



*Suffolk Minerals & Waste Local Plan
Submission Draft
Sustainability Appraisal –
Annex B*

**JUNE
2018**



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1. Introduction

1.1 Background

Suffolk County Council (SCC) commissioned Place Services to undertake an independent Sustainability Appraisal (SA) incorporating Strategic Environmental Assessment (SEA) on the Suffolk Minerals & Waste Local.

Place Services are acting as consultants for this work; therefore the content of this SA should not be interpreted or otherwise represented as the formal view of Essex County Council.

This Annex presents the baseline information profile of the Plan area.

1.2 Identifying Other Relevant Policies, Plans and Programmes

The SEA Directive requires the production of the following information:

“the relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme;” Annex 1(b);

“the environmental characteristics of areas likely to be significantly affected;” Annex 1(c); and

“any existing problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance such as areas designated pursuant to Directives 79/409/EEC and 92/43/ECC” Annex 1(d).

The baseline information identifies current sustainability issues and problems in the Plan area which should be addressed and provides a basis for predicting and monitoring the effects of implementing the document.

To ensure the data collected was relevant and captured the full range of sustainability issues it was categorised under 13 thematic topics. They cover all the topics referred to in Annex 1(f) of the SEA Directive and follow the order of:

- economy and employment;
- housing;
- population and society;
- health;
- transport;
- cultural heritage;
- biodiversity and nature conservation;
- landscapes;
- water environment ;



- climate and energy;
- air;
- waste; and
- minerals.

The summaries of each topic have been included within the main Environmental Report document while this annex contains the detailed baseline information.

2. Economy and Employment

2.1 Economy

Prosperity and economic growth indicators show that the number of businesses in Suffolk has increased, although the business formation rate is lower than average for England and the East of England.

Suffolk followed the national trend, with falls across the board in local Job Seekers Allowance (JSA) claimant counts. The biggest declines in Suffolk, in each case cutting the local unemployment rate by 0.2 of a percentage point, were in Ipswich, where the count fell by 195 to 2,856 (a rate of 3.3%), Waveney, down 158 to 2,008 (3.0%), and Babergh, down 87 to 746 (1.4%). Rates elsewhere in the county fell by 0.1%, including Mid Suffolk, down 89 to 682 (1.2%), Suffolk Coastal, down 47 to 728 (1.0%), Forest Heath, down 41 to 522 (1.3%) and St Edmundsbury, down 35 to 1,050 (1.5%).

The total size of Suffolk's economy (gross value added, or GVA) in 2012 was around £12.6 billion. The total size of Suffolk's economy (Gross Value Added, or GVA) in 2013 was around £15.2 billion, representing a 17% increase from the previous year. GVA per head in Suffolk was £20,620 in 2013, considerably below the national average of £23,755.

Table 1: Business counts

	Suffolk	Suffolk (%)	East of England	England
Enterprises				
Micro (0 to 9)	25,465	88.5	89.7	89.3
Small (10 to 49)	2,765	9.6	8.5	8.8
Medium (50 to 249)	450	1.6	1.5	1.6
Large (250+)	105	0.4	0.4	0.4
Total	28,785	-	-	-
Local units				
Micro (0 to 9)	28,760	83.4	85.1	84.4
Small (10 to 49)	4,725	13.7	12.1	12.6
Medium (50 to 249)	870	2.5	2.5	2.6



Large (250+)	110	0.3	0.3	0.4
Total	34,470	-	-	-

Source: NOMIS, 2016 data

Suffolk has fewer micro sized enterprises and local units than the regional and national average. There are proportionately more small and medium sized enterprises in Suffolk than the national level and more small enterprises than the national level. Large enterprise and local units statistics are fairly consistent for Suffolk, the east of England and England, with slightly more large local units nationally than Suffolk or the region.

Table 2: Proportion of businesses by industry type

Industry	Suffolk	East of England	England
Agriculture, Forestry & Fishing	9.4%	4.9%	4.7%
Production	6.4%	6.0%	5.8%
Construction	12.9%	14.2%	11.6%
Motor Trades	3.6%	3.3%	2.9%
Wholesale	4.0%	4.5%	4.4%
Retail	7.7%	7.1%	7.8%
Transport & Storage (Including Postal)	4.3%	3.7%	3.4%
Accommodation & Food Services	5.9%	5.1%	5.7%
Information & Communication	5.3%	8.2%	8.4%
Finance & Insurance	1.5%	1.7%	2.1%
Property	3.3%	3.4%	3.7%
Professional, Scientific & Technical	14.4%	17.2%	18.3%
Business Administration & Support Services	7.2%	7.9%	8.2%
Public Administration & Defence	1.0%	0.5%	0.3%
Education	1.6%	1.8%	1.7%



Industry	Suffolk	East of England	England
Health	3.8%	4.0%	4.3%
Arts, Entertainment, Recreation and Other Services	7.6%	6.3%	6.7%

Source: ONS, 2015 data

There are comparatively more businesses within agriculture, forestry and fishing in Suffolk than the region and country but noticeably fewer businesses within information & communication, professional, scientific and technical and business administration and support. Other industries with proportionately higher business numbers than the regional and national levels are production and arts, entertainment, recreation and other services.

2.2 Employment

Table 3: Economically active and job density

	Suffolk	East of England	England
Number of economically active	366,300	3,176,000	28,252,000
Percentage of economically active against population	79.9%	80.1%	78.7%
Number of people unemployed	14,000	135,000	1,357,000
Percentage of people unemployed against population	3.8%	3.7%	4.8%
Job density	0.83	0.80	0.83

Source: NOMIS Labour Supply (2015/16)

In 2015/16 there were some 441,500 working-age residents in Suffolk, of whom around 366,300 were economically active. This is an economic activity rate of 79.9%, slightly lower than the average across the East of England (80.1%). Some 14,000 working-age residents (3.8% of the population) were unemployed. Unemployment fell after the height of the recession in mid- 2010, but has fallen in recent years. Unemployment is slightly higher than the average in the East of England (3.7%), and lower than the national average (4.8%).

Youth unemployment (16-24 year olds) was at 16.9%, lower than in the East of England region. In 2011, there were some 305,200 jobs in Suffolk – including both employees and those in self-employment.

Table 4: Gross weekly pay by residence and workplace

	Suffolk	East of England	Great Britain
Gross weekly pay by residence			
Full time workers	£519.00	£569.40	£541.00
Male full time workers	£563.10	£613.30	£581.20
Female full time workers	£432.60	£496.90	£481.10
Gross weekly pay by workplace			
Full time workers	£494.30	£528.80	£540.20
Male full time workers	£539.30	£574.90	£580.60
Female full time workers	£419.90	£466.60	£480.80

Source: NOMIS, 2016 data

Residents of Suffolk in full-time employment on average earn a weekly salary of £519 which is lower than the UK and regional average. A breakdown of salaries shows that male residents earn considerably more at £563.10 than their female counterpart but both genders earn below the respective UK averages.

Although unemployment rates in Suffolk are generally lower than nationally, wage rates are persistently lower. Improving educational attainment and workforce skills remain important challenges in attracting better paid jobs and taking advantage of new employment sectors.

Table 5: Employee jobs by industry

Jobs by industry	Suffolk	Suffolk (%)	East of England (%)	Great Britain (%)
B: Mining and Quarrying	175	0.1	0.1	0.2
C: Manufacturing	30,000	9.8	7.8	8.3
D: Electricity, Gas, Steam and Air Conditioning Supply	2,250	0.7	0.2	0.4
E: Water Supply, Sewerage, Waste Management and Remediation Activities	2,000	0.7	1.0	0.7
F: Construction	17,000	5.5	6.0	4.6



Jobs by industry	Suffolk	Suffolk (%)	East of England (%)	Great Britain (%)
G: Wholesale and retail trade; Repair of Motor Vehicles and Motorcycles	53,000	17.3	17.9	15.8
H: Transportation and Storage	20,000	6.5	4.6	4.7
I: Accommodation and Food Service Activities	22,000	7.2	6.5	7.2
J: Information and Communication	9,000	2.9	3.9	4.2
K: Financial and Insurance Activities	8,000	2.6	2.4	3.6
L: Real Estate Activities	3,500	1.1	1.4	1.7
M: Professional, Scientific and Technical Activities	16,000	5.2	8.5	8.4
N: Administrative and Support Service Activities	31,000	10.1	10.4	8.9
O: Public Administration and Defence; Compulsory Social Security	12,000	3.9	3.4	4.4
P: Education	24,000	7.8	9.1	9.2
Q: Human Health and Social Work Activities	39,000	12.7	12.1	13.3
R: Arts, Entertainment and Recreation	8,000	2.6	2.2	2.4
S: Other Service Activities	6,000	2.0	2.4	2.0

Notes: % is a proportion of total employee jobs excluding farm-based agriculture

Employee jobs excludes self-employed, government-supported trainees and HM Forces

Data excludes farm-based agriculture

Source: NOMIS, 2016 data

A total of 0.1% of those employed are within the mining and quarrying sector and 0.7% of those



employed are working within water supply, sewerage, waste management and remediation in Suffolk.

The UK waste management sector employs 141,000 people, of which approximately 110,000 work in England. 13,500 work in the sector in the East of England. (*Data from the Labour Market Investigation of the Waste Management Sector for the Energy & Utility Skills, part of the Sector Skills Councils*).

According to State of Suffolk Report (2015), Suffolk has the two largest US Air Force bases in the UK (Lakenheath and Mildenhall) in Forest Heath, provide employment for many, as do the UK armed forces bases at Honington, Wattisham and Woodbridge. It is important to note that in early 2015 the United States Airforce announced their withdrawal from Mildenhall, which is likely to impact upon the economy over the next four years. Several of Suffolk's districts and boroughs have above average employment in production, the vast majority of which refers to manufacturing activities. St Edmundsbury and Waveney in particular have a large proportion of employment in production. Transport and communications is a vital sector in Suffolk Coastal. Employment data indicates that over a quarter (26.8%) of Suffolk employees are employed in public administration, education and health occupations. This area could be susceptible to future public sector cuts.

3. Housing

3.1 Housing Completions

In November 2013, Suffolk had a total housing stock of 331,300, which represents a 12.2 % increase from 295,130 dwellings in 2001, with an average annual increase in recent years of about 2700 (although the 2005/6 increase was 3392, the highest such figure in the past 15 years). There is a need to provide for new dwellings in Suffolk at an average build rate of 3,175 units per year (total of individual housing targets per district and borough, see websites respectively for each district and borough council for more information). The present household build rate is 2,077 units (2014-2015 figures, see Table 6 below), well below the average and a continuing reflection of the weak economic climate.

Table 6: Housing completions in Suffolk

Year	BDC	FHDC	IBC	MSDC	SEBC	SCDC	WDC	Total Suffolk	Change
01/02	242	147	347	314	338	423	574	2,385	N/A
02/03	510	62	468	292	468	571	436	2,807	18%
03/04	212	67	566	347	612	456	507	2,767	-1%
04/05	187	201	717	380	170	347	367	2,369	-14%
05/06	189	334	782	553	367	902	271	3,398	43%
06/07	275	265	985	806	536	1,150	191	4,208	24%
07/08	304	549	1,413	489	546	694	323	4,318	3%
08/09	289	310	899	398	351	550	263	3,060	-29%
09/10	185	454	389	292	362	256	280	2,218	-28%

Source: Suffolk Minerals & Waste Local Plan – Scoping Report, September 2016

**Table 7: Affordable housing supply in Suffolk (net)**

Year	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15
Net completed dwellings	4,208	4,318	3,060	2,218	1,982	1,866	1,607	1,843	2,077
Affordable completed dwellings	820	1,150	1,090	910	920	550	490	470	630

Source: DCLG 2012 (updated 2016)

In 2014/15, 30.3% of the net dwelling completions, which accounts for 630 dwellings, were affordable within the County. To date, the highest proportion of affordable housing achieved within the District was in 2010/11 at 46.4% which accounted for 920 of the total number of dwellings completed.

3.2 Existing Housing Stock

Table 8: Dwelling stock by tenure

Year	Local Authority (incl. owned by other LAs)	Private Registered Provider	Other public sector	Private sector	Total
Suffolk	5.8%	8.9%	0.4%	84.9%	335,360
England	7.0%	10.4%	0.2%	82.4%	23,543,000

Source: DCLG Table 100 Dwelling Stock 2012 (updated 2016)

There are 335,360 dwellings within Suffolk. The composition of dwelling stock was similar to that of England with the majority of dwellings being in the private sector. Suffolk reported the highest proportion of stock within the private sector at 84.9% as well as a larger proportion of dwellings owned by other public sector organisations at 8.4%. In contrast there were proportionately fewer dwellings owned by Private Registered Providers and Local Authorities in Suffolk.



3.3 Homelessness

Table 9: Homeless and priority need

Local Authority	April – June 2015	July – September 2015	October – December 2015	January – March 2016
Babergh	19	26	27	27
Forest Heath	20	23	17	25
Ipswich	48	44	41	61
Mid Suffolk	13	14	8	14
St Edmundsbury	46	43	33	39
Suffolk Coastal	-	-	-	-
Waveney	21	15	16	20
Suffolk County	167	165	142	186

Source: DCLG 2012 (updated 2016)

Following a significant drop in homeless acceptances in October - December, numbers began to rise with January – March 2016 seeing a total of 186 people homeless in priority need in Suffolk. The recent growth of homeless acceptances in priority need is much higher at 31% than national trends, which have seen an increase of 6%.



