary and/or secondary schools may be required at lower thresholds.

6.2.12 It should be noted that the estimates of existing available school capacity presented in Section 5.2 are based on the number of enrolled pupils within the past academic year (2015/16). These figures will vary each year and therefore only provide a general indication of capacity. In addition, **from the available information it's not possible to identify** shortfalls in capacity for a particular school year, or the future demand by age group.

6.2.13 The estimates of education capacity and demand therefore provide a useful strategic overview but have to be interpreted in the context of these shortfalls. Some schools have some flexibility to accommodate some annual variation in pupil numbers and an estimated modest shortfall in capacity may therefore not necessarily indicate that the school is over capacity and requires extension. Each case will therefore need to be assessed on its own merits as planning applications for new development are submitted.



## Primary Education

- 6.2.14 **Table 29** on the next page summarises the number of additional primary school places required by settlement due to Local Plan development. Note that only principal villages and above are listed as no development is planned for allocation in smaller settlements. However, it is acknowledged that there may be some small **'windfall' developments** that will generate some additional demand in smaller settlements that will need to be assessed on a case by case basis. In the majority of instances it is expected that this additional demand will be met in the nearest adjacent settlement with available school capacity.
- 6.2.15 Nottinghamshire County Council estimates the costs of providing the extra room necessary at **the local catchment schools based on "cost per pupil place" cost multipliers provided to the County Council by the Department for Education (DfE), at a price base of April 2009.** They reflect the actual costs of building extensions to schools and are adjusted to account for regional cost variations. For primary education the cost is £11,455 for each new primary school place<sup>9</sup>.
- 6.2.16 The majority of residential development is planned in the Newark-on-Trent area (9,370 dwellings) which is estimated to generate demand for 1,968 new primary school places, assuming no spare capacity in existing schools in the Newark-on-Trent area. To help meet this demand it is understood that the Land South of Newark development will deliver one new 1.5FE and one new 1FE primary school. In addition one new 2FE primary school and a 1FE extension to an existing primary school will be provided as part of the Fernwood development site. These two sites will therefore deliver a total of 1,155 new primary school places (1FE = 210 places, 2FE = 420 places) leaving a balance of 813 places (equivalent to two further 2FE primary schools) to be provided.

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<sup>9</sup> Current cost at time of writing based on the cost to extend existing schools. Costs are subject to inflation and are currently being reviewed by NCC. Where a new school is required costs are based on actual build costs.





**Table 29 – Required Additional Primary School Places**

Sub-Regional Centre/Service Centre/Principal Villages	Dwellings	Primary School Places Required for New Dwellings	School Places Currently Available	Number of Additional Places Required	Capital Cost Estimates
Newark, Balderton & Fernwood	9,370	1,968	0 <sup>10</sup>	813 (See Note)	£9,312,915
Ollerton & Boughton	935	196	0	196	£2,245,180
Clipstone	800	168	0	168	£1,924,440
Rainworth	368	77	18	59	£675,845
Southwell	339	71	26	45	£515,475
Bilsthorpe	302	63	68	0	£0
Blidworth	202	42	8	34	£389,470
Collingham	189	40	34	6	£68,730
Edwinstowe	740	155	0	155	£1,775,525
Farnsfield	208	44	0	44	£504,020
Lowdham	10	2	6	0	£0
Sutton-on-Trent	57	12	92	0	£0
<b>Totals</b>	<b>13,520</b>	<b>2,838</b>	<b>252</b>	<b>1,520</b>	<b>£17,411,600</b>

**Note:** Figure for Newark represents the balance after committed provision is taken into account

- 6.2.17 Other settlements generating sufficient demand to justify a new school are; Ollerton & Boughton<sup>11</sup>, Clipstone and Edwinstowe where the present shortfall of provision plus planned growth would suggest a requirement for a new 1FE primary school in Ollerton & Boughton and a new 1.5FE primary school between Clipstone and Edwinstowe during the plan period.
- 6.2.18 Other settlements either do not generate sufficient demand and/or have sufficient spare capacity to warrant the provision of a new primary school. However, in Rainworth, Southwell and Farnsfield the assessment suggests there may be a requirement to provide additional classrooms where extensions to existing schools are feasible.
- 6.2.19 NCC has confirmed that Rainworth has three primary schools, all of which have been expanded to the point at which they cannot accommodate additional students, either due to site constraints, highways factors or other operational factors.

<sup>10</sup> NCC have advised that the assessment for Newark-on-Trent should assume the 'worst case' scenario of no available school places.

<sup>11</sup> No pupil data was available for The Parkgate Academy in Ollerton. Therefore the school was assumed to be operating at capacity for the purposes of this assessment.



- 6.2.20 Farnsfield has one primary school which may be able to be expanded beyond its current published admission number, subject to highways and site considerations.
- 6.2.21 Southwell has two infant schools and one junior school. The constrained nature of these sites and the conservation characteristics of the settlement mean that further expansion of the schools is likely to be problematic.
- 6.2.22 Primary school supply and demand for Rainworth, Farnsfield and Southwell will therefore need to be assessed on a site-by-site basis in consultation with NCC as planning applications are submitted.

## Secondary Education

- 6.2.23 There are five secondary schools within the District. Due to the ability of older children to travel these are much more sparsely distributed than primary schools and their catchment areas will typically extend beyond the most immediate settlement boundaries. The catchment areas are shown in **Appendix B** and the additional places required due to Local Plan development are shown in **Table 30** on the following page.
- 6.2.24 Nottinghamshire County Council estimates the costs of providing the extra room necessary at the local catchment schools based on “**cost per pupil place**” **cost multipliers provided to the** County Council by the Department for Education (DfE), at a price base of April 2009. They reflect the actual costs of building extensions to schools and are adjusted to account for regional cost variations. For secondary education the cost is £17,260 for each new secondary school place<sup>12</sup>.

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<sup>12</sup> Current cost at time of writing based on the cost to extend existing schools. Costs are subject to inflation and are currently being reviewed by NCC. Where a new school is required costs are based on actual build costs.



**Table 30 - Required Additional Secondary School Places**

Catchments and Settlements Served	Dwellings	Secondary School Places Required	School Places Currently Available	Number of Additional Places Required	Capital Cost Estimates
<b>Newark</b> (Newark, Balderton & Fernwood catchment)	9,370	1,499	0 <sup>13</sup>	1,499	£25,872,740
<b>New Ollerton</b> (Ollerton & Boughton, Clipstone, Bilsthorpe and Edwinstowe catchment)	2,777	444	0	444	£7,663,440
<b>Rainworth</b> (Rainworth and Blidworth catchment)	570	91	7	84	£1,449,840
<b>Southwell</b> (Southwell and Farnsfield catchment)	547	88	0	88	£1,518,880
<b>Collingham, Lowdham, Sutton-on-Trent</b> (Tuxford & Lowdham catchment – outside of District)	256	41	0 <sup>14</sup>	41	£707,660
<b>Totals</b>		<b>2,122</b>	<b>7</b>	<b>2,115</b>	<b>£37,212,560</b>

**Note:** Collingham and Sutton-on-Trent are served by the Tuxford catchment and Lowdham by the Calverton catchment. A total of 41 places are therefore served by schools outside of the District.

- 6.2.25 Within Newark-on-Trent the assessment identifies the need for 1,499 additional secondary school places which are assumed will be addressed by provision of the Newark Toot Hill Free School which is planned to open in September 2017, and the two existing secondary schools within the town (Magnus Church of England Academy and the Newark Academy).
- 6.2.26 Outside of Newark-on-Trent the assessment identifies the need for 444 additional secondary school places in Ollerton which it is assumed would be met through expansion of the Dukeries Academy.
- 6.2.27 The Joseph Whitaker School and Minster Church of England Schools (in Rainworth and Southwell respectively) may be modestly oversubscribed as a consequence of Local Plan development. The estimated capital cost of providing new classroom space to meet this additional demand is provided in **Table 30**. However, given the size of these schools and the nominal increase in pupil numbers it may be possible to accommodate the increase within existing facilities, subject to feasibility and site constraints.

<sup>13</sup> NCC have advised that the assessment for Newark-on-Trent should assume the 'worst case' scenario of no available school places.

<sup>14</sup> NCC have confirmed that these schools are full



6.2.28 An estimated 41 additional secondary school places have been identified which would be accommodated in schools located outside of the District (split between the Colonel Frank Seely School and the Tuxford Academy). NCC has confirmed that both of these schools have no spare capacity and that development within the District that impacts on these catchment areas would be expected to contribute towards the provision of additional places. The estimated capital cost of providing new classroom space to meet this additional demand is therefore provided in **Table 30**.

## Libraries

6.2.29 Where new development places additional demands on existing libraries that do not have capacity to accommodate the increased demand Nottinghamshire County Council may seek developer financial contributions towards the provision of new library buildings (either as an extension or new premises).

6.2.30 At the current time the County Council are not proposing to extend existing or build new libraries within the District. Where existing library buildings have limited capacity to accommodate additional demand, additional stock may be accommodated by the reconfiguration of the library concerned. This would be subject to confirmation at the time of the planning application.

6.2.31 **If Nottinghamshire County Council's approach to new or extended libraries changes during the plan period** the cost is estimated on the basis of £ per square metre which includes for new stock provision. This is currently £2,807 but may be subject to change.

6.2.32 At all locations contributions will be required towards increased library stock only. Where libraries have limited capacity this will be accommodated by internal reconfiguration. Financial contributions are calculated based on an average cost of £12.50 per stock item with a recommended stock level of 1,532 items per 1,000 head of population. This equates to a cost of £45.96 per dwelling assuming an average occupancy of 2.4 persons per dwelling. Applying the costs mentioned above to the library provision in **Table 16** on page 47 gives the following.



**Table 31 – Estimated Library Stock Costs**

Sub-Regional Centre / Service Centre / Principal Villages	Dwellings	Floor Space (sqm)	Library Stock Items	Stock Cost
Newark, Balderton & Fernwood	9,370	618	34,452	£430,645
Ollerton & Boughton	935	62	3,438	£42,973
Clipstone	800	53	2,941	£36,768
Rainworth	368	24	1,353	£16,913
Southwell	339	22	1,246	£15,580
Bilsthorpe	302	20	1,110	£13,880
Blidworth	202	13	743	£9,284
Collingham	189	12	695	£8,686
Edwinstowe	740	49	2,721	£34,010
Farnsfield	208	14	765	£9,560
Lowdham	10	1	37	£460
Sutton-on-Trent	57	4	210	£2,620
<b>Total</b>	<b>13,520</b>	<b>892</b>	<b>49,710</b>	<b>£621,379</b>

6.2.33 Across the district a total cost of £0.621m is therefore estimated to be required towards the provision of new library stock items to meet future demands.



## 6.3 WASTE MANAGEMENT

### Capacity Gap Analysis

6.3.1 Based on the analysis of existing Local Authority Collected Waste (LACW) arisings, forecast arisings and the current operational waste management capacity within Nottinghamshire and Newark and Sherwood, a capacity gap analysis has been undertaken to identify requirements to manage future waste arisings while meeting recycling and recovery targets.

### Landfill

6.3.2 **Significant permitted disposal capacity was lost when two of the County's remaining non-hazardous landfill sites (Dorket Head Landfill near Arnold and Carton Forest Landfill near Worksop) closed towards the end of 2014, leaving only two operational landfill sites.** The remaining available operational landfill capacity for municipal waste in Nottinghamshire is 1.76 million cubic metres (equivalent to 1.5 million tonnes at an average bulk density of 0.85 tonnes/cubic metre), with capacity in Newark and Sherwood at 870,000 cubic metres (equivalent to approximately 740,000 tonnes at an average bulk density of 0.85 tonnes/cubic metre).

6.3.3 The forecast of LACW by waste management method indicates a reduction in waste sent to landfill of approximately 39% during the plan period based on the countywide recycling targets (i.e. a reduction from 228,000 tonnes in 2014/15 to 139,000 tonnes in 2032/33). Based on this forecast and on the current available capacity, the available void is estimated to be filled by 2022/23. However, these landfills take Commercial and Industrial (C&I) residual waste as well, which means that the landfill void is likely to be filled well before 2022/23.

6.3.4 It is also mentioned in the Waste Core Strategy that some municipal waste from Derby is sent to landfills in Nottinghamshire, which means that there is currently very limited landfill capacity to meet **Nottinghamshire's future** requirements even with the significant reduction in municipal waste sent to landfill over the plan period. The Waste Core Strategy estimates that approximately 3.6 million m<sup>3</sup> of landfill void space (equivalent to approximately 3.0 million **tonnes at an average bulk density of 0.85 tonnes/cubic metre) is required to meet the County's** future landfill needs.



## Energy from Waste (EfW)

- 6.3.5 There is currently approximately 260,000 tonnes of EfW capacity available within Nottinghamshire, at the Eastcroft Incinerator, with 100,000 tonnes of this capacity not yet available. This facility is permitted to take both LACW and C&I waste. The Waste Core Strategy assumes that 160,000 tonnes of EfW capacity is currently available for municipal waste, which means there is enough capacity for municipal waste based on an approximate forecast recovery of 40,000 tonnes per annum. The Waste Core Strategy estimates that approximately 200,000 tonnes of extra EfW capacity is required to meet future C&I waste management needs.

## Municipal Recycling and Composting

- 6.3.6 Based on the analysis of available operational capacity, there is currently approximately 40,000 tonnes per annum recycling capacity and 58,000 tonnes per annum composting capacity for municipal waste in Nottinghamshire (i.e. a total capacity of approximately 98,000 tonnes per annum for municipal recycling and composting). With recycling and composting tonnages forecast to increase to approximately 280,000 tonnes by 2033, the end of the plan period, an estimated 182,000 tonnes per annum of additional municipal composting and recycling capacity is required in Nottinghamshire.

## Conclusion

- 6.3.7 **With the expansion of Newark and Sherwood's garden waste collection service from April 2016, it is envisaged that the District's, as well as the County's, recycling rate will increase and thus reduce disposal costs to the County.**
- 6.3.8 Based on the forecast of LACW over the plan period, taking into account recycling and recovery targets, and existing and operational waste management capacities, there is insufficient non-hazardous landfill capacity available within the County to meet future requirements even with the forecast significant reductions in LACW being sent to landfill over the plan period.
- 6.3.9 The available operational landfill void of 1.76 million cubic metres (equivalent to 1.5 million tonnes at an average bulk density of 0.85 tonnes/cubic metre) is likely to be filled well before 2022/23. It is estimated in the Waste Core Strategy that approximately 3.6 million m<sup>3</sup> of



landfill void (equivalent to approximately 3.0 million tonnes at an average bulk density of 0.85 **tonnes/cubic metre**) is required to meet the County's future landfill requirements.

6.3.10 There is currently enough EfW capacity available to handle for LACW within Nottinghamshire, however approximately 200,000 tonnes of additional EfW capacity is required to meet future C&I waste management needs.

6.3.11 With recycling and composting tonnages forecast to increase to approximately 280,000 tonnes by 2033, there is need for an estimated 182,000 tonnes per annum recycling and composting capacity to meet future recycling and composting requirements of the County. This is **particularly important in the context of the County's and EU recycling and composting targets.** These targets may be met through a combination of improved collection methods for both household and business waste as well as by using MRFs to mechanically sort recyclable waste.





## 6.4 UTILITIES

### Water

6.4.1 Severn Trent Water and Anglian Water have not identified the need for any strategic infrastructure works to support proposed Local Plan development. Any off-site works will therefore be limited to providing connections between individual development sites and the local distribution network. Details would need to be identified and agreed at the planning application stage.

6.4.2 The funding of water supply infrastructure is provided by the Water Industry Act 1991. It is usual that the costs of local connections are met by developers through STW and AW's requisitioning procedure and scheme of charges (refer to the RAG sheets provided by Severn Trent Water and Anglian Water as set out in **Appendix D**).

### Gas

6.4.3 National Grid has not identified the need for any strategic works to their network to support proposed Local Plan development. Any off-site works will therefore be limited to providing connections between individual development sites and the local distribution network.

6.4.4 If a new connection to the National Grid system triggers a requirement for network reinforcement, an economic test is carried out to calculate the level of customer contribution required, if a contribution is required at all.

6.4.5 Contestable infrastructure works downstream of the point of connection, can be installed by an independent gas transporter (IGT) or accredited contractor. An IGT may contribute to the cost of the connection based on the revenue stream generated by the proposed masterplan based on the rate of occupation for the site.

### Electricity

6.4.6 Connections to the new primary substation at Fernwood would likely be subject to the **'apportionment rule'**; any developer investing in wider network improvements should pay only an equitable proportion of the capital cost provided other developers benefit within 5 years of the initial investment.



6.4.7 Any off-site reinforcement works would be fully payable by the developer and would be calculated on provision of a formal connection offer.

6.4.8 As for gas, contestable infrastructure works downstream of the point of connection, can be installed by an independent distribution network operator (IDNO) or an independent connection provider. An IDNO may contribute to the cost of the connection based on the revenue stream generated by the proposed masterplan based on the rate of occupation for the site.

## Telecoms

6.4.9 BT Openreach recharge network reinforcement costs that exceed £3,400 per residential property. Reinforcement costs exceeding this value are typically very rare and generally only occur where settlements are located remotely from the trunk Openreach infrastructure. This is not considered in detail until a formal application has been made.

6.4.10 BT Openreach operates a model whereby the developer installs the entire on-site infrastructure on behalf of BT Openreach as part of the onsite ground works package. BT Openreach provides all onsite ducting and joint boxes free of charge to be used for this purpose.

## Wastewater

6.4.11 Severn Trent Water and Anglian Water have identified sites with high and medium risk of impacting on their sewerage infrastructure. These sites are in Blidworth, Clipstone, Collingham, Farnsfield, Fernwood, Newark, Ollerton and Boughton, Rainworth and Sutton-on-Trent. The provided 'Red Amber Green' (RAG) sheets are included in **Appendix D** for information. It should be noted that the comments provided in the RAG sheets relate to proposed Local Plan allocation sites only and there may also be a need for improvements to the water supply and **sewerage networks for 'windfall' sites which will come forward** over the plan period.

6.4.12 Reinforcement of the local sewerage network would likely be developer funded and all onsite works would be developer funded. Foul network improvements are generally funded/part funded through developer contribution via the relevant sections of the Water Industry Act 1991. The cost and extent of the required network improvement are investigated and typically determined at the planning application stage when an appraisal is carried out. There are a



number of payment options available to developers. Options include deducting the revenue that will be raised from the newly connected dwellings (through the household wastewater charges) over a period of twelve years off the capital cost of the network upgrades. The developer then pays the outstanding sum directly to Anglian Water and/or Severn Trent Water.

- 6.4.13 Upgrades to Sewerage Treatment works will be funded by Severn Trent Water and Anglian Water where sites are identified in the Local Plan, as in general where upgrades are required to provide for additional growth these works are wholly funded through the sewerage undertaker's Asset Management Plans, and by the developer for sites not previously identified.



## 6.5 FLOOD PROTECTION

6.5.1 As noted in the preceding sections, in most circumstances the NPPF discourages development that is reliant on fluvial flood defence systems, given the long-term impact this has on the public purse. The only circumstance where this is permissible is where the Sequential Test demonstrates that development within Flood Zones 2 or 3 is a necessity.

6.5.2 As noted in Section 5.5 development is necessary on the south and west side of Newark and in the villages in the Trent valley to the north of Newark within Flood Zones 2 and 3 (subject to the findings of the SFRA review) which implies that ideally, in the long-term, development in these locations may require the provision of defences or other means of allowing the development to be safe and sustainable. This could involve the use of flood resilient construction methodologies along with well developed flood warning systems and emergency planning. Funding for new flood defence infrastructure is on the basis of cost benefit analysis. However, the government has stipulated that cost benefit analysis cannot take into account losses arising from the flooding of property constructed after January 1<sup>st</sup> 2012.

6.5.3 The July 2013 floods were indicative of shortcomings in flood risk management infrastructure in Southwell and Lowdham. In respect of the former, and given the number of existing properties that have experienced flooding, Nottinghamshire County Council (NCC) are currently undertaking a detailed hydraulic study on the historic flooding in Southwell and will pursue funding for any economically viable flood mitigation schemes through the Flood Defence Grant in Aid programme. However, the funding of any such scheme will not take into account the economic gains arising from the release of defended land for new development.

6.5.4 The SFRA will set out supplementary guidance on the Flood Risk Assessment processes and mitigations to be applied to new development to ensure that all new development across the district is only brought forward in such a way that flood risk is not exacerbated, and where possible reduced. Given the level of existing surface water flood risk and surface water flood risk infrastructure inadequacy in Southwell and Lowdham, the SFRA will provide guidance on local policy which will ensure that the local flood risk is reduced rather than exacerbated by providing a greater degree of control to be exercised over all development coming forwards in these locations.



6.5.5 Given the above, any flood risk infrastructure improvements necessary to support the forecast situation, would only be appropriate if funded by the developer. Where there are options for developer funding to contribute to short falls in Flood Defence Grant in Aid schemes coming forwards to protect existing at risk properties, this mechanism should be given appropriate consideration.



## 6.6 GREEN INFRASTRUCTURE

6.6.1 The Green Infrastructure assessment results within Section 5 above identify the existing open space and green infrastructure provision within the District and highlight where the planned housing growth will result in a change of the open space and green infrastructure provision, i.e. change from adequate provision to inadequate provision.

6.6.2 The assessment results highlight that open space and green infrastructure provision within the parishes of Newark and Balderton in general falls below the levels required by the green space Local Provision Standards, i.e. area of provision per 1,000 head of population, with further deficiencies highlighted by the planned growth within the parishes. The proposed housing and mixed development sites within these parishes and the other parishes where a change in provision has been highlighted should be designed to provide and/or contribute towards the open space and green infrastructure required for the planned population growth. The shortfalls highlighted within the assessment against the distance standards, which include shortfalls in the provision of pocket playing fields, 0.2-0.5ha in size should also be allowed for within the detailed development proposals for the housing and mixed development sites to provide for the open space and green infrastructure required.

6.6.3 Information is also provided in the Newark & Sherwood, Community Greenspace Provision Improvement Plans, March 2010 which details specific opportunities/recommendations for providing open space and green infrastructure within the District and this should also be referred to when designing green infrastructure provision within the planned growth sites and the wider area.



## 6.7 TRANSPORT

### Introduction

6.7.1 As discussed in Section 4.7 Congestion Reference Flows (CRF) have been used as a measure of the performance of rural road links within the study area. The CRF of a link is a standard measure and is an estimate of the Annual Average Daily Traffic (AADT) flow at which the carriageway is likely **to be 'congested' in the peak periods on an average day. Congestion is defined as the situation when the hourly traffic demand exceeds the maximum sustainable hourly throughput of the link.** When this condition occurs, the effects on traffic flow are likely to be one or more of the following:

- Flows break down with speeds varying
- Average speeds drop
- Journey times become longer and unreliable
- Sustainable throughput is reduced; and/or
- Queues are likely to form

6.7.2 The implications of these types of peak period traffic conditions can include; increased frequency of accidents due to unpredictable queuing on links, peak spreading as drivers travel **earlier or later than the 'traditional' highway peak periods to avoid delays, and trips re-assigning onto alternative routes to avoid congestion (i.e. 'rat-running') where alternative routes are available.**

6.7.3 It should be noted that CRF is a link-based assessment and does not take into account junction capacity. However, in practice, junction operation usually determines the overall performance of a highway corridor and junctions will exceed their capacity and exhibit congestion and queuing problems long before a link does.

6.7.4 Therefore, for the purposes of this study the key junctions on any links identified as being close to, or at capacity, have been examined for potential junction improvements as these junctions are likely to require improvement in advance of consideration of link widening/dualling.



6.7.5 As discussed in Section 5.7 the results of the latest CRF and VISUM modelling suggest the removal of the following junctions from the current Regulation 123 List:

Urban Junctions:

- Castle Gate, Stodman Street Junction, Newark
- Bowbridge Road, Boundary Road Junction, Newark
- Queens Road, Kings Road Junction, Newark
- B6166 Castle Gate/Great North Road/North Gate (Beastmarket Hill)
- Coddington Road/Barnby Road

Rural Junctions:

- Church Gate / West Gate / Kings Street Junction, Southwell
- A614 / B6030 Junction South Ollerton
- A6097 / B6386 Oxton Junction

And suggest the addition of the following junctions:

Urban Junctions:

- A46(T)/A1133/Drove Lane (A46 Winthorpe Roundabout), Winthorpe
- B6325 Great North Road/A616 Ollerton Road/Main Street, South Muskham
- Northern Rd/Brunel Drive, Newark
- B6326 London Road/ASDA Store Exit (Potterdyke development), Newark
- B6326 London Road/Lime Grove, Newark
- A46(T)/B6166 Farndon Road, Newark

Rural Junctions/Links:

- A614/A6097 Oxton Bypass
- A614/A617 Roundabout
- A614/B6034 to the south of Ollerton
- A614/ C57 Rufford Lane at Ollerton
- A617 Kelham Bypass Scheme

6.7.6 A review has been undertaken of the new junctions suggested for addition to the Regulation 123 List and initial thoughts on whether their addition would be appropriate and the type of





improvements likely to be feasible at each location are summarised in the following tables. It should be noted that no detailed junction capacity assessment work has been undertaken at this stage and further investigations and discussions with Nottinghamshire County Council and Highways England will be required to determine appropriate solutions for each location. The comments in **Table 32** and **Table 33** and the indicative costs are therefore preliminary only.

**Table 32 – Likely Junction Improvements – Urban Junctions**

Location	Existing Junction Type	Potential Improvement	Indicative Costs	Comments
Urban Junctions				
A46(T)/A1133/Drove Lane (A46 Winthorpe Roundabout), Winthorpe	Priority Roundabout	Signal Controlled Roundabout	£3,600,000	The addition of Local Plan development traffic changes the LOS in the PM peak from 'E' to 'F'. In the AM peak the junction is forecast to have LOS of 'F' in all scenarios tested. An improvement is therefore likely to be required at this location. The most likely form of improvement would be providing signal control on the existing roundabout or replacing the roundabout with a signal controlled crossroads.
B6325 Great North Road/A616 Ollerton Road/Main Street, South Muskham	Mini Roundabout	No change - Monitor Operation	£0	The operation of this junction changes to a 'D' LOS in both peaks in the Forecast Year. Providing a meaningful capacity improvement to this 5-arm junction would require third-party land to enable a larger 'normal' roundabout to be provided and/or the closure or diversion of Kelham Lane to reduce the number of arms, which may then allow a signal controlled crossroads to be provided. Improvement of this junction would therefore be complicated and expensive. It is therefore recommended that the operation of this junction be monitored to see if forecast conditions materialise.
Northern Rd/Brunel Drive, Newark	Priority T-Junction	Signal Control	£500,000	The operation of this junction changes to an 'F' LOS in the PM peak hour at the Forecast Year. An improvement is therefore likely to be required at this location. The most likely form of improvement would be providing signal control at the existing junction. This is likely to require the private access opposite Brunel Drive to be incorporated into the signal control.
B6326 London Road/ASDA Store Exit (Potterdyke development), Newark	Signal Controlled Junction	No change - Monitor Operation	£0	The operation of this junction does not change with the addition of Local Plan development traffic (LOS 'D' in the PM peak in all scenarios tested). This junction was recently upgraded to signal control as part of the Potterdyke redevelopment. Options to provide additional traffic capacity appear very limited and it is therefore recommended that the operation of this junction be monitored.
B6326 London Road/Lime Grove, Newark	Priority T-Junction	No change - Monitor Operation	£0	The operation of this junction changes to an 'E' LOS in the Forecast Year AM peak only. This is due to increased traffic on London Road. Options for improvement appear limited due to existing constraints. It is therefore recommended that the operation of this junction be monitored to see if forecast conditions materialise.
A46(T)/B6166 Farndon Road, Newark	Priority Roundabout	Delivered as part of SLR	£0	This roundabout was recently constructed as part of the A46(T) Newark to Widmerpool improvement. The proposed Southern Link Road (SLR) to be delivered as part of the Land South of Newark development will tie into the A46(T) a short distance to the south of this roundabout and it is recommended that the operation of this junction be monitored to see if forecast conditions materialise.

