

Greater Norwich Development Partnership

Topic Paper: Infrastructure

Joint Core Strategy for Broadland, Norwich and South Norfolk
November 2009

Jobs, homes, prosperity for local people



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Appendices

1. Summary of the results of the Norwich Growth Area – Infrastructure Need and Funding Study (2007)

1. Summary

This topic paper is one of a series, which explains how key aspects of the Joint Core Strategy (JCS) for Broadland, Norwich and South Norfolk were developed. It explains how the Greater Norwich Infrastructure Needs & Funding Study (2009) contributes to the evidence used to support the Joint Core Strategy.

It is important to note that the final report of the infrastructure needs and funding study should be treated as a guide only. The figures in it provide an indication of the costs associated with delivery infrastructure in line with the policies and growth locations in the JCS. The study modelled the housing projections, population growth and the predicted phasing needed to deliver houses and employment as set out in the 'favoured option' as agreed by the GNDP Policy Group February 2009.

The study also made use of the evidence already gathered to support the JCS, e.g. the Water Cycle Study 2a in order to provide information to allow EDAW/AECOM to populate their social infrastructure funding model.

The results of the study give an indication of the infrastructure costs that would be required if the growth takes place as it has been predicted, it does not guarantee that the delivery will take place as modelled. Each table in the report includes the following caveat:

"The tables are an initial high-level overview of the infrastructure required. All figures are indicative and are likely to vary in the light of future economic, market and policy changes. They will be subject to periodic review."

The report is based on a model that has been used to identify the infrastructure needs and associated funding required to deliver the high quality settlements set out in the Joint Core Strategy.

The GNDP will prepare an Integrated Development Programme setting out the wide range of infrastructure, community requirements and facilities needed to deliver and support the planned growth in the area. This is further discussed in the Implementation and Governance Topic Paper.

2. Purpose of this paper

This paper provides an explanation of how the Greater Norwich Infrastructure Need and Funding Study 2009 (The Study) commissioned by the Greater Norwich Development Partnership relates to the Joint Core Strategy.

The Joint Core Strategy covers the period 2008 to 2026 and the Greater Norwich Infrastructure Needs & Funding Study (2009) covers the period from 2008-2031 therefore there are differences in the number of homes required throughout the dates and the infrastructure required to support the growth across the different time periods.

The Joint Core Strategy covers the period 2008-2026 and the total housing growth proposed for this period is approximately 37,000 across the three districts of Broadland, Norwich and South Norfolk.

The Study was commissioned to cover the period 2008 to 2031, in order to have regard to the current review of the East of England Plan which will extend its horizon to 2031, and also to enable an assessment of the full infrastructure needs of proposals in the JCS likely to extend beyond 2026, notably the growth triangle to the north east of Norwich. This means considering the infrastructure needs of an additional 12,000 dwellings. In addition, an allowance has been made for windfall developments based on a cautious assessment of previous experience. This adds a further 8000 dwellings to the total. This adjustment is necessary because, in calculating the scale of allocations proposed, local planning authorities are not permitted to take account of windfalls, although they are likely to arise in practice. Together, these considerations mean that the total scale of housing growth in the period 2008 to 2031 amounts to about 57,000.

For the purposes of the study the infrastructure requirements were calculated for the phases ending 2016, 2021, 2026 and 2031. This document provides a summary of findings of the study in relation to the Joint Core Strategy and sets out a high level summary of the infrastructure costs for the period up to 2026.

The infrastructure needs and funding study will have continued value. The infrastructure requirement and costings identified will form the basis for any charging schedule to enable the collection of Community Infrastructure Levy, which in turn is likely to be an element within the Integrated Development Programme (IDP). Furthermore, EDAW/AECOM have undertaken to provide a social infrastructure framework (SIF) "model" which will be capable of being updated to take account of changing circumstances. This too is likely to be one of the foundations of the IDP.

It is acknowledged however that there are some limitations inherent in the EDAW work. In particular, it has been necessary for them to make certain assumptions which are likely to require variation in the light of future policy decisions. An example is the assumed level of open space provision, which was taken directly from PPG 17 audits, but the policy response has not yet been finalised. The effect of this is likely to be that certain costs have been overestimated, and because of this it is doubly important that the SIF model will be capable of future adjustment as such policy decisions are taken.

3. Scope of the 2009 Study

In November 2008 EDAW AECOM, in collaboration with Drivers Jonas, Faber Maunsell, and Gardiner & Theobald were commissioned by the GNPD to review the Infrastructure Need and Funding Study carried out in 2007.¹

The 2009 study superseded the 2007 report and included important variations in its scope.