3.4 Household Forecasts in Suffolk

The increase in the number of new dwellings in Suffolk is likely to result in an increase in total arisings of Local Authority Collected Waste. The number of new dwellings planned for by the District Planning Authorities in Suffolk are shown below:

Table 10: Planned increase in dwellings in Suffolk

District	Additional dwellings planned per annum	New methodology for calculating OAN proposed as change to the NPPF
Forest Heath	340	367
Ipswich	519	442
Mid Suffolk & Babergh	807	1,012
St Edmundsbury	550	446
Suffolk Coastal	460	495
Waveney	374	350
Suffolk Total	3,050	3,112

Source: Suffolk Waste Study (2017)

The Ministry of Housing, Communities and Local Government has proposed a revised methodology for planning for new housing and the figures that arise from this methodology are shown in the table above. However, the total difference for the County of Suffolk is 62 dwellings per annum, which would result in a negligible increase in the total waste arisings for the County.

4. Population and Society

4.1 Population

The population of Suffolk is some 738,512 as of 2014 (Suffolk Observatory). Around one-third of the total population lives in the county's three major towns (Ipswich, Lowestoft and Bury St Edmunds), another third lives in smaller market towns and the remaining third lives in rural areas. The average population density is relatively low at 182 people per km² (compared to the average for England of 387 per km²), reflecting the rural nature of the county.

Table 11: Population

	Total Population - Males 2014	Total Population – Females 2014	Total Population
Suffolk	364,368	374,144	738,512
East of England	2,962,533	3,055,850	6,018,383
England	26,773,196	27,543,422	54,316,618

Source: Suffolk Minerals & Waste Local Plan – Scoping Report, September 2016 / 2011 Census

The population of Suffolk has risen by 8.9% since 2001, which makes it the fifth fastest growing shire county in England. By comparison, the population of England has only grown by 7.9%. The number of people over the age of 75 has increased by 16%, while the number of young adults has decreased by 15%. ONS population estimates suggest that by the time of the next Census, due in 2021, the population of Suffolk may have increased to 778,000, with notable projected increases in the older age groups.

Table 12: Population age structure

	Suffolk	England
Persons aged 0-4	6.09%	6.32%
Persons aged 5-14	12.21%	11.50%
Persons aged 15-19	6.03%	5.95%
Persons aged 20-44	32.25%	20.31%
Persons aged 45-64	28.43%	25.29%
Persons aged 65+	29.40%	17.56%

Source: ONS population estimates, 2015



Forest Heath and Ipswich are predicted to be the fastest growing districts, while the populations of Babergh and Waveney will change least. The age structure of the population is also predicted to change. There is likely to be a slight reduction in the number of children in the county as a whole, although Forest Heath and Ipswich will see large increases. The number of working age people will increase slightly again concentrated in Forest Heath and Ipswich. Other areas are likely to see a significant increase in the number of people aged 65 or over: Increases of at least two-thirds are predicted in Mid Suffolk and of over 60% in Babergh, St Edmundsbury and Suffolk Coastal. (All population figures and projections produced by Suffolk County Council's Research & Monitoring Group).

High population growth rates and changing demographics present a challenge in relation to ensuring the provision of appropriate infrastructure, services and facilities to reflect growth patterns, ensuring adequate access, and addressing changing demographics.

Table 13: Household projections (thousands)

	2015	2019	2024	2029	2034	2039	% change
Suffolk	320	330	342	354	365	375	17.2%
England	22,984	23,927	25,015	26,083	27,088	28,004	21.8%

Source: DCLG 2012 (updated 2016)

Household projections are 2012 based and are linked to the 2012 based population projections. In 2012 there were estimated to be 320,000 households within Suffolk in 2015 and by 2039 this is projected to increase by 17.2% to 375,000. This proportional increase is below the national projected increase of 21.8%

4.2 Education

Table 14: Key Stage 4 – GCSE or equivalent

	All Pupils at the end of KS4 achieving 5+ A* - C	All Pupils at the end of KS4 achieving 5+ A* - G	All Pupils at the end of KS4 achieving 5+ A* - C including English and Mathematics	All Pupils at the end of KS4 with any passes
Suffolk	63.2%	54.5%	94.5%	98.2%
East of England	66.7%	58.2%	94.7%	98.2%
England	64.9%	53.8%	91.0%	97.9%

Source: Department for Education, 2014/15 data (updated Jan 2016)

At 63.2% a lower proportion of pupils within Suffolk attained five or more A*-C grades at key stage 4



(KS4) than the regional and national equivalent. 54.5% of pupils who gained five or more A*-C grades did so in English and Mathematics which is below the regional average of 58.2% but above the national proportion of 53.8%. The proportion of pupils attaining five or more A*-G grades was also above the national figure and only 1.8% of all pupils in the District didn't receive any passes at KS4.

Table 15: Qualifications

	Suffolk	Suffolk (%)	East of England (%)	England (%)
NVQ4 and above	120,500	27.8	33.6	37.1
NVQ3 and above	209,600	48.3	52.0	55.8
NVQ2 and above	293,000	67.5	71.5	73.8
NVQ1 and above	358,200	82.5	84.9	84.9
Other qualification	34,700	8.0	7.1	6.5
No qualifications	41,400	9.5	8.0	8.6

Source: NOMIS (Jan 2015-Dec2015 data)

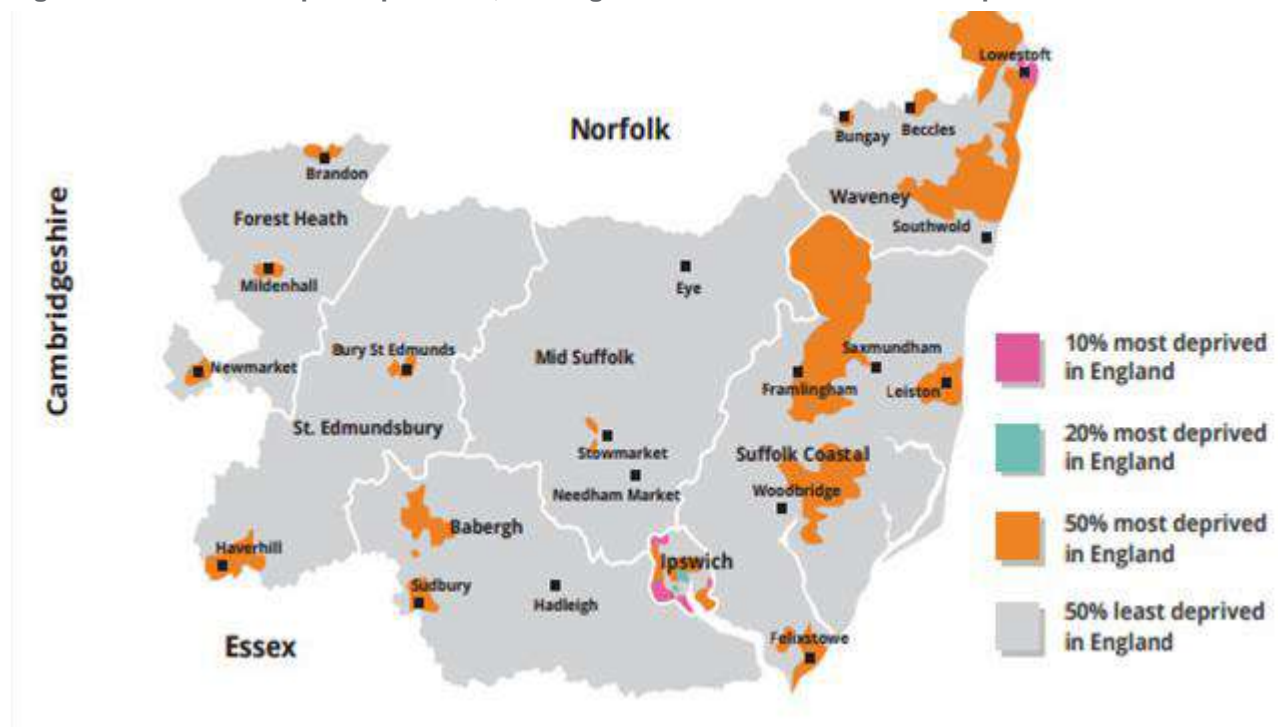
The population of Suffolk has in general fewer qualifications than the overall sub-national and national populations. 82.5% of the working age population of Suffolk, which accounts for 358,200 people, are qualified to at least level 1 or higher compared to 84.9% in the east of England and across Great Britain. Level 1 represents foundation GNVQ, NVQ 1 or up to 5 GCSEs at grades A*-C. Suffolk has significantly lower proportions of the population qualified at Level 3, Level 4 and above. With 48.3% of the population having attained at least 2 or more A levels, advanced GNVQ, NVQ 3 or equivalent (level 3) and 27.8% achieving a higher national diploma, degree and higher degree level or equivalent (level 4), Suffolk has a significantly less qualified workforce in comparison to the regional and national averages.

4.3 Quality of Life

According to the Indices of Deprivation 2010, Suffolk is a relatively affluent county with pockets of deprivation. Income deprivation mainly affects the urban areas in the county: parts of Ipswich and Lowestoft and parts of the market towns. However, 7.4% of Suffolk's population lived in the 20% most deprived areas in England, equating to about 53,000 people. Ipswich remains the most deprived local authority (LA) in Suffolk, being ranked 87th out of 326 LAs in England. Ipswich has risen in the rankings from 109 in 2007, but remains outside the top 20% of worst deprived LAs in England.

Rural deprivation is a particular issue in Suffolk, where pockets of deprivation are masked by areas of relative affluence, a situation which may serve to exclude people more.

Figure 1: Index of Multiple Deprivation, ranking of local concentration and deprivation



Source: Suffolk Minerals & Waste Local Plan – Scoping Report, September 2016

Suffolk has the second highest level of deprivation within the east of England for the above measures. It is 34 ranks behind Hertfordshire in the measure of extent, 41 behind Hertfordshire in the measure of local concentration, 35 ranks behind Bedfordshire in average score measures and 37 behind Bedfordshire for average rank.

4.4 Life Expectancy and Health

Suffolk's women had a life expectancy of 82 and Suffolk's men 77 (2004 figures), both slightly above the national average. In 2014, men born in the county between 2010 and 2012 have a life expectancy of 80.6, up more than three years from a decade ago. For women, life expectancy is 84.1, up from just below 82 a decade ago.

The number of deaths as a result of road traffic accidents, heart disease and self-harm have decreased or remained stable in recent years. However, deaths from respiratory disease show an increasing trend, and cancer deaths have also increased in the most recently available figures. It should be noted, however, that annual figures fluctuate, so it is necessary to use longer time periods to determine meaningful trends from mortality data.

Data is limited for indicators relating to healthy lifestyles, but it is anticipated that this will improve in the future (for example as a result of district level Open Space Assessments and monitoring for the Suffolk Community Strategy).

A recent large-scale study in the UK of 336,348 patient records showed significantly less health inequality between rich and poor groups in areas with higher levels of green space than between similar groups in areas with less green space. Ipswich alone has 500 hectares of green space and wildlife habitats within the town. According to the 2011 Census the self-reported health of the usual residents of



the Plan area largely follows the Suffolk average.

Table 16: Self-reported health

	Very good	Good	Fair	Bad	Very bad
Suffolk	46%	36%	13%	3%	1%
England	47%	34%	13%	4%	1%

Source: Suffolk Minerals & Waste Local Plan – Scoping Report, September 2016

4.5 Physical Activity and Open Space

Table 17: Adult participation in 30 minutes, moderate intensity sport at least once a week

	2013/14 (APS8)	2014/15 (APS9)	2015/16 (APS10Q2)
Suffolk	33.6%	34.6%	34.3%
East of England	35.6%	35.6%	36.1%
England	36.1%	35.8%	36.1%

Note: Adult is defined as a person over the age of 16.

Source: Sport England Active People Survey 8, 9 and 10 Q2 (2015/16)

The proportion of adults participating in 30 minutes, moderate intensity sport has increased in the most recent survey at the local, sub-national and national levels. In the County 34.3% of those in the survey were active in sport in the first half of 2015/16.



5. Transport

5.1 Modes and Flows of Travel

Traffic levels at monitored locations in Suffolk have increased annually since 1999. This has had impacts on, amongst other factors, air quality and pollution, congestion, road safety, tranquillity and greenhouse gas emissions.

Suffolk has strategic transport connectivity with main road and rail links including the A12/A14/A140 main roads from London to Felixstowe and Cambridge, together with main line rail links from London, to Cambridge and Norwich and a strategic link for freight traffic from Felixstowe to Nuneaton in the Midlands. (Suffolk County Council, Sustainability Appraisal of the Third Suffolk Local Transport Plan, 2011).

The dispersed nature of Suffolk's rural population combined with a lack of services and regular scheduled public transport in rural areas is unlikely to lead to decreased demand for private travel in the near future.