**Table 33 – Likely Junction Improvements – Rural Junctions/Links**

Location	Existing Junction Type	Potential Improvement	Indicative Costs	Comments
Rural Junctions/Links				
A614/A6097 Oxton Bypass	Priority Junction	Signal Control	£1,500,000	The junction has an unconventional elongated 'tear-drop' shaped roundabout that operates as a series of priority give ways. The most likely form of improvement would be converting this into a conventional roundabout.
A614/A617 Lockwell Hill Roundabout	Priority Roundabout	No change - Monitor Operation	£0	This junction was recently improved by Nottinghamshire County Council to provide increased capacity to help make journey times more reliable. It is therefore recommended that the operation of this junction be monitored.
A614/B6034 to the south of Ollerton	Signal Controlled T-Junction	No change - Monitor Operation	£0	This junction was recently upgraded to signal control. It is therefore recommended that the operation of this junction be monitored.
A614/ C57 Rufford Lane at Ollerton	Ghost-Island Priority T-Junction	No change - Monitor Operation	£0	The junction is situated in a dip in the A614 restricting forwards visibility and limiting improvement options. The junction already has a generous Ghost-Island to allow right turning vehicles to wait safely. It is recommended that the operation of this junction be monitored.
A617 Kelham Bypass Scheme	N/A	New bridge over the River Trent and a bypass to the village	£15m	The scheme is listed as a bypass with a new bridge over the River Trent with a cost of £15m to be funded by the County Council and the D2N2 LEP. Partial CIL funding assumed.

6.7.7 In addition to the junctions discussed above the latest modelling has identified the need for improvements to the following:

- A46(T)/A17/ A1 (Friendly Farmer roundabout)
- A46(T)/A1/ Lincoln Rd (Brownhills roundabout)
- A46(T)/A617/ Great N Rd (Cattlemarket roundabout)

6.7.8 Highways England has confirmed that these junctions together with the A46(T) 'Winthorpe Roundabout', the A46(T)/B6166 Farndon Road roundabout and the A46(T) links between them will be addressed as part of the improvement scheme that Highways England is currently developing for inclusion in RIS 2 (see section 5.7.10 for details) and that these junctions can therefore be removed from the Regulation 123 List.

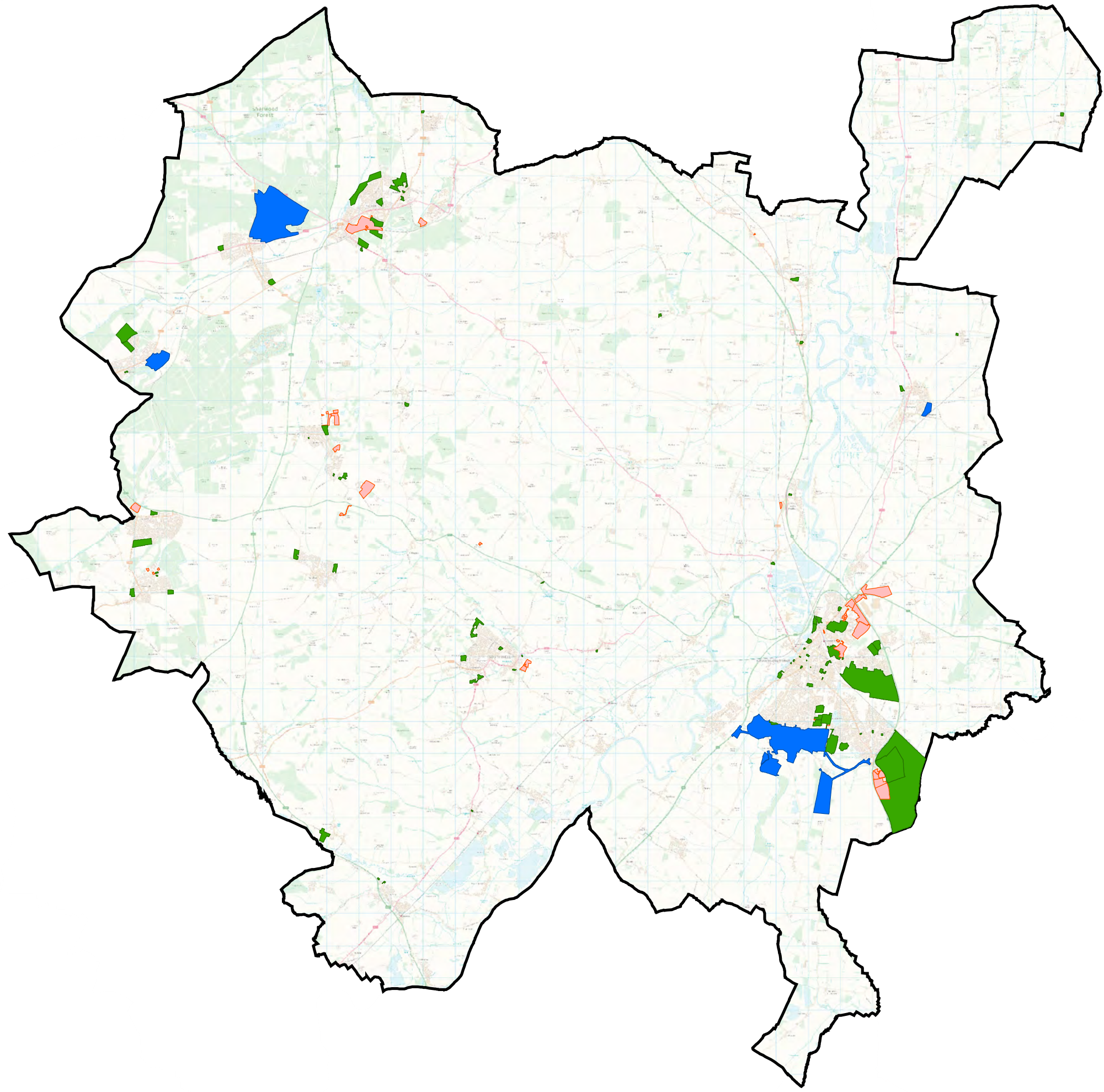
6.7.9 In addition, whilst the CRF methodology has not identified any capacity issues on the links feeding into the A614/A6075 Ollerton Roundabout there are existing traffic capacity issues at this junction that cause extensive queuing and delays in peak periods. Local Plan development at Ollerton and Thoresby (Edwinstowe) will place additional traffic pressure on this junction and Nottinghamshire County Council (NCC) has recommended that a capacity improvement will be required. It is not likely that any meaningful improvements could be undertaken within the constraints of the existing public highway and therefore the safeguarded NCC scheme will



need to be implemented to address the cumulative impact of new development traffic. This should be undertaken by CIL contributions and this junction should therefore be added to the Regulation 123 list.



## Figures



### Legend

- District Boundary
- Proposed Site Usage**
- Housing
- Employment
- Mixed

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REV	DESCRIPTION	BY	CHK	APP	DATE
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Client:



EXECUTIVE PARK  
AVALON WAY  
ANSTEY  
LEICESTER  
LE7 7GR

TEL: +44 (0)116 234 8000  
FAX: +44 (0)116 234 8001  
e-mail: leicester@wyg.com

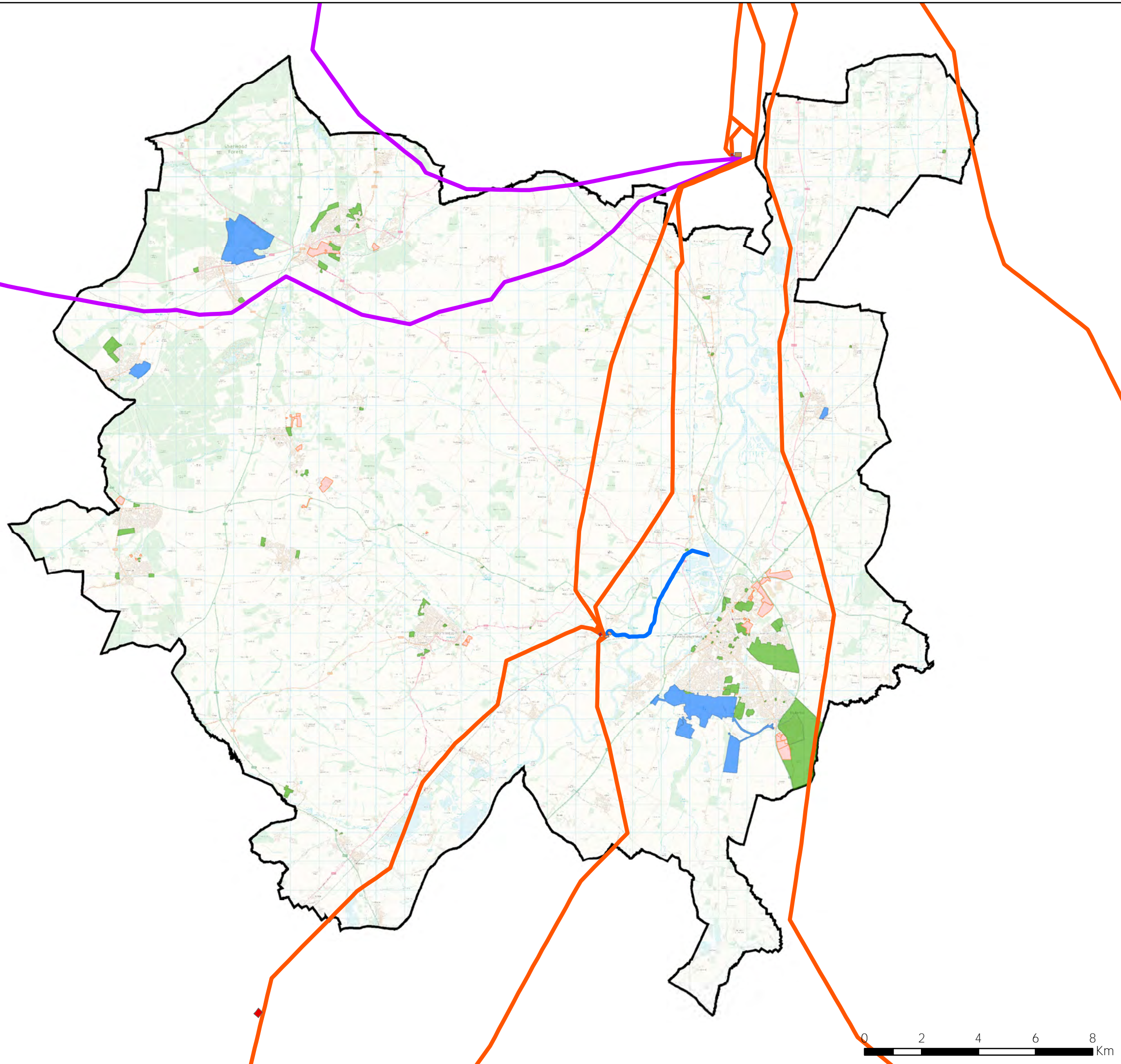


Project:  
IDP Review

Drawing Title:  
Figure 1  
2016 IDP Proposed Growth Sites

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
NTS	JJC	13/06/16	ASG	13/06/16	XXX	xx/xx/xx
Project No.	Office	Type	Drawing No.	Revision		
A090129-48	35	18	Figure 1	-		





- Legend**
- Proposed Site Usage**
- Housing
  - Employment
  - Mixed
- Substations**
- 400kV
  - 275kV
  - 132kV
  - 25kV
- Power Lines**
- 400 kV
  - 275 kV
  - 25 kV

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REV	DESCRIPTION	BY	CHK	APP	DATE

Client:



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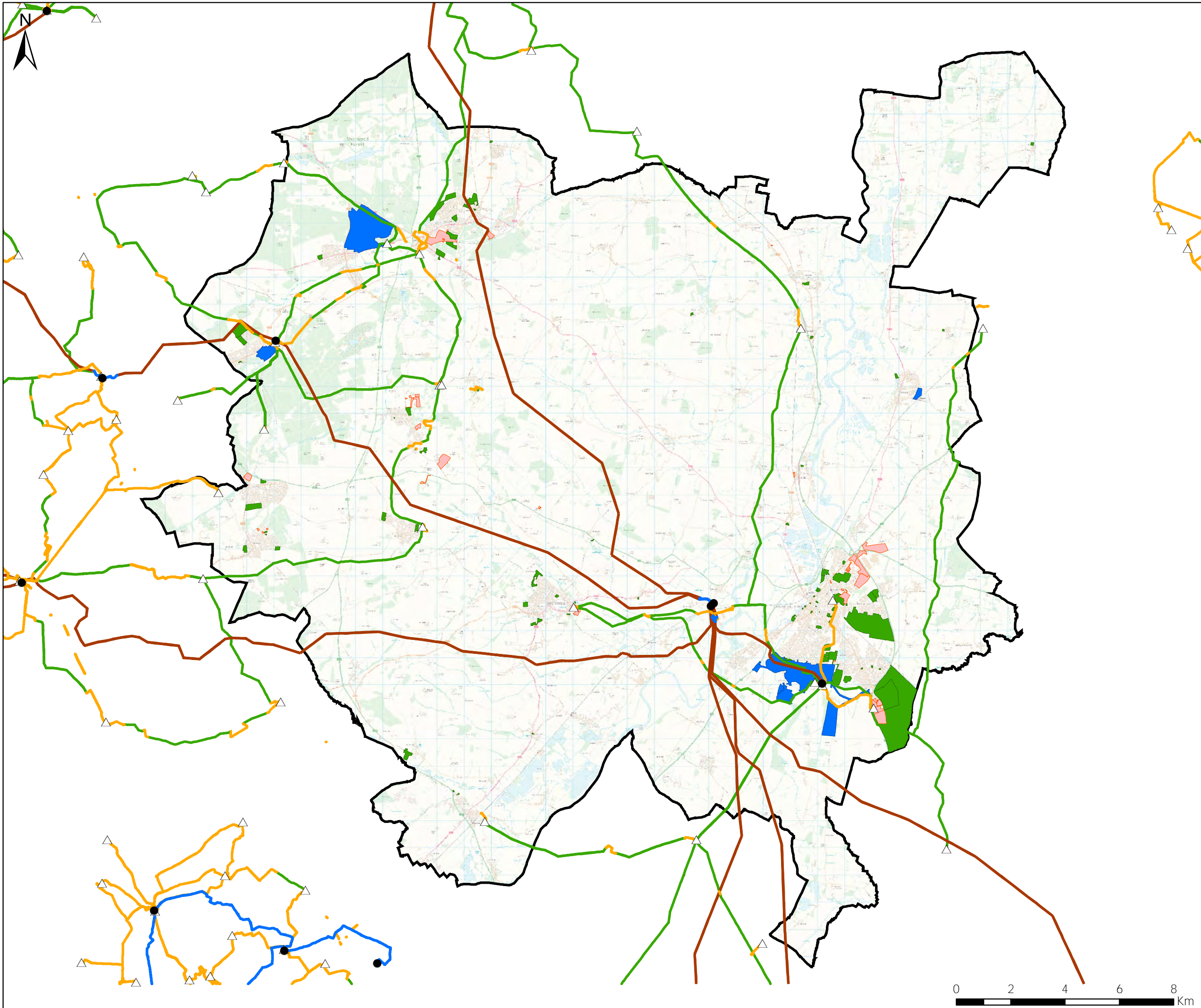


Project:  
 IDP Review

Drawing Title:  
 2016 IDP Proposed Growth Sites  
 Electricity Distribution Network Assets

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
NTS	JJC	13/06/16	ASG	13/06/16	XXX	xx/xx/xx
Project No.	Office	Type	Drawing No.	Revision		
A090129-48	35	18	Figure 2	-		





- ### Legend
- Proposed Site Usage**
- Housing
  - Employment
  - Mixed
- 132 kV Substation
  - 33 kV Substation
  - 132 kV Underground Cable
  - 33 kV Underground Cable
  - 132 kV Overhead Cable
  - 33 kV Overhead Cable

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REV	DESCRIPTION	BY	CHK	APP	DATE

Client:



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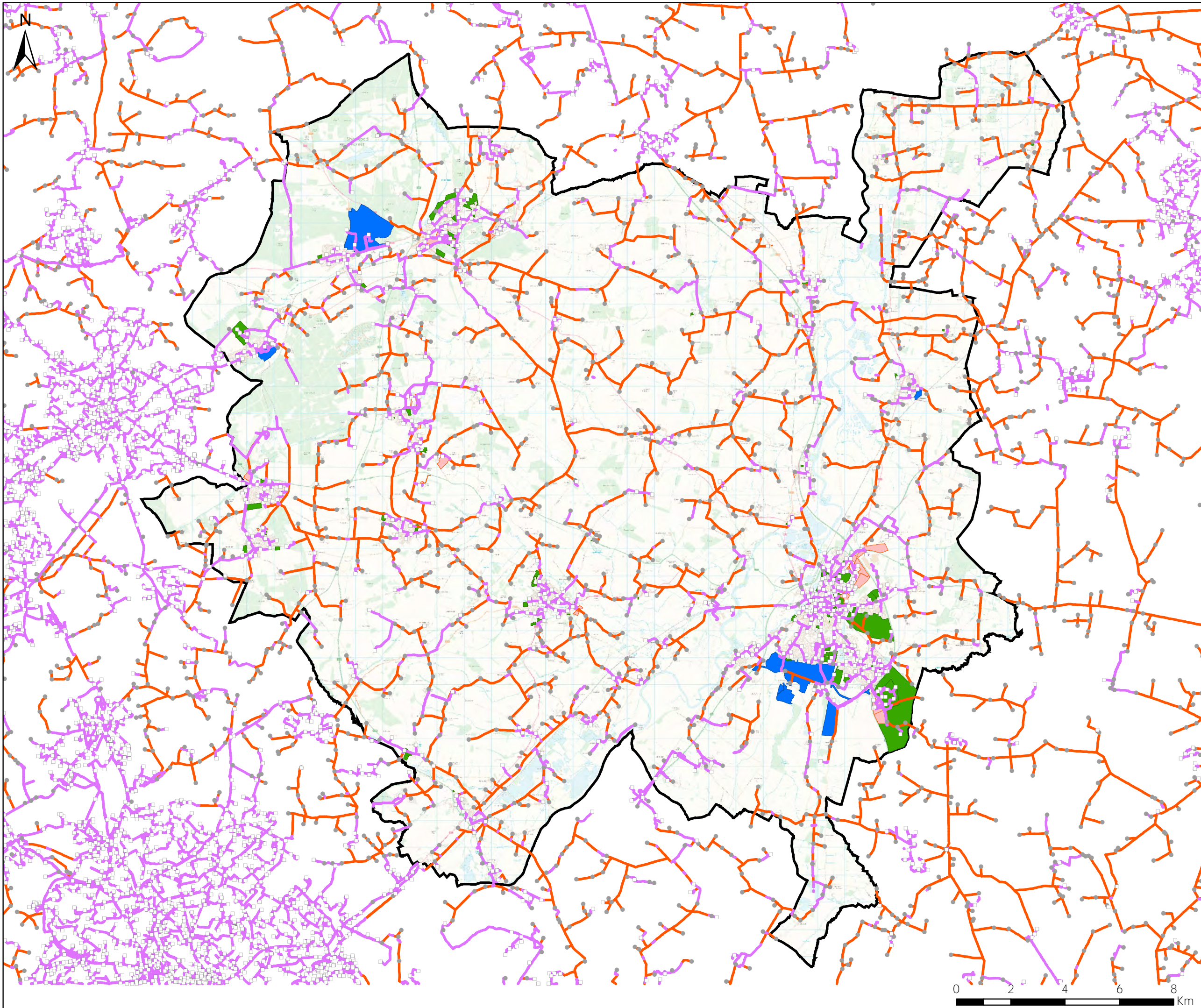


Project:  
 IDP Review

Drawing Title:  
 2016 IDP Proposed Growth Sites  
 Strategic Electricity Distribution Network Assets

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
NTS	JJC	13/06/16	ASG	13/06/16	XXX	xx/xx/xx
Project No.	Office	Type	Drawing No.	Revision		
A090129-48	35	18	Figure 3	-		





- ### Legend
- Proposed Site Usage**
- Housing
  - Employment
  - Mixed
  - 11 kV Ground Mounted D. S.
  - Pole Mounted Distr. Substat.
  - 11 kV Underground Cable
  - 11 kV Overhead Cable

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Project:  
 IDP Review

Drawing Title:  
 2016 IDP Proposed Growth Sites  
 11 kV Electricity Distribution Network Assets





Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
NTS	JJC	13/06/16	ASG	13/06/16	XXX	xx/xx/xx
Project No.	Office	Type	Drawing No.	Revision		
A090129-48	35	18	Figure 4	-		







### Legend

-  District Boundary
- Base Stress**
-  Under 90%
-  90% - 99%
-  100% and Greater

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A	Stress value updates from CRF revision	JJC	ASG	ASG	13/01/17
REV	DESCRIPTION	BY	CHK	APP	DATE

Client:



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Project:  
 IDP Review





Drawing Title:  
 Base Rural Link Stress 2014

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
NTS	JJC	27/09/16	ASG	27/09/16	ASG	27/09/16
Project No.	Office	Type	Drawing No.	Revision		
A090129-48	35	18	Figure 5	A		





### Legend

-  District Boundary
- Base + Committed Stress**
-  Under 90%
-  90% - 99%
-  100% and Greater

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A	Stress value updates from CRF revision	JJC	ASG	ASG	13/01/17
REV	DESCRIPTION	BY	CHK	APP	DATE

Client:



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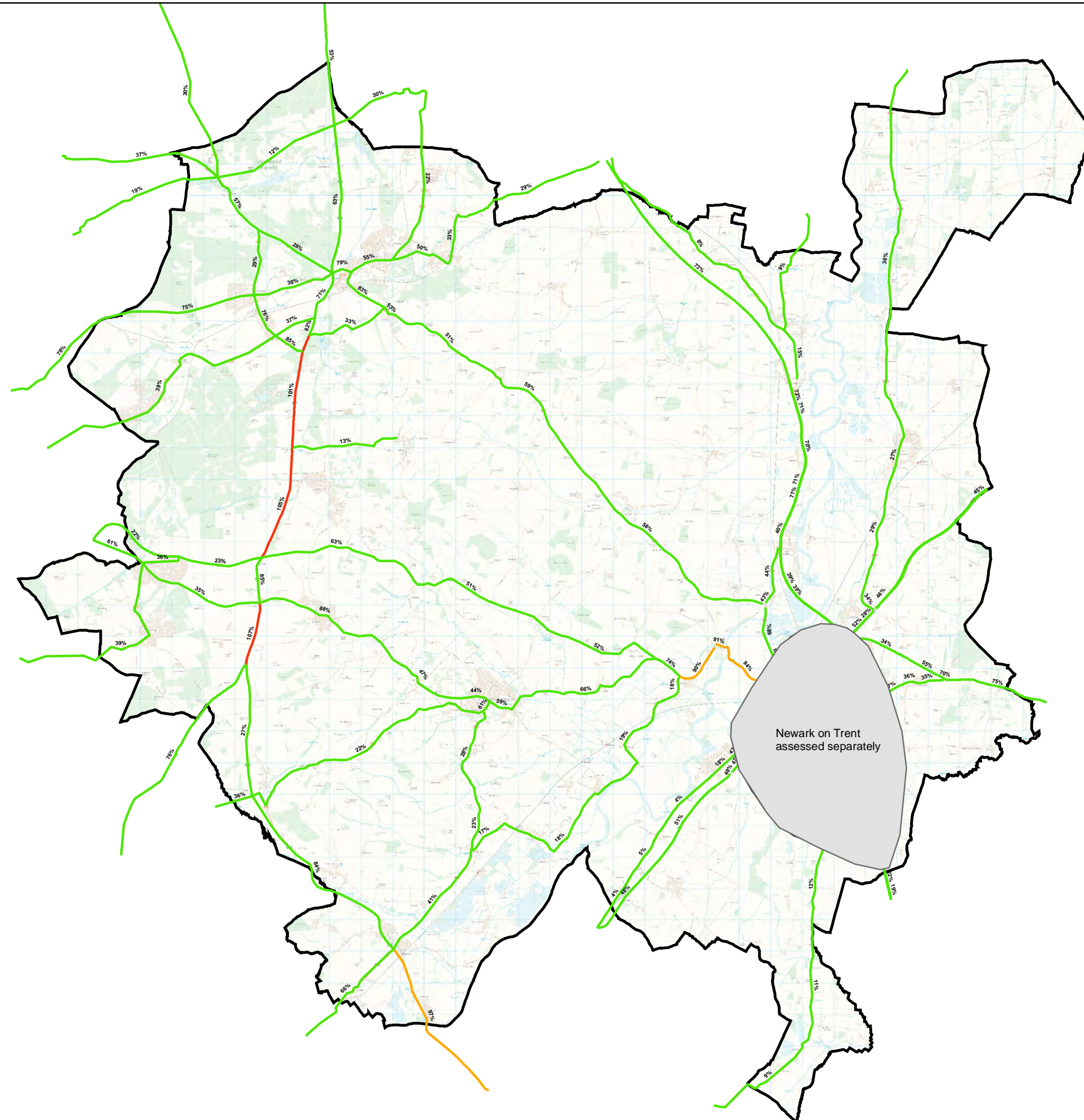


Project:  
 IDP Review





Drawing Title:  
 Base + Committed Rural Link Stress 2033

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
NTS	JJC	27/09/16	ASG	27/09/16	ASG	27/09/16
Project No.	Office	Type	Drawing No.	Revision		
A090129-48	35	18	Figure 6	A		





### Legend

-  District Boundary
- Base + Committed +Dev Stress**
-  Under 90%
-  90% - 99%
-  100% and Greater

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A	Stress value updates from CRF revision	JJC	ASG	ASG	13/01/17
REV	DESCRIPTION	BY	CHK	APP	DATE

Client:



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Project:  
 IDP Review

Drawing Title:  
 IDP Allocation Rural Link Stress 2033  
 (Base + Committed + IDP Allocations)

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
NTS	JJC	27/09/16	ASG	27/09/16	ASG	27/09/16
Project No.	Office	Type	Drawing No.	Revision		
A090129-48	35	18	Figure 7	A		