- a) The Study was extended to review the infrastructure requirements for the whole of Broadland, Norwich, and South Norfolk, rather than just the Norwich Policy Area that was the focus of the earlier study.
- b) The Study modelled the infrastructure requirements of housing trajectories which are based on actual housing locations (as set out in the JCS favoured option), as opposed to hypothetical scenarios used in the 2007 study.
- c) The period of assessment for infrastructure costs was also extended to look ahead to 2031 with the costs broken down into periods 2016, 2021, 2026 and 2031. The infrastructure requirements were extended to 2031 to be sure that the study looks far enough ahead to be aware of long-term infrastructure requirements, such as new Secondary schools, and major transport junctions.

In addition to identifying and costing the capital infrastructure required to support the proposed growth, the study also identified some of the potential funding sources, such as Asset Management Plans (AMPs) from utilities companies and a review of the local authorities' ability to raise developer contributions to cover the cost of delivering the infrastructure requirements, based on varying assumptions of market strength and public funding for affordable housing.

The study identified the following infrastructure requirements for the period 2008 to 2031.

- Social Infrastructure
 - Education
 - Healthcare
 - Emergency services
 - Community facilities
 - Open space and green infrastructure
- Transport
- Utilities

The Study sets out the phasing and cost of providing social infrastructure facilities to meet the demand arising from housing growth, having taken into account existing capacity and natural population changes.

¹This Study builds on the Infrastructure Need and Funding Study carried out in 2007 – see Appendix 1

The cost assessment used an evidence benchmarking exercise to determine the current costs associated with the delivery of each item of infrastructure, and to establish standards to be used in assessing future infrastructure needs.

4. Housing mix and tenure

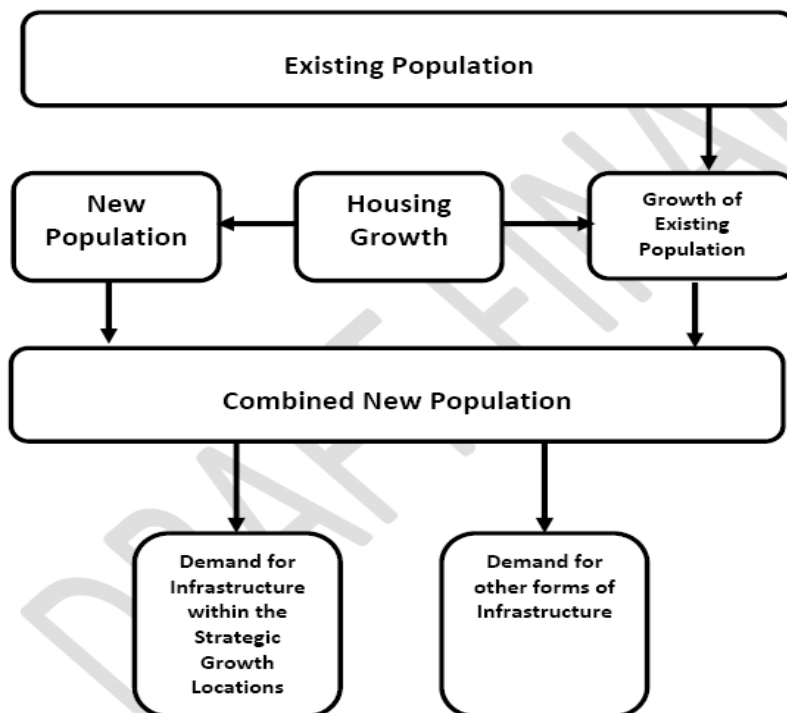
Assumptions on the type and mix of housing were predicted to reflect local requirements and market intelligence from Drivas Jonas and agreed with the housing officers from each local authority.

The approved mix was used throughout the study as a baseline to predict the population growth and resulting infrastructure requirements.

5. Population forecasts

The Study considered how the proposed housing growth would impact on the local population. The Study calculates the requirements in two ways:

- Where growth is concentrated within a particular location, such as a major growth location, the Study has estimated infrastructure requirements based on the population generated by the new developments alone
- Where growth is more dispersed, the net population change was used to calculate the infrastructure demand.



6. Housing projections

6.1 An explanation of the housing projections as set out in the Study

The table following paragraph 5.23 in the joint core strategy sets out in detail the housing requirement and the scale of allocations proposed in response. Chapter 3 of the Study sets out the housing projections used for the scope of the Study. For clarity it is important to note that the Study used housing numbers for the period 2008-2031 and the Joint Core Strategy covers the period 2008 to 2026.