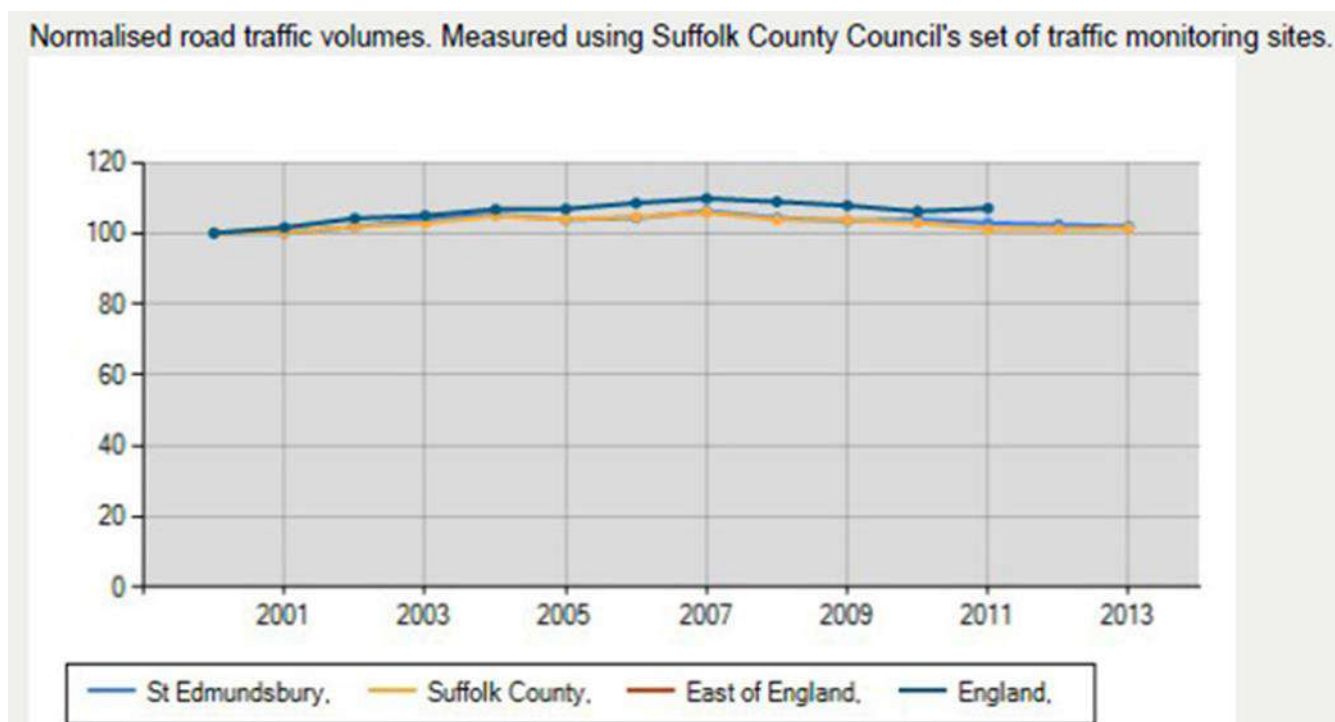
The Port of Felixstowe, the largest container port in the country, contributes significantly to HGV traffic in Suffolk, particularly on the A14. The approved port expansion there, along with the approved port at Bathside Bay in Harwich, Essex, will lead to an increase in HGV traffic in the future. Almost all waste within Suffolk is transported by road (except for some nuclear waste transported by rail from Sizewell).

The number of cars in Suffolk has increased by over 60,000 in the last ten years (Suffolk County Council 2013). Latest Census data (for 2011) shows that just over 255,000 Suffolk households had access to a car or van (82.1% of all households). The proportion of households with access to a car or van was higher in rural areas of Suffolk (89.2%) compared to urban areas (77.5%), but this still means that around 1 in 10 rural households (just over 13,000) do not have access to a car or van. This is an important consideration because of the potential implications for access to services and key amenities. Figure 2 below shows road traffic volumes in Suffolk.

Across Suffolk there has been a slight fall in use of sustainability modes of transport to work in 2012 over the period 2009 to 2012.

Census data shows that the percentage of Suffolk residents using public transport (bus, train, tram, light rail, metro) to travel to work fell from 5.8% to 3.5% between 2001 and 2011 (although the actual number of people using public transport to get to work increased slightly, by 1.4%, or almost 250 people). This may be due to both infrequency and timetabling of local transport, particularly in rural areas, where it may not be possible to get from home and back in one day.

Figure 2: Road traffic volumes



Source: Suffolk Minerals & Waste Local Plan – Scoping Report, September 2016

Table 18: Private Vehicle Ownership

	All categories: car or van availability	No car or van	1 car or van	2 cars or vans	3 cars or vans	4 or more cars or vans	Total cars or vans
Suffolk	310,745	(17.9%)	(43.5%)	(29.2%)	(6.8%)	(2.6%)	416,500
East of England	2,423,035	(18.5%)	(42.9%)	(29.1%)	(6.9%)	(2.6%)	3,231,763
England	22,063,368	(25.8%)	(42.2%)	(24.7%)	(5.5%)	(1.9%)	25,696,833

Source: 2011 Census, ONS

Suffolk has a higher number of households with at least one car or van compared to sub-national and national levels. Proportionately fewer households own 2 cars or vans compared with the national average but more households have 3 or more cars or vans than the national level. Suffolk vehicles ownership is similar to the regional statistics for 2 or more car or van ownership.

6. Cultural Heritage

Suffolk's historic landscape makes an outstanding contribution to the County's character and local distinctiveness. A high percentage of the county is deemed to be 'ancient countryside' where the pattern of fields and roads is of medieval or earlier origin. Historic features are a finite resource and cannot be fully replicated. The Historic Landscape Characterisation (HLC) produced by the County's Archaeological Service in conjunction with English Heritage is a key resource for the understanding of the historic landscape.

The condition of the built heritage in Suffolk is likely to decline somewhat in the near future due to a continuing reduction in public funding for conservation and a fall in household income.

6.1 Recorded Archaeological Sites and Finds in Suffolk

The County's Historic Environment Record (HER) currently (2013) has 24,484 records relating to 16,814 archaeological sites. Of these, 328 are designated as Scheduled Monuments of national importance, forming the vast majority of the county's Scheduled Monument list.

6.2 Listed Buildings

The county also contains many buildings of historical or architectural interest, with 13,591 listings. The numbers of recorded archaeological sites, listed buildings have all increased in recent years, giving increased protection to Suffolk's heritage. The area of designated historic parkland has also increased in the last five years.

Table 19: Listed Buildings

Type of listed building	Total number
Grade I	401
Grade II*	815
Grade II	12,044
Total	13,591

Source: Historic England, 2016

There are 13,260 designated listed buildings in Suffolk and the majority of them are grade II listed. This means they are nationally important and of special interest. 3.0% of all the listed buildings are considered to be of exceptional interest and internationally important (grade I) and 6.1% are classed as particularly important buildings of more than special interest (grade II*).

According to the Heritage at Risk Register (2016), there are 66 assets listed as being at risk in Suffolk. This consists of 28 scheduled monuments, 31 listed buildings, 4 conservation areas and 2 registered



park and garden.

6.3 Scheduled Monuments

There are 329 Scheduled Monuments within Suffolk which represents 18.9% of all Scheduled Monuments within the east of England. They range from Roman settlements and structure to a Franciscan nunnery and have been designated due to their national importance. As mentioned above, 28 of these scheduled monuments are on the heritage 'at risk' register. This means that 8.5% of all Scheduled Monuments in Suffolk are at risk of damage and disrepair.

Source: Historic England 2016

6.4 Historic Parks and Gardens

There are 23 registered parks and gardens within Suffolk which have each been designated by Historic England as being "a park or garden of special historic interest". There are 2 in the area of Lowestoft, 3 in the Bury St Edmunds area, 3 in the area of Ipswich, 3 in the area of Felixstowe, 4 proximate to Sudbury with the remainder spread throughout the county.

Source: Historic England 2015

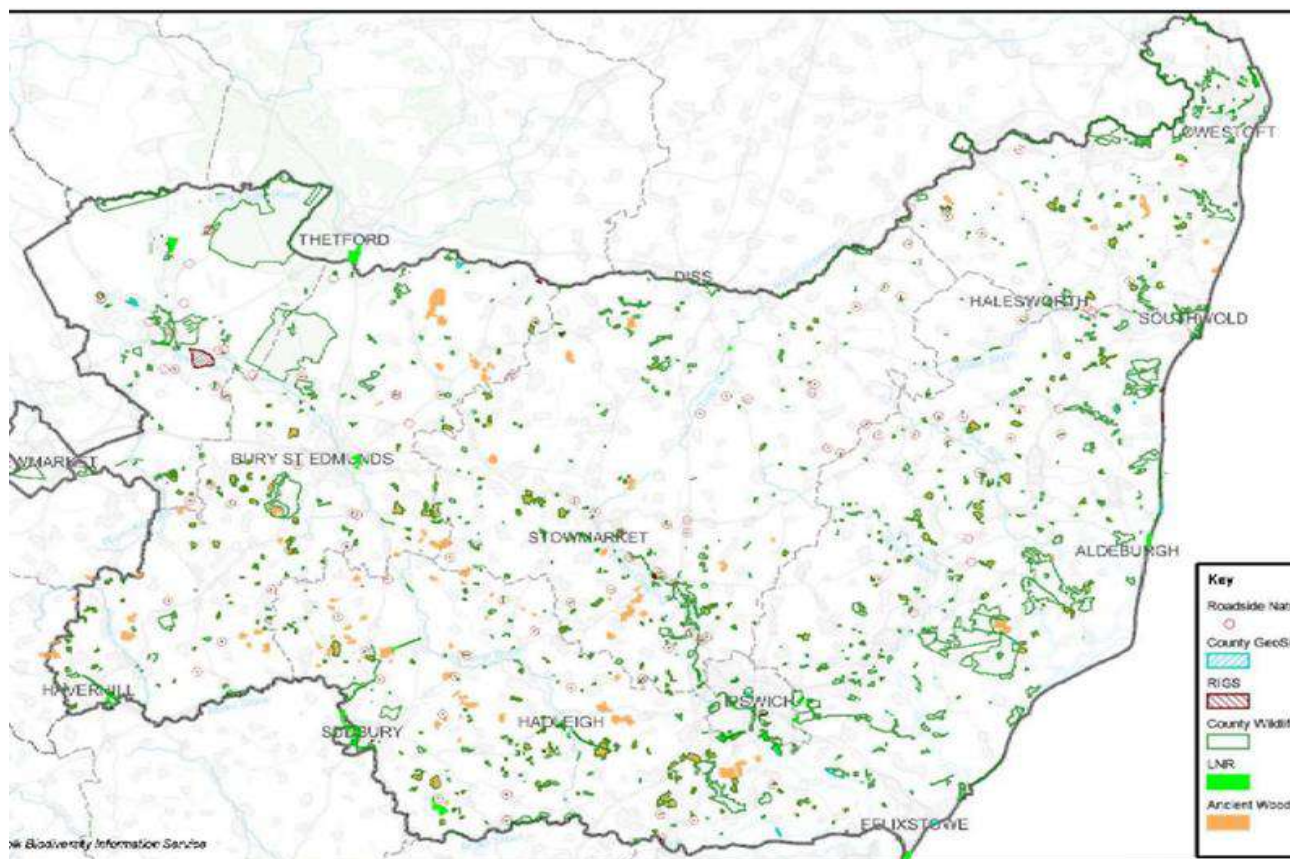
7. Biodiversity and Nature Conservation

7.1 Designated Sites

Suffolk contains a range of sites with ecological designations, including six Ramsar sites, seven Special Protection Areas, eight Special Areas of Conservation, 283 Sites of Special Scientific Interest (of which 36 are geological) and 36 Local Nature Reserves. The number of County Wildlife Sites currently stands at about 900 (2012) and the county has seven Regionally Important Geological/Geomorphological Sites (RIGS) and 109 candidate RIGS. In addition, a number of Biodiversity Action Plans and Habitat Action Plans are in place, with the aim of conserving and increasing nationally and locally important habitats and species in the county.

The locations of these designations can be found in the following figure.

Figure 3: National and Local Designated Sites in Suffolk



Source: Suffolk Minerals & Waste Local Plan – Scoping Report, September 2016

Local Nature Reserves across the county providing important green spaces for people to enjoy and relax in, homes for wildlife and they also help support ecological networks. Protecting these places within our communities is vital for the wellbeing of future generations. Green spaces in urban areas are also important for the management of water and flooding, providing areas where water can infiltrate into the ground. In 2012, 53.7% of Suffolk was covered by Environmental Stewardship, Environmentally Sensitive Area or Countryside Stewardship Schemes.