## Appendices



## Appendix A – Infrastructure Schedule

Infrastructure Schedule							
Category	Location	Infrastructure Required	Cost Estimate	Funding Mechanism	Delivery Responsibility	Timescale	Comments
Social Infrastructure							
GP Practices	Newark, Balderton & Fernwood	New/expanded GP Practices	£7,904,000	S106/Developer	NHS NSCCG	Consistent with development	New three GP Practice already secured as part of Fernwood development
	Ollerton & Boughton	New/expanded GP Practices	£888,250	S106/Developer	NHS NSCCG	Consistent with development	New/expanded GP Practice
	Clipstone	Expanded GP Practices	£760,000	S106/Developer	NHS NSCCG	Consistent with development	Additional FTE GPs at existing Practices
	Elsewhere	Expanded GP Practices across the district	£1,729,000	S106/Developer	NHS NSCCG	Consistent with development	Additional FTE GPs at existing Practices
Primary Schools	Newark, Balderton & Fernwood	Provision of 813 primary school places (equivalent to 2 x 2FE)	£9,312,915	S106/Developer	NCC	Consistent with development	1 x 1.5FE and 1 x 1FE Primary schools to be provided by Land South of Newark, 1 x 2FE and 1 x 1FE primary schools to be provided by Fernwood.
	Ollerton & Boughton	Provision of 196 primary school places	£2,245,180	S106/Developer	NCC	Consistent with development	New 1FE Primary School likely to be required
	Clipstone	Provision of 168 primary school places	£1,924,440	S106/Developer	NCC	Consistent with development	New 1.5FE Primary School likely to be required between Clipstone and Edwinstowe
	Edwinstowe	Provision of 155 primary school places	£1,775,525	S106/Developer	NCC	Consistent with development	New 1.5FE Primary School likely to be required between Clipstone and Edwinstowe
	Elsewhere	Provision of 188 primary school places across the district	£2,153,540	S106/Developer	NCC	Consistent with development	Funding towards extending existing facilities
Secondary Schools	Newark, Balderton & Fernwood	Provision of 1,499 secondary school places	£25,872,740	DFE/EFA	NCC	Consistent with development	Expected to be addressed by the Newark Toot Hill Free School which is planned to open in September 2017
	Ollerton & Boughton	444 new secondary school places	£7,663,440	CIL	NCC	Consistent with development	Funding towards extending existing facilities (Dukeries Academy)
	Rainworth	84 new secondary school places	£1,449,840	CIL	NCC	Consistent with development	Funding towards extending existing facilities (Joseph Whitaker School)
	Southwell	88 new secondary school places	£1,518,880	CIL	NCC	Consistent with development	Funding towards extending existing facilities (Minster Church of England school)
	Elsewhere	41 new secondary school places	£707,660	CIL	NCC	Consistent with development	Funding towards extending existing facilities (Colonel Frank Seely school and Tuxford Academy)
Libraries	All locations	Provision of additional library stock	£621,379	S106/Developer	NCC	Consistent with development	Funding towards library stock items only
Waste							
Landfill	District-wide	3.6 million cubic metres non-hazardous Landfill capacity required within County to meet future demands that the District will contribute towards	N/A	NCC	NCC	By 2022/23	Landfill space is running out. Recycling and composting rates are increasing but new landfill capacity will need to be found.
Energy from Waste (EFW)	District-wide	200,000 tonnes of extra EFW capacity is required within the County to meet future Commercial and Industrial needs that the District will contribute towards	N/A	NCC	NCC	By 2033	Enough capacity for Local Authority Collected Waste within County but a shortfall of approx' 200,000 tonnes to meet future C&I waste management needs
Municipal Recycling and Composting	District-wide	182,000 tonnes per annum extra recycling and composting capacity required within the County to meet future demands that the District will contribute towards	N/A	NCC	NCC	By 2033	Recycling and composting increasing to meet targets to help reduce demand for landfill.
Utilities							
Water Supply	All locations	Water company charges for: connecting to the existing networks, requisitioning new assets and contributing to wider network reinforcement (where required)	N/A	Developer funded	Severn Trent Water/Anglian Water	Consistent with development	Delivered as part of development
Gas	All locations	Local connections to strategic infrastructure	N/A	Developer funded	National Grid Gas	Consistent with development	Delivered as part of development
Electricity	All locations	Local connections to strategic infrastructure	N/A	Developer funded	National Grid	Consistent with development	Delivered as part of development
Telecommunications	All locations	FTTP for all developments of 100+ dwellings	N/A	N/A	BT Openreach	Consistent with development	BT Openreach provide free of charge
Waste Water	All locations	Water company charges for: connecting to the existing networks, requisitioning new assets and contributing to wider network reinforcement (where required)	N/A	Developer funded	Severn Trent Water/Anglian Water	Consistent with development	Delivered as part of development
Flood Risk							
Flood Defences	All locations	Local measures to reduce the causes and impacts of flooding. Identified and delivered as part of individual developments	N/A	Developer funded	Developer	Consistent with development	Delivered as part of development
Green Infrastructure							
Green Infrastructure	All locations	Green Infrastructure to be provided by developments in areas with shortfalls and negative changes in provision as a result of the planned growth. Costs to be identified at planning application stage and new Green Infrastructure delivered and funded by developers as an integral part of developments.	N/A	Developer funded	Developer	Consistent with development	Delivered as part of development
Transport							
Highway Improvements	Newark, Balderton & Fernwood	A1 Overbridge widening, Fernwood, Newark	£5,200,000	CIL	NCC	Consistent with development	To be identified as part Highways England improvement scheme for RIS 2 funding
		A46/A617 Cattle Market Roundabout, Newark	£3,600,000	DFT Funded	Highways England	Post 2020 as part of RIS2	
		A1/A17 Friendly Farmer Roundabout, Newark	£2,400,000	DFT Funded	Highways England		
		A1/A46 Brownhills Roundabout, Newark	£2,400,000	DFT Funded	Highways England		
		A46 Link Capacity, Newark	£600,000	DFT Funded	Highways England		
		A46(T)/A1133/Drove Lane (A46 Winthorpe Roundabout), Winthorpe	£3,600,000	DFT Funded	Highways England		
		London Road, Portland Street Junction, Newark	£60,000	CIL	NCC		Consistent with development
		Barnby Gate, Sherwood Avenue Junction, Newark	£60,000	CIL	NCC	Consistent with development	
		Lincoln Road, Brunel Drive Junction, Newark	£300,000	CIL	NCC	Consistent with development	
		Lincoln Road, Northern Road Junction, Newark	£240,000	CIL	NCC	Consistent with development	
		Castle Gate, Lombard Street Junction, Newark	£300,000	CIL	NCC	Consistent with development	
		Beacon Hill Road, Northern Road Junction, Newark	£144,000	CIL	NCC	Consistent with development	
		Sleaford Road / Friary Road Junction, Newark	£300,000	CIL	NCC	Consistent with development	
		Queens Road / North Gate, Newark	£240,000	CIL	NCC	Consistent with development	
	Northern Rd/Brunel Drive, Newark	£500,000	CIL	NCC	Consistent with development		
	Kelham Bypass Scheme	£5,000,000	NCC/D2N2/CIL	NCC	Consistent with development	Partial funding of the total scheme cost of £15m assumed via CIL	
	Lowdham	A6097 / A612 Lowdham Junction, Lowdham	£1,500,000	CIL	NCC	Consistent with development	
	Eakring	A614 Mickle Dale Lane Junction, Eakring	£300,000	CIL	NCC	Consistent with development	
	Farnsfield	A614, C1 Junction White Post Roundabout, Farnsfield	£600,000	CIL	NCC	Consistent with development	
	Bilthorpe	A614, C13 Eakring Road Junction, Bilthorpe	£120,000	CIL	NCC	Consistent with development	
Blidworth	A614/A6097 Oxton Bypass, Blidworth	£1,500,000	CIL	NCC	Consistent with development		
Ollerton & Boughton	A614/A616/A6075 Ollerton Roundabout, Ollerton & Boughton	£5,000,000	S106/Developer	NCC	Consistent with development		



## Appendix B – Social Infrastructure Supporting Information

## Schools in the District



**Primary Schools**

No.	School Name	DFES	Email	Phone	Settlement	Assumed Nearest Settlement	School Capacity (January 2016)	No. of Pupils (January 2016)	Spare Capacity
1	All Saints Primary School	3539	office@elstonallsaints.notts.sch.uk	01636 525324	Newark-on-Trent	Newark, Balderton & Fernwood	105	99	6
2	Barnby Road Academy Primary and Nursery school	2921	office@newarkbarnbyroad.notts.sch.uk	01636 683900	Newark-on-Trent	Newark, Balderton & Fernwood	525	525	0
3	Bishop Alexander L.E.A.D. Academy	2016	office2@bishopalexander.notts.sch.uk	01636 680040	Newark-on-Trent	Newark, Balderton & Fernwood	315	334	-19
4	Bleasby CofE Primary School	3065	office@bleasby.notts.sch.uk	01636 830203	Bleasby	Southwell	161	159	2
5	Blidworth Oaks Primary School	3793	office@blidworthoaks.notts.sch.uk	01623 792348	Blidworth	Blidworth	277	280	-3
6	The Flying High Academy	2940	office@bilsthorpefha.org	01623 870772	Bilsthorpe	Bilsthorpe	257	217	40
7	Christ Church CofE Infant School	3450	head@christchurch.notts.sch.uk	01636 680051	Newark-on-Trent	Newark, Balderton & Fernwood	102	48	54
8	Chuter Ede Primary School	2674	office@chuterede.notts.sch.uk	01636 683550	Balderton	Newark, Balderton & Fernwood	540	546	-6
9	Coddington CofE Primary and Nursery School	3081	office@coddington.notts.sch.uk	01636 702974	Coddington	Newark, Balderton & Fernwood	386	470	-84
10	Caunton Dean Hole CofE Primary School	3076	office14@cauntondeanhole.notts.sch.uk	01636 636219	Caunton	Newark, Balderton & Fernwood	56	54	2
11	Farnsfield St Michael's Church of England Primary (Voluntary Aided) School	2006	office@st-michaels.notts.sch.uk	01623 882494	Farnsfield	Bilsthorpe	280	252	28
12	Forest View Junior School	2801	office20@forestview.notts.sch.uk	01623 860365	Ollerton	Ollerton & Boughton	240	189	51
13	Gunthorpe CofE Primary School	3550	head@gunthorpe.notts.sch.uk	0115 9663481	Gunthorpe	Newark, Balderton & Fernwood	105	102	3
14	Halam CofE Primary School	3104	office@halam.notts.sch.uk	01636 813062	Southwell	Southwell	105	107	-2
15	Holy Trinity Catholic School	3766	lcoombes@holyltrinity.notts.sch.uk	01636 689177	Newark-on-Trent	Newark, Balderton & Fernwood	315	322	-7
16	Holy Trinity CofE Infant School	3132	office@southwellholyltrinity.notts.sch.uk	01636 812067	Southwell	Southwell	75	62	13
17	John Blow Primary School	2718	office@collingham.notts.sch.uk	01636 892485	Collingham	Collingham	210	176	34
18	John Hunt Primary and Nursery School	2678	office@johnhunt.notts.sch.uk	01636 682007	Balderton	Newark, Balderton & Fernwood	459	443	16
19	King Edwin Primary and Nursery School	2737	office@kingedwin.notts.sch.uk	01623 822111	Edwinstowe	Edwinstowe	351	396	-45
20	Kirklington Primary School	2772	head14@kirklington.notts.sch.uk	01636 812360	Kirklington	Farnsfield	56	72	-16
21	Kneesall CofE Primary School	3112	office@kneesall.notts.sch.uk	01623 861069	Kneesall	Ollerton & Boughton	90	114	-24
22	Lake View Primary and Nursery School	2821	office@lakeview.notts.sch.uk	01623 401404	Rainworth	Rainworth	210	188	22
23	Lovers Lane Primary and Nursery School	2532	office@loverslane.notts.sch.uk	01636 683353	Newark-on-Trent	Newark, Balderton & Fernwood	210	214	-4
24	Lowdham CofE Primary School	3566	admin@lowdham.notts.sch.uk	0115 9663358	Lowdham	Lowdham	210	204	6
25	Lowe's Wong Infant School	2824	office@loweswong-inf.notts.sch.uk	01636 812207	Southwell	Southwell	206	229	-23
26	Lowe's Wong Junior School	3133	office@loweswong-jun.notts.sch.uk	01636 813432	Southwell	Southwell	400	366	34
27	Manners Sutton Primary School	2673	office@mannerssutton.notts.sch.uk	01636 704408	Averham	Newark, Balderton & Fernwood	56	39	17
28	Maun Infant and Nursery School	2802	office@maun.notts.sch.uk	01623 860773	Ollerton	Ollerton & Boughton	170	243	-73
29	Minster School Junior Department	4669	office@minster.notts.sch.uk	01636 814000	Southwell	Southwell	40	38	2
30	Mount CofE Primary and Nursery School	3040	office@mount.notts.sch.uk	01636 688166	Newark-on-Trent	Newark, Balderton & Fernwood	210	221	-11
31	Muskham Primary School	2796	office@muskham.notts.sch.uk	01636 702254	North Muskham	Newark, Balderton & Fernwood	209	194	15
32	North Clifton Primary School	2793	office@northclifton.notts.sch.uk	01522 778609	North Clifton	Sutton-on-Trent	60	39	21
33	Norwell CofE Primary School	3119	office@norwell.notts.sch.uk	01636 636244	Norwell	Sutton-on-Trent	70	45	25
34	The Parkgate Academy (Ollerton Community Primary)	2025	office@theparkgateacademy.co.uk	01623 860584	Ollerton	Ollerton & Boughton	350	350	0
35	Python Hill Primary School	3784	office@pythonhill.notts.sch.uk	01623 464164	Rainworth	Rainworth	350	354	-4
36	Queen Eleanor Primary School	2751	office@queeneleanor.notts.sch.uk	01522 703428	Harby	Sutton-on-Trent	70	55	15
37	Ravenshead CofE Primary School	3290	christinedunkley@ravenshead.notts.sch.uk	01623 456516	Ravenshead	Blidworth	420	409	11
38	Samuel Barlow Primary and Nursery School	2711	office@samuelbarlow.notts.sch.uk	01623 479033	Clipstone	Clipstone	280	295	-15
39	St Joseph's Catholic Primary School	3770	office@st-joseph-pri.notts.sch.uk	01623 860392	Boughton	Ollerton & Boughton	240	241	-1
40	St Marys CofE Primary School	3534	office@st-maryscofe.notts.sch.uk	01623 822518	Edwinstowe	Edwinstowe	126	117	9
41	St Peter's Crosskeys CE Academy	3097	office@farndon-st-peters.notts.sch.uk	01636 680360	Farndon	Newark, Balderton & Fernwood	210	0	210
42	Sutton-on-Trent Primary School	2829	office@sutton-on-trent.notts.sch.uk	01636 821286	Sutton-on-Trent	Sutton-on-Trent	140	109	31
43	The Sir Donald Bailey Academy	3292	office@sirdonaldbailey.co.uk	01636 680142	Newark-on-Trent	Newark, Balderton & Fernwood	576	490	86
44	Walesby CofE Primary School	3145	head@walesby.notts.sch.uk	01623 860575	Walesby	Ollerton & Boughton	175	131	44
45	William Gladstone Church of England Primary School	2001	office@williamgladstone.notts.sch.uk	01636 680284	Newark-on-Trent	Newark, Balderton & Fernwood	315	316	-1
46	Winthorpe Primary School	2853	school.office@winthorpe.notts.sch.uk	01636 680060	Winthorpe	Newark, Balderton & Fernwood	105	91	14
							<b>10,418</b>	<b>9,945</b>	<b>473</b>

**Notes:**

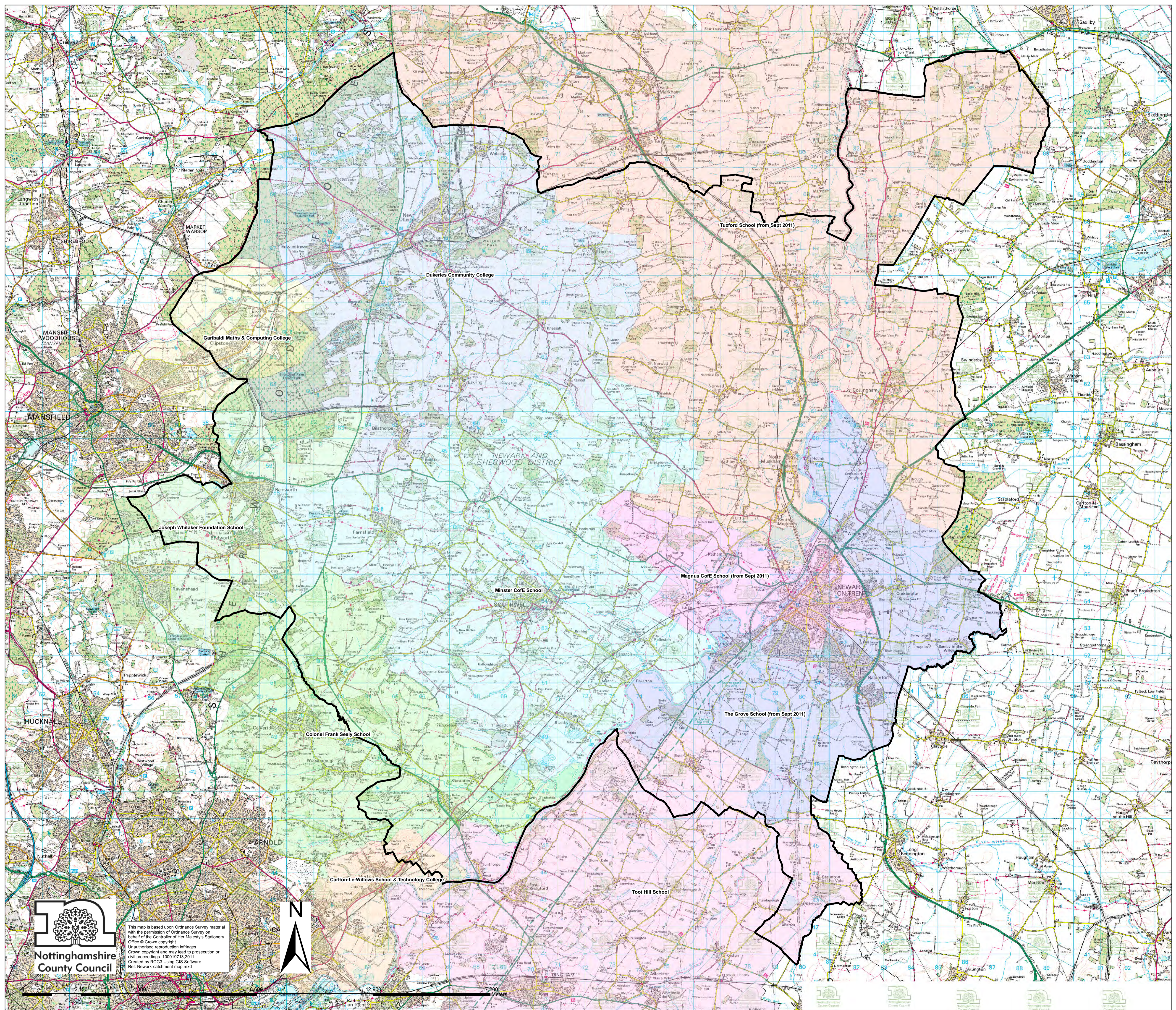
1. No pupil data available for The Parkgate Academy. Therefore school assumed to be operating at capacity.

**Secondary Schools**

No.	School Name	DFES	Email	Phone	Settlement	Assumed Nearest Settlement	School Capacity (January 2016)	No. of Pupils (January 2016)	Spare Capacity
1	Magnus Church of England Academy	4017	http://www.magnusacademy.co.uk/	01636 680066	Newark-on-Trent	Newark-on-Trent	1,050	765	285
2	The Newark Academy	4013	http://www.newarkacademy.co.uk/	01636 615000	Newark-on-Trent	Newark-on-Trent	1,110	629	481
3	The Joseph Whitaker School	4408	http://www.josephwhitaker.org/	01623 792327	Rainworth	Rainworth	1,250	1,243	7
4	Dukeries Academy	4014	http://www.dukeriesacademy.atrust.org.uk/	01623 860545	Ollerton	Ollerton	750	806	-56
5	Minster CofE School	4669	http://www.minster.notts.sch.uk/	01636 814000	Southwell	Southwell	1,541	1,564	-23
							<b>23,293</b>	<b>21,724</b>	<b>694</b>
6	Newark Toot Hill Free School - due to open in 2017	-			Newark-on-Trent				

**Notes:** Data taken from Department for Education EduBase2  
Data collected January 2016

# Secondary School Catchment Areas



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Created by RCG3 Using GIS Software  
Ref: Newark-catchment map.mxd



12,900  
0 12,900  
Meters



## Appendix C – Waste Supporting Information






Newark & Sherwood District Council  
Newark and Sherwood Infrastructure Delivery Plan  
Review  
IDP/RE

Prepared on behalf of WYG Group Limited.  
Registered in England & Wales Number: 06595608



## Document control

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# 1. Waste Infrastructure Needs Assessment

## 1.1 Background

All Waste Planning Authorities (WPAs) in the UK have an obligation to plan for sustainable waste management. Nottinghamshire County is therefore expected to produce a Waste Plan in accordance with the EU revised Waste Framework Directive 2008/98/EC. The existing waste policies under which applications for planning permission are currently determined are contained in national policy and the saved policies in the Nottinghamshire Replacement Waste Local Plan, adopted in January 2002 and partly replaced by the Waste Core Strategy (first part of a two part replacement Waste Local Plan for Nottinghamshire), adopted in December 2013.

Planning for waste management is a strategic issue and all WPAs must look beyond their own boundaries to understand the flows of waste between authorities and identify sites that are most appropriate for waste management uses. Following the abolition of regional planning in the Localism Act of 2011, strategic planning must be carried out through liaison between WPAs. This involves each WPA identifying their own needs for housing, transport and all types of infrastructure, and working in conjunction with other authorities to ensure that this is delivered in a coherent fashion. This is confirmed by the **"National Planning Policy for Waste" published on 16th October 2014**, which states that in preparing Local Plans, WPAs should:

- take into account any need for waste management, including for disposal of the residues from treated wastes, arising in more than one WPA area but where only a limited number of facilities would be required;
- work collaboratively in groups with other WPAs, and in two-tier areas with district authorities, through the statutory duty to cooperate, to provide a suitable network of facilities to deliver sustainable waste management;
- consider the extent to which the capacity of existing operational facilities would satisfy any identified need; and
- plan for the disposal of waste and the recovery of mixed municipal waste in line with the proximity principle, recognising that new facilities will need to serve catchment areas large enough to secure their economic viability.

## 1.2 Policy Context

To manage waste in a safe and compliant way, clear strategies, policies and actions are required. Regional planning was abolished by the Localism Act 2011 with the aim of making local spatial plans the basis for local planning decisions, drawn up in conformity with national policy. Municipal Waste



Management Strategies produced by Nottinghamshire County and Nottingham City Council coordinate how municipal waste is collected and the facilities needed for treatment and disposal of this waste. To understand the current and future position of allocation of waste infrastructure within Nottinghamshire County, the following sections provide an overview of the local waste management policy set out in the Nottinghamshire Replacement Waste Local Plan and the Waste Reduction, Re-use, Recycling and Composting Plan.

### **1.2.1 Nottinghamshire Waste Local Plan**

The existing Nottinghamshire Waste Local Plan, covering Newark and Sherwood and adopted in January 2002, is to be replaced by the Replacement Waste Local Plan, which is being prepared in two parts; the Waste Core Strategy (Part One) and the Waste Sites and Policies Document (Part Two). The Waste Core Strategy was adopted by the Nottinghamshire Councils and Nottingham City Council in December 2013 and sets out **Nottinghamshire's** approach to future management of waste, estimates of how much waste capacity needs to be provided over the next 20 years, until 2031, what types of sites are suitable and where new or extended waste management sites should be located. The Waste Core Strategy partly replaces the saved policies in the existing Waste Local Plan (saved by Direction of the Secretary of State in 2007). The remaining saved policies remain in force until part two of the **Replacement Waste Local Plan, the Waste Sites and Policies Document ("the document")**, is prepared and adopted by the Councils.

While the Waste Core Strategy sets out agreed broad locations where new facilities are likely to be accepted, the document will identify and decide, where possible, the suitable sites for future waste management so as to meet the requirements and objectives set out in the Waste Core Strategy. The document will also set out policies for controlling development of waste facilities and ensuring that environmental standards are met.

### **1.2.2 Nottinghamshire Waste Reduction, Re-use, Recycling and Composting Plan**

The County's Waste Reduction, Re-use, Recycling and Composting Plan ("Recycling and Compositing Plan") is prepared annually and the current 2016/17 plan is the second annual plan following the 2015/16 version. In line with the EU revised Waste Framework Directive (rWFD), targets of achieving 50% and 65% recycling and composting of household waste by 2020 and 2030 respectively, the Recycling and Composting Plan sets out the **County's** approach to achieving the Private Finance Initiative (PFI) target of recycling and composting 52% of household waste by 2020 alongside reducing the overall waste generated. The current 2016/17 Recycling and Composting Plan focuses on





the major actions, initiatives and investments that are likely to take place during 2016/17 and what their respective impacts will be.

The 2016/17 Recycling and Composting Plan document states that all 7 Waste Collection Authorities (WCAs) currently collect dry mixed recyclables (DMR) including paper, card, tins, plastic bottles as well as yogurt pots and margarine tubs. These are taken to the Materials Recovery Facility (MRF) at Mansfield, where the waste is sorted, separated, baled and sent for recycling. It also indicates that recycling rates for all WCAs, like the County and national rates, have remained constant over the last 5 years, with several WCAs seeing a slight decline in their recycling rates.

A subsidiary Recycling and Composting Plan document will be published in autumn 2016, which will provide an analysis of the success and impact of the 2015/2016 plan as well as provide information on tonnages of waste (for all elements of household waste) generated within the County and the recycling rates for 2015/2016.

### **1.3 Scope**

In developing a waste infrastructure needs assessment for Newark and Sherwood District, the first key stage is to gain an understanding of how much waste, both current and in the future, requires management in Newark and Sherwood and Nottinghamshire and the source of this waste.

Understanding how much waste is currently generated relies on a variety of data sources of varying quality. Forecasting how much waste is likely to be generated in the future is a process that involves estimating future behaviour of individuals and businesses and the markets within which they operate. Baseline waste arisings and forecast arisings for the plan period to 2033 are presented in this report for Local Authority Collected Waste (LACW). This report does not provide a detailed analysis of Commercial and Industrial waste (C&I) waste arisings estimates due limited readily available data and information and resources available. The C&I estimates provided are based on published literature.

The second key stage is to understand what waste management capacity is available within Nottinghamshire and Newark and Sherwood to deal with these wastes. This report therefore provides an indication of the existing operational waste management capacity in Nottinghamshire and Newark and Sherwood. The additional capacity required to meet future waste management needs is estimated and this information can then be used to support the identification of appropriate locations for the development of additional facilities.

The waste infrastructure needs assessment therefore involved the following key stages, which are presented in detail in the following sections:



- Waste arisings estimates;
- Forecast of LACW arisings to 2033;
- Assessment of waste management facilities and capacities within Nottinghamshire and Newark and Sherwood; and
- Capacity gap analysis.

## 1.4 Waste Arisings Estimates

The term 'municipal waste' has historically been used in waste policy to describe all waste which is managed by or on behalf of a local authority. However, the Landfill Directive defines municipal waste as waste from households as well as other waste that, because of its nature or composition, is similar to waste from households. This includes a significant amount of waste that is generated by businesses and which is not collected by local authorities.

For planning purposes, it is important to know how much waste in total requires management. Local authorities have established systems for measuring the quantities of waste that they manage and this is reported to Defra through the WasteDataFlow reporting system, which has been established since 2004. Data from this source is therefore the basis of much of the municipal waste figures presented in this report. **To ensure consistency with the terminology used by National Government, the term 'Local Authority Collected Waste' (LACW) will be used for the waste recorded by WasteDataFlow and the remainder of the non-hazardous waste, which is collected from business will be referred to as Commercial and Industrial (C&I) waste.**

The remainder of waste arisings, i.e. C&I waste, whether similar to household waste or more homogeneous, is not measured through a systematic or robust system, but in periodic surveys that have been carried out to understand the quantities arising.

### 1.4.1 Local Authority Collected Waste (LACW)

LACW consists of waste, which comes into the possession of, or under the control of, the local authority, with the exception of municipal construction and demolition waste. It can be subdivided into a number of components:

- Household waste (the main component), which consists primarily of waste collected directly from households;
- Household waste (with the exception of inert construction waste), which is accepted and collected at household waste recycling centres/civic amenity sites;
- Other household waste (smaller components) such as litter and street cleaning waste; and



- Non-household waste; the main components of LACW classified as non-household include **commercial waste collected by local authorities (commonly termed “trade waste”)** and inert construction materials accepted at household waste recycling centres.