A summary of how the 57,000 total is reached is set out below (table 3-3 of the Study gives details of these numbers in relation to locations)

Summary table

Period 2008-2026	Location	Total
Total requirement as set out in the Joint Core Strategy		35,660
Less the number of homes already permitted or allocated as at 2008		14,090
Balance equals the number of new allocations required in the JCS		21,570
Scale of new allocation proposed in the NPA as set out the Joint Core Strategy	9,000 in Broadland 3,000 in Norwich 9,000 in South Norfolk	21,000
Scale of new allocation proposed outside of the NPA as set out in the Joint Core Strategy	650 - 1,100 in Broadland 1,000 - 1,600 in South Norfolk	1730 - 2660

Extending the housing allocation to 2031, a further 5 years, adds a further estimated 12,000 homes to the total required. Adding windfall opportunities to the total adds a further estimated 8,000 homes.

Period 2008-2031	Location	Total
Total provision to 2026 (scale of the allocation proposed plus current commitment, towards lower end of rural allocation range, rounded,)	as above	37,000
Additional requirement to 2031 <i>Extrapolation of JCS housing delivery rates for 5 years</i>	3,000 planned in Broadland (continuation of growth triangle beyond JCS period)	10,000
Anticipated results of the RSS refresh	Remainder -location not yet determined	2,000
Estimated windfall opportunities	Not known	8,000
Total assumption for the period 2008-2031		57,000

This brings the total number of homes from the period 2008 to 2031 to approx 57,000. This is the figure that the EDAA/AECOM consultants used to model the complete range of infrastructure requirements (refer to table 3.3 Housing Allocations by Growth Location, 2008-2031 in the Report)

6.2 An explanation of the housing numbers as set out in the Joint Core Strategy (please note all numbers are rounded)

The housing provision used in the Joint Core Strategy is approximately **37,000**. This is the total of existing commitments and the allocation proposed to meet the RSS targets for the period 2008 to 2026².

The breakdown of the 37,000 is shown below:

33,000 of these will be within the Norwich Policy Area (NPA) (see *Policy 4 of the Joint Core Strategy: Proposed Submission Document*)

12,000 within the NPA are already permitted or allocated

Approximately 12,000 of the homes in the NPA are already permitted or allocated.

21,000 further houses are allocated within the Norwich Policy Area, these are spread as follows:

9,000 new allocations will be in the Broadland area of the NPA

3,000 new allocations will be in Norwich

9,000 new allocations will be in the South Norfolk area of the NPA

(For more detail of the sites see Policy 9 of the Joint Core Strategy: Proposed Submission Document that sets out the Strategy for growth in the Norwich Policy Area (NPA))

4,000 (potentially rising to 4,900) sites are proposed outside of the Norwich Policy Area (see *Policy 4 of the Joint Core Strategy: Proposed Submission Document that sets out the housing Delivery*)

2,250 outside the NPA are already permitted or allocated

1,750 (potentially rising to 2,650) further sites are spread as follows:

between 700 – 1,100 in Broadland – outside the NPA

between 1,050 – 1,600 in South Norfolk – outside the NPA

(For more detail of the sites see Policy 12 and Policy 13 of the Joint Core Strategy: Proposed Submission Document that sets out the Strategy for growth outside of the Norwich Policy Area)

² Note: Extending the date to 2026 ensures that the JCS meets the obligation of PPS3 to have a 15-year housing land supply at the point of adoption of the JCS.

7. The main findings of the Infrastructure Needs and Funding Study

The Study took these housing numbers and population trends and used baseline information from service providers current policies and standard infrastructure multipliers to derive projected need for the time periods. These are set out in detail in the Study.

In the Study the costs of supporting infrastructure for the whole period 2008 to 2031 have been modelled. The infrastructure costs have been broken down into periods 2016, 2021, 2026 and 2031. The purpose of extending the requirements to 2031 was to ensure that the study looks far enough ahead to be aware of long-term infrastructure requirements, such as new Secondary schools, and major transport schemes.

This topic paper sets out the main findings of the infrastructure costs in-line with the period of the Joint Core Strategy, i.e. 2016, 2021 and 2026.