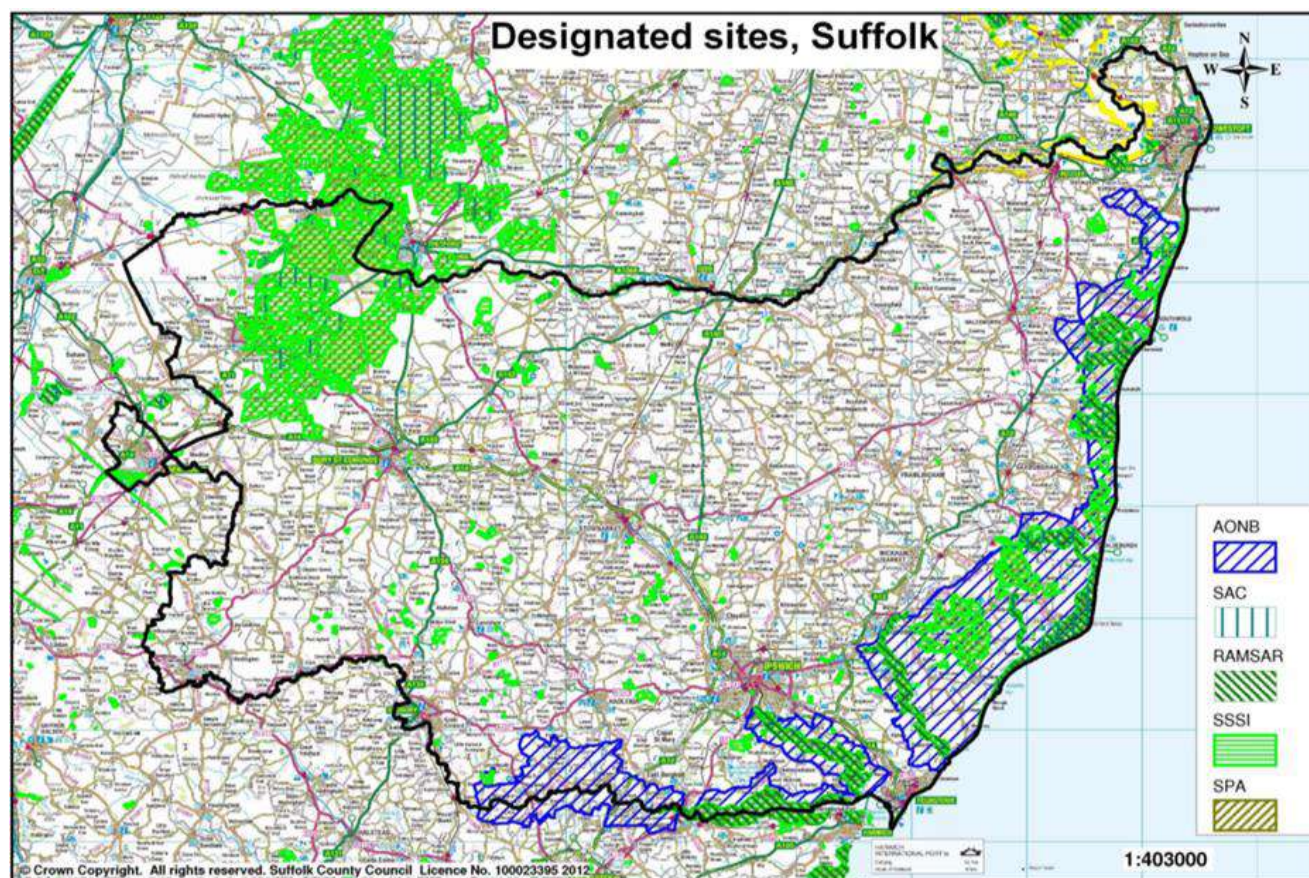
County Wildlife Sites cover 19,200 hectares, 5% of the county. The percentage of Suffolk's County Wildlife Sites in positive conservation management has increased from 50% in 2011-12 to 58% in 2012-13.

Table 20: International Designated Sites in Suffolk

Designated sites	Area of county designated (ha)	Percentage of county designated (%)
Sites of Special Scientific Interest (SSSIs)	23,162	6.1%
Special Areas of Conservation (SACs)	6,114	1.6%
Special Protection Areas (SPAs)	14,089	3.7%
Ramsar sites	8,377	2.2%

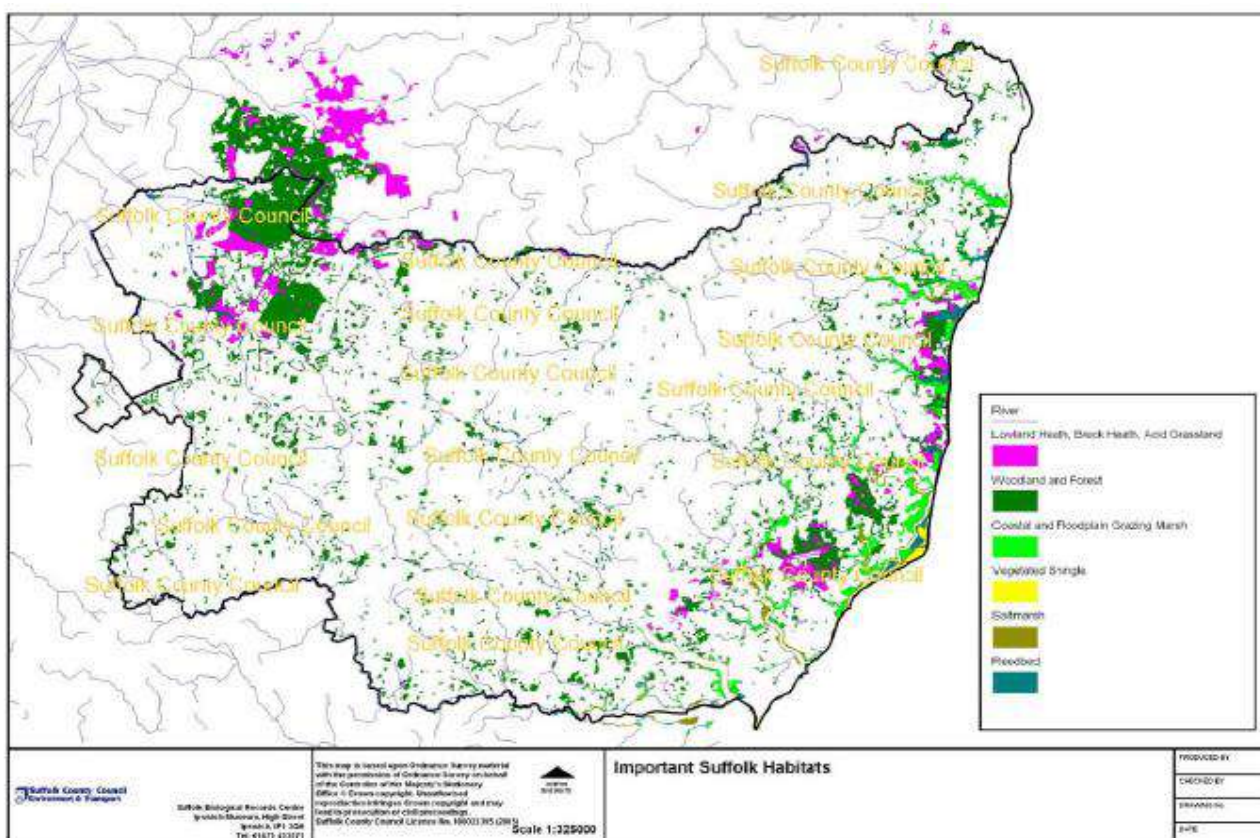
Source: Suffolk Minerals & Waste Local Plan – Scoping Report, September 2016

Figure 4: National and Local Designated Sites in Suffolk



Source: Suffolk County Council

Figure 5: Important Habitats in Suffolk



Source: Suffolk County Council

7.2 Sites of Specific Scientific Interest (SSSIs)

There is a Public Service Agreement (PSA) target of at least 95% of all nationally important wildlife sites being brought into favourable condition. According to the Natural England overview, Suffolk is falling short of this target. At 92.30%, the county is close to achieving the target, but it is worth noting that there is a particularly large area of SSSIs to manage within Suffolk.

In addition to designated sites, consideration should also be given to non-designated value in regards to ecology on a site-by-site basis in order to protect and enhance species and habitats, including those that are protected. This could include Greenfield sites and areas of habitat considered to enrich appreciably the habitat resource within the context of local areas, such as species-rich hedgerows, municipal parklands or individual veteran trees.

**Table 21: Condition of Sites of Special Scientific Interest in Suffolk**

Number of sites	Total Area (ha)	% Area meeting PSA target of favourable or unfavourable condition	Favourable	Unfavourable - Recovering
142	50,853.97	92.30%	47.46%	44.84%
Unfavourable – No change	Unfavourable - Declining	Partially Destroyed	Destroyed	Not Assessed
3.42%	4.12%	0.08%	0.08%	0.00%

Source: Natural England, November 2016

8. Landscapes

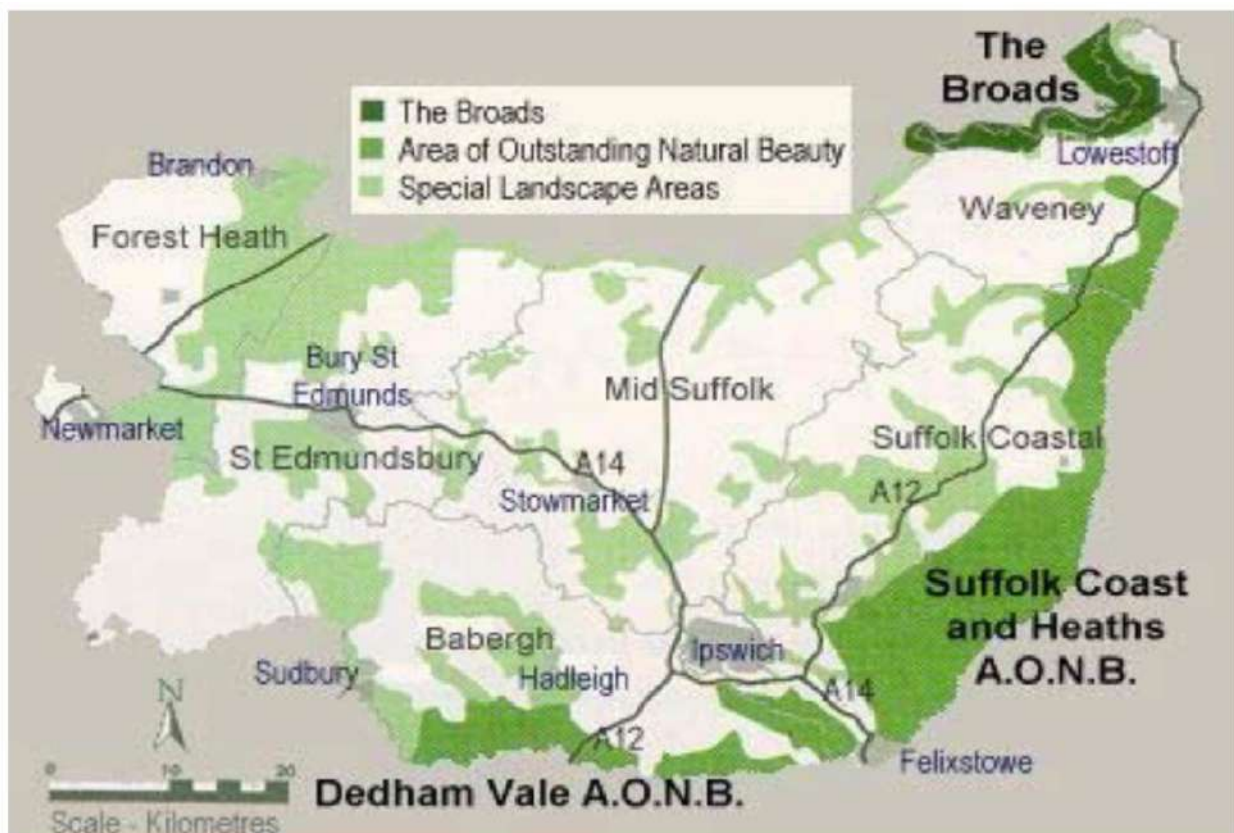
8.1 Landscape Features

Around 12% of Suffolk's landscape is designated as an Area of Outstanding Natural Beauty (AONB). Suffolk's two AONBs are the Suffolk Coast & Heaths and the Dedham Vale.

Planning policy requires protection of the highest quality landscapes, such as the AONBs, but recognises that some development in AONBs can be justified for reasons of economic vitality and viability, and the provision of important services. Any proposals for minerals management development in the AONBs would therefore need rigorous justification and very sensitive design.

Over 36% of Suffolk is either nationally or locally protected for its wildlife or landscape value. The Dedham Vale and Suffolk Coast & Heaths Areas of Outstanding Natural Beauty (AONBs) and the Norfolk & Suffolk Broads, are places in which the quality of landscape is formally recognised and given special statutory status to conserve and enhance natural beauty, and in the case of the Broads, an additional duty to promote open-air recreation. These special qualities are protected under legislation and through planning policy. Together they cover 13% of Suffolk. Locally designated Special Landscape Areas cover a further 22% of the county.