Local authorities are required to make detailed returns to Defra concerning the quantity of waste arisings and how the materials are subsequently managed.

### 1.4.1.1 How much LACW is produced?

Data on LACW produced was obtained from WasteDataFlow as well as information directly from the Councils.

LACW tonnages in Nottinghamshire for the period 2010/11 to June 2015 are presented in Table 1. The tonnages presented include all kerbside collections, waste collected at bring sites, household waste recycling centres (HWRCs), street cleansing etc. Overall, there is a slight reduction (i.e. approximately 3% reduction) in the waste produced in 2014/15 compared to waste produced in 2010/11 although the tonnages are relatively similar year on year. The recycling and composting rate reduced slightly from 37.4% in 2010/11 to 34.6% in 2014/15 comparison to but is relatively similar year on year i.e. on a plateau, which is similar to the situation for England as a whole over the past few years.

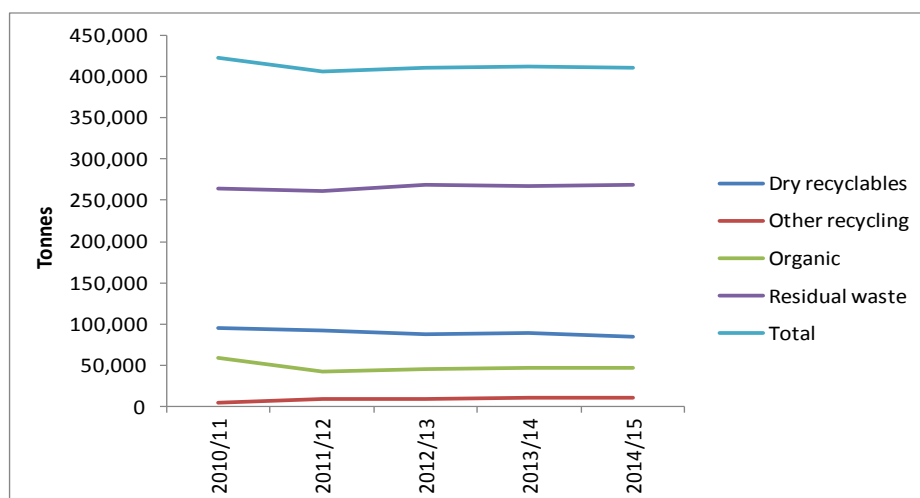
**Table 1 LACW in Nottinghamshire, 2010/11 – June 2015**

Waste Type	2010/11	2011/12	2012/13	2013/14	2014/15	Apr – June 2015
Dry recyclables	94,806	92,815	87,809	88,327	84,804	20,610
Other recycling*	4,536	9,695	8,456	10,345	10,506	1,106
Organic waste	59,006	42,048	44,738	46,420	47,066	18,484
Residual waste	264,698	261,613	269,243	266,750	268,773	71,048
<b>Total</b>	<b>423,046</b>	<b>406,172</b>	<b>410,246</b>	<b>411,842</b>	<b>411,148</b>	<b>111,248</b>
<b>% recycling &amp; composting</b>	<b>37.4%</b>	<b>35.6%</b>	<b>34.4%</b>	<b>35.2%</b>	<b>34.6%</b>	<b>36.1%</b>

Source: Wastedataflow

\* Includes batteries, furniture, textiles, WEEE, wood, other materials

**Figure 1 Trend of LACW tonnages in Nottinghamshire, 2010/11-2014/15**



Newark and Sherwood District collects waste from its residents using:

- Green bins for collecting residual waste (non-recyclable waste);
- Silver bins for collecting mixed recyclates including cans, plastic bottles & containers, paper & cardboard; and
- Brown bins for garden waste (a chargeable service).

The District currently does not undertake kerbside glass collections. Residents do take their glass waste to bottle banks.

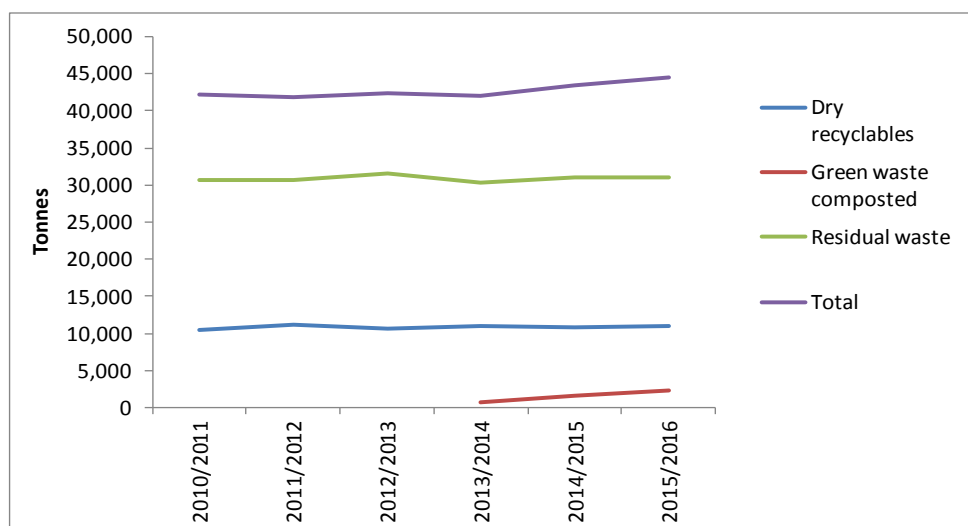
Reported collection volumes from 2010/2011 to 2015/2016 for Newark and Sherwood are presented in Table 2, these include all kerbside collections, recycling collected at bring sites and recycling/composting collected through other recycling schemes. As at the County level, overall, the trend shows relatively similar tonnages of waste collected year on year, with however, a slight increase (i.e. 5.3% increase) in 2015/16 compared to tonnages produced in 2010/11. The recycling and composting rate increased slightly over this period, from 27.4% in 2010/11 to 30% in 2015/16, with lower rates in the years where there were no kerbside garden waste collections. It is worth noting that from April 2016, Newark and Sherwood are expanding their garden waste collection service to parts of the district that were not previously covered. This will increase the District's and the County's recycling rate as well as reduce disposal costs for the County.

**Table 2 LACW tonnages, 2010/11 – 2015/16, in Newark and Sherwood**

Waste Type	2010/11	2011/12	2012/13	2013/14	2014/15	2015/2016
Dry recyclables	10,492	11,248	10,719	10,963	10,787	11,080
Garden waste	1,074			775	1,680	2,237
Residual waste	30,608	30,610	31,641	30,266	31,055	31,115
<b>Total</b>	<b>42,174</b>	<b>41,858</b>	<b>42,360</b>	<b>42,004</b>	<b>43,522</b>	<b>44,432</b>
<b>% recycled &amp; composted</b>	<b>27.4%</b>	<b>26.9%</b>	<b>25.3%</b>	<b>27.9%</b>	<b>28.6%</b>	<b>30.0%</b>

Source: Wastedataflow

**Figure 2 Historic trend of Local Authority Collected Waste, Newark and Sherwood**



### 1.4.1.2 What happens to this waste?

The destination of the LACW in Newark and Sherwood for 2014/15 is summarised in Table 3. All kerbside collected DMR and recyclates from HWRCs are sent to a MRF in Mansfield, where it is sorted or separated into its constituent materials for subsequent recycling. Some of the materials from the MRF are sent to facilities outside of the UK and Europe for recycling. The green/garden waste collected by the District is taken to a composting facility in Oxtou. Up until May 2015, all non recyclable waste (residual waste) was sent direct to landfill. Since May 2015, residual waste is transferred via **Veolia’s transfer station in Newark to the Sheffield** Energy from Waste (EfW) facility, operated by Veolia. There is no direct landfill; however, if the EfW plant in Sheffield is closed for maintenance etc., there is provision for landfill at the Staple quarry landfill site near Newark.



**Table 3 Destination of the LACW in Newark and Sherwood**

Kerbside dry mixed recycling
MRF, Crown Farm Industrial Estate, Mansfield
UPM Kymmene (UK) Ltd (paper and pulp mill), Deeside
Morris & Co Handlers Ltd, Rossington, Doncaster
Veolia E S Cleanaway (UK), Rainham, Essex
Garden/green waste
Simpro Ltd (composting), Ollerton Road, Oxton, Southwell
Residual
Energy from Waste facility (Veolia), Bernard Road, Sheffield
Staple quarry and landfill, Newark

In 2014/2015, approximately 44.6% of the LACW in Nottinghamshire was recycled or recovered, i.e. 34.6% recycled/composted, 10% was sent for energy recovery, and 55.4% was sent to landfill. Overall, countywide recycling rates for LACW have slowed significantly in line with regional and national trends.

#### **1.4.1.3 Forecast of LACW**

Estimating future waste arisings is difficult due to several factors that can influence the amount of waste generated in the future. In the past the forecasting of future household waste arisings mainly focused on factors likely to have a direct impact, such as population and number of households. However, as demonstrated by recent history, increases nationally and locally in both population and number of households have not been directly reflected in the year on year reductions in the total amount of LACW. Even though both population and the number of households nationally and locally have increased since 2009, actual volumes of household waste collected have significantly decreased. This reduction coincided with a significant economic downturn and there has been a clear link established between waste growth and GDP (i.e. in a recession growth is negative) but may also be due to increased environmental awareness amongst waste producers.

The Defra publications “Forecasting 2020 Waste Arisings and Treatment Capacity” (February 2013), revised in October 2013, and the related “Review of Methodology for Forecasting Waste Infrastructure Requirements” prepared for Defra by NERA, December 2012, reviewed a number of methods of forecasting future LACW arisings and recommend the analysis of historical time series data. This approach has some value because it is likely that there are other factors such waste minimisation



initiatives, government legislation and taxes, performance of the local economy that would impact on rate of change of LACW produced in the future.

Forecasting of LACW in Nottinghamshire and Newark and Sherwood was based on the forecast of number of households in the County and District and on the assumption that the amount of LACW generated is directly proportional to number of households in the area. This approach was used because of the limited resources and data available to allow for an in-depth forecast of waste arisings based on historical data. In addition, although historic data shows a reduction in waste volumes year on year, it is important that waste growth is taken into account due to economic recovery and the planned new housing and employment development plans across the County.

The household forecasts for Nottinghamshire and Newark and Sherwood were obtained from the **Neighbourhood Analysis Division, DCLG's "Household projections for England and local authority districts" (2012 –based and published in February 2015)<sup>1</sup>**. Table 4 shows the results of the forecasts of the LACW produced in Nottinghamshire and Newark and Sherwood based on these household forecasts. The LACW forecasts show a gradual increase in waste arisings, with LACW in Nottinghamshire forecast to increase by approximately 54,000 tonnes (i.e.13%) and by approximately 6,500 tonnes (i.e. 15%) in Newark and Sherwood over the plan period.

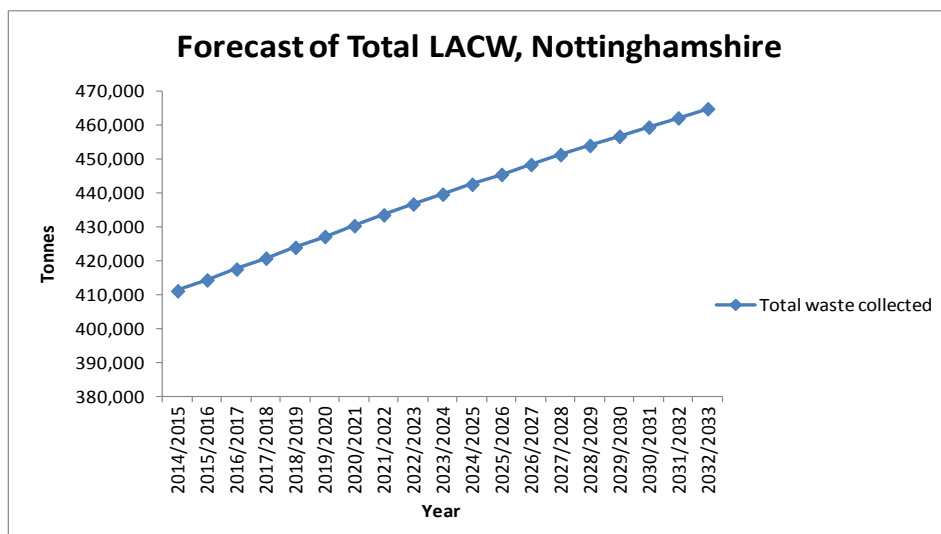
**Table 4 Nottinghamshire LACW Forecasts, 2014/15 to 2032/2033**

Year	LACW Tonnes	
	Nottinghamshire	Newark and Sherwood
2014/2015	411,148	43,522
2019/2020	427,184	45,905
2024/2025	442,620	47,648
2029/2030	456,800	49,179
2032/2033	464,937	50,038

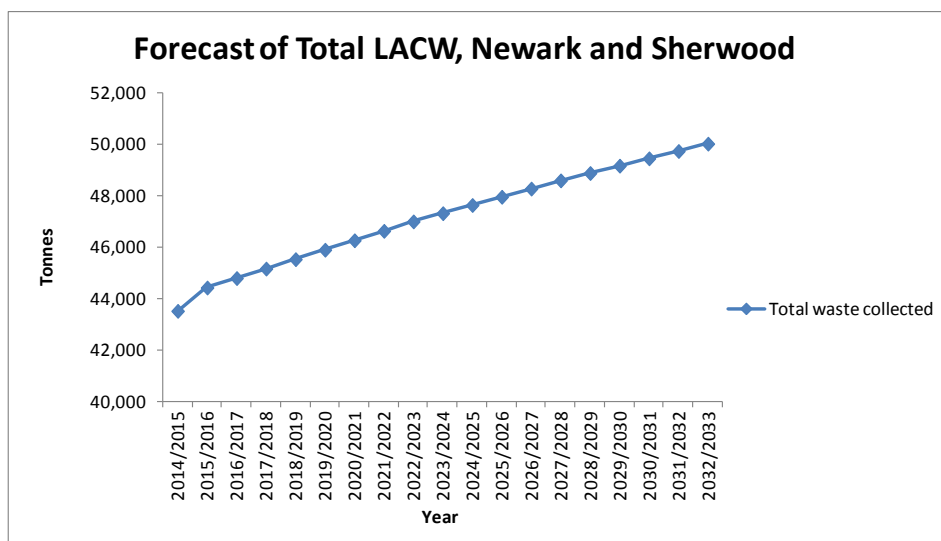
Figure 3 and Figure 4 illustrate the forecast trend of LACW in Nottinghamshire and Newark and Sherwood respectively.

<sup>1</sup> <https://www.gov.uk/government/statistical-data-sets/live-tables-on-household-projections>

**Figure 3 Forecast of LACW in Nottinghamshire, 2014/15 - 2032/33**



**Figure 4 Forecast of LACW in Newark and Sherwood, 2014/15 - 2032/33**



Policy WCS3 of the Waste Core Strategy sets out Nottinghamshire’s targets to recycle 60% and 70% of all LACW by 2020 and 2025 respectively, with a recycling and composting target of 52% by 2020. In the Recycling and Composting Plan document 2015/2016, the suggested target recycling level for Newark and Sherwood is 40% by 2020 to enable the County achieve its target of 52% by 2020. Based on these targets, the following recycling and recovery targets for Newark and Sherwood and Nottinghamshire were used to provide the LACW forecast by waste management method/destination.



**Table 5 LACW Recycling targets for Nottinghamshire and Newark and Sherwood**

	2020		2025	
	Nottinghamshire	Newark and Sherwood	Nottinghamshire	Newark and Sherwood
Recycling and composting	52%	40%	61%	47%
Energy recovery rate	8%	6%	9%	7%
Landfill	40%	54%	30%	46%
<b>Overall recycling rate</b>	<b>60%</b>	<b>46%</b>	<b>70%</b>	<b>54%</b>

By applying these targets to the breakdown of the LACW in Newark and Sherwood and Nottinghamshire by waste management destination of the waste, the following forecasts of LACW tonnages by waste management method were produced.

**Table 6 Forecast of LACW arisings by waste management method in Nottinghamshire**

Waste Management Method	2014/15	2019/20	2024/25	2029/30	2032/33
Recycling and composting	142,257	222,136	268,523	277,125	282,062
Energy recovery	41,115	34,175	41,311	42,635	43,394
Landfill	227,776	170,874	132,786	137,040	139,481
<b>Total waste</b>	<b>411,148</b>	<b>427,184</b>	<b>442,620</b>	<b>456,800</b>	<b>464,937</b>
<b>Overall recycling rate</b>	<b>45%</b>	<b>60%</b>	<b>70%</b>	<b>70%</b>	<b>70%</b>

**Table 7 Forecast of LACW arisings by waste management method in Newark and Sherwood**

Waste Management Method	2014/15	2019/20	2024/25	2029/30	2032/33
Recycling and composting	12,447	18,362	22,236	22,950	23,351
Energy recovery	0	2,825	3,421	3,531	3,592
Landfill	31,075	24,718	21,991	22,698	23,094
<b>Total waste</b>	<b>43,522</b>	<b>45,905</b>	<b>47,648</b>	<b>49,179</b>	<b>50,038</b>
<b>Overall recycling rate</b>	<b>29%</b>	<b>46%</b>	<b>54%</b>	<b>54%</b>	<b>54%</b>

### 1.4.2 Commercial and Industrial Waste (C&I)

Unlike LACW, there is no regular reporting done for the C&I and Construction and Demolition (C&D) waste arisings and therefore data on these wastes is not readily available. Although local authorities do provide waste collection services to businesses, the majority of the C&I waste is collected by private waste management companies and therefore not reported to local authorities. The Environment Agency, through the Waste Data Interrogator (WDI), provides data from annual returns made by private waste operators about the waste handled at their facilities. However, this data is not



reliable for obtaining C&I waste estimates because the waste can pass through several facilities where it is sorted, bulked up and sent for treatment leading to double counting and overestimation of the arisings. It does, however, provide an indication of the operational waste management capacity available for this waste.

To estimate C&I waste generated by businesses, there have been regional and national surveys undertaken in previous years. The most recent national survey of C&I waste was undertaken by Defra in 2009/10, which provides C&I waste estimates at both national and regional levels. Based on the assumption that C&I arisings in Nottinghamshire declined in line with the national average, it is estimated that businesses in Nottinghamshire and Nottingham City generate approximately 900,000 tonnes of C&I waste per annum<sup>2</sup>.

As with data on estimates of C&I waste generated by businesses, there is limited local data and **information on how this waste is managed. The Environment Agency's WDI reports approximately 387,000 tonnes of Nottinghamshire's municipal and C&I waste was sent to landfill in 2013/2014.** To provide an estimate of what proportion of this was from commercial and industrial sources, 150,000 tonnes of LACW in the County that is estimated to have been landfilled in 2013/14 was deducted from 387,000 tonnes, giving approximately 287,000 tonnes of C&I sent to landfill by Nottinghamshire in 2013/14. This estimate should however be taken with caution as some of the waste might have originated from outside the County and the waste produced within the County might have been sent outside of the County and there could also be some double counting due to waste passing through other facilities before its final destination.

## **1.5 Waste Management Capacity**

### **1.5.1 Introduction**

The capacity of waste management facilities in Nottinghamshire and Newark and Sherwood was compiled using information from the Environment Agency's WDI on permitted sites, the Councils' records on sites with existing planning permission for waste management use and Nottinghamshire's Minerals and Waste Annual Monitoring Report, 2013/14. Since the adoption of the Waste Core Strategy, the revised National Planning policy for waste amended the assessment of future capacity requirements to be based on only those facilities that are actually operational at the time of the assessment as being the more reliable measure of available capacity. Therefore, for purposes of this report, only facilities that are already operational have been considered for analysis. These include the following main facility types:

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<sup>2</sup>Estimate derived from Survey of Commercial and Industrial Waste Arisings, Defra, 2010



- Landfill;
- Incineration with energy recovery (EfW);
- Waste Transfer Stations (WTS);
- Materials Recovery Facilities (MRFs); and
- Composting and other organic recycling plants (e.g. anaerobic digestion).
- Recycling facilities

Note that facilities of waste recyclate reprocessors such as glass recyclers, paper recyclers (i.e. B1 users from a planning perspective), which are also exempt from waste licensing, are not included in this analysis.

## 1.5.2 Nottinghamshire County and Newark and Sherwood District

### Capacities

#### 1.5.2.1 Landfill

Table 8 shows the landfill capacities in Newark and Sherwood and Nottinghamshire based on the most recent data and information received and most recent Environment Agency data (2014). Unless otherwise stated, all capacities shown are based on operator waste permit returns to the Environment Agency. The capacities of landfills are expressed in cubic metres and these were converted to tonnages using figures recommended by the PPS10 Compaction guide; i.e. a conversion factor of 1.5 tonnes per cubic metre for inert waste and 0.85 tonnes per cubic metre for mixed municipal and similar wastes to estimate remaining void based on waste inputs to the landfills.

**Table 8 Total Landfill Capacities (in cubic metres) for the Newark and Sherwood and Nottinghamshire as at December 2014**

Landfill Type/Name	Capacities (m <sup>3</sup> )*		Type of waste received	Planning permission end date (if applicable)
	Newark & Sherwood	Nottinghamshire		
<b>Landfill (non-hazardous)</b>				
Staple Quarry and Landfill	870,000	870,000	HIC	31/10/2024
Daneshill		890,000	HIC	
Non-hazardous total capacity	<b>870,000</b>	<b>1,760,000</b>		
<b>Landfill (inert)</b>				
Vale Road Quarry		2,330,000	Inert	
Serlby Quarry		1,350,000	Inert	
Inert landfill total capacity		<b>3,680,000</b>		
<b>Landfill (inert - restricted user)</b>				
Coneygre Farm		tbc	Inert	01/06/2019
Borrow Pits Landfill	450,000	450,000	Inert	



Cromwell Quarry	tbc		Inert	31/12/2020
Inert-restricted landfill total capacity	<b>450,000</b>	<b>450,000</b>		
<b>Landfill (ash disposal)</b>				
Bole Ings		1,240,000	Pulverised fuel ash	
Cottam Power Station		1,500,000	Pulverised fuel ash	
Winking Hill		660,000	Pulverised fuel ash	
Landfill (ash-disposal) total capacity		<b>3,400,000</b>		

\* Contains Environment Agency information © Environment Agency and database right.  
HIC - Household/industrial/commercial

There is a Countywide non-hazardous landfill capacity of some 1.76 million cubic metres (equivalent to 1.5 million tonnes at an average bulk density of 0.85 tonnes/cubic metre), with capacity in Newark and Sherwood District at 870,000 cubic metres (equivalent to approximately 740,000 tonnes at an average bulk density of 0.85 tonnes/cubic metre).

In 2013/2014, approximately 150,000 tonnes of municipal waste and an estimated 240,000 tonnes of C&I waste (Minerals and Waste Annual Monitoring Report, 2013/2014) was sent to landfill in Nottinghamshire. Based on these input rates and capacity of non-hazardous landfill in Nottinghamshire, the available void in the County would be filled in approximately 4 years.

There is currently very limited capacity for landfill in the County as towards the end of 2014 significant **permitted disposal capacity was lost when two of the County's remaining non-hazardous landfill sites**, at Dorket Head Landfill near Arnold and Carton Forest Landfill near Worksop, closed, leaving only two remaining non-hazardous landfill sites near Newark and Retford. Taking account of these losses, remaining non-hazardous capacity is now estimated to be less than 2 million m<sup>3</sup>.

### 1.5.2.2 Energy from Waste

Thermal treatment of waste can consist of simple incineration, typically used for clinical or hazardous wastes or incineration with energy recovery, which has become increasingly prevalent in the recovery of non-hazardous wastes, with the steam produced by the combustion process driving turbines to produce electricity. Advanced technologies are also starting to appear, such as gasification and pyrolysis, which aim to break down residual waste into fuels for either on-site electricity generation or for energy use off site. The move away from landfilling residual waste in recent years, driven by significant increases in landfill tax, has seen a considerable increase in the amount of available Energy from Waste capacity, and in volumes of waste recovered using this technology both nationally and regionally.



There is currently one EfW facility in Nottinghamshire, the Eastcroft Incinerator in Nottingham, with a permitted energy recovery capacity of 260,000 tonnes. However, this capacity includes 100,000 tonnes per annum that is not yet been built. The facility is able to take both commercial and municipal waste.

LACW residual waste from Newark and Sherwood District is currently sent to an EfW facility in Sheffield, operated by Veolia, with a permitted capacity of approximately 245,000 tonnes per annum **and there are contractual arrangements in place to treat up to 60,000 tonnes of Nottinghamshire's** residual waste until 2033.

Outside of the County, there are other facilities that could be used by the County such as the 120,000 tonnes per annum facility under construction in Doncaster, the 150,000 tonnes per annum fully operational facility in Lincolnshire, the 300,000 tonne (proposed 180,000 tonnes municipal, 120,000 tonnes East Midlands C&I) EfW facility at Shepshed in Leicestershire that was granted permission in 2012 and permission for increased capacity of 350,000 tonnes per annum approved in October 2014, expected to be operational by 2018/19 and the 190,000 tonnes per annum facility in Derby, currently under construction.

### 1.5.2.3 Organic Waste Recycling (Composting, Anaerobic Digestion)

Various types of organic waste recycling facilities exist including windrow composting, in-vessel composting and anaerobic digestion. Windrow composting is used primarily for the biodegradation of garden and crop waste and other vegetable based materials, whilst in-vessel composting and anaerobic digestion facilities can take kitchen and commercial food waste as long as they meet the requirements of the Animal By-Products regulations.

**Table 9 Organic Waste Processing Capacity in Nottinghamshire and Newark and Sherwood DC area, December 2014**

Site Name	Facility Type	Waste Type	Permitted annual capacity (Tonnes)	Location
Grange Farm, Oxtou	Composting	Municipal green waste	55,000	Newark and Sherwood
Recycling Ollerton and Boughton	Composting	Commercial dry recyclables and green waste	4,400	Newark and Sherwood
Stragglethorpe Road, Holme Pierrepont	Composting	Municipal/Commercial green waste	2,600	Nottinghamshire
John Brooks Sawmills	Composting	Commercial green waste	20,000	Nottinghamshire
<b>Total Composting</b>			<b>82,000</b>	



Stud Farm, Rufford	Anaerobic digestion	Poultry waste, vegetable waste and purpose grown energy crops	16,000	Newark and Sherwood
Stoke Bardolph STW	Anaerobic digestion	C&I	55,200	Nottinghamshire
Biodynamics	Anaerobic digestion	C&I	150,000	Nottinghamshire
<b>Total Anaerobic Digestion</b>			<b>221,200</b>	

The figures in Table 9 demonstrate a total composting capacity (for both C&I and municipal waste) of 82,000 tonnes in Nottinghamshire of which approximately 59,000 tonnes is in Newark and Sherwood and 221,000 tonnes of anaerobic digestion capacity, of which 16,000 tonnes is in Newark and Sherwood. There is 58,000 tonnes per annum of composting capacity available for municipal waste in Nottinghamshire, of which 55,000 tonnes is in Newark and Sherwood.

### 1.5.2.4 Material Recovery Facilities (MRFs)

Where recyclates such as plastics, metals, paper, cardboard, glass are collected as mixed streams, or “co-mingled”, MRFs are required to separate the individual material streams so they can be reprocessed and/or reused. Similarly “dirty MRFs” can be used to separate recyclates from residual waste streams. The provision of MRFs for the separation of recyclates for recycling operations elsewhere in Nottinghamshire and Newark and Sherwood is summarised in the Table 10.