Education requirements for the period 2008-2026

Refer to table 7-42 in Report

Education					
<i>"The tables are an initial high-level overview of the infrastructure required. All figures are indicative and are likely to vary in the light of future economic, market and policy changes. They will be subject to periodic review."</i>					
Primary Education					
Delivery dates refer to the full implementation of the school					
<i>Note: Co-location has been assumed in the study but may not be appropriate</i>					
Scheme	Promoter/ Delivery Body	Estimated Cost (£m)	Funding Sources	Critical to:	Estimated delivery dates by
Broadland <ul style="list-style-type: none"> • 1 x 60 place pre-school • 1 x 60 place pre-school the report assumes co-location with community space • 2 x 420 place primary with integrated 60 place nursery 	Norfolk County Council	11.3	Norfolk County Council/ Developers	Old Catton, Sprowston, Rackheath, and Thorpe St Andrew growth triangle	2021

Scheme	Promoter/ Delivery Body	Estimated Cost (£m)	Funding Sources	Critical to:	Estimated delivery dates by
<ul style="list-style-type: none"> • 60 place pre-school • 2 x 420 place primary & Integrated 60 place pre-school 	Norfolk County Council	10.8	Norfolk County Council/ Developers	Old Catton, Sprowston, Rackheath, and Thorpe St Andrew growth triangle	2026
Norwich 1 x 60 place pre-school	Norfolk County Council	0.54	Norfolk County Council/ Developers	Norwich City	2011
<ul style="list-style-type: none"> • 1 x 60 place pre-school 	Norfolk County Council	0.54	Norfolk County Council/ Developers	Norwich City	2016
<ul style="list-style-type: none"> • 2 x 420 place primary & Integrated 60 place pre-school 	Norfolk County Council	10.2	Norfolk County Council/ Developers	Norwich City	2021
<ul style="list-style-type: none"> • 60 place pre-school assumes co-location with community space 	Norfolk County Council	0.54	Norfolk County Council/ Developers	Norwich City	2026
South Norfolk <ul style="list-style-type: none"> • 1 x 30 pre-school places • 2 x 60 place pre-school • 1 x 420 place primary with integrated 60 place nursery 	Norfolk County Council	6.5	Norfolk County Council/ Developers	South Norfolk	2021
<ul style="list-style-type: none"> • 3 x 60 place pre-school • 1 x 210 place primary • 1 x 420 place primary (to also serve Cringleford) • 1 x 420 place primary & integrated 60 place pre-school assumes co-location with community space 	Norfolk County Council	13.8	Norfolk County Council/ Developers	South Norfolk	2026

Scheme	Promoter/ Delivery Body	Estimated Cost (£m)	Funding Sources	Critical to:	Estimated delivery dates by
Secondary Education					
Delivery dates refer to the full implementation of the school					
Broadland <ul style="list-style-type: none"> 1 x 1400 Secondary School with 280 sixth form places co-located with 4 x indoor sports courts 	Norfolk County Council	39.0	Norfolk County Council/ Developers	Old Catton, Sprowston, Rackheath, and Thorpe St Andrew growth triangle	Required by 2026
Note: The report calculates that additional secondary schools will be required by 2031 to serve growth in Wymondham, Hethersett and Costessey					

Healthcare requirements for the period 2008-2026

Refer to table 8-24 in Report

<p>Healthcare – the Health Authority will take a flexible approach to the provision of hospital beds. Locations will be determined by the Health Authority at a later date</p> <p><i>“The tables are an initial high-level overview of the infrastructure required. All figures are indicative and are likely to vary in the light of future economic, market and policy changes. They will be subject to periodic review.”</i></p>					
Scheme	Promoter/ Delivery Body	Estimated Cost (£m)	Funding Sources	Critical to:	Estimated delivery dates by
Summary of Hospital Bed requirements: <ul style="list-style-type: none"> 10 Acute Beds 9 Maternity Beds 32 Mental Illness Beds 3 learning Disability Beds 23 Geriatric Beds 	Strategic Health Authority	28	Health Authority	Across all growth locations	For the period 2008-2026
<p>Healthcare Facilities: The Study has assumed that where possible, dentists and GPs surgeries will be co-located as Primary Care Centres</p>					
Norwich GP Surgery (3 GPs)	Strategic Health Authority	1.03	Health Authority	Norwich	2011
Dentists Surgery (4 Dentists)	“	1.25	“	“	2016
Primary Care Centre (6 GPs and 5 Dentists)	“	4.5	“	“	2021

Scheme	Promoter/ Delivery Body	Estimated Cost (£m)	Funding Sources	Critical to:	Estimated delivery dates by
Broadland Primary Care Centre (5 GPs and 4 Dentists)	“	3.35	“	Old Catton, Sprowston, Rackheath, and Thorpe St Andrew growth triangle	2021
Primary Care Centre (5 GPs and 4 Dentists)	“	3.35	“	“	2026
Expansion of existing Facilities (2 GPs and 2 Dentists)	“	0.9	“	Broadland Elsewhere	2016
South Norfolk Combined Surgery (3 GPs and 2 Dentists)	“	1.8	“	Wymondham	2021
Combined Surgery (2 GPs and 2 Dentists)	“	1.5	“	Long Stratton	2026
Expand