Figure 6: Areas of Outstanding Natural Beauty and Special Landscape Areas



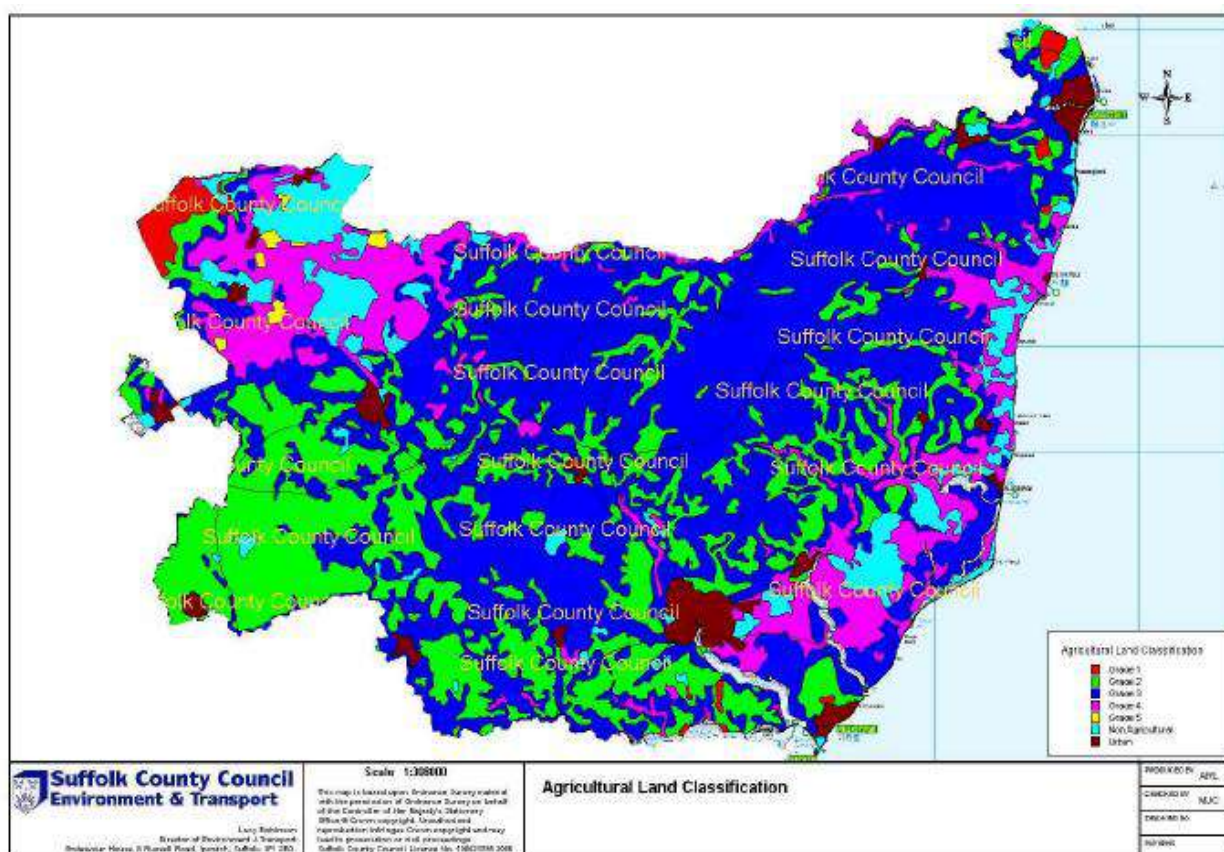
8.2 Agricultural Land Classification

Suffolk is rich in agricultural farmland. About 1% of the county's soils are Grade 1, with grades 2 and 3a each at about 20%; in total, about 45% of the county's soils are classed as "best and most versatile".

The gas emissions for agriculture are markedly different from other industries, in that methane and nitrous oxide are the significant gases rather than carbon dioxide. There are opportunities for more efficient and improvement in the industry, and example being the harnessing of methane as fuel source. The use of anaerobic digesters to process organic municipal waste and livestock manure to produce methane as a fuel and a compost to replace peat is where the real societal advantage lies.

The Agricultural Land Classification map of Suffolk can be found on the following page.

Figure 7: Agricultural Land Classification



Source: Suffolk Minerals & Waste Local Plan – Scoping Report, September 2016

9. Water Environment

9.1 Water Quality

In the Anglian River Basin District only 18% of surface waters are at Good Ecological Status, as required by the Water Framework Directive (WFD). In Suffolk 9% of the rivers are at Good or High Ecological Status with 30% Poor or Bad. The WFD requires that all streams, rivers and estuaries are at Good Ecological Status by 2027.

To achieve this ambitious WFD target and to maximise ecological status in the rivers and water bodies, Suffolk aim to address a range of water management and water resource issues, including:

- Physical modification – many of the rivers have been widened, deepened and straightened in the past for land drainage and flood risk management purposes. They have also had structures such as locks, weirs and mills installed on them. This has resulted in simplified river habitats in Suffolk that do not support their ecological potential (diversity, number and movement of fish, plant and invertebrate species).
- Diffuse pollution, rural and urban – Suffolk rivers receive an excess of nutrient-rich sediment from a range of sources including road run-off and fields. Excess sediment smothers river beds, which is detrimental to fish and invertebrates. Phosphorus from agricultural fertilisers binds to sediment and leads to excess plant growth and a reduction in the range of plant species present. Riparian tree planting and increasing river habitat diversity are very effective climate change mitigation measures. They also increase the biodiversity value of Suffolk's rivers.
- Over abstraction – Suffolk's Growth Strategy identifies water supply as critically important for growth. Water is subject to increasing pressures, impacting both quality and quantity, from a wide variety of uses including domestic, agriculture and industry.

There are also a large number of internationally important wetlands and estuaries that need to be protected and enhanced.

Suffolk has a lower than average rainfall (less than the average for Jerusalem) and with increasing population growth and demand, water resources will be under severe pressure in future, directly affecting not just public health and wellbeing but also potentially restricting economic growth.

Currently the total requirement for public water supply is growing at about 1% per year and is expected to rise even faster as the climate warms - resulting in increasing public and agricultural demand for water - and as a result of population growth.

In addition, there is a legal requirement to reduce the amount of water taken from local ground and surface water sources in order to protect Suffolk's many water-dependent designated environments. These environments underpin the health of Suffolk's population and tourism economy as well as being of international ecological importance.

Demand for irrigation water for agricultural and food production, a key economic and employment sector in Suffolk, is predicted to increase by 10% in the next 20 years – in spite of continuous improvements in the efficient use of water in this sector.

Direct water consumption currently averages 150 litres/person/day; including embedded water – as in food production – the daily use of water averages 3,400 litres/person/day. Water Companies are working



hard to manage demand and efficient use of water but in spite of this there will need to be considerable investment in new supplies, in the form of new reservoirs or transfers from areas where water is available, within the next 20 years to satisfy the increased demand. 39 Whilst there are areas of the UK with plentiful supplies of water, moving it around is both costly and energy hungry.

Following two dry winters in 2010/11 and 2011/12 a drought was declared, immediately followed by extreme rainfall and resultant flooding from April 2012 onward. These fluctuations in water availability are predicted to increase resulting in the need for continuous investment by the Water Companies in new public water resources. Due to sea level rise and tidal flooding, groundwater supplies in the coastal area are at risk of reducing quality due to a rise in salinity – putting further pressure on this precious resource and potentially damaging important environmental assets.

9.2 Flood Risk

In Suffolk 5,000 homes are at risk from tidal flooding, 1,600+ in Ipswich alone (based on Environment Agency Shoreline Management Plans) and in addition there are over 20,000 homes potentially at risk from river flooding – particularly in the Gipping, Stour and Waveney valleys. There are also an estimated 80,000 properties currently at risk from surface water or flash flooding. In total this equates to about 1 in 6 properties potentially vulnerable to some form of flooding.

Future development and climate change will only exacerbate both the risk of flooding and drought and this must be mitigated for by embracing a catchment management approach to water management. The value of green space, sustainable drainage basins and other vegetated areas that allow water to infiltrate into the underground aquifers cannot be underestimated, both in replenishing water resources and managing flood risk.

The nature of flash or surface water flooding, which results from extreme localised rainfall means it is unpredictable and difficult to manage. It generally results in rapidly rising, but also quickly falling, water levels, which can pose a risk particularly to road users.

2012 and 2014 both saw a number of extreme rainfall events; whereas 2013 was particularly dry. On average the County Council receives some 300-500 reports of surface water flooding. Whilst the number of properties affected by internal flooding is relatively small (35 to date in 2014), the impact on transport networks can be severe.

Much of the current drainage network is only designed to withstand a rainfall event with a 1 in 30 chance of occurring in any one year. Without ongoing maintenance and investment, these systems are likely to fail more often in future, resulting in more extensive and deeper flooding. When overwhelmed by surface rainfall, many of the older drainage systems surcharge foul water – a significant health problem.

As well as the obvious direct human impacts of flooding, the cost in terms of the economy, insurance and investment in flood defences is huge. As an indication, the estimated cost of the

2013/14 tidal surge and winter storms cost the UK over £1 billion.

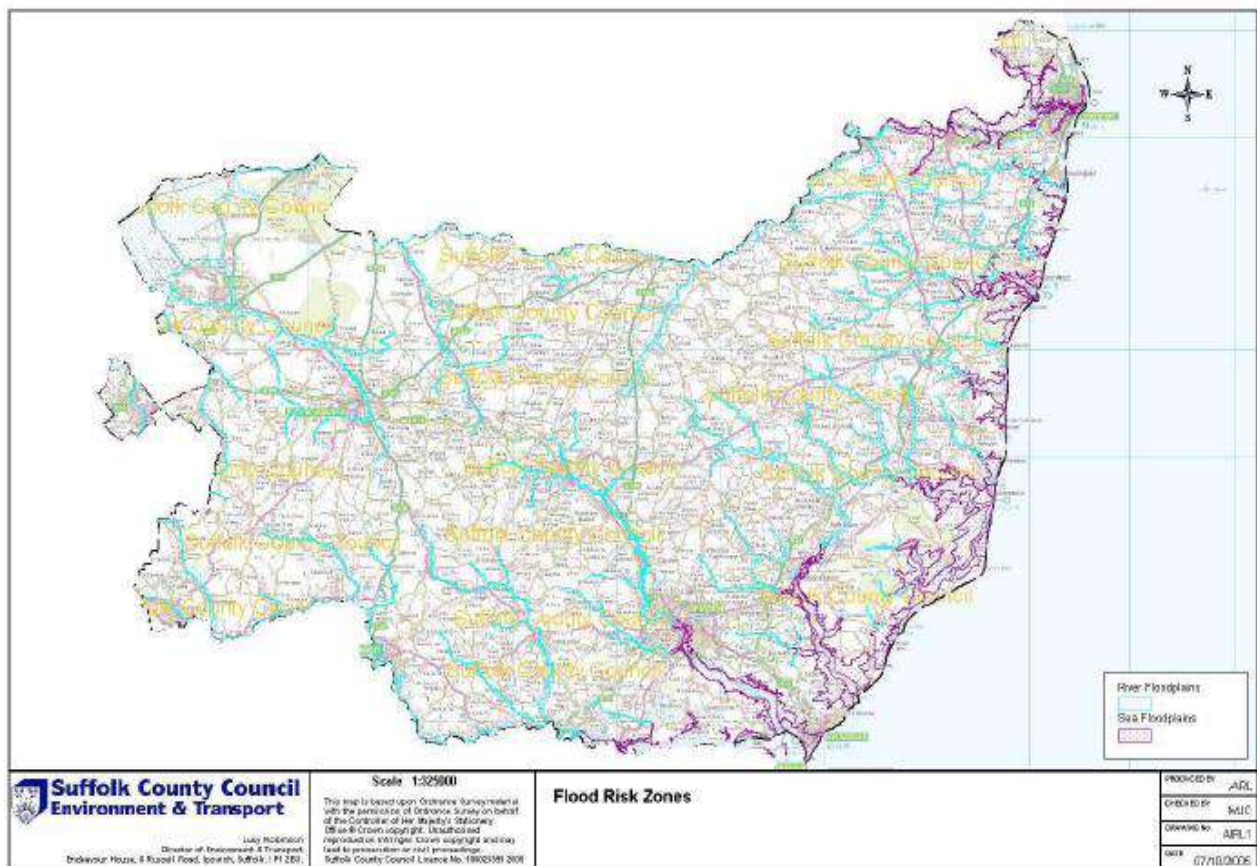
Fluvial Flooding

A hierarchy of flood zones are defined as:

- Zone 1 – (Low Probability)

- Encompasses land assessed as having a less than 1 in 1000 annual probability of flooding in any year (<0.1%).
- Zone 2 – (Medium Probability)
 - Comprises land assessed as having between a 1 in 100 and 1 in 1000 annual probability of river flooding (1% – 0.1%).
- Zone 3a – (High Probability)
 - Covers land assessed as having a 1 in 100 or greater annual probability of river flooding (>1%) in any year.
- Zone 3b – (The Functional Floodplain)
 - This zone consists of land where water has to flow or be stored in times of flood. It is land which would flood with an annual probability of 1 in 20 (5%) or greater in any year.

Figure 8: Flood Risk Zones in Suffolk



Source: Suffolk County Council

10. Climate and Energy

10.1 Energy Consumption and Emissions

Carbon dioxide (CO₂) is one of a basket of so-called greenhouse gases linked to climate change and is viewed as the principal gas because it is generated by human activity, in particular the burning of fossil fuels, in by far the greatest quantities. Other Greenhouse Gases are important, including nitrous oxide and methane, which are produced in lesser quantities but have more potential to cause global warming. Mineral and waste facilities play a significant role in the production of CO₂ emissions across the country.

Suffolk's CO₂ emissions in 2012 were 5,227.3 kilo tonnes (1.15% of the UK total), or 7.1 tonnes per capita, excluding the national data sets and emissions from shipping, aviation and those embedded within purchased goods¹⁸. UK per capita emissions were also 7.1 tonnes. Suffolk's Industry and Commercial emissions were 2,247.6 kilo tonnes (42% of the Suffolk total); Domestic emissions were 1,648.9 kilo tonnes (31%); and Transport emissions were 1,466.2 kilo tonnes (27%). This proportional split between the three sectors matched that of the UK as a whole. Industry & Commercial emissions in St Edmundsbury Borough are notably higher than the other Boroughs and Districts, at 835.2 kilo tonnes. This is 2.6 times the Suffolk average, or 3.5 times the average of the other six Boroughs and Districts. The Borough hosts British Sugar in Bury St Edmunds, which consumes large quantities of gas within its production process and in powering its on-site Combined Heat and Power unit, as well as a number of other significant commercial energy users.

According to DECC, Suffolk's emissions have dropped from 5,721.9 kilo tonnes (kt) (8.2 tonnes per capita) in 2005 to 5,227.3 kilo tonnes (7.1 tonnes per capita) in 2012, a reduction of 8.6% over 7 years (1.2% per annum). The baseline data for measuring Suffolk emissions is being taken as 2004 because this is the first data set that is robust and publicly available.