**Table 10 MRF Capacity in Nottinghamshire as of December 2014**

Site Name	Waste Type	Permitted annual capacity (Tonnes)	Location
Bunny Transfer Station	C&I	209,000	Nottinghamshire
Colwick	Construction/industrial/commercial	119,000	Nottinghamshire
Mansfield MRF	Municipal/commercial/industrial	80,000	Nottinghamshire
Sandy Lane	Construction/industrial/commercial	22,000	Nottinghamshire
Wastecycle Limited	Commercial/industrial/municipal	314,000	Nottinghamshire
<b>Total</b>		<b>744,000</b>	

There are currently no MRFs in the Newark and Sherwood District. The District currently sends its dry mixed recyclates to the MRF in Mansfield, as do all other WCAs in Nottinghamshire. There is no end date on the planning permission for the MRF, however, the PFI contract runs until 2033, after which there could be different contractual arrangements. The total available MRF capacity in Nottinghamshire is approximately 744,000 tonnes.

### 1.5.2.5 Transfer Stations

Nottinghamshire has considerable provision for transfer and bulking stations as summarised in the Table 11, including facilities for hazardous, clinical, LACW and C&I wastes. The majority of transfer stations handle C&I and municipal waste. The total available capacity for transfer station in Nottinghamshire is approximately 390,000 tonnes, of which 140,000 tonnes is in the Newark and Sherwood District. Of the total transfer station capacity in Nottinghamshire, 280,000 tonnes is for C&I and municipal waste, of which 83,000 tonnes is located in Newark and Sherwood District.

According to the Waste Core Strategy, four sites in Nottinghamshire are used to bulk up waste from HWRCs and kerbside collections and manage an estimated 50,000 tonnes of municipal waste. A new municipal waste transfer station in Newark that became operational in 2015 addresses any short fall in this part of the County.

**Table 11 Transfer Stations Capacity, Nottinghamshire and Newark and Sherwood, 2014**

Site Name	Waste Type	Permitted Annual Capacity (Tonnes)	Location of Site
Jessop Close	C&I Hazardous and non-hazardous	20,000	Newark and Sherwood
Mr Terry Price	C&I Non-hazardous/scrap metal	3,100	Newark and Sherwood
Quarry Farm 2	C&I and construction and demolition	1,200	Newark and Sherwood
Wallrudding Farm	Construction and demolition	5,000	Newark and Sherwood
Brunel Drive	Municipal and C&I	60,000	Newark and Sherwood
PHS	Clinical	500	Newark and Sherwood
Eurotech - Global Environmental Services	Liquid/sludges	30,000	Newark and Sherwood
Specialised Waste Services	Hazardous	900	Newark and Sherwood
East Midlands Waste	Unknown	3,200	Newark and Sherwood
Charles Lawrence International Ltd	C&I	19,500	Newark and Sherwood
<b>Newark and Sherwood Total</b>		<b>143,400</b>	
15b Wigwam Lane	Construction and demolition	9,700	Nottinghamshire
AB Waste Disposal	C&I	25,000	Nottinghamshire
Abbey Road Depot	Municipal	2,900	Nottinghamshire
Environmental Health & Housing Services	Municipal	1,700	Nottinghamshire
Gamston Depot	Municipal	1,100	Nottinghamshire
Giltbrook	Municipal	10,000	Nottinghamshire
ICS Bleakhill Sidings	C&I and construction and demolition	44,000	Nottinghamshire
Kimberley Depot	Municipal	13,700	Nottinghamshire
Mansfield D C Transfer Station	Municipal	1,700	Nottinghamshire
Nottingham Sleeper Company	C&I	3,600	Nottinghamshire
Plot 4b, 14 and 15 Wigwam Lane	Construction and demolition	33,000	Nottinghamshire
5 Plots 8 and 9 Wigwam Lane, Hucknall	Construction and demolition	1,200	Nottinghamshire



Tarmac	Construction and demolition	700	Nottinghamshire
V and K Premises	Hazardous	100	Nottinghamshire
Maun Valley Waste Transfer Station	Construction and demolition	5,200	Nottinghamshire
Land at Shireoaks Road	Municipal and C&I	75,000	Nottinghamshire
Oakwood Fuels Ltd, Brailwood Road	Commercial/industrial/hazardous	19,000	Nottinghamshire
<b>Nottinghamshire Total</b>		<b>391,000</b>	

### 1.5.2.6 Recycling capacity

Table 12 shows the recycling capacity in Nottinghamshire and in Newark and Sherwood for glass, wood, metal and aggregate, with a total capacity of approximately 1.2 million tonnes in Nottinghamshire, of which approximately 88,000 tonnes is in Newark and Sherwood. The majority of this capacity is for C&I and construction and demolition waste, with approximately 40,000 tonnes per annum of capacity currently available for municipal waste.

**Table 12 Recycling Capacity in Nottinghamshire and Newark and Sherwood as of 2014**

Site Name	Waste Type	Permitted Annual Capacity (Tonnes)	Location of Site
<b>Glass</b>			
Recresco	C&I	30,000	Nottinghamshire
<b>Total glass</b>		<b>30,000</b>	
<b>Wood</b>			
R M Wright Wood Recycle	Commercial timber	18,000	Newark and Sherwood
R Plevin & Sons Ltd	C&I	58,000	Nottinghamshire
<b>Total Wood</b>		<b>76,000</b>	
<b>Aggregate</b>			
Coneygre Farm	Construction and demolition	17,000	Newark and Sherwood
North Midland Construction	Construction and demolition	18,000	Nottinghamshire
Scrooby Top Quarry	Construction and demolition	20,000	Nottinghamshire
Toton Railway Sidings	Construction and demolition	315,000	Nottinghamshire
Colwick Industrial Estate	Construction and demolition	200,000	Nottinghamshire
Oakfield Construction	Construction and demolition	400,000	Nottinghamshire
<b>Total Aggregate</b>		<b>970,000</b>	
<b>Metal</b>			
B D Motor Spares	Vehicles	400	Newark and Sherwood
Bradford Moor	Vehicles & scrap metal	25,000	Newark and Sherwood
Briggs Metals	Municipal and C&I	34,000	Newark and Sherwood
HBC Vehicles	C&I Hazardous	8,000	Newark and Sherwood
Hutchinson Engineering Services Ltd	Municipal and C&I	600	Newark and Sherwood
Lakeside, Clifton	C&I Hazardous	100	Newark and Sherwood
Reclamations Ollerton Ltd	C&I Hazardous	700	Newark and Sherwood
T W Crowden & Daughter Ltd	Municipal and C&I	1,900	Newark and Sherwood
French Spares, Ranskill	C&I	200	Nottinghamshire
Lodge On The Wolds Farm	C&I	500	Nottinghamshire
Mansfield Woodhouse Dismantlers	C&I	900	Nottinghamshire
Phoenix Auto Salvage	C&I	2,200	Nottinghamshire





Charles Trent Limited	C&I	2,800	Nottinghamshire
Mega Vaux	C&I	5,000	Nottinghamshire
Glen Barry Metals Limited	C&I	5,600	Nottinghamshire
<b>Total Metal</b>		<b>87,900</b>	
<b>Nottinghamshire Total Recycling</b>		<b>1,163,900</b>	
<b>Newark and Sherwood Total Recycling</b>		<b>105,700</b>	

### 1.5.2.7 HWRC Capacity

Table 13 shows the available operating capacity of HWRCs in Newark and Sherwood and Nottinghamshire as of December 2014, with a total of approximately 97,500 tonnes per annum existing in Nottinghamshire, of which 12,500 tonnes per annum is in Newark and Sherwood. The County completed a long term programme of improvements to its network of HWRCs, including the development of the new sites at Worksop and Newark.

**Table 13 HWRC Capacity in Nottinghamshire and Newark and Sherwood, 2014**

Site Name	Waste Type	Permitted Annual Capacity (Tonnes)	Location of Site
Bilsthorpe HWRC	Municipal	3,500	Newark and Sherwood
Newark HWRC	Municipal	9,000	Newark and Sherwood
Beeston HWRC	Municipal	9,000	Nottinghamshire
Calverton Colliery HWRC	Municipal	10,000	Nottinghamshire
West Bridgford HWRC	Municipal	9,000	Nottinghamshire
Giltbrook HWRC	Municipal	10,000	Nottinghamshire
Retford HWRC	Municipal	6,000	Nottinghamshire
Hucknall HWRC	Municipal	7,000	Nottinghamshire
Mansfield HWRC	Municipal	11,000	Nottinghamshire
Kirkby HWRC	Municipal	6,000	Nottinghamshire
Worksop HWRC	Municipal	9,000	Nottinghamshire
Warsop HWRC	Municipal	8,000	Nottinghamshire
<b>Nottinghamshire Total HWRC</b>		<b>97,500</b>	
<b>Newark and Sherwood Total HWRC</b>		<b>12,500</b>	

Table 14 provides a summary of the waste management capacity available within the Nottinghamshire and Newark and Sherwood as of December 2014.

**Table 14 Summary of available waste management capacity as of 2014, Nottinghamshire and Newark and Sherwood**

Waste Management Method	Available Capacity	
	Nottinghamshire	Newark and Sherwood
Landfill (non-hazardous)	1,760,000	870,000
Landfill (inert)	3,680,000	-



Landfill (inert - restricted user)	450,000	450,000
Landfill (ash disposal)	3,400,000	-
Composting	82,000	59,000
Anaerobic Digestion	221,000	16,000
MRFs	744,000	-
Transfer stations	391,000	143,000
Recycling - glass	30,000	-
Recycling - wood	76,000	18,000
Recycling - aggregates	970,000	17,000
Recycling - metal	87,000	70,000
HWRCS	97,500	12,500

## 1.6 Capacity Gap Analysis

Based on the analysis of LACW arisings produced, the forecast of these arisings and the current operational waste management capacity within Nottinghamshire and Newark and Sherwood, a capacity gap analysis was undertaken to identify future requirements of facilities to manage future waste arisings while meeting future recycling and recovery targets.

### 1.6.1 Landfill

With significant permitted disposal capacity lost when two of the County's remaining non-hazardous landfill sites, at Dorket Head Landfill near Arnold and Carton Forest Landfill near Worksop, closed towards the end of 2014, leaving only two operational landfill sites, the available operational landfill capacity for municipal waste in Nottinghamshire based on the capacity analysis is 1.76 million cubic metres (equivalent to 1.5 million tonnes at an average bulk density of 0.85 tonnes/cubic metre), with capacity in Newark and Sherwood at 870,000 cubic metres (equivalent to approximately 740,000 tonnes at an average bulk density of 0.85 tonnes/cubic metre).

The forecast of LACW by waste management method indicates a reduction in waste sent to landfill of approximately 39% during the plan period based on the countywide recycling targets, i.e. from 228,000 tonnes in 2014/15 to 139,000 tonnes in 2032/33. Based on this forecast and on the current available capacity, the available void is estimated to be filled by 2022/23. However, these landfills take C&I residual waste as well, which means that the landfill void is likely to be filled well before 2022/23. It is mentioned in the Waste Core Strategy that some municipal waste from Derby is sent to landfills in Nottinghamshire, which means that there is currently very limited landfill capacity to **meet Nottinghamshire's future landfill requirements** even with the significant reduction in municipal waste sent to landfill over the plan period. The Waste Core Strategy estimates that approximately 3.6 million m<sup>3</sup> of landfill void space (equivalent to approximately 3.0 million tonnes at an average bulk density of 0.85 tonnes/cubic metre) is required to meet the County's future landfill needs.



### **1.6.2 Energy from Waste**

There is currently approximately 260,000 tonnes of EfW capacity available within Nottinghamshire, at the Eastcroft Incinerator, with 100,000 tonnes of this capacity not yet available. The facility is permitted to take both LACW and C&I waste due to variations made to its operating permit. As in the Waste Core Strategy, it is assumed that 160,000 tonnes of EfW capacity is currently available for municipal waste, which means that there is enough capacity for municipal waste based on the forecast municipal waste recovery tonnages of approximately 40,000 tonnes per annum.

The Waste Core Strategy estimates that approximately 200,000 tonnes of EfW capacity is required to meet future C&I waste management needs.

### **1.6.3 Municipal Recycling and Composting**

Based on the analysis of available operational capacity, there is currently approximately 40,000 tonnes per annum recycling capacity and 58,000 tonnes per annum composting capacity for municipal waste in Nottinghamshire, i.e. a total capacity approximately 98,000 tonnes per annum for municipal recycling and composting. With recycling and composting tonnages forecast to increase to approximately 280,000 tonnes by 2033, the end of the plan period, an estimated 182,000 tonnes per annum of municipal composting and recycling capacity is required in Nottinghamshire.

## **1.7 Conclusion**

Quantities of LACW produced in Nottinghamshire show a slight reduction, of approximately 3%, from 423,000 tonnes to 412,000 tonne over the period 2010/11 to 2014/15. Quantities of LACW produced in Newark and Sherwood show an increase of approximately 5% in 2015/2016 in comparison to the waste produced in 2010/11.

The LACW composting and recycling rate for Nottinghamshire reduced slightly from 37.4% in 2010/11 to 34.6% in 2014/15 but was relatively similar (i.e. on a plateau) year on year. The LACW composting and recycling rate in Newark and Sherwood, on the other hand, increased slightly from 27.4% in 2010/11 to 30% in 2015/16 and as at the County level the rate is similar (i.e. on plateau) year on year.

With the expansion of Newark **and Sherwood's** garden waste collection service from April 2016, it is envisaged that the District's, as well as the County's, recycling rate will increase and thus reduce disposal costs to the County.

All kerbside collected DMR and recyclates from HWRCs in Newark and Sherwood are sent to a MRF in Mansfield for sorting into their constituent materials and then sent for subsequent recycling. The green/garden waste collected by the District is taken to a composting facility in Oxtun. Up until May



2015, all non recyclable waste (residual waste) was sent direct to landfill, however since May 2015, residual **waste is transferred via Veolia's transfer station in Newark to** the Sheffield EfW facility, operated by Veolia.

Based on the forecast of LACW over the plan period, taking into account the recycling and recovery targets of the County and District, and the assessment of the existing and operational waste management capacity within Nottinghamshire and Newark and Sherwood, the results of this analysis show that there is insufficient non-hazardous landfill capacity available within the County to meet the **County's** future landfill requirements even with the significant reduction in LACW sent to landfill over the plan period. The available operational landfill void, i.e. 1.76 million cubic metres (equivalent to 1.5 million tonnes at an average bulk density of 0.85 tonnes/cubic metre) is likely to be filled well before 2022/23. It is estimated in the Waste Core Strategy that approximately 3.6 million m<sup>3</sup> of landfill void (equivalent to approximately 3.0 million tonnes at an average bulk density of 0.85 tonnes/cubic metre) **is required to meet the County's future landfill requirements.**

There is currently enough EfW capacity available for LACW within Nottinghamshire, with approximately 200,000 tonnes of EfW capacity required to meet future C&I waste management needs.

With recycling and composting tonnages forecast to increase to approximately 280,000 tonnes by 2033, there is need for an estimated 182,000 tonnes per annum recycling and composting capacity to meet future recycling and composting requirements of the County. This is particularly important in the context of the **County's and EU recycling and composting targets. These targets may be met through a** combination of improved collection methods for both household and business waste as well as by using MRFs to mechanically sort recyclable waste.



## Appendix D – Utilities Supporting Information

# Utility Company Consultation Responses

**Severn Trent Water (STW) - 2016 IDP Review Consultation Comments**

**Potential impact of proposed developments on sewerage infrastructure assets**

Date: 27 June 2016

**NOTE:** The purpose of these desktop based assessments are to indicate where proposed development **MAY** have a detrimental impact on the performance of the existing public sewerage network taking into account the size of the development proposals.

For most new development provided the surface water in managed sustainably through use of a SuDS the additional foul only flows will have a negligible impact on existing sewer performance but where there are pre-existing capacity constraints additional capacity improvements may be required.

Where subsequent detailed modelling indicates capacity improvements are required such work will be phased to align with development occupancy with capacity improvement works will be funded by Severn Trent Water. However, whilst Severn Trent have a duty to provide additional capacity to accommodate planned development, we also have a requirement to manage our assets efficiently to minimise our customers' bills. Consequently to avoid potential inefficient investment we generally do not provide additional capacity until there is certainty that the development is due to commence. Where development proposals are likely to require additional capacity upgrades to accommodate new development flows it is highly recommended that potential developers contact Severn Trent as early as possible to confirm flow rates and intended connection points. This will ensure provision of additional capacity can be planned into our investment programme to ensure development is not delayed.

**Note:** These are desktop assessments using readily available information and have not been subjected to detailed hydraulic modelling

Site Ref	Settlement	Size	Units	Sewage Treatment Works	Sewerage Comment			Potential impact on sewerage infrastructure
					Known network constraints	Assumed connectivity	Surface water disposal	
<b>Bilsthorpe</b>								
Bi-003	Bilsthorpe	9.7	Hectare	BILSTHORPE	Provided surface water from this development is managed sustainably, the additional foul only flows from this development is not expected to have any capacity constraints.	Site likely to require a combination of gravity and pumped connection	Assume site to be drained by sustainable means. Connection combined sewer to be avoided	Low - No issues identified
Bi/E/1	Bilsthorpe	2.7	Hectare	BILSTHORPE	Site likely to discharge to existing sewage pumping station off Brail Wood Road. Capacity issues are not envisaged but further assessments will be required once flow rates are confirmed.	Greenfield site. Assume connection to existing SPS asset north of the site on Brailwood Road	Assume site runoff to be managed by sustainable means with discharge to existing watercourse running through the site.	Low - Subject to SPS capacity assessments once flow rates are confirmed.
14/01782/FULM	Bilsthorpe	14.0	Hectare	BILSTHORPE	Provided surface water from this development is managed sustainably, the additional foul only flows from this development is not expected to have any capacity constraints.	Brownfield site, no existing site drainage identified. Assume existing site drains to a septic tank	Assume site run off will be drained by sustainable means with discharge to existing water course running through the site	Low - No risks identified
Bi/MU/1	Bilsthorpe	75	Dwellings	BILSTHORPE	Provided surface water from this development is managed sustainably, the additional foul only flows from this development is not expected to have any capacity constraints.	Site likely to require a combination of gravity and pumped connection	Assume site to be drained by sustainable means. Connection combined sewer to be avoided	Low - No issues identified
Bi/Ho/1	Bilsthorpe	8	Dwellings	BILSTHORPE	Provided surface water from this development is managed sustainably, the additional foul only flows from this development is not expected to have any capacity constraints.	Site likely to require a combination of gravity and pumped connection	Assume site runoff will be managed by sustainable means discharging to existing watercourse within site. Connection to FW sewer to be avoided	Low - No issues identified
14/01855/FUL	Bilsthorpe	5	Dwellings	BILSTHORPE	Provided surface water from this development is managed sustainably, the additional foul only flows from this development is not expected to have any capacity constraints.	Assume connection to existing combined sewer in Kirlington Road	Assume site runoff will be managed by sustainable means. Connection to combined sewer in Kirlington Road to be avoided	Low - No issues identified
Bi/Ho/2	Bilsthorpe	100	Dwellings	BILSTHORPE	Existing sewer performance indicates the connection of additional flows from 100 dwellings may require some localised capacity upgrades. Further modelling work will be required once flow rates and connection points are confirmed.	Brownfield site. No sewer connection identified, assume unrecorded private drain connection into head of sewer in Kirlington Road	Assume site runoff will be managed by sustainable means discharging to existing watercourse within site. Connection to FW sewer to be avoided	Medium - Localised capacity improvements may be required once flow rates and connection points are confirmed.
05/00775/FULM	Bilsthorpe	7	Dwellings	BILSTHORPE	Provided surface water from this development is managed sustainably, the additional foul only flows from this development is not expected to have any capacity constraints.	Brownfield site, assume connection via existing combined drain within site	Assume site runoff will be managed by sustainable means. Connection to combined sewer to be avoided	Low - No risks identified
<b>Blidworth</b>								
Bi/E/1	Blidworth	0.8	Hectare	RAINWORTH	Provided surface water from this development is managed sustainably, the additional foul only flows from this development is not expected to have any capacity constraints.	Greenfield site, no sewer network identified, assume sewers uncharted, assume connection via existing FW sewers in Leach Way	No existing water course identified, no SWS identified, assume site runoff to be managed by sustainable means. Connection to FW sewer to be avoided	Low - No risks identified
10/00342/FUL	Blidworth	0.3	Hectare	RAINWORTH	Provided surface water from this development is managed sustainably, the additional foul only flows from this development is not expected to have any capacity constraints.	Brownfield site, assume connection via existing FW sewer in Belle Vue Lane	No existing water course identified, no SWS identified, assume site runoff to be managed by sustainable means. Connection to FW sewer to be avoided	Low - No risks identified
13/00989/FUL	Blidworth	5	Dwellings	RAINWORTH	Provided surface water from this development is managed sustainably, the additional foul only flows from this development is not expected to have any capacity constraints.	Greenfield site, assume connection to existing FW sewer in The Crescent	No SW sewer identified. Assume site runoff to be drained by sustainable means. Connection to FW sewer to be avoided.	Low - No risks identified
Bi/Ho/1	Blidworth	55	Dwellings	RAINWORTH	There are historic reports of external sewer flooding in the downstream sewerage system along Dale Lane. Whilst the additional foul only flows from this development will have negligible impact on this risk more detailed assessments will be required once	Assume connection to existing combined sewer in Dale Lane	Greenfield site, no water course identified, assume site runoff to be managed by sustainable means. Connection to combined sewer to be avoided	High - Known capacity issues and flooding
Bi/Ho/3	Blidworth	100	Dwellings	RAINWORTH	Whilst there are no reports of sewer flooding in the vicinity of this development, modelled sewer performance data indicates potential capacity constraints in the downstream sewers. Whilst the additional foul only flows from a development of 100 dwellings are	Greenfield site, assume connection via existing combined sewer running through the site	No water courses identified, assume site runoff to be managed by sustainable means. Connection to combined sewer to be avoided	Medium - Predicted capacity issues downstream of this development which may require localised capacity
Bi/Ho/2	Blidworth	20	Dwellings	RAINWORTH	Provided surface water from this development is managed sustainably, the additional foul only flows from this development is not expected to have any capacity constraints.	Greenfield site, no sewer network identified, assume sewers uncharted, assume connection via existing FW sewers in Gilbert Way	No existing water course identified, no SWS identified, assume site runoff to be managed by sustainable means. Connection to FW sewer to be avoided	Low - No risks identified
<b>Carlton-on-Trent</b>								
06/01847/FUL	Carlton-on-Trent	8	Dwellings	SUTTON ON TRENT - CROMWELL	Provided surface water from this development is managed sustainably, the additional foul only flows from this development is not expected to have any capacity constraints.	Brownfield site, assume connection via existing site drainage connecting into FW sewer in Old Bell Lane	Assume runoff managed by sustainable means. Connection to FW to be avoided, modelling may be required if sustainable discharge not possible	Low - No significant risks identified
<b>Clipstone</b>								
14/01242/FUL	Clipstone	8	Dwellings	EDWINSTOWE	Based on topography is envisaged that this development would drain south to the main trunk sewer using local drainage and avoid known capacity issues with the main sewer along Mansfield Road.	Assume connection via existing FW sewer serving properties to the south of the plot	No SWS identified, assume site runoff to be managed by sustainable means. Connection to FW sewer to be avoided	Low - Known capacity issues in Mansfield Road but assumed the site would drain by gravity to the main trunk
08/01905/OUTM	Clipstone	531	Dwellings	EDWINSTOWE	Under Construction	Under Construction	Under Construction	Under Construction
13/00458/OUTM	Clipstone	100	Dwellings	EDWINSTOWE	Additional flows from this development may require localised upsizing to Mansfield Road SPS. Further capacity assessments will be undertaken once flow rates and connection points are confirmed.	Assume connection to existing FW sewers in Portland Way and Waterfield Way	Greenfield site No SWS identified, assume site run off to be sustainably managed. Connection to FW sewer to be avoided.	Medium - Capacity improvements may be required at a downstream pumping station.
15/00035/FUL	Clipstone	6	Dwellings	EDWINSTOWE	Based on topography is it envisaged that this development would drain south to the main trunk sewer using local drainage and avoid known capacity issues with the main sewer along Mansfield Road.	Assume connection via existing FW sewer serving properties to the south of the plot	No SWS identified, assume site runoff to be managed by sustainable means. Connection to FW sewer to be avoided	Low - Known capacity issues in Mansfield Road but assumed the site would drain by gravity to the main trunk
CI/MU/1	Clipstone	120	Dwellings	EDWINSTOWE	This development will drain into the an existing 375mm diameter trunk sewer crossing through the southern edge of the site. Due to the proximity of a downstream sewer overflow additional capacity may be required to ensure the additional flows do not adversely	Assumed connection to existing combined valley sewer	Assume site runoff to be sustainably managed with discharge to Vicar Water.	Medium - Potential detriment to Baulker Lane sewer overflow performance. Hydraulic modelling
CI/MU/1	Clipstone	27.6	Hectare	EDWINSTOWE	This development will drain into the an existing 375mm diameter trunk sewer crossing through the southern edge of the site. Due to the proximity of a downstream sewer overflow additional capacity may be required to ensure the additional flows do not adversely	Assumed connection to existing combined valley sewer	Assume site runoff to be sustainably managed with discharge to Vicar Water.	Medium - Potential detriment to Baulker Lane sewer overflow performance. Hydraulic modelling
<b>Collingham</b>								
Co/MU/1	Collingham	140	Dwellings	COLLINGHAM	Majority of site would drain to existing SPS asset COLLINGHAM - BREAMER ROAD (SPS) - Proposed development would double the size of catchment draining to asset therefore asset reinforcement likely to be required	Assume new connection into BREAMER ROAD (SPS)	Assume site runoff would be managed by sustainable means and discharge into existing watercourse running along the west boundary of the site	Medium - Brearer Road SPS likely to be under capacity to accommodate full development
Co/MU/1	Collingham	7.4	Hectare	COLLINGHAM	Majority of site would drain to existing SPS asset COLLINGHAM - BREAMER ROAD (SPS) - Proposed development would double the size of catchment draining to asset therefore asset reinforcement likely to be required	Assume new connection into BREAMER ROAD (SPS)	Assume site runoff would be managed by sustainable means and discharge into existing watercourse running along the west boundary of the site	Medium - Brearer Road SPS likely to be under capacity to accommodate full development
10/01158/FULM	Collingham	14	Dwellings	COLLINGHAM	Provided surface water from this development is managed sustainably, the additional foul only flows from this development is not expected to have any capacity constraints.	Assume connection via existing site drainage connecting into FW sewer in Low Street.	Assume runoff drained via existing SWS within site discharging to existing watercourse 'The Fleet'	Low - No significant risks identified
<b>Eakring</b>								
11/00219/FUL	Eakring	8	Dwellings	EAKRING	Provided surface water from this development is managed sustainably, the additional foul only flows from this small development is not expected to have any capacity constraints	Assume connection into existing FW sewer in Kirklington Road	Assume site runoff to be managed by sustainable means. Discharge to existing FW sewer to be avoided	Low - No significant risks identified
<b>Edwinstowe</b>								
Ed/Ho/2	Edwinstowe	50	Dwellings	EDWINSTOWE	Provided surface water from this development is managed sustainably, the additional foul only flows from this development is not expected to have any capacity constraints	Assume gravity connection to existing FW sewer in Mansfield Road	No existing watercourse identified, assume site runoff to be sustainably managed and	Low - No significant risks identified
Site 1	Edwinstowe	600	Dwellings	EDWINSTOWE	This development is located opposite Edwinstowe sewage treatment works and so no sewerage capacity issues are envisaged.	Brownfield site, assumed private drainage. If no existing drainage connection then new outfall to treatment work will be required	Assume site runoff will be sustainably managed with discharge to existing on site ponds/water course	Low - No significant risks identified
Site 1	Edwinstowe	197.6	Hectare	EDWINSTOWE	This development is located opposite Edwinstowe sewage treatment works and so no sewerage capacity issues are envisaged.	Brownfield site, assumed private drainage. If no existing drainage connection then new outfall to treatment work will be required	Assume site runoff will be sustainably managed with discharge to existing on site ponds/water course	Low - No significant risks identified
Ed/Ho/1	Edwinstowe	72	Dwellings	EDWINSTOWE	Provided surface water from this development is managed sustainably, the additional foul only flows from this development is not expected to have any capacity constraints.	Assume gravity connection to existing FW sewer in Rufford Road	No existing watercourse identified, assume site runoff to be managed by sustainable means. Avoid connection to existing FW sewer.	Low - No risks identified