Table 22: Summary of CO₂ emissions at county level, 2005 – 2013 (kt)

Second Tier A	Year	Industry and Commercial Total	Domestic Total	Transport Total	N. LULUCF Net Emissions	Grand Total	Population (000s, mid-year estimates)	Per Capita Emissions (t)
Suffolk Total	2005	2,465.6	1,777.9	1,655.7	-98.6	5,800.6	697.8	8.3
	2006	2,488.2	1,798.3	1,656.2	-101.8	5,840.8	703.1	8.3
	2007	2,332.6	1,742.1	1,659.2	-103.9	5,620.0	709.0	7.9
	2008	2,289.1	1,723.9	1,574.4	-102.9	5,484.5	714.4	7.7
	2009	2,280.4	1,577.0	1,510.1	-94.1	5,273.5	718.1	7.3
	2010	2,493.8	1,707.7	1,513.3	-81.1	5,633.7	724.0	7.8



Second Tier A	Year	Industry and Commercial Total	Domestic Total	Transport Total	N. LULUCF Net Emissions	Grand Total	Population (000s, mid-year estimates)	Per Capita Emissions (t)
	2011	2,173.3	1,481.3	1,484.7	-79.0	5,060.3	730.1	6.9
	2012	2,294.0	1,587.3	1,464.3	-76.8	5,268.7	732.3	7.2
	2013	2,262.5	1,523.6	1,452.6	-72.4	5,166.4	735.9	7.0

Source: Suffolk Minerals & Waste Local Plan – Scoping Report, September 2016

According to DECC, in 2013 the East of England generated 9,318.9 GWh of electricity from renewable sources, which was 17.4% of the equivalent UK total. Wind (including offshore) accounted for 44% of the regional total, bioenergy (including sources co-fired with fossil fuels) for 42%, landfill gas for 11% and solar PV for 2.4%. Total sales of electricity (from all generating sources) in the East of England in 2012 were 27,009 GWh.

Table 23: Reduction of CO₂ emissions per capita

Area	% per capita reduction of CO ₂ since 2005
Suffolk	15.7%
East of England	26.8%
England	28.4%

Source: DECC, 2016

Suffolk has reduced the annual amount of CO₂ being emitted per capita by 15.7% relative to the 2005 baseline. When compared with the region and the nation, Suffolk recorded the lowest reduction of CO₂ emissions per capita, far behind the regional average of 26.8% and the national average of 28.4%

10.2 Fuel Poverty

Suffolk has a higher proportion of fuel poor households (9.7%) when compared to its geographical neighbours; 9.5% in Norfolk, 8.3% in Cambridgeshire and 7.6% in Essex in 2012. Being a largely rural county Suffolk has both a high number of solid fuel properties as well as numerous areas off the gas grid, which further compounds the issue of fuel poverty.

Table 24: Households - Fuel Poverty 2012

	2011	2012	2013
Suffolk County	11.4%	9.7%	9.6%
East of England	N/A	8.6%	8.8%
England	10.9%	10.4%	10.4%

Source: Suffolk Minerals & Waste Local Plan – Scoping Report, September 2016

10.3 Climate Change

A Summary of Climate Change Risks for the East of England by Climate UK identified the following key risks and implications of climate change for Health and Wellbeing:

- Being one of the warmer parts of the UK, increases in temperature may lead to increased levels of mortality and morbidity due to heat.
- Increased flooding may lead to increased numbers of deaths, injuries and people suffering from mental health effects as a result of flooding.
- Increasing ozone levels by the end of the century may lead to increased levels of mortality and respiratory hospital admissions.

Water and coastal management are likely to be the most serious climate change issues in Suffolk. The combination of low lying land and coast, current pressures on water resources, levels of expected housing growth and the degree of predicted climate change mean that Suffolk is particularly susceptible. Suffolk is one of the driest parts of the country and according to the Environment Agency many of the water resources available are already overstretched.

The eastern part of East Anglia is very dry in comparison with the rest of England and Wales. This is due to the seasonally variable and west-east distribution of rainfall, resulting in the area receiving approximately two thirds of the national average. Suffolk has an annual yearly rainfall of 610mm of which approximately 460 mm is lost to evaporation. Continued low rainfall in eastern Suffolk will ultimately result in lower groundwater levels and lower flows in the rivers. In relation to East Anglia as a whole, the Suffolk coast has relatively mild winters and cool summers because of its proximity to the sea.

Defra guidance on sea level rise suggests that the East of England will see a net rise of 4mm per year from now until 2025. This yearly average is likely to increase to a predicted 15mm per year from 2085 to 2115 (Defra, 2006). UK Climate Projections (UKCP09, 2009) shows a sea level rise from 1990 levels of between 37.3cm and 53.1cm at London by 2095. This will put added pressure on structures such as tidal defences as they will be subjected global sea levels. With higher sea levels, larger waves will also be able to get closer to the shore.

Also, climate change is expected to increase storminess. The onset of global warming has also led to predictions that the UK will experience wetter winters and drier summers as well as higher annual mean winter and summer temperatures. By the 2020s, temperatures across the Plan study area could rise by up to 1.5°C, while average summer rainfall may fall by up to 15% and average winter precipitation may



increase by up to 10% (UKCP09, 2009).

Climate change experts predict that we will experience more hotter, drier summers and warmer, wetter winters as our climate changes. Riparian tree planting and increasing river habitat diversity are very effective climate change mitigation measures. They also increase the biodiversity value of Suffolk's rivers.



11. Air

11.1 Air Quality

Air quality in Suffolk is generally good, but there are several locations where pollution levels are sufficiently high for the National Objective Limit Levels to be exceeded. The majority of these are in town centre areas across the county.

Suffolk currently has nine Air Quality Management Areas (AQMA), where the Limit Levels for nitrogen dioxide are exceeded, of which eight are solely associated with road traffic. Five are in Ipswich, where additional Areas are shortly to be added and the extent of the existing ones reviewed. There is also an Area in each of Sudbury, Newmarket and Woodbridge. An additional area is also expected to be declared adjacent to the A12 at Farnham. The ninth AQMA is in the Felixstowe Dock area, with contributions from dock activities as well as road traffic.

Suffolk's District and Borough councils are responsible for monitoring air quality, producing Annual Reports and designating the AQMAs. They currently monitor extensively, mainly in the urban areas where road traffic levels are highest, speeds lowest and dispersion is obstructed by buildings. The number of AQMAs has slowly increased over the years and air quality is generally getting poorer. Action Plans identifying measures to try to improve matters have been put together for the majority of the AQMAs, but have been slow in implementation.

Of the 9 current AQMAs, 4 were declared in 2006, one in 2008, two in 2009 and two in 2010.

Suffolk County Council currently runs one full-time monitoring station at Claydon, which has been collecting background information on nitrogen dioxide, particulates and sulphur dioxide levels as a check for residents potentially affected by the Gt. Blakenham energy from waste plant. Any air quality events arising from its operation will be identified at the earliest. At present air quality in this locality is good, with low levels of all of the key pollutants.

The weather plays a significant part in levels of air quality across the country. The majority of the Air Quality Standards relate to annual mean exposure, which has been found to be the best indicator for public health effects. Consequently years when the weather is wet and windy show better air quality. Suffolk is affected by the pollution incidents which affect the UK as a whole, such as when under certain air stream conditions, material is transported from the Sahara in the south or under easterly warm still conditions when pollutants are transported from the Continent, including the major industrial areas. These events are usually relatively short, as static warm air conditions do not tend to last very long, and do not significantly affect the annual average figures. One area of concern is the promotion of wood burning stoves and biomass boilers. These emit relatively high levels of particulate matter, depending on the material burnt. Assessments are carried out to ensure that larger boilers are properly designed and flue stacks sufficiently tall to ensure that material disperses away from residents.



12. Waste

12.1 Overview

The Waste Local Plan must implement the waste hierarchy, in accordance with the Revised Waste Framework Directive. In practice, this means promoting waste prevention, material and energy recovery (e.g. direct re-use, recycling and treatment to make new objects) prior to disposal. If plentiful facilities for the processes at the top of the waste hierarchy are provided while fewer for the processes towards the bottom of the hierarchy, movement up the waste hierarchy may be achieved.

Waste collected per person for the period 2009-2015/16 has decreased from 529.71 to 470.29 kg, equating to a decrease of roughly 11% over this period. Figures 2015-2016 show an increase in residual household waste generation from 489.74kg to 492.29kg/HH from the previous year, reflecting general population increases and growth requirements.

Waste going to landfill is a major contributor to climate change accounting for about 3% of the UK's greenhouse gas emissions. As the waste decays it produces methane, which is a highly potent greenhouse gas (one tonne of methane emissions has the same impact on global warming as 25 tonnes of carbon dioxide emissions). By cutting the amount of waste sent to landfill through waste reduction, reuse, recycling can contribute to the greenhouse gas emissions reduction.

Since 2006/07 the amount of waste collected per head and the amount of household and municipal waste being sent to landfill has decreased significantly. At the same time the percentage of household waste sent for recycling, reuse or composting has increased.

In November 2014 the Suffolk Waste Partnership started a contract with Viridor Waste Management to sort and recycle material collected from households. Through the work of the Suffolk Waste Partnership the total amount of waste material recycled in 2014/2015 was 53,056 tonnes per year – representing a recycling rate across Suffolk of approximately 20% from household collections alone.

12.2 Recycling, Re-use and Composting

Household waste is collected from domestic properties & premises classified as domestic by the Controlled Waste Regulations 2012 (e.g. residential homes, schools, prisons). Municipal waste is all local authority collected waste including domestic and commercial customers, this includes residual waste & waste collected for recycling and composting from both domestic and commercial customers.

Table 25: Percentage of household waste sent for re-use, recycling or composting for the financial year 2015-16

District	Percentage of household waste sent for re-use, recycling or composting
Forest Heath District Council	46.51%
Ipswich Borough Council	40.81%



District	Percentage of household waste sent for re-use, recycling or composting
Mid Suffolk/Babergh District Council	43.36%
St Edmundsbury Borough Council	51.17%
Suffolk Coastal District Council	57.85%
Waveney District Council	49.59%
Suffolk County Council	53.00%

Source: Suffolk County Council

Table 26: Suffolk Overall Statistics 2015-16

Suffolk Overall Statistics	2015/16
Waste collected per person	470.29 kg/person
Reuse, recycling, compost %	53.00%
% HH Waste to Landfill	0.91%
% Municipal waste to landfill	1%
Residual household waste per HH	492.29 kg/HH

Source: Suffolk County Council

There are 28 aggregates recycling plants in Suffolk as well as the Great Blakenham Energy from Waste (EfW) facility. Since this came online in 2014, it can be seen from the above that very little material went to landfill.

Within Suffolk there are currently 100 active waste management facilities consisting of:

- 18 household waste recycling centres;
- 7 composting sites (or compost processing sites);
- 18 landfill sites;
- 26 waste transfer facilities;
- 25 metal recycling facilities;
- 2 materials recovery facilities;
- 8 incinerators (which are mainly small veterinary facilities) and;
- 3 anaerobic digesters.



Sites are located evenly throughout the county, along major transport routes. Waste transfer facilities are concentrated along the A14 and near the County's borders with Essex and Norfolk.

The mix of different types of waste management facilities is set to change as levels of recycling, composting, and recovery increase at the expense of landfill in line with the National Waste Strategy.

12.3 Trends and Future Needs

Currently waste generation is increasing at around 2% pa, reflecting improvements in the economy and increases in population. Long term waste forecasting is notoriously difficult. Trends for commercial and industrial (C&I) waste show an overall increase of waste arising in Suffolk; and although a proportion of C&I waste landfilled has decreased and a proportion of recycling/composting increased, absolute volumes have grown for both categories.

The existing population and planned growth will require suitable waste management facilities, to deal with both the waste generated by construction and demolition operations, and also waste produced by residents, businesses (including agriculture) and associated infrastructure such as schools and health care facilities. Whilst the production of waste will continue to take place, where and how it is managed will be affected by the Minerals and Waste Plan Review. The EU Waste Framework Directive requires that the management of waste should be moved up the waste hierarchy. Helping to achieve this objective is the responsibility of all waste producers, operators of waste management facilities and local planning authorities as well as waste planning authorities and waste disposal authorities.

The Suffolk Waste Study (2017) includes a series of forecasts for waste streams in the County.

Table 27: Household Waste Arisings Forecast for Suffolk

Arisings	2017/18	2018/19	2019/20	2020/21
Household	527,000	530,000	534,000	538,000

Source: Suffolk Waste Study (2017)

Information from Waste Disposal Officers of Suffolk County Council is that average waste arisings per household in Suffolk were 1.047tonnes per household in 2015/16. However, changes in collection systems, in particular the introduction of charging for garden waste collections, is expected to result in a reduction to 1.02 tonnes per household in 2016/17. Continuing efforts to reduce waste arisings should result in the level of arisings remaining low.



12.4 LACW Forecasts

Assuming that each new household generated 1.02 tonnes of waste per annum, the forecast for local authority collected waste is given in the table below:

Table 28: LACW forecast in Suffolk

Year	LACW (tonnes)	Year	LACW (tonnes)
2011/12	378,847	2024/25	430,000
2012/13	370,487	2025/26	433,000
2013/14	387,217	2026/27	437,000
2014/15	391,594	2027/28	441,000
2015/16	397,093	2028/29	444,000
2016/17	401,000	2029/30	448,000
2017/18	404,000	2030/31	452,000
2018/19	408,000	2031/32	455,000
2019/20	412,000	2032/33	459,000
2020/21	415,000	2033/34	462,000
2021/22	419,000	2034/35	466,000
2022/23	422,000	2035/36	470,000
2023/24	426,000		

Source: Suffolk Waste Study (2017)

This represents an increase of approximately 16% over the period 2016/7 to 2035/36. Forecast arisings are rounded to the nearest 1,000 tonnes in order to avoid spurious accuracy. Sensitivity testing shows that even if the number of dwellings planned over this period are not delivered, the difference in the quantity of waste arising is not significantly altered.



12.5 C&I Waste Arising Forecasts

Mapping the waste arising from various sectors on to the growth forecast for equivalent sectors gives a “High Growth” scenario for C&I waste arisings.

The EEFM also produces a forecast for “Total GVA” which incorporates all economic sectors. This shows a slight reduction in GVA over the period to 2031. This has therefore been used as the “Low Growth” scenario for C&I waste arisings.

Forecast arisings are rounded to the nearest 1,000 tonnes in order to avoid spurious accuracy. The East of England Forecasting Model only extends to 2031 and so a straight line with no increase or decrease in growth has been assumed for the period from 2031 to 2036.

Table 29: C&I forecast arisings in Suffolk

Year	High Growth	Low Growth	Year	High Growth	Low Growth
2011	850,000	850,000	2024	926,000	657,000
2012	834,000	834,000	2025	944,000	645,000
2013	817,000	817,000	2026	960,000	632,000
2014	801,000	801,000	2027	976,000	620,000
2015	785,000	785,000	2028	992,000	608,000
2016	795,000	769,000	2029	1,008,000	597,000
2017	809,000	754,000	2030	1,024,000	585,000
2018	825,000	739,000	2031	1,039,000	574,000
2019	841,000	725,000	2032	1,039,000	563,000
2020	858,000	711,000	2033	1,039,000	552,000
2021	875,000	697,000	2034	1,039,000	541,000
2022	892,000	683,000	2035	1,039,000	531,000
2023	909,000	670,000	2036	1,039,000	531,000

Source: Suffolk Waste Study (2017)



12.6 CD&E Waste Arising Forecasts

The NPPG provides advice on how waste planning authorities should forecast future CD&E waste. It states “Waste planning authorities should start from the basis that net arisings of construction and demolition waste will remain constant over time as there is likely to be a reduced evidence base on which forward projections can be based for construction and demolition wastes”. This study adopts this approach to forecasting CD&E waste, which was also used in the draft Regional Spatial Strategy.

The table below sets out CD&E waste forecast to be managed through permitted facilities to 2036:

Table 30: C&D forecast arisings to be managed in permitted facilities to 2036

Year	C&D Arisings	Year	C&D Arisings
2015	529,500	2026	426,000
2016	517,000	2027	418,000
2017	507,000	2028	409,000
2018	497,000	2029	402,000
2019	488,000	2030	394,000
2020	478,000	2031	386,000
2021	469,000	2032	379,000
2022	460,000	2033	371,000
2023	451,000	2034	364,000
2024	442,000	2035	357,000
2025	434,000	2036	350,000

Source: Suffolk Waste Study (2017)



12.7 Hazardous Waste Arising Forecasts

It is difficult to forecast hazardous waste arisings since there is a continuing process of eliminating these wastes by retrieving them from manufacturing processes and placing them back into the manufacturing process. However, economic growth will be used as a proxy in the same manner as C&I waste.

Table 31: Hazardous Waste Arisings - historic and forecast

Year	Hazardous waste arisings (tonnes)	Year	Hazardous waste arisings (tonnes)
2012	44,022	2025	35,519
2013	36,513	2026	34,679
2014	40,535	2027	33,897
2015	44,876	2028	33,152
2016	44,233	2029	32,429
2017	43,319	2030	31,735
2018	42,292	2031	31,090
2019	41,269	2032	31,090
2020	40,262	2033	31,090
2021	39,265	2034	31,090
2022	38,294	2035	31,090
2023	37,348	2036	31,090
2024	36,422		

Source: Suffolk Waste Study (2017)



12.8 Radioactive Waste

Forecasts of radioactive waste arisings are available from the 2016 UK Radioactive Waste & Materials Inventory. These focus on arisings from the energy industry which are mainly managed on site or using the Low Level Waste Repository south of Sellafield in Cumbria.

The wastes from Minor Waste Producers involve very small quantities of waste which are relatively small compared to non-hazardous waste arisings. Any increases in amounts needing management will not require new sites to be identified for the development of new facilities to manage this waste stream.

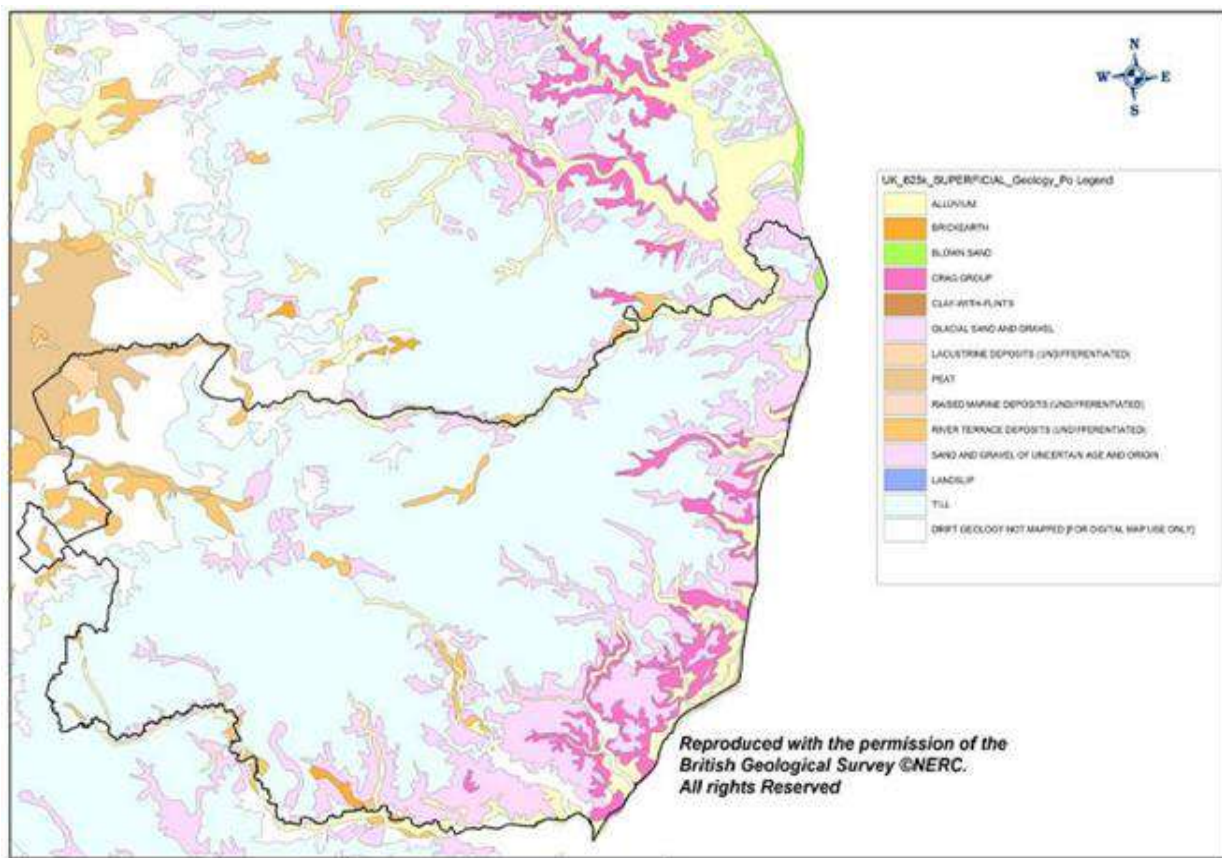
13. Minerals

13.1 Material Assets

The solid geology of Suffolk consists mostly of Cretaceous Chalk deposits, with London Clay, Reading Beds, Thanet Sand and Crag present in the east of the County. The solid geology is largely covered by glacial drift deposits of Boulder Clay, Sand and Gravel. Within the river valleys, reworked Glacial Sand and Gravel forms River Terrace deposits. In the west of the County are found Wind Blown deposits of Sand.

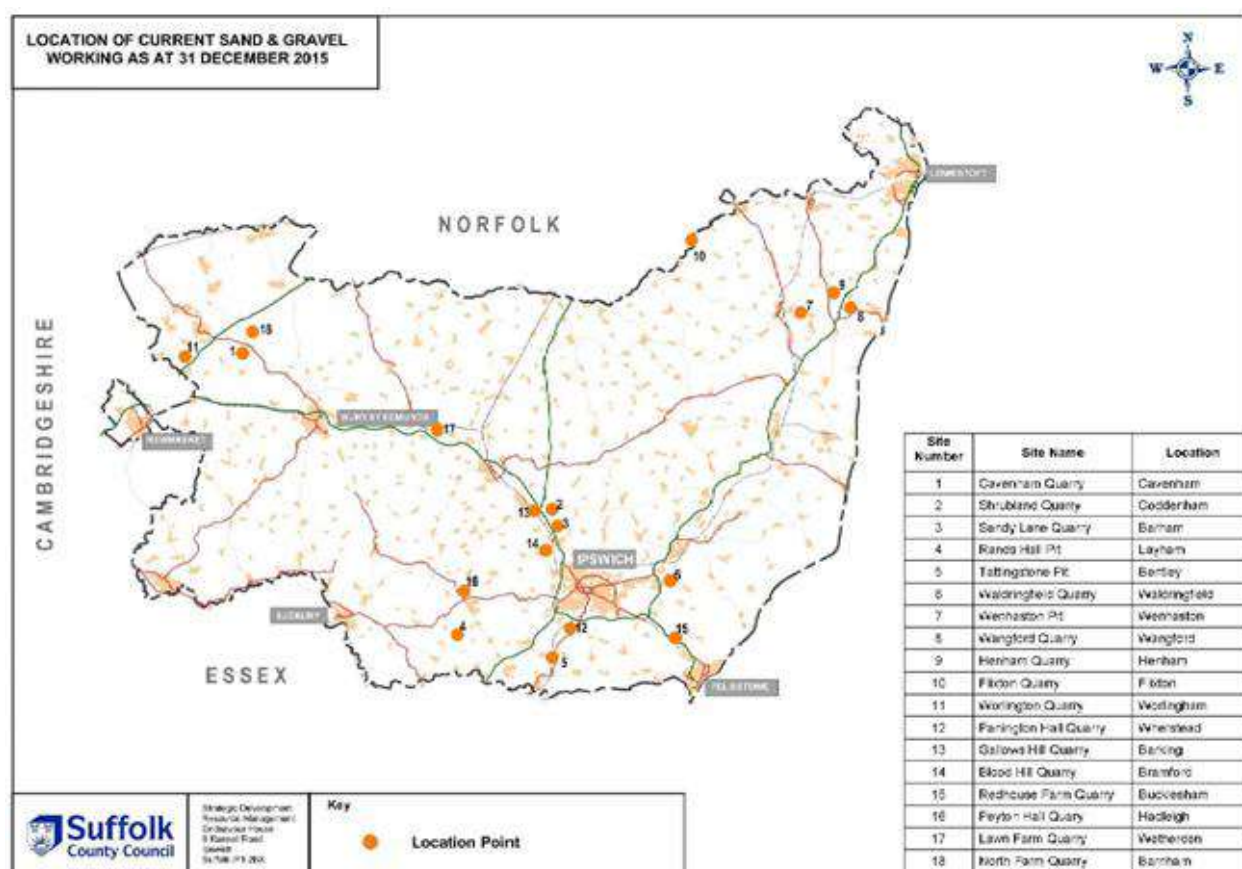
The principle mineral resource within Suffolk is sand and gravel, distributed evenly across the county, although there are particular concentrations in the river valleys, especially the Gipping valley (which runs from roughly the north-west of the county down to Ipswich and the coast). Figure 6 below shows a simplified geological map of Suffolk showing the main aggregates resource areas. Traditionally sand and gravel has been extracted from the Gipping, Lark, Blyth and Waveney river valleys and to the east of Ipswich. As these river valleys (terrace deposits) have been worked through, more recently, workings have opened up in areas exploiting more extensive glacial sands and gravels. Figure 7 shows the location of the current mineral working sites for comparison against the geological plan. Suffolk contains no hard rock mineral resources and therefore only seeks to maintain a land bank for sand & gravel.

Figure 9: Geological Map of Suffolk



Source: Suffolk Minerals & Waste Local Plan – Scoping Report, September 2016

Figure 10: Map of sand and gravel working in Suffolk (December 2015)



Source: Suffolk Minerals & Waste Local Plan – Scoping Report, September 2016

As of 31st December 2015, Suffolk had 13.2 mts (million tonnes) of permitted reserves, giving it a land bank of 8.1 years based on the apportionment of 1.62 million tonnes (mts) per annum. Suffolk currently has sufficient permitted reserves of sand & gravel to maintain a seven years land bank. However, there would be a need to review existing allocations to consider whether they remain deliverable.