Site Ref	Settlement	Size	Units	Sewage Treatment Works	Sewerage Comment	Potential impact on sewerage infrastructure	
<b>Epperstone</b>							
05/01839/FULM	Epperstone	6	Dwellings	STOKE BARDOLPH	Provided surface water from this development is managed sustainably, the additional foul only flows from this small development is not expected to have any capacity constraints	Assume connection via existing FW sewers in Main Street Assume site run off to be managed by sustainable means, connection to existing SW sewers in Main St	Low - No risks identified
<b>Farnsfield</b>							
Fa/Ho/1	Farnsfield	60	Dwellings	FARNSFIELD	There is a known flooding problem in downstream catchment which may require localised capacity improvements to accommodate the additional foul only flows from this development. Further modelling work will be required once flow rates and connection points are	Greenfield site, assume connection to existing sewers in either Brickyard Lane or Mildale Road Greenfield site, no watercourse identified, assume site run off to be managed by sustainable means. Connection to FW sewer to be avoided	Medium - Known flooding in downstream catchment
Fa/MU/1	Farnsfield	88	Dwellings	FARNSFIELD	Under Construction	Under Construction	Under Construction
13/00423/FUL	Farnsfield	1.0	Hectare	FARNSFIELD	Provided surface water from this development is managed sustainably, the additional foul only flows from this development is not expected to have any capacity constraints.	Brown field site. No existing site drainage, assume plot currently drains to septic tank Assume site to be drained by sustainable means	Low - No risks identified
<b>South Newark, Balderton &amp; Fernwood</b>							
NUA/Ho/10	Newark	80	Dwellings	BALDERTON	This site is located immediately upstream of Balderton STW and so is expected to connect to the main inlet sewer just upstream of the inlet works.	Greenfield site neighbours existing FW and SW sewers within Mead Way With no existing sewers within the green field site it is assumed that the site will be drain by sustainable means to the existing SWS in Mead Way.	Low - Sewerage capacity issues not envisaged due to proximity to Balderton STW.
14/00579/FUL	Balderton	9	Dwellings	BALDERTON	Provided surface water from this development is managed sustainably, the additional foul only flows from this small development is not expected to have any capacity constraints	Connectivity via existing sewer connection into Main Street sewer Assume existing site runoff is drained into existing combined sewer. Assume sustainable drainage measures will be adopted to remove run off to combined sewer system.	Low - Small development
14/01714/FUL	Balderton	9	Dwellings	BALDERTON	Provided surface water from this development is managed sustainably, the additional foul only flows from this small development is not expected to have any capacity constraints	Connectivity via existing sewer connection into Main Street sewer Assume existing site runoff is drained into existing combined sewer. Assume sustainable drainage measures will be adopted to remove run off to combined sewer system.	Low - Small development
12/00665/FUL	Balderton	8	Dwellings	BALDERTON	Provided surface water from this development is managed sustainably, the additional foul only flows from this small development is not expected to have any capacity constraints	Existing combined sewer crosses site. Assume sustainable drainage measures will be taken to remove runoff to the combined sewer system	Low - Small development
07/01840/OUTM	Balderton	210	Dwellings	BALDERTON	Capacity for this development is being provided at Balderton STW and discussions are ongoing with the developer to integrate the developers on-site drainage proposals into the existing sewerage network. Sewer capacity assessments indicate the need for capacity	Existing combined sewer crosses site. Assume sustainable drainage measures will be taken to remove runoff to the combined sewer system	Low - Brown field site, DWF likely to be less than existing use. SUDS opportunity to reduce surface runoff to
3920421	Fernwood	0	Dwellings	BALDERTON	Existing drainage in this area to the east of the A1 consists of small pumping stations which pump flows to Balderton WwTW. Existing pumping capacity will not be sufficient to accommodate the significant levels of development proposed in this area. Discussions	Site is partially developed and serviced with a sewer network which is pumped to Balderton STW. Site is partially developed. Sewer records incomplete but indicates some SWS network.	High - Significant levels of development proposed in an area of the sewerage catchment with limited
06/01776/RMAM	Fernwood	3.8	Hectare	BALDERTON	Existing drainage in this area to the east of the A1 consists of small pumping stations which pump flows to Balderton WwTW. Existing pumping capacity will not be sufficient to accommodate the significant levels of development proposed in this area. Discussions	Existing FWS serving the site discharging to TPS which connects direct to BALDERTON (STW) Existing SWS serving the site with outfall to local water course	High - Significant levels of development proposed in an area of the sewerage catchment with limited
Ba-002	Newark	12.6	Hectare	BALDERTON	Existing drainage in this area to the east of the A1 consists of small pumping stations which pump flows to Balderton WwTW. Existing pumping capacity will not be sufficient to accommodate the significant levels of development proposed in this area. Discussions	Existing FWS serving the site discharging to TPS which connects direct to BALDERTON (STW) Existing SWS serving the site with outfall to local water course	High - Significant levels of development proposed in an area of the sewerage catchment with limited
NAP 2C (Residential)	Newark	2990	Dwellings	BALDERTON	Existing drainage in this area to the east of the A1 consists of small pumping stations which pump flows to Balderton WwTW. Existing pumping capacity will not be sufficient to accommodate the significant levels of development proposed in this area. Discussions	This Greenfield site will need to be pumped in order to connect to the nearest sewerage system draining to Balderton sewage treatment works. It is assumed that this site would pump into neighbouring There are no existing surface water sewers in the existing site. Site likely to drain east to existing water course through sustainable means.	High - Significant levels of development proposed in an area of the sewerage catchment with limited
NAP 2C (Employment)	Newark	16.1	Hectare	BALDERTON	Existing drainage in this area to the east of the A1 consists of small pumping stations which pump flows to Balderton WwTW. Existing pumping capacity will not be sufficient to accommodate the significant levels of development proposed in this area. Discussions	This Greenfield site will need to be pumped in order to connect to the nearest sewerage system draining to Balderton sewage treatment works. It is assumed that this site would pump into neighbouring There are no existing surface water sewers in the existing site. Site likely to drain east to existing water course through sustainable means.	High - Significant levels of development proposed in an area of the sewerage catchment with limited
10/01586/OUTM (Residential)	Newark	3150	Dwellings	523-009 BALDERTON	Capacity for this development is being provided at Balderton STW and discussions are ongoing with the developer to integrate the developers on-site drainage proposals into the existing sewerage network. Sewer capacity assessments indicate the need for capacity	Discussions ongoing with the developer to with regard to drainage to Balderton STW. Greenfield site with no existing SWS sewer network. Assume site to be drained by sustainable means to existing watercourse crossing through the site.	Medium - capacity upgrades required
10/01586/OUTM (Employment)	Newark	278.1	Hectare	523-009 BALDERTON	Capacity for this development is being provided at Balderton STW and discussions are ongoing with the developer to integrate the developers on-site drainage proposals into the existing sewerage network. Sewer capacity assessments indicate the need for capacity	Discussions ongoing with the developer to with regard to drainage to Balderton STW. Greenfield site with no existing SWS sewer network. Assume site to be drained by sustainable means to existing watercourse crossing through the site.	Medium - capacity upgrades required
<b>Harby</b>							
05/02562/FUL	Harby	4	Dwellings	Not known - Site resides in Anglian Water catchment	Not known - Site resides in Anglian Water catchment	Not known - Site resides in Anglian Water catchment	Not known - Site resides in Anglian Water catchment
<b>Hockerton</b>							
12/01608/FUL	Hockerton	7	Dwellings	SOUTHWELL	Provided surface water from this development is managed sustainably, the additional foul only flows from this development is not expected to have any capacity constraints.	Not known. No existing sewer network identified, assume property is drained via private drainage to septic tank Assume site run off to be managed by sustainable means.	Low - No risk identified
<b>Lowdham</b>							
Lo/Ho/2	Lowdham	4	Dwellings	STOKE BARDOLPH	Provided surface water from this development is managed sustainably, the additional foul only flows from this small development is not expected to have any capacity constraints	Brownfield site, assume connection via existing FW drain serving the site Assume site run off to be managed by sustainable means. Connection to FW drain to be avoided.	Low - Whilst there is significant flood risk in the downstream catchment the additional flows from this
Lo/Ho/1	Lowdham	5	Dwellings	STOKE BARDOLPH	Provided surface water from this development is managed sustainably, the additional foul only flows from this small development is not expected to have any capacity constraints	Brownfield site, assume connection via existing FW drain serving the site Assume site run off to be managed by sustainable means. Connection to FW drain to be avoided.	Low - Whilst there is significant flood risk in the downstream catchment the additional flows from this
<b>Newark</b>							
NUA/Ho/2	Newark	0	Dwellings	CRANKLEY POINT	Provided surface water from this development is managed sustainably, the additional foul only flows from this small development is not expected to have any capacity constraints	Assume connection to existing sewer networks within development site Assume runoff to be managed by sustainable means, connection into existing SWS may require hydraulic modelling to confirm capacity, connection to combined sewer to be avoided.	Low - No issues identified
13/01489/FUL	Newark	0.1	Hectare	CRANKLEY POINT	Provided surface water from this development is managed sustainably, the additional foul only flows from this small development is not expected to have any capacity constraints	Assume connection to existing sewer networks within development site Assume runoff to be managed by sustainable means, connection into existing SWS may require hydraulic modelling to confirm capacity, connection to combined sewer to be avoided.	Low - No issues identified
15/00068/FUL	Newark	0.2	Hectare	CRANKLEY POINT	Provided surface water from this development is managed sustainably, the additional foul only flows from this small development is not expected to have any capacity constraints	Assume connection to existing sewer networks within development site Assume runoff to be managed by sustainable means, connection into existing SWS may require hydraulic modelling to confirm capacity, connection to combined sewer to be avoided.	Low - No issues identified
11/01572/FULM	Newark	0.3	Hectare	CRANKLEY POINT	Provided surface water from this development is managed sustainably, the additional foul only flows from this small development is not expected to have any capacity constraints	Assume connection to existing sewer networks within development site Assume runoff to be managed by sustainable means, connection into existing SWS may require hydraulic modelling to confirm capacity, connection to combined sewer to be avoided.	Low - No issues identified
12/00928/FUL	Newark	0.5	Hectare	CRANKLEY POINT	Provided surface water from this development is managed sustainably, the additional foul only flows from this small development is not expected to have any capacity constraints	Assume connection to existing sewer networks within development site Assume runoff to be managed by sustainable means, connection into existing SWS may require hydraulic modelling to confirm capacity, connection to combined sewer to be avoided.	Low - No issues identified
14/01022/OUT	Newark	0.5	Hectare	CRANKLEY POINT	Provided surface water from this development is managed sustainably, the additional foul only flows from this small development is not expected to have any capacity constraints	Assume connection to existing sewer networks within development site Assume runoff to be managed by sustainable means, connection into existing SWS may require hydraulic modelling to confirm capacity, connection to combined sewer to be avoided.	Low - No issues identified
07/01085/FULM	Newark	0.6	Hectare	CRANKLEY POINT	Provided surface water from this development is managed sustainably, the additional foul only flows from this small development is not expected to have any capacity constraints	Assume connection to existing sewer networks within development site Assume runoff to be managed by sustainable means, connection into existing SWS may require hydraulic modelling to confirm capacity, connection to combined sewer to be avoided.	Low - No issues identified
NUA/E/3	Newark	1.5	Hectare	CRANKLEY POINT	Provided surface water from this development is managed sustainably, the additional foul only flows from this small development is not expected to have any capacity constraints	Assume connection to existing sewer networks within development site Assume runoff to be managed by sustainable means, connection into existing SWS may require hydraulic modelling to confirm capacity, connection to combined sewer to be avoided.	Low - No issues identified
NUA/MU/2	Newark	4.7	Hectare	CRANKLEY POINT	Provided surface water from this development is managed sustainably, the additional foul only flows from this small development is not expected to have any capacity constraints	Assume connection to existing sewer networks within development site Assume runoff to be managed by sustainable means, connection into existing SWS may require hydraulic modelling to confirm capacity, connection to combined sewer to be avoided.	Low - No issues identified
14/00292/FUL	Newark	5	Dwellings	CRANKLEY POINT	Provided surface water from this development is managed sustainably, the additional foul only flows from this small development is not expected to have any capacity constraints	Assume connection to existing sewer networks within development site Assume runoff to be managed by sustainable means, connection into existing SWS may require hydraulic modelling to confirm capacity, connection to combined sewer to be avoided.	Low - No issues identified
04/02239/FUL	Newark	5	Dwellings	CRANKLEY POINT	Provided surface water from this development is managed sustainably, the additional foul only flows from this small development is not expected to have any capacity constraints	Assume connection to existing sewer networks within development site Assume runoff to be managed by sustainable means, connection into existing SWS may require hydraulic modelling to confirm capacity, connection to combined sewer to be avoided.	Low - No issues identified
13/00918/FUL	Newark	6	Dwellings	CRANKLEY POINT	Provided surface water from this development is managed sustainably, the additional foul only flows from this small development is not expected to have any capacity constraints	Assume connection to existing sewer networks within development site Assume runoff to be managed by sustainable means, connection into existing SWS may require hydraulic modelling to confirm capacity, connection to combined sewer to be avoided.	Low - No issues identified
04/01444/FULM	Newark	8.6	Hectare	CRANKLEY POINT	There are known widespread capacity issues across the Newark sewerage network. Significant investment has been committed over the next few years to address these issues with final completion expected in 2019.	Assume connection to existing sewer networks within development site Assume runoff to be managed by sustainable means, connection into existing SWS may require hydraulic modelling to confirm capacity, connection to combined sewer to be avoided.	Medium - Known capacity issues across Newark are subject to significant strategic improvement scheme planned
11/00228/FUL	Newark	9	Dwellings	CRANKLEY POINT	Provided surface water from this development is managed sustainably, the additional foul only flows from this small development is not expected to have any capacity constraints	Assume connection to existing sewer networks within development site Assume runoff to be managed by sustainable means, connection into existing SWS may require hydraulic modelling to confirm capacity, connection to combined sewer to be avoided.	Low - No issues identified





Site Ref	Settlement	Size	Units	Sewage Treatment Works	Sewerage Comment			Potential impact on sewerage infrastructure
05/02273/FULM	Ollerton & Boughton	169	Dwellings	BOUGHTON	There are historic reports of sewer flooding affecting several properties along Newark Road. It is therefore vital that surface water on new development in managed sustainably and is not connected to the foul/combined sewerage system. Feasibility work	Brownfield site with existing connection to combined sewer in Newark Road	No SWS network identified, assume new site will drain by sustainable means. Avoid connection to FW or combined sewers.	High - Significant flooding in downstream catchment. Feasibility work currently ongoing to alleviate the flood
OB/Ho/1	Ollerton & Boughton	147	Dwellings	BOUGHTON	Provided surface water from this development is managed sustainably, the additional foul only flows from this development is not expected to have any capacity constraints.	Current records show FW sewers have been constructed	Current records show FW sewers have been constructed	Low - No risks identified
OB/Ho/2	Ollerton & Boughton	25	Dwellings	BOUGHTON	Whilst there are no reports of flooding in the immediate vicinity of this development, sewer modelling indicates potential capacity issues in downstream network. Whilst the additional foul only flows from 15 dwellings will have negligible impact on sewer capacity it is vital	Greenfield site, connection most likely to existing FW sewer in Newlands Avenue	No watercourse identified, assume site runoff to be managed sustainably, avoid connection to FW sewer	Low - No risks identified provided surface water is managed sustainably
OB/Ho/3	Ollerton & Boughton	88	Dwellings	BOUGHTON	Already under construction	Already under construction	Already under construction	Already under construction
OB/E/3	Ollerton & Boughton	3.9	Hectare	BOUGHTON	Whilst there are no reports of flooding in the immediate vicinity of this development, sewer modelling indicates potential capacity issues in downstream network. Whilst the additional foul only flows from 15 dwellings will have negligible impact on sewer capacity it is vital	Assume pumped connection into Maun Way	Assume sustainable management of runoff with discharge to Boughton Dyke	Low - No risks identified provided surface water is managed sustainably
11/00704/OUT	Ollerton & Boughton	5	Dwellings	BOUGHTON	Provided surface water from this development is managed sustainably, the additional foul only flows from this development is not expected to have any capacity constraints.	Assume gravity connection to existing combined sewer in Willow Road	No watercourse identified, assume site runoff to be sustainably managed. Avoid connection to combined sewer	Low - No risks identified
03/00588/OUTM	Ollerton & Boughton	63	Dwellings	BOUGHTON	There are historic reports of sewer flooding affecting several properties along Newark Road. It is therefore vital that surface water on new development in managed sustainably and is not connected to the foul/combined sewerage system. Feasibility work	Greenfield site, assume gravity connection to existing combined sewer in Newark Road	No watercourses identified, assume site run off to be sustainably managed. Connection to combined sewer to be avoided	Medium - Known flooding in downstream catchment. Feasibility work currently ongoing to alleviate the flood
<b>Ossington</b>								
53891091	Ossington	2	Dwellings	Ossington is not connected to the public sewerage system.	Ossington is not connected to the public sewerage system.	No sewer network identified - Assume property drains via private sewers to septic tank	Assume site runoff to be managed by sustainable means	Ossington is not connected to the public sewerage system.
<b>Rainworth</b>								
Ra/Ho/2	Rainworth	260	Dwellings	RAINWORTH	Whilst there are no reports of sewer flooding in the vicinity of this development, modelled sewer performance data indicates potential capacity constraints in the downstream sewers. Whilst the additional foul only flows from a development of 260 dwellings are	Greenfield site, possible connection via Tudor Crescent, Eaton close but sewers are small combined. Larger sewer in Warsop Lane	Greenfield site, no watercourse identified. Assume site runoff to be managed by sustainable means. Connection to combined sewers to be avoided	Medium - Known flooding in downstream catchment
Ra/E/1	Rainworth	5.5	Hectare	RAINWORTH	Provided surface water from this development is managed sustainably, the additional foul only flows from this development is not expected to have any capacity constraints.	Greenfield site, assume connection via existing combined sewer crossing site	No SW sewers identified. Assume site to be drained by sustainable means with discharge to watercourse Rainworth Water.	Low - No risks identified
Ra/Ho/1	Rainworth	54	Dwellings	RAINWORTH	Provided surface water from this development is managed sustainably, the additional foul only flows from this development is not expected to have any capacity constraints.	Greenfield site, assume connection via existing combined sewer crossing site	No SW sewers identified, no watercourse identified. Assume site to be drained by sustainable means. Connection to combined sewer to be avoided	Low - No risks identified
<b>South Muskham</b>								
06/01180/FULM	South Muskham	15	Dwellings	23-107 NEWARK & SHERWOOD RESIDUAL - Receiving treatment works	Provided surface water from this development is managed sustainably, the additional foul only flows from this small development is not expected to have any capacity constraints	Assumed connection via existing site drainage connecting into FW sewer in Main Street.	Assume runoff managed by sustainable means. Connection to FW to be avoided, modelling may be required if sustainable discharge not possible	Low - No significant risks identified
<b>South Scarle</b>								
14/00510/FUL	South Scarle	6	Dwellings	523-107 NEWARK & SHERWOOD RESIDUAL - Receiving treatment works	Provided surface water from this development is managed sustainably, the additional foul only flows from this small development is not expected to have any capacity constraints	Assumed connection via existing site drainage connecting into FW sewer in Church Lane	Assume runoff managed by sustainable means. Connection to FW to be avoided, modelling may be required if sustainable discharge not possible	Low - No risks identified provided surface water is managed sustainably
<b>Southwell</b>								
So/Ho/3	Southwell	34	Dwellings	SOUTHWELL	Provided surface water from this development is managed sustainably, the additional foul only flows from this development is not expected to have any capacity constraints.	Greenfield site, assume gravity connection to existing combined sewer running through the site	Greenfield site, assume site run off to be managed by sustainable means with discharge to the Potwell Dyke to the north of the development site	Low - No risks identified provided surface water is managed sustainably
So/Ho/7	Southwell	15	Dwellings	SOUTHWELL	Provided surface water from this development is managed sustainably, the additional foul only flows from this development is not expected to have any capacity constraints.	Brownfield site, assume connection to existing combined sewer in Fiskerton Road / Church Street	Assume site run off to be managed by sustainable means. Connection to combined system to be avoided.	Low - No risks identified
So/Ho/2	Southwell	38	Dwellings	12/00752/FUL	Provided surface water from this development is managed sustainably, the additional foul only flows from this development is not expected to have any capacity constraints.	Greenfield site, assume gravity connection to existing combined sewer north of the site	Greenfield site, assume site run off to be managed by sustainable means with discharge to the Potwell Dyke to the east of the development site	Low - No risks identified provided surface water is managed sustainably
12/00752/FUL	Southwell	0.5	Hectare	12/00752/FUL	Provided surface water from this development is managed sustainably, the additional foul only flows from this development is not expected to have any capacity constraints.	Brownfield site, no drainage identified. Assume site drains to a septic tank	Assume site run off is managed by sustainable means	Low - No risks identified
So/E/2	Southwell	2.7	Hectare	SOUTHWELL	Provided surface water from this development is managed sustainably, the additional foul only flows from this development is not expected to have any capacity constraints.	Greenfield site, assume gravity connection to existing combined sewer to the NE of the site	No existing SWS or watercourses identified within or close to the development site. Assume site run off to be managed by sustainable means. Connection to combined to be avoided.	Low - No risks identified
So/Ho/4	Southwell	45	Dwellings	SOUTHWELL	Provided surface water from this development is managed sustainably, the additional foul only flows from this development is not expected to have any capacity constraints.	Greenfield site, assume connection to existing combined sewers, north to Lower Kirlington Road or South to Kirlington Road	No existing SWS or watercourse identified within the site. Assume site run off to be managed by sustainable means. Connection to combined sewer to be avoided.	Low - No risks identified.
So/Ho/5	Southwell	60	Dwellings	SOUTHWELL	Provided surface water from this development is managed sustainably, the additional foul only flows from this development is not expected to have any capacity constraints.	Greenfield site, site likely to partially drain to existing combined sewer in Lower Kirlington Road with some draining to existing pumping station asset, SOUTHWELL - RIDGEWAY (SPS)	Greenfield site, no existing watercourses identified. Assume site run off to be managed by sustainable means. Connection to combined sewer to be avoided.	Low - No risks identified
12/01024/FUL	Southwell	15	Dwellings	SOUTHWELL	Provided surface water from this development is managed sustainably, the additional foul only flows from this development is not expected to have any capacity constraints.	Existing combined sewer crossing the proposed development site	Assume site run off to be managed by sustainable means and discharge to the River Greet to the NE of the site	Low - No risks identified
So/Ho/1	Southwell	68	Dwellings	SOUTHWELL	Provided surface water from this development is managed sustainably, the additional foul only flows from this development is not expected to have any capacity constraints.	Greenfield site, assume connection to existing FW sewers in Vicarage Road to the south of the site.	Assume site runoff to be managed by sustainable means and discharge to existing SWS within NE corner of the site.	Low - No risks identified
So/Ho/6	Southwell	32	Dwellings	SOUTHWELL	Provided surface water from this development is managed sustainably, the additional foul only flows from this development is not expected to have any capacity constraints.	Brownfield site assume connection to existing combined sewers SE and NE of the site	Assume site run off will be managed by sustainable means	Low - No risk identified
So/E/3	Southwell	2.2	Hectare	SOUTHWELL	Provided surface water from this development is managed sustainably, the additional foul only flows from this development is not expected to have any capacity constraints.	Greenfield site, assume gravity connection into neighbouring development site So/E/2	No existing SWS or watercourses identified within or close to the development site. Assume site run off to be managed by sustainable means. Connection to combined to be avoided.	Low - No risks identified
<b>Sutton on Trent</b>								
ST/MU/1	Sutton on Trent	50	Dwellings	SUTTON ON TRENT - CROMWELL	There are reports of historic flooding in the vicinity of this development which may require localised capacity improvements to accommodate this development. However provided surface water from this development is managed sustainably, the additional foul	Site may require pumped discharge into existing sewers on Hemplands Lane	Assume run off will be managed by sustainable means discharging to existing watercourse north east corner of site	Medium - Known flooding in downstream catchment
<b>Thurgarton</b>								
14/01262/FUL	Thurgarton	5	Dwellings	SOUTHWELL	Provided surface water from this development is managed sustainably, the additional foul only flows from this development is not expected to have any capacity constraints.	Assumed connection via existing site drain connection into Nottingham Road	Assume site run off to be managed by sustainable means. Connection to FW sewer to be avoided	Low - No risk identified
<b>Walesby</b>								
14/01943/FULM	Walesby	15	Dwellings	BOUGHTON	Whilst there are no reports of flooding in the immediate vicinity of this development, sewer modelling indicates potential capacity issues in downstream network. Whilst the additional foul only flows from 15 dwellings will have negligible impact on sewer capacity it is vital that surface water from the development is managed sustainably.	Assume gravity connection to existing FW sewer at rear of Retford Road properties	No existing water course identified. Assume site run off to be sustainably drained. Avoid connection to existing FW sewer	Low - No risks identified provided surface water is managed sustainably
<b>Weston</b>								
14/00854/FUL	Weston	0.1	Hectare	523-107 NEWARK & SHERWOOD RESIDUAL	None identified	No sewers identified - Existing property assumed to be drained by private drainage to septic tank	Assume site to be managed by sustainable means	Low - No risks identified
<b>Winthorpe</b>								
08/00235/OUTM	Winthorpe	4.4	Hectare	CRANKLEY POINT	Provided surface water from this development is managed sustainably, the additional foul only flows from this small development is not expected to have any capacity constraints	Assume connection to existing sewer networks within development site	Assume runoff to be managed by sustainable means, connection into existing SWS may require hydraulic modelling to confirm capacity, connection to combined sewer to be avoided.	Low - No issues identified
<b>Upton</b>								
5981282	Upton	7.0	Dwellings	523-107 NEWARK & SHERWOOD RESIDUAL - Receiving treatment works	Provided surface water from this development is managed sustainably, the additional foul only flows from this development is not expected to have any capacity constraints.	Assumed connectivity via existing connection to FW sewer in The Green	Assume site runoff will be managed by sustainable means. Connection to FWS to be avoided.	Low - No risks identified provided surface water is managed sustainably

**Anglian Water (AW) - 2016 IDP Review Consultation Comments**

Site Allocations consultation

AW Reference:   
 LPA Reference:

**PLEASE READ**

- The information and RAG status for each proposed site has been assessed considering existing commitments but on an individual site basis. The cumulative impact from all of the proposed sites on the allocated treatment or network resource is not indicated by the RAG status. It should be noted therefore that the cumulative effect of all of the identified allocated sites may require enhancement to capacity. This impact will be advised separately.
- Please note that where dwelling numbers have not been stated, capacity assessment has been based on a 30 properties per hectare.
- Should all the available capacity be taken up at the WRC then upgrade to the works may be required that may involve seeking consent from the Environment Agency for an increase in discharge of final effluent.
- All new development sites will reduce the wastewater network capacity. Therefore mitigation measures will be required to ensure flooding risk is not increased.
- Available capacity in FW networks will be determined by more detailed analysis. For developments of greater than 10 properties it is assumed that some enhancement to capacity may be required.
- SW capacity assessment reflects Anglian Water's preferred method of surface water disposal of using a sustainable drainage system (SUDS) with connection to sewer seen as the last option. This is in line with Planning Policy Statement 25: Development and Flood Risk emphasises the role of SUDS and introduces a presumption that they will be used in all developments.