The 2014 figures for sales of sand and gravel in the Plan area amount to 916,000 tonnes of land total land won sand and gravel from 18 workings (although 4 are inactive) and 84,000 tonnes that was marine dredged. This equated to 141,000 tonnes of mortar, 386, 000 tonnes of concreting sand and 0 tonnes of asphalt. Gravel sales equated to 204,000 tonnes of concreting aggregates and 185,000 tonnes of miscellaneous gravel. It should be noted that in twenty years sales have never exceeded apportionment.

Regarding imports and exports of sand and gravel (from the 2014 collation), the largest importers were Norfolk & Essex at 10-20 %. The next largest importers were Cambridgeshire & Lincolnshire at 1-10%. Norfolk imported 1-10% of sand and gravel consumed from Suffolk, Cambridgeshire imported 1-10% of sand and gravel consumed from Suffolk, and Hertfordshire also imported 1-10% of sand and gravel consumed from Suffolk.

Regarding imports of crushed rock from the 2014 collation, the largest importers were Leicestershire at 90-100 %. The next largest importers were Conwy, Powys and Cambridgeshire at 1-10%. There are 4 safeguarded railheads.

Chalk extracted in the county is used for the improvement of arable land and for specific industrial purposes; in 2014 there were two active chalk quarries in the county. The chalk landbank is estimated to



contain more than 40 years' supply and due to the very low demand for the mineral, it is no longer considered by the County appropriate to measure the chalk landbank.

With the continuing focus on re-developing brownfield sites, production and sales of recycled aggregate is likely to remain high over the coming years and there is, therefore, a continuing demand for recycled aggregate sites in the county.

13.2 Marine Aggregate

More recently published material from the Crown Estate Commissioners indicates that in the calendar year 2015 the East Coast Dredging Area was licensed to permit removal of 9.2 million tonnes of marine aggregates. The total removed for 2015 for the East Coast was 4.4 million tonnes (3,564,364 tonnes in 2012). A total of 199,421 tonnes of this was landed in Suffolk. Most of the material removed from the East Coast Dredging Area is either exported to the near continent or taken to the Thames Estuary to serve Greater London. The 2016 Local Aggregate Assessment concludes that it can be assumed that married dredged supplies will continue as before.

13.3 Mineral Extraction

Mineral extraction is known to have adverse effects on the local environment, particularly through onsite noise, dust and light pollution, as well as reducing the biodiversity and landscape quality. Pollution may also indirectly affect the water quality of the area. Offsite effects of mineral extraction also include noise and dust pollution, as well as disturbance to local communities and the impact of HGV movement of public highways. The marine environment can be particularly affected by mineral extraction if it occurs in sensitive areas.

There is conflict between the extraction of minerals and landscape and environmental protection designations e.g. AONB, SPA, SAC, SSSI, Ramsar, Special Landscape Area, Agricultural Land Classification, Historic Parks and Gardens and Listed Buildings. However minerals are a necessity and we have to plan positively for their extraction sensitive to the sites environmental values. Minerals development in these sensitive areas is not prohibited but proposals need to be carefully considered against national policy.

Proposals for mineral working in these areas will need to have regard to the National Planning Policy Framework and the Development Plan. Whilst these designations are likely to restrict the likelihood of mineral extraction compared to other areas there are some circumstances where mineral working may be compatible with the designations and indeed in some cases have been managed to create habitat, which makes a positive contribution to the conservation objectives underlying the designation.

There is a potential conflict between Local Development Plan allocations for non-mineral development and mineral development and/or safeguarding. Minerals can only be worked where they occur, whereas for other forms of development, such as housing, alternative locations may be available. Safeguarding minerals is necessary to ensure that important resources are not sterilised by development which can be suitably located elsewhere.



13.4 Looking Ahead

Looking to future, it should be noted that there are 7 sand and gravel sites in the Local Plan that are yet to be permitted. There is however enough provision to maintain the landbank until the Replacement Suffolk Minerals & Waste Plan to which this SA applies, is expected to be adopted in 2018 and it is worthy of note that housing completions are 28.5% lower than Local Plan projections. It should also be noted that National Guidelines run out in 2020.

A number of nationally significant infrastructure projects (NSIP) are planned for Suffolk including the possibility of construction of twin nuclear reactors at Sizewell. The County Council will seek to maximise the potential for the use of marine dredged and sea borne aggregate for the construction of this development.

13.5 The Suffolk Local Aggregates Assessment, April 2018

The following text represents the executive summary of the LAA, 2018.

The NPPF requires that Minerals Planning Authorities, including Suffolk County Council, should plan for a steady and adequate supply of aggregates

Besides indigenous land-won sand and gravel, the supply of aggregates to Suffolk is made up from sand & gravel imported from surrounding counties, imported crushed rock, marine dredged sand & gravel, and indigenous and imported recycled construction, demolition & excavation waste (C, D & E waste).

Aggregates are vital for continued economic growth including house building. Aggregates are sold loose in an as-raised form or processed into different grades of fine and coarse aggregate, or they may be used to make concrete, mortar and asphalt or other products.

The issues to be taken into account in the provision of aggregates are set out in the Nation Planning Policy Framework (NPPF) and the Planning Practice Guidance website (PPG). This includes the preparation of a Local Aggregates Assessment (LAA) based upon a rolling average of ten years' sales and a careful analysis of other factors.

The draft LAA (2017 data) sets out in more detail how the demand for construction aggregates is met within Suffolk though the draft Suffolk Minerals & Waste Local Plan.

Table 32: Hazardous Waste Arisings - historic and forecast

Sand and gravel summary table	
Average of last ten years sand & gravel sales	1.112 Mt
Sand & gravel landbank on 31 December 2017	11.822 Mt / 10.5 years
Shortfall in provision to 2036	9.300 Mt
Provision made in Preferred Options Plan	14.770 Mt
Likely to be worked during Plan period	12.180 Mt



Sand and gravel summary table

Remaining safety margin	31%
Average of last three years sand & gravel sales	1.117 Mt

Source: LAA (2018)

Demand and Supply Overview

Recycling is making an important contribution although potential further growth in use is limited by available C, D & E waste and limitations imposed by the quality of the recycled aggregates.

Imported crushed rock is also making an important contribution although further growth in use is uncertain due to constraints on the productive capacity of existing resources in the East Midlands, the capacity of transport infrastructure in the South West, the unfavourable currency exchange rate of resources in Europe, and the considerable demand for aggregates from projects such as HS2 and Hinkley Point C Nuclear Power Station.

Although there are large permitted reserves of marine dredged sand and gravel off the coast of East Anglia market forces dictate that the vast majority of this is landed in London or landed elsewhere and transported by rail to London.

The long-term trend is that less land-won sand and gravel is being extracted due to diminishing resources of higher quality material, planning constraints, less intensive use of aggregates in construction.

House building is often used as a proxy for forecasting the future demand for aggregates. However, housing completion rates continue to be significantly lower than Adopted Local Plan projections let alone ambitious future house building projections. Based on local authority figures, housing delivery across Suffolk is averaging at 2,228 each year. The total number of homes required to be delivered each year is around 3,000. Therefore, in order to achieve the planned number of homes, the current rate of delivery needs to increase by 35%.

There are also number of significant infrastructure projects planned in Suffolk. However, how much aggregate will be required from local sources is unclear. Major road schemes have in the past relied upon imported crushed rock rather than sand and gravel from local quarries or borrow pits. Sizewell C may well do likewise if in fact it is ever built.

Considering the above therefore, the approach taken has been to build in some flexibility into future provision to be made in the Plan.

Recycled Aggregates

Over the last twenty years since the introduction of the Landfill Tax there has been a marked increase in the levels of recycled aggregates being produced, mainly from Construction, Demolition & Excavation waste (CD&E).

In 2015 for example the SWS indicates that there were 0.529 Mt of C, D&E waste managed within Suffolk of which over 91.4% would be recycled, giving a total figure of 0.484 Mt of recycled aggregates



per annum.

In addition, the energy from waste facility at Gt Blakenham recycles 0.060 Mt of bottom ash from Local Authority Collected Waste (LACW) into aggregates per annum.

The types of facilities where recycled aggregates are produced vary from purpose built fixed installations to temporary operations on construction sites. The latter does not require planning permission separately from the County Council. Although the SWS does not indicate a specific capacity gap for aggregates recycling facilities in Suffolk, a proposal for such a facility is included at in the Plan at Cavenham Quarry.

If, in the future proposals for aggregates recycling facilities requiring planning permission are made, then there are criteria based policies included within the existing and proposed minerals and waste development plan documents.

All permitted recycled aggregates facilities are safeguarded within the existing and proposed development plan documents from other forms of competing development.

Importation of Crushed Rock

Suffolk has no indigenous resources of crushed rock and therefore relies on supplies imported by road, rail or sea. Crushed rock is used primarily in the production of asphalt for road maintenance and construction due to its strength and roughness.

There are a number of railheads located along the A14 and wharves at Ipswich and Lowestoft used for the importation of crushed rock. There is also a wharf at Lowestoft that is used for the importation of armour stone for use in sea defence works.

Although it is not possible to reveal the precise tonnages of crushed rock imported due to commercial confidentiality, it is significant.

Generally speaking planning permission is not required for wharves or railheads handling crushed rock except where significant infrastructure is required.

All railheads and wharves handling crushed rock are safeguarded within the existing and proposed development plan documents from other forms of competing development.

The locations of aggregates rail facilities are set out in Appendix 2.

Landing of Marine Dredged Sand & Gravel

There are licences for the dredging of up to 9 Mt of sand & gravel off the coast of the East Anglia on an annual basis. Although a significant proportion of this total is dredged, the vast majority of this is landed in London, or sent to London by rail having been landed elsewhere. This is due to the lack of indigenous supplies of aggregates in London.

Although it is not possible to reveal the precise tonnages of marine dredged sand and gravel sold in Suffolk due to commercial confidentiality, it is not very significant compared to the overall level of licenced resources.

Generally speaking planning permission is not required for wharves or railheads handling sand and gravel except where significant infrastructure is required.

All aggregates railheads and wharves handling marine dredged sand & gravel are safeguarded within the



existing and proposed development plan documents from other forms of competing development.

Provision of Land Won Sand & Gravel

Historically sand & gravel workings have exploited good quality river terrace reserves within river valleys. The gradual exhaustion of some of these reserves coupled with increasing environmental protection has encouraged companies to exploit glacial deposits outside of the river valleys.

In Suffolk the sand & gravel deposits are generally sand rich so that there is a shortage of stone. Ironically the most stone rich deposits are constrained by the highest order of statutory landscape and ecological designations.

In the 1990s the first Suffolk Minerals Local Plan was based on an annual sub-regional apportionment figure for sand & gravel of 2.43 Mt per annum. In the 2000s the Suffolk Minerals Core Strategy was based initially upon a sub-regional apportionment of 1.73 Mt per annum, which was later revised to 1.62 Mt per annum based on the revised national guidelines.

Suffolk has always sought to meet the sub-regional apportionment, and national guidelines in past Plans and will seek to meet the projected level of sales based on an average of the last ten years' sales within this Plan.

Suffolk has also always sought to maintain a landbank of permitted sand and gravel reserves of at least 7 years which is still a requirement of the NPPF. Historically the annual figure was based on the sub-regional apportionment or the revised national guidelines. The intention now is that this will be based upon the average of the last ten years' sales in accordance with the NPPF and will be calculated in the annual LAA each year.

The average sales of sand and gravel in Suffolk for the ten years to the 31 December 2017 was 1.112 Mt. The average of the last three years is similar at 1.117 Mt.

The landbank of permitted sand and gravel reserves on the 31 December 2017 was 11.822 Mt.

If the landbank of permitted reserves is divided by the average of the last ten years' sales, this would be equivalent to 10.63 years' sales, so that in theory if the average of sales was projected forwards then all of the presently permitted reserves of sand and gravel would run out in July 2028.

The Plan period ends on the 31 December 2036. Therefore, the shortfall in permitted reserves is equivalent to 8.37 years or 9.300 Mt based on the 10-year average of 1.112 Mt.

Plan Policy MP1 states that the County Council will allocate sites containing 9.300 Mt of sand and gravel. Analysis of the submitted information in the relevant Site Assessment Reports indicates that these sites in total contain 14.770 Mt.

However, taking into account the proposed start dates and levels of production at new sites, it is estimated that at least 1.87 Mt of the 14.770 Mt will still remain to be worked which reduces the resources likely to be worked within the plan period to 12.900 Mt.

This would leave a safety margin of 31% which is not considered excessive when considering the uncertainties of future demand for sand and gravel and potential future problems that might arise that prevent one or more of the proposed sites from being developed.

A further reduction to the potential resources is likely due to planning constraints introduced by the Plan. This mainly relates to the requirement to safeguarding existing field boundaries within sites because of the landscape and ecological importance.



The Plan allocates ten sites, all but one are extensions to existing workings.

Planning permission is required for sand and gravel extraction. All sand & gravel workings are safeguarded within the existing and proposed development plan documents from other forms of competing development.

Value Added Plants

Value added plants include concrete batching plants and asphalt plants. A large proportion of sand & gravel is used in the production of ready mixed concrete typically in the ratio of 4 parts gravel, 2 parts sand, and 1 part cement. The sand and gravel is mostly supplied by local land won sources although marine dredged sand and gravel can supplement the supply.

The aggregate used in asphalt is different in that the coarse aggregate is crushed rock imported by road, rail or sea.

Planning permission for concrete and asphalt plants is generally required although the determining authority could be either the County Council or a District Council depending on whether the plant is linked to a quarry or aggregates wharf or railhead in which case it would be the former.

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