**RAG Key**

Red	Major Constraints to Provision of infrastructure and/or treatment to serve proposed growth
Amber	Infrastructure and/or treatment upgrades required to serve proposed growth or diversion of assets may be required
Green	Capacity available to serve the proposed growth
N/A	Outside Anglian Water's boundary of water supply and / or service for sewerage treatment purposes

P&E Team							SPE									ADMC	
Site Ref	Grid Reference	Parish	Location	Site Area Ha	Potential Housing Numbers	Land Use	Water		Waste Water			Assets Affected	Overall RAG Rating				
							Supply Networks	Additional Comments	Water Recycling Centre (WRC)	Catchment OCD	WRC capacity (see note 1)			Foul Sewerage Network capacity (see note 5)	Surface Water Network capacity (see note 6)		
NAP2C	SK82965004		Fernwood Business Park	15		Employment	Amber		CLAYPOLE STW	CLAYSC	Amber	Green	Amber	Red	Will require enhancement to treatment capacity. Significant off-site infrastructure required to connect FW	Green	AMBER
NUA/E/2	SK81625529		Stephenson Way Newark	12.24		Employment	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
NUA/E/3	SK81155528		Land off Telford Drive Newark	1.4		Employment	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
NUA/MU/1	SK82165604		North of the A17 Newark	10.88 (site area 21.79ha 50% assumed employment)		Mixed Use	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
NUA/MU/2	SK81335565		Brownhills Motor Homes Newark - Part of site has permission for B1/B2 use (0.42)	1.55 Ha (site area 33% 4.65 ha assumed for employment use)		Mixed Use	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
Co/MU/1	SK83716170		Swinderby Road & Station Road Collingham	0.75	140	Mixed use (housing/employment)	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
So/E/2	SK71255380		East of Crew Lane Southwell	2.71		Employment	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
So/E/3	SK71135363		South of Crew Lane Southwell	2.18		Employment	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
OB/E/3	SK67976753		South of Boughton Industrial Estate Boughton	3.78		Employment	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
Bi/E/1	SK65306049		Southern Side of Brailwood Road, Bilsthorpe	2.67		Employment	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
Ra/E/1	SK59045865		West of Colliery Lane, Rainworth	5.5		Employment	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
CI/MU/1	SK59736324		Former Clipstone Colliery Clipstone	12	120	Mixed use (housing/employment)	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
Bi/E/1	SK59555672		Blidworth Industrial Park Blidworth	1		Employment	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
Edwinstowe - Site 1	SK63406774	Edwinstowe	Thoresby Colliery	11	600	Mixed use (housing/employment)	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
NUA/HO/2	SK80345515	Newark Urban Area	Land at South of Quibells Lane			Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
NUA/HO/3	SK80985550	Newark Urban Area	Land on Lincoln Road		24	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
NUA/HO/4	SK80915495	Newark Urban Area	Yorke Drive Estate and Lincoln Road Playing Fields		230	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
NUA/HO/5	SK82155437	Newark Urban Area	Land North of Beacon Hill Road and the Northbound A1 Coddington slip		200	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
NUA/HO/8	SK80335211	Newark Urban Area	Land on Bowbridge Road		66	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
NUA/HO/9	SK80295193	Newark Urban Area	Land on Bowbridge Road		150	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
NUA/HO/10	SK81105121	Newark Urban Area	Land North of Lowfield Lane		80	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
NUA/MU/3	SK80805415	Newark Urban Area	Land at current NSK factory on Northern Road		150	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
NUA/MU/4	SK80365237	Newark Urban Area	Land at Bowbridge Road		115	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
NAP2B	SK81975319	Newark Urban Area	Land East of Newark		1000	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
Newark site 1	SK80575206	Newark Urban Area	Tarmac operate from the site in NUA/Ho/7 Policy Area (Opportunity Area)		270	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A

P&E Team							SPE									ADMC	
Site Ref	Grid Reference	Parish	Location	Site Area Ha	Potential Housing Numbers	Land Use	Water			Waste Water			Assets Affected	Overall RAG Rating			
							Supply Networks	Additional Comments	Water Recycling Centre (WRC)	Catchment OCD	WRC capacity (see note 1)	Foul Sewerage Network capacity (see note 5)			Surface Water Network capacity (see note 6)	Additional Comments	
Newark site 2	SK80065312	Newark Urban Area	The Bearings Bowbridge Road - Current Planning PP		65	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
NAP2C	SK82965004	Fernwood	Land around Fernwood		2990	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
CO/MU/1	SK83716170	Collingham	Land between Swinderby Road and Station Road		140	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
ST/MU/1	SK79596576	Sutton on Trent	Land at East of Hemplands Lane		50	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
SO/HO/1	SK69255396	Southwell	Land East of Allenby Road		68	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
SO/HO/2	SK69565323	Southwell	Land South of Halloughton Road		38	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
SO/HO/3	SK69775337	Southwell	Land at Nottingham Road		34	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
SO/HO/4	SK69565472	Southwell	Land East of Kirklington Road		45	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
SO/HO/5	SK69705507	Southwell	Land off Lower Kirklington Road		60	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
SO/HO/6	SK70415426	Southwell	Land at Burbage (Rainbows)		32	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
SO/HO/7	SK70835359	Southwell	Southwell Depot		15	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
FA/HO/1	SK65255677	Farnsfield	Land to the East of Ridgeway and Greenvale		60	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
FA/MU/1	SK64045719	Farnsfield	Land to West of Cockett Lane		88	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
LO/HO/1	SK66604708	Nottingham Fringe Area	Land adjacent to 28 Epperstone Road		5	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
LO/HO/2	SK66784697	Nottingham Fringe Area	Land to the South of Brookfield, Epperstone Road		4	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
OB/HO/1	SK66126688	Ollerton and Broughton	Land North of Wellow Road		147	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
OB/HO/2	SK67356827	Ollerton and Broughton	Land adjacent to Hollies Close		25	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
OB/HO/3	SK66656817	Ollerton and Broughton	Land at the former Ollerton Miners Welfare and Whinnery Lane		88	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
OB/MU/1	SK66156864	Ollerton and Broughton	Land at the rear of Petersmiths Drive		225	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
OB/MU/2	SK67266879	Ollerton and Broughton	The land between Kirk Drive, Stepnall Heights and Hallam Road		120	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
ED/HO/1	SK63276567	Edwinstone	Land to the East of Rutland Road and North of Mansfield Road		72	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
ED/HO/2	SK61696673	Edwinstone	Land to the North of Mansfield Road		50	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
BI/HO/1	SK60125602	Bilthorpe	Land to the North of Kirklington Road		8	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
BI/HO/2	SK59695662	Bilthorpe	Land to the East of HO P and North of Wycar Leys		100	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
BI/MU/1	SK64956107	Bilthorpe	Land to the East of Eakring Road		75	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
RA/HO/1	SK59595847	Rainworth	Land North of Top Street		54	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
RA/HO/2	SK59235756	Rainworth	Land to the East of Warsop Lane		260	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
BL/HO/1	SK60125602	Blidworth	Lane at Dale Lane		55	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
BL/HO/2	SK59695662	Blidworth	Land at Belle Vue Lane		20	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A
BL/HO/3	SK58935600	Blidworth	Land South of New Lane		100	Housing	N/A	Outside AW Water Supply area	Seven Trent Water asset	STW	N/A	Green	N/A	N/A	Seven Trent Water assets	N/A	N/A



# Newark-on-Trent Waste Water Improvement Strategy Poster

# NEWARK-ON-TRENT WASTE AND WATER IMPROVEMENT PROJECT

**OUR CUSTOMERS TELL US:**

*They want water that is good to drink and always there when they need it*

*They want us to safely take waste water away and to reduce the number of sewer flooding incidents*

**How we will achieve this in Newark:**

**A** At Crankley Point STW we will build:  
New Terminal SPS, Kiosk and Screening Chamber  
New Outfall to River (Storm)



**B** Tunnelled Sewers will be constructed through the town:  
New 3km 2.8m Diameter Tunnel  
New 1km 1.5m Diameter Pipejack Tunnel



**C** We'll build and renew Sewers and Water Mains  
7km of New Sewers Across Town  
Wide Scale Sewer Rehabilitation  
Targeted Water Main Renewal



**D** From Beacon Height Reservoir we will build:  
New Water Supply Main to Serve Developments  
New Incoming Supply Main (Advanced Works)



**E** Network Control will be improved by:  
New Pressure Reducing Valves  
32 New Sluice Control Valves

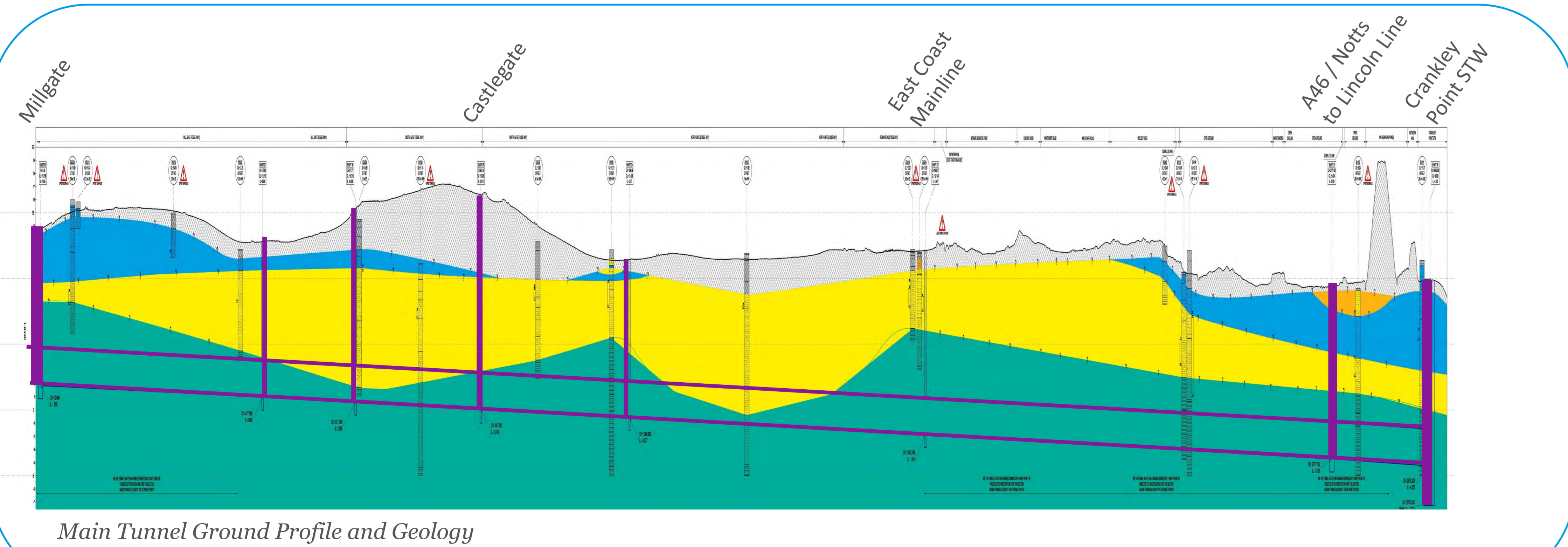
**TUNNEL KEY FACTS**



**NEWARK  
PROJECT INFORMATION**



- Engaging Customers and Stakeholders to develop a sustainable solution for Newark, for today and for the future
- State of the art modelling to identify short, medium and longer term outcomes for our customers, delivering what we can as fast as we can.
- Our biggest Waste Water Infrastructure project in AMP6 Protecting 1,000 customers from sewer flooding.
- Our solution will provide the capacity to avoid the equivalent of 14 Olympic swimming pools of flooding in Newark during severe rainfall
- Works will include a 3km long tunnel big enough to drive a transit van through beneath the streets of Newark.
- We will provide capacity for the town to grow with a 45% increase in population planned over the next 25 years.
- If laid end on end the new Sewer and Water pipes would reach from Newark to Grantham and Back.



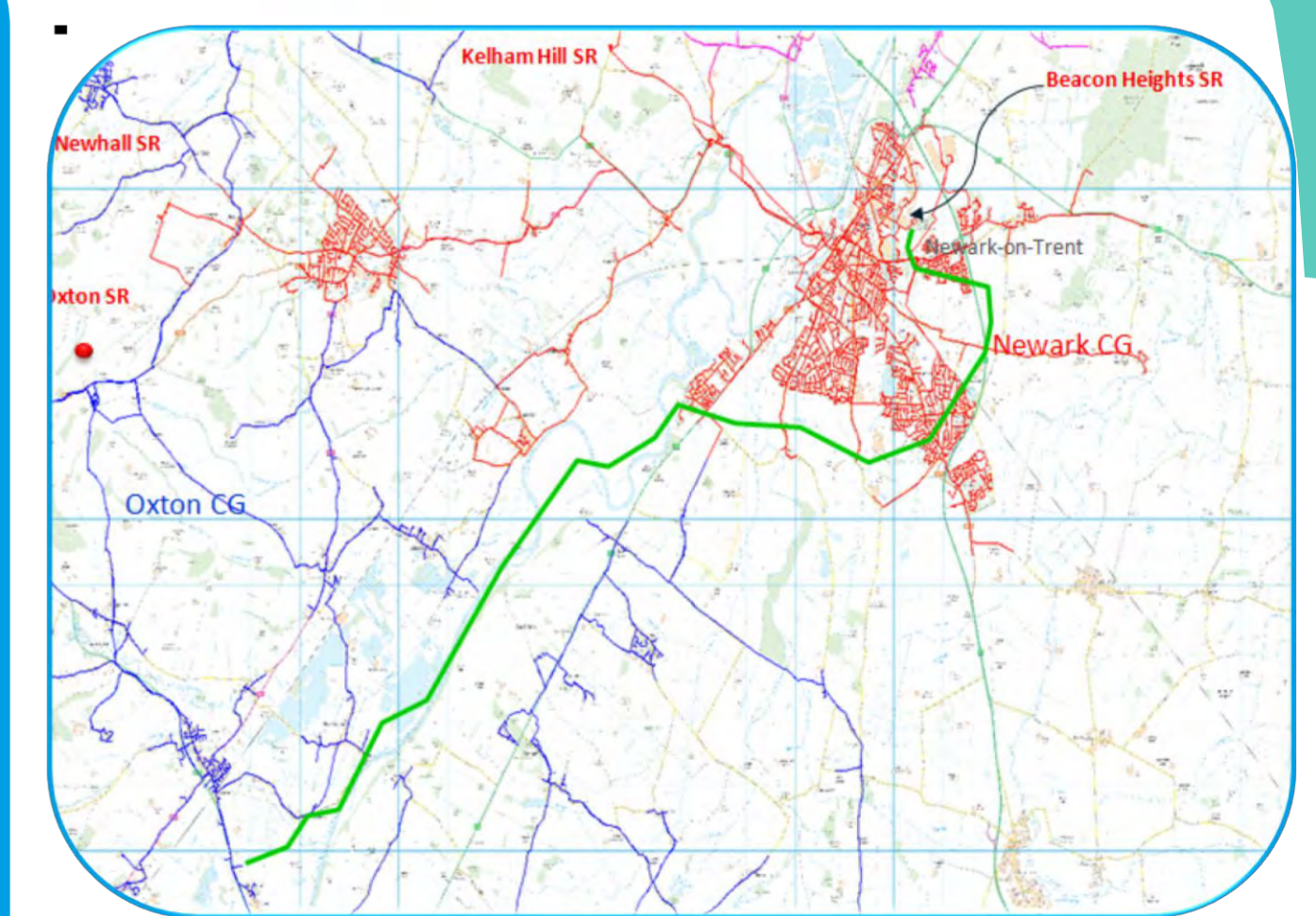
- LEGEND**
- ➕ PROPOSED SV
  - ⊕ PROPOSED PRV
  - ▲ PROPERTY AT RISK OF FLOODING
  - WATER MAIN RENEWAL
  - NEW SEWERS NORTH
  - NEW SEWERS SOUTH
  - PROPOSED TUNNEL
  - PROPOSED WATER MAINS
  - WATER MAIN UNDER CONSTRUCTION

*Improved Network Control to limit customer supply interruptions*

*Avoid discoloration and bursts*

*Alleviate risk of flooding to 370 properties (1000 customers)*

*Support future development (45% population increase in 25 years) and provide additional resilience*





## Appendix E – Green Infrastructure Supporting Information



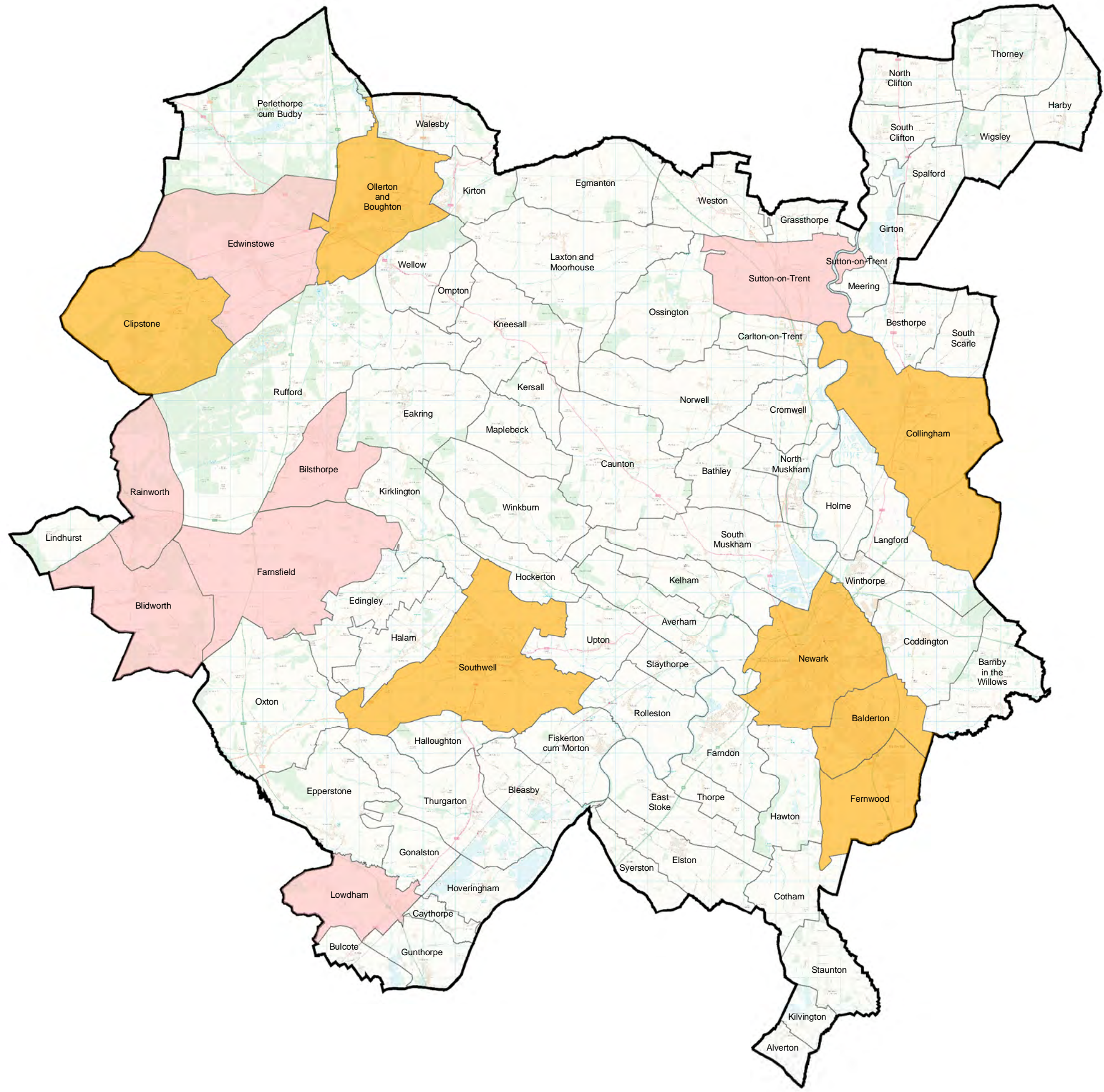
Green Space Standards Matrix  
2011 Population Data  
(Existing Situation)







Green Space Standards Matrix  
2033 Population Data  
(Future Situation)



Plan Depicting Parishes with changes in Green  
Infrastructure Provision as a result of Local Plan  
Development



### Legend

-  District Boundary
- NSDC Parish Boundaries (2011)**
-  Parishes with residential developments
-  Parishes with a change in GI status
-  Other Parishes

Contains Ordnance Survey data © Crown copyright and database right 2016.

A	Update to parishes containing assessed development	JJC	ASG	ASG	12.10.16
REV	DESCRIPTION	BY	CHK	APP	DATE

Client:



EXECUTIVE PARK  
 AVALON WAY  
 ANSTEY  
 LEICESTER  
 LE7 7GR  
 TEL: +44 (0)116 234 8000  
 FAX: +44 (0)116 234 8001  
 e-mail: leicester@wyg.com



Project:  
IDP Review

Drawing Title:  
 Green Infrastructure: Appendix E  
 Changes in Green Infrastructure Provision  
 under Local Plan Development

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
NTS	JJC	03/10/16	SP	03/10/16	ASG	03/10/16
Project No.	Office	Type	Drawing No.	Revision		
A090129-48	35	18	Figure 8	A		





## Appendix F – Transport Supporting Information

Traffic Data and CRF Calculations  
(Please zoom in view to see detail)





# Residential Trip Generation

**Analysis of 2011 Census Data: 2011 Ward Boundaries**

2011 Wards	Census 2011: Resident Population (2011 Ward Boundaries) - Method of Travel to Work (Persons)													
	All People	Not currently working	Currently Working	Work From Home	Underground, metro, light rail or tram	Train	Bus, minibus or coach	Taxi or minicab	Driving a car or van	Passenger in a car or van	Motorcycle, scooter or moped	Bicycle	On foot	Other
Balderton North	3573	1251	2,322	117	3	33	67	3	1585	140	23	180	158	13
Balderton West	3607	1142	2,465	72	4	29	76	5	1659	164	26	234	180	16
Beacon	5416	1542	3,874	194	5	111	52	12	2251	180	34	271	737	27
Blidworth	3255	1238	2,017	78	7	7	105	4	1475	139	18	25	151	8
Boughton	3682	1565	2,117	96	2	6	68	6	1469	175	16	44	226	9
Bridge	3694	1245	2,449	63	4	43	49	3	1364	150	19	222	520	12
Castle	3500	1204	2,296	120	6	88	34	4	1274	116	12	168	462	12
Caunton	1710	558	1,152	159	2	21	10	0	807	40	8	12	91	2
Clipstone	3249	1121	2,128	81	3	10	137	11	1557	154	21	24	121	9
Collingham and Meering	3310	1219	2,091	236	4	78	37	0	1500	81	17	37	97	4
Devon	3899	1687	2,212	48	0	34	56	9	1291	183	20	271	285	15
Edwinstowe	3799	1373	2,426	93	1	10	72	6	1873	138	15	22	184	12
Farndon	4336	1266	3,070	217	3	47	44	2	2334	147	20	95	141	20
Farnfield & Bilsthorpe	6045	2188	3,857	303	3	34	82	3	2852	187	20	55	289	29
Lowdham	4326	1481	2,845	317	5	44	74	0	1781	62	14	38	467	43
Magnus	3815	1314	2,501	94	1	76	33	7	1343	165	16	227	527	12
Muskham	1858	601	1,257	143	1	30	21	0	927	44	4	18	67	2
Ollerton	4842	1780	3,062	84	2	6	88	11	2106	265	23	44	416	17
Rainworth	5144	1876	3,268	132	10	13	154	8	2459	214	29	31	204	14
Southwell East	1672	619	1,053	128	3	15	24	0	686	38	2	16	138	3
Southwell North	1657	629	1,028	76	1	9	26	0	674	40	3	17	170	12
Southwell West	2153	837	1,316	125	2	24	44	0	868	38	7	26	179	3
Sutton-on-Trent	1824	604	1,220	138	2	26	16	0	866	50	2	24	90	6
Trent	1781	597	1,184	153	0	33	9	0	847	41	6	17	71	7
Winthorpe	1998	653	1,345	134	3	41	28	1	961	59	9	34	65	10
District Average	3,366	1184	2182	136	3	35	56	4	1472	120	15	86	241	13
Newark on Trent Average	3,929	1341	2588	101	3	59	52	6	1538	157	21	225	410	15
Rural Average	3,147	1,123	2,024	150	3	25	58	3	1,447	106	13	32	176	12

- Assumed to represent the urban area of Newark on Trent  
 - Assumed to represent the rural areas of the District

2011 Wards	Census 2011: Resident Population (2011 Ward Boundaries) - Method of Travel to Work (%)										
	Underground, metro, light rail or tram	Train	Bus, minibus or coach	Taxi or minicab	Driving a car or van	Passenger in a car or van	Motorcycle, scooter or moped	Bicycle	On foot	Other	Total
District Average	0.15%	1.70%	2.75%	0.19%	71.96%	5.88%	0.75%	4.21%	11.80%	0.62%	100.00%
Newark on Trent Average	0.13%	2.38%	2.11%	0.25%	61.84%	6.31%	0.86%	9.03%	16.48%	0.61%	100.00%
Rural Average	0.16%	1.35%	3.08%	0.15%	77.18%	5.67%	0.69%	1.72%	9.39%	0.62%	100.00%

**Trip Rate and Modal Split Summary**

Person trips per household are estimated from data obtained from the following trip rates obtained from the TRICS database.

TRICS Person Trips Per Household		
	AM	PM
Inbound	0.249	0.642
Outbound	0.927	0.392

**Note:** AM = 08:00 - 09:00, PM = 17:00 - 18:00

**Data Source:** TRICS 2010(a) Average trip rates for 'Residential - Houses Privately Owned'.

Census 2011 'Travel to Work' modal splits have then been used to estimate trips made by each mode of travel. This is considered to be a good approximation of the modal split of all residential trips as the majority of trips made during the AM and PM peak hours will be work related.

To represent different travel characteristics the modal split data has been averaged by Newark on Trent Wards, to represent urban wards, and all other wards to represent rural wards.

	Census 2001: All People Aged 16-74 in Employment - Method of Travel to Work (%)										
	Underground, metro, light rail or tram	Train	Bus, minibus or coach	Taxi or minicab	Driving a car or van	Passenger in a car or van	Motorcycle, scooter or moped	Bicycle	On foot	Other	Total
Newark on Trent Average	0.13%	2.38%	2.11%	0.25%	61.84%	6.31%	0.86%	9.03%	16.48%	0.61%	100.00%
Rural Average	0.16%	1.35%	3.08%	0.15%	77.18%	5.67%	0.69%	1.72%	9.39%	0.62%	100.00%

**Note:** People working from home are ignored in the calculation because these are excluded from the TRICS person trip rates.

The summary in the table above represents what would be expected with highest car and bus use in rural wards and highest cycle, walking and rail use in urban wards.

Multiplying the TRICS person trip rates by the percentage of persons 'Driving a Car or Van' provides trip rates for car trip generation per dwelling as follows:

Vehicle Trips Per Household - Urban		
	AM	PM
Inbound	0.154	0.397
Outbound	0.573	0.242

Vehicle Trips Per Household - Rural		
	AM	PM
Inbound	0.192	0.495
Outbound	0.715	0.303

**Newark & Sherwood IDP Review****Proposed Residential Growth**

<b>Settlement</b>	<b>2016 Scenario</b>
<b>Sub-Regional Centre</b>	
Newark, Balderton & Fernwood	9,370
<b>Service Centres</b>	
Ollerton & Boughton	935
Clipstone	800
Rainworth	368
Southwell	339
<b>Principal Villages</b>	
Bilsthorpe	302
Blidworth	202
Collingham	189
Edwinstowe	740
Farnsfield	208
Lowdham	10
Sutton on Trent	57
<b>Secondary Villages</b>	
Bleasby	0
Coddington	0
Elston	0
Farndon	0
Fiskerton Cum Morton	0
Gunthorpe	0
Halam	0
Harby	0
Norwell	0
North Muskham	0
Walesby	0
Winthorpe	0
Other Villages & Settlements	0
<b>Total</b>	<b>13,520</b>

**Residential AM Inbound Trip Generation by Mode of Transport**

	AM Inbound Person Trips	Underground, metro, light rail or tram	Train	Bus, minibus or coach	Taxi or minicab	Driving a car or van	Passenger in a car or van	Motorcycle, scooter or moped	Bicycle	On foot	Other
Average of Newark on Trent Wards	0.249	0.13%	2.38%	2.11%	0.25%	61.84%	6.31%	0.86%	9.03%	16.48%	0.61%
Average of Rural Wards	0.249	0.16%	1.35%	3.08%	0.15%	77.18%	5.67%	0.69%	1.72%	9.39%	0.62%

Settlement	Dwellings	AM Inbound Person Trips	Underground, metro, light rail or tram	Train	Bus, minibus or coach	Taxi or minicab	Driving a car or van	Passenger in a car or van	Motorcycle, scooter or moped	Bicycle	On foot	Other
Newark	9,370	2,333	3	55	49	6	1,443	147	20	211	384	14
Ollerton & Boughton	935	233	0	3	7	0	180	13	2	4	22	1
Rainworth	368	92	0	1	3	0	71	5	1	2	9	1
Southwell	339	84	0	1	3	0	65	5	1	1	8	1
Clipstone	800	199	0	3	6	0	154	11	1	3	19	1
Collingham	189	47	0	1	1	0	36	3	0	1	4	0
Blidworth	202	50	0	1	2	0	39	3	0	1	5	0
Bilthorpe	302	75	0	1	2	0	58	4	1	1	7	0
Edwinstowe	740	184	0	2	6	0	142	10	1	3	17	1
Farnsfield	208	52	0	1	2	0	40	3	0	1	5	0
Lowdham	10	2	0	0	0	0	2	0	0	0	0	0
Sutton on Trent	57	14	0	0	0	0	11	1	0	0	1	0
Secondary Villages	0	0	0	0	0	0	0	0	0	0	0	0
Other Villages	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>13,520</b>	<b>3,366</b>	<b>5</b>	<b>69</b>	<b>81</b>	<b>7</b>	<b>2,240</b>	<b>206</b>	<b>27</b>	<b>229</b>	<b>481</b>	<b>21</b>

**Residential AM Outbound Trip Generation by Mode of Transport**

	AM Outbound Person Trips	Underground, metro, light rail or tram	Train	Bus, minibus or coach	Taxi or minicab	Driving a car or van	Passenger in a car or van	Motorcycle, scooter or moped	Bicycle	On foot	Other
Average of Newark on Trent Wards	0.927	0.13%	2.38%	2.11%	0.25%	61.84%	6.31%	0.86%	9.03%	16.48%	0.61%
Average of Rural Wards	0.927	0.16%	1.35%	3.08%	0.15%	77.18%	5.67%	0.69%	1.72%	9.39%	0.62%

Settlement	Dwellings	AM Outbound Person Trips	Underground, metro, light rail or tram	Train	Bus, minibus or coach	Taxi or minicab	Driving a car or van	Passenger in a car or van	Motorcycle, scooter or moped	Bicycle	On foot	Other
Newark	9,370	8,686	11	207	183	21	5,371	548	75	785	1,431	53
Ollerton & Boughton	935	867	1	12	27	1	669	49	6	15	81	5
Rainworth	368	341	1	5	11	1	263	19	2	6	32	2
Southwell	339	314	1	4	10	0	243	18	2	5	29	2
Clipstone	800	742	1	10	23	1	572	42	5	13	70	5
Collingham	189	175	0	2	5	0	135	10	1	3	16	1
Blidworth	202	187	0	3	6	0	145	11	1	3	18	1
Bilthorpe	302	280	0	4	9	0	216	16	2	5	26	2
Edwinstowe	740	686	1	9	21	1	529	39	5	12	64	4
Farnsfield	208	193	0	3	6	0	149	11	1	3	18	1
Lowdham	10	9	0	0	0	0	7	1	0	0	1	0
Sutton on Trent	57	53	0	1	2	0	41	3	0	1	5	0
Secondary Villages	0	0	0	0	0	0	0	0	0	0	0	0
Other Villages	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>13,520</b>	<b>12,533</b>	<b>18</b>	<b>258</b>	<b>302</b>	<b>27</b>	<b>8,340</b>	<b>766</b>	<b>102</b>	<b>851</b>	<b>1,792</b>	<b>77</b>

**Vehicle Trip Rates****Urban Residential Vehicle Trip Rates**

AM Inbound	0.154	Vehicle Trips per Dwelling
AM Outbound	0.573	Vehicle Trips per Dwelling
PM Inbound	0.397	Vehicle Trips per Dwelling
PM Outbound	0.242	Vehicle Trips per Dwelling

**Rural Residential Vehicle Trip Rates**

AM Inbound	0.192	Vehicle Trips per Dwelling
AM Outbound	0.715	Vehicle Trips per Dwelling
PM Inbound	0.495	Vehicle Trips per Dwelling
PM Outbound	0.303	Vehicle Trips per Dwelling

**Residential Vehicle Trip Generation**

Settlement	Dwellings	Vehicle Trips					
		AM			PM		
		Inbound	Outbound	2-Way	Inbound	Outbound	2-Way
Newark	9,370	1,443	5,371	6,814	3,720	2,271	5,991
Ollerton & Boughton	935	180	669	849	463	283	746
Rainworth	368	71	263	334	182	111	294
Southwell	339	65	243	308	168	103	271
Clipstone	800	154	572	726	396	242	638
Collingham	189	36	135	172	94	57	151
Blidworth	202	39	145	183	100	61	161
Bilsthorpe	302	58	216	274	150	91	241
Edwinstowe	740	142	529	672	367	224	591
Farnsfield	208	40	149	189	103	63	166
Lowdham	10	2	7	9	5	3	8
Sutton on Trent	57	11	41	52	28	17	45
Secondary Villages	0	0	0	0	0	0	0
Other Villages	0	0	0	0	0	0	0
<b>Total</b>	<b>13,520</b>	<b>2,240</b>	<b>8,340</b>	<b>10,581</b>	<b>5,776</b>	<b>3,527</b>	<b>9,303</b>



# Employment Trip Generation

**Analysis of 2011 Census Data: 2011 Super Output Area - Middle Layer**

2011 Super Output Area - Middle Layer	Census 2011: Daytime Population (2011 MSOA Boundaries) - Method of Travel to Work (Persons)												
	Type	Total Travelling to Work	Work From Home	Underground, metro, light rail or tram	Train	Bus, minibus or coach	Taxi or minicab	Driving a car or van	Passenger in a car or van	Motorcycle, scooter or moped	Bicycle	On foot	Other
Newark and Sherwood 001	Rural town and fringe	4579	316	6	17	171	12	3359	337	32	89	545	11
Newark and Sherwood 002	Rural town and fringe	2520	397	1	6	87	11	1899	188	15	34	257	22
Newark and Sherwood 003	Rural village and dispersed	2553	802	4	8	45	2	1935	287	25	49	190	8
Newark and Sherwood 004	Rural village and dispersed	2399	668	3	16	22	4	1820	201	31	142	153	7
Newark and Sherwood 005	Rural town and fringe	4080	634	1	9	163	4	3170	348	40	70	259	16
Newark and Sherwood 006	Rural town and fringe	2417	412	2	2	95	6	1741	213	13	33	298	14
Newark and Sherwood 007	Urban city and town	12841	424	4	151	361	24	8129	1162	104	979	1890	37
Newark and Sherwood 008	Rural town and fringe	2477	527	3	8	62	1	1782	149	14	50	397	11
Newark and Sherwood 009	Urban city and town	3074	413	4	28	58	4	2107	161	22	247	428	15
Newark and Sherwood 010	Urban city and town	1021	266	0	6	17	1	746	70	6	71	100	4
Newark and Sherwood 011	Urban city and town	1539	437	2	13	24	5	1094	76	7	100	209	9
Newark and Sherwood 012	Urban city and town	2509	642	5	12	63	2	1999	132	14	122	152	8
Newark and Sherwood 013	Rural village and dispersed	1986	1005	3	13	62	2	1580	112	17	30	150	17
District Average		3,384	534	3	22	95	6	2,412	264	26	155	387	14
Newark on Trent Average		4,197	436	3	42	105	7	2,815	320	31	304	556	15
Rural Average		2,876	595	3	10	88	5	2,161	229	23	62	281	13

- Urban areas  
 - Rural areas

2001 Wards	Census 2011: Daytime Population (2011 MSOA Boundaries) - Method of Travel to Work (%)										
	Underground, metro, light rail or tram	Train	Bus, minibus or coach	Taxi or minicab	Driving a car or van	Passenger in a car or van	Motorcycle, scooter or moped	Bicycle	On foot	Other	Total
District Average	0.09%	0.66%	2.80%	0.18%	71.28%	7.81%	0.77%	4.58%	11.43%	0.41%	100.00%
Newark on Trent Average	0.07%	1.00%	2.49%	0.17%	67.07%	7.63%	0.73%	7.24%	13.24%	0.35%	100.00%
Rural Average	0.10%	0.34%	3.07%	0.18%	75.12%	7.97%	0.81%	2.16%	9.77%	0.46%	100.00%

**Trip Rate and Modal Split Summary**

Person trips per 100 sqm employment GFA are estimated from data obtained from the following trip rates obtained from the TRICS database. These represent person trips by all modes.

TRICS Person Trips Per 100sqm GFA (All Modes)		
	AM	PM
Inbound	2.166	0.241
Outbound	0.316	1.887

**Note:** AM = 08:00 - 09:00, PM = 17:00 - 18:00

**Data Source:** TRICS 2010(a) Median trip rates for 'Employment - Business Park'.

Census 2011 Daytime Population 'Travel to Work' modal splits have then been used to estimate trips made by each mode of travel. To represent different travel characteristics the modal split data has been averaged by the urban and rural areas of the district in accordance with Census definitions.

	Census 2011: Daytime Population (2011 MSOA Boundaries) - Method of Travel to Work (%)										
	Underground, metro, light rail or tram	Train	Bus, minibus or coach	Taxi or minicab	Driving a car or van	Passenger in a car or van	Motorcycle, scooter or moped	Bicycle	On foot	Other	Total
Newark on Trent Average	0.07%	1.00%	2.49%	0.17%	67.07%	7.63%	0.73%	7.24%	13.24%	0.35%	100.00%
Rural Average	0.10%	0.34%	3.07%	0.18%	75.12%	7.97%	0.81%	2.16%	9.77%	0.46%	100.00%

**Note:** People working from home are ignored in the calculation because these are not relevant for employment sites.

The summary in the table above represents what would be expected with highest car and bus use in rural wards and highest cycle, walking and rail use in urban wards.

Multiplying the TRICS Person Trip rates by the percentage of persons 'Driving a Car or Van' provides trip rates for vehicle trip generation per 100sqm GFA as follows:

Vehicle Trips Per 100sqm GFA (Urban)		
	AM	PM
Inbound	1.453	0.162
Outbound	0.212	1.266

Vehicle Trips Per 100sqm GFA (Rural)		
	AM	PM
Inbound	1.627	0.181
Outbound	0.237	1.418

**Note:** TRICS 'Total People' trip rates include OGV drivers arriving/departing employment sites. The resultant vehicle trip generation therefore includes a small volume of OGV trips.

**Trip Rate and Modal Split Summary**

Person trips per 100 sqm employment GFA are estimated from data obtained from the following trip rates obtained from the TRICS database. These represent person trips by all modes.

TRICS Person Trips Per 100sqm GFA (All Modes)		
	AM	PM
Inbound	0.782	0.219
Outbound	0.461	0.860

**Note:** AM = 08:00 - 09:00, PM = 17:00 - 18:00

**Data Source:** TRICS 2010(a) Median trip rates for 'Employment - Industrial Estates'.

Census 2011 Daytime Population 'Travel to Work' modal splits have then been used to estimate trips made by each mode of travel. To represent different travel characteristics the modal split data has been averaged by the urban and rural areas of the district in accordance with Census definitions.

	Census 2011: Daytime Population (2011 MSOA Boundaries) - Method of Travel to Work (%)										
	Underground, metro, light rail or tram	Train	Bus, minibus or coach	Taxi or minicab	Driving a car or van	Passenger in a car or van	Motorcycle, scooter or moped	Bicycle	On foot	Other	Total
Newark on Trent Average	0.07%	1.00%	2.49%	0.17%	67.07%	7.63%	0.73%	7.24%	13.24%	0.35%	100.00%
Rural Average	0.10%	0.34%	3.07%	0.18%	75.12%	7.97%	0.81%	2.16%	9.77%	0.46%	100.00%

**Note:** People working from home are ignored in the calculation because these are not relevant for employment sites.

The summary in the table above represents what would be expected with highest car and bus use in rural wards and highest cycle, walking and rail use in urban wards.

Multiplying the TRICS Person Trip rates by the percentage of persons 'Driving a Car or Van' provides trip rates for vehicle trip generation per 100sqm GFA as follows:

Vehicle Trips Per 100sqm GFA (Urban)		
	AM	PM
Inbound	0.525	0.147
Outbound	0.309	0.577

Vehicle Trips Per 100sqm GFA (Rural)		
	AM	PM
Inbound	0.587	0.165
Outbound	0.346	0.646

**Note:** TRICS 'Total People' trip rates include OGV drivers arriving/departing employment sites. The resultant vehicle trip generation therefore includes a small volume of OGV trips.

**Trip Rate and Modal Split Summary**

Person trips per 100 sqm employment GFA are estimated from data obtained from the following trip rates obtained from the TRICS database. These represent person trips by all modes.

TRICS Person Trips Per 100sqm GFA (All Modes)		
	AM	PM
Inbound	0.541	0.086
Outbound	0.145	0.367

**Note:** AM = 08:00 - 09:00, PM = 17:00 - 18:00

**Data Source:** TRICS 2010(a) Median trip rates for 'Employment - Warehouse (Commercial)'.

Census 2011 Daytime Population 'Travel to Work' modal splits have then been used to estimate trips made by each mode of travel.

To represent different travel characteristics the modal split data has been averaged by the urban and rural areas of the district in accordance with Census definitions.

	Census 2011: Daytime Population (2011 MSOA Boundaries) - Method of Travel to Work (%)										
	Underground, metro, light rail or tram	Train	Bus, minibus or coach	Taxi or minicab	Driving a car or van	Passenger in a car or van	Motorcycle, scooter or moped	Bicycle	On foot	Other	Total
Newark on Trent Average	0.07%	1.00%	2.49%	0.17%	67.07%	7.63%	0.73%	7.24%	13.24%	0.35%	100.00%
Rural Average	0.10%	0.34%	3.07%	0.18%	75.12%	7.97%	0.81%	2.16%	9.77%	0.46%	100.00%

**Note:** People working from home are ignored in the calculation because these are not relevant for employment sites.

The summary in the table above represents what would be expected with highest car and bus use in rural wards and highest cycle, walking and rail use in urban wards.

Multiplying the TRICS Person Trip rates by the percentage of persons 'Driving a Car or Van' provides trip rates for vehicle trip generation per 100sqm GFA as follows:

Vehicle Trips Per 100sqm GFA (Urban)		
	AM	PM
Inbound	0.363	0.058
Outbound	0.097	0.246

Vehicle Trips Per 100sqm GFA (Rural)		
	AM	PM
Inbound	0.406	0.065
Outbound	0.109	0.275

**Note:** TRICS 'Total People' trip rates include OGV drivers arriving/departing employment sites. The resultant vehicle trip generation therefore includes a small volume of OGV trips.

**Summary of Employment Sites to be Assessed**

Location	Proposed Employment Growth (Ha)	Assumed Use-Class	Net Employment Floorspace (Sqm)
Newark Urban Area	127.91	B1/B2/B8	511,640
Collingham	0.75	B1/B2/B8	3,000
Southwell	5.29	B1/B2/B8	21,160
Ollerton & Boughton	6.75	B1/B2/B8	27,000
Edwinstowe	11.00	B1/B2/B8	44,000
Bilsthorpe	23.76	B1/B2/B8	95,040
Rainworth	5.50	B1/B2/B8	22,000
Clipstone	12.00	B1/B2/B8	48,000
Blidworth	1.00	B1/B2/B8	4,000
Other	0.97	B1/B2/B8	3,880
	194.93		779,720

**Notes:**

1. All employment assumed to comprise equal split between B1/B2/B8 use classes for purposes of multi-modal trip c
3. Net employment floorspace areas assumed to be 40% of total site area.

	- Urban areas
	- Rural areas

Employment AM Employee Trip Generation by Mode of Transport

	AM Inbound Employee Trips
B1 Use Class	2,166
B2 Use Class	0,782
B8 Use Class	0,541

	Underground, metro, light rail or tram	Train	Bus, minibus or coach	Taxi or minicab	Driving a car or van	Passenger in a car or van	Motorcycle, scooter or moped	Bicycle	On foot	Other
Average of Newark on Trent Wards	0.07%	1.00%	2.49%	0.17%	67.07%	7.63%	0.73%	7.24%	13.24%	0.35%
Average of Rural Wards	0.10%	0.34%	3.07%	0.18%	75.12%	7.97%	0.81%	2.16%	9.77%	0.46%

Name	Assumed Use-Class	Net Employment Developable Area (sqm)	B1	B2	B8	AM Inbound Person Trips	Underground, metro, light rail or tram	Train	Bus, minibus or coach	Taxi or minicab	Driving a car or van	Passenger in a car or van	Motorcycle, scooter or moped	Bicycle	On foot	Other
Newark Urban Area	B1/B2/B8	511,640	170,547	170,547	170,547	5,950	4	60	148	10	3,991	454	43	431	788	21
Collingham	B1/B2/B8	3,000	1,000	1,000	1,000	35	0	0	1	0	23	3	0	3	5	0
Southwell	B1/B2/B8	21,160	7,053	7,053	7,053	246	0	2	6	0	165	19	2	18	33	1
Ollerton & Boughton	B1/B2/B8	27,000	9,000	9,000	9,000	314	0	3	8	1	211	24	2	23	42	1
Edwinstowe	B1/B2/B8	44,000	14,667	14,667	14,667	512	0	5	13	1	343	39	4	37	68	2
Bilthorpe	B1/B2/B8	95,040	31,680	31,680	31,680	1,105	1	11	28	2	741	84	8	80	146	4
Rainworth	B1/B2/B8	22,000	7,333	7,333	7,333	256	0	1	8	0	192	20	2	6	25	1
Clipstone	B1/B2/B8	48,000	16,000	16,000	16,000	558	1	2	17	1	419	45	5	12	55	3
Blidworth	B1/B2/B8	4,000	1,333	1,333	1,333	47	0	0	1	0	35	4	0	1	5	0
Other	B1/B2/B8	3,880	1,293	1,293	1,293	45	0	0	1	0	34	4	0	1	4	0
		779,720	259,907	259,907	259,907	9,068	7	85	231	16	6,155	695	67	610	1,170	33

	AM Outbound Employee Trips
B1 Use Class	0,316
B2 Use Class	0,461
B8 Use Class	0,145

	Underground, metro, light rail or tram	Train	Bus, minibus or coach	Taxi or minicab	Driving a car or van	Passenger in a car or van	Motorcycle, scooter or moped	Bicycle	On foot	Other
Average of Newark on Trent Wards - B1	0.07%	1.00%	2.49%	0.17%	67.07%	7.63%	0.73%	7.24%	13.24%	0.35%
Average of Rural Wards - B1	0.10%	0.34%	3.07%	0.18%	75.12%	7.97%	0.81%	2.16%	9.77%	0.46%

Name	Assumed Use-Class	Net Employment Developable Area (sqm)	B1	B2	B8	AM Outbound Person Trips	Underground, metro, light rail or tram	Train	Bus, minibus or coach	Taxi or minicab	Driving a car or van	Passenger in a car or van	Motorcycle, scooter or moped	Bicycle	On foot	Other
Newark Urban Area	B1/B2/B8	511,640	170,547	170,547	170,547	1,572	1	16	39	3	1,054	120	11	114	208	5
Collingham	B1/B2/B8	3,000	1,000	1,000	1,000	9	0	0	0	0	6	1	0	1	1	0
Southwell	B1/B2/B8	21,160	7,053	7,053	7,053	65	0	1	2	0	44	5	0	5	9	0
Ollerton & Boughton	B1/B2/B8	27,000	9,000	9,000	9,000	83	0	1	2	0	56	6	1	6	11	0
Edwinstowe	B1/B2/B8	44,000	14,667	14,667	14,667	135	0	1	3	0	91	10	1	10	18	0
Bilthorpe	B1/B2/B8	95,040	31,680	31,680	31,680	292	0	3	7	1	196	22	2	21	39	1
Rainworth	B1/B2/B8	22,000	7,333	7,333	7,333	88	0	0	2	0	51	5	1	1	7	0
Clipstone	B1/B2/B8	48,000	16,000	16,000	16,000	147	0	1	5	0	111	12	1	3	14	1
Blidworth	B1/B2/B8	4,000	1,333	1,333	1,333	12	0	0	0	0	9	1	0	0	1	0
Other	B1/B2/B8	3,880	1,293	1,293	1,293	12	0	0	0	0	9	1	0	0	1	0
		779,720	259,907	259,907	259,907	2,395	2	22	61	4	1,626	184	18	161	309	9

- Urban areas  
- Rural areas

AM Peak Hour 2-Way Employment Trip Summary by Mode											
Name	AM 2-Way Person Trips	Underground, metro, light rail or tram	Train	Bus, minibus or coach	Taxi or minicab	Driving a car or van	Passenger in a car or van	Motorcycle, scooter or moped	Bicycle	On foot	Other
Newark Urban Area	7,522	5	75	187	13	5,045	574	55	545	996	26
Collingham	44	0	0	1	0	30	3	0	3	6	0
Southwell	311	0	3	8	1	209	24	2	23	41	1
Ollerton & Boughton	397	0	4	10	1	266	30	3	29	53	1
Edwinstowe	647	0	6	16	1	434	49	5	47	88	2
Bilthorpe	1,397	1	14	35	2	937	107	10	101	185	5
Rainworth	323	0	1	10	1	243	26	3	7	32	1
Clipstone	706	1	2	22	1	530	56	6	15	69	3
Blidworth	59	0	0	2	0	44	5	0	1	6	0
Other	57	0	0	2	0	43	5	0	1	6	0
	11,463	9	107	292	20	7,781	879	85	772	1,478	41

**Vehicle Trip Calculation Parameters****Vehicle Trip Rates****Urban B1 Employment Vehicle Trip Rates**

AM Inbound	<input type="text" value="1.453"/>	Vehicle Trips per 100sqm GFA
AM Outbound	<input type="text" value="0.212"/>	Vehicle Trips per 100sqm GFA
PM Inbound	<input type="text" value="0.162"/>	Vehicle Trips per 100sqm GFA
PM Outbound	<input type="text" value="1.266"/>	Vehicle Trips per 100sqm GFA

**Rural B1 Employment Vehicle Trip Rates**

AM Inbound	<input type="text" value="1.627"/>	Vehicle Trips per 100sqm GFA
AM Outbound	<input type="text" value="0.237"/>	Vehicle Trips per 100sqm GFA
PM Inbound	<input type="text" value="0.181"/>	Vehicle Trips per 100sqm GFA
PM Outbound	<input type="text" value="1.418"/>	Vehicle Trips per 100sqm GFA

**Urban B2 Employment Vehicle Trip Rates**

AM Inbound	<input type="text" value="0.525"/>	Vehicle Trips per 100sqm GFA
AM Outbound	<input type="text" value="0.309"/>	Vehicle Trips per 100sqm GFA
PM Inbound	<input type="text" value="0.147"/>	Vehicle Trips per 100sqm GFA
PM Outbound	<input type="text" value="0.577"/>	Vehicle Trips per 100sqm GFA

**Rural B2 Employment Vehicle Trip Rates**

AM Inbound	<input type="text" value="0.587"/>	Vehicle Trips per 100sqm GFA
AM Outbound	<input type="text" value="0.346"/>	Vehicle Trips per 100sqm GFA
PM Inbound	<input type="text" value="0.165"/>	Vehicle Trips per 100sqm GFA
PM Outbound	<input type="text" value="0.646"/>	Vehicle Trips per 100sqm GFA

**Urban B8 Employment Vehicle Trip Rates**

AM Inbound	<input type="text" value="0.363"/>	Vehicle Trips per 100sqm GFA
AM Outbound	<input type="text" value="0.097"/>	Vehicle Trips per 100sqm GFA
PM Inbound	<input type="text" value="0.058"/>	Vehicle Trips per 100sqm GFA
PM Outbound	<input type="text" value="0.246"/>	Vehicle Trips per 100sqm GFA

**Rural B8 Employment Vehicle Trip Rates**

AM Inbound	<input type="text" value="0.406"/>	Vehicle Trips per 100sqm GFA
AM Outbound	<input type="text" value="0.109"/>	Vehicle Trips per 100sqm GFA
PM Inbound	<input type="text" value="0.065"/>	Vehicle Trips per 100sqm GFA
PM Outbound	<input type="text" value="0.275"/>	Vehicle Trips per 100sqm GFA



**Employment Vehicle Trip Generation**

Name	Assumed Use-Class	Net Developable Area (sqm)	Net Developable Area (sqm) by Use-Class			Vehicle Trips					
			B1	B2	B8	AM			PM		
						Inbound	Outbound	2-Way	Inbound	Outbound	2-Way
Newark Urban Area	B1/B2/B8	511,640	170,547	170,547	170,547	3,991	1,054	5,045	625	3,562	4,186
Collingham	B1/B2/B8	3,000	1,000	1,000	1,000	23	6	30	4	21	25
Southwell	B1/B2/B8	21,160	7,053	7,053	7,053	165	44	209	26	147	173
Ollerton & Boughton	B1/B2/B8	27,000	9,000	9,000	9,000	211	56	266	33	188	221
Edwinstowe	B1/B2/B8	44,000	14,667	14,667	14,667	343	91	434	54	306	360
Bilthorpe	B1/B2/B8	95,040	31,680	31,680	31,680	741	196	937	116	662	778
Rainworth	B1/B2/B8	22,000	7,333	7,333	7,333	192	51	243	30	172	202
Clipstone	B1/B2/B8	48,000	16,000	16,000	16,000	419	111	530	66	374	440
Blidworth	B1/B2/B8	4,000	1,333	1,333	1,333	35	9	44	5	31	37
Other	B1/B2/B8	3,880	1,293	1,293	1,293	34	9	43	5	30	36
		779,720	259,907	259,907	259,907	6,155	1,626	7,781	963	5,493	6,456

- Urban areas  
 - Rural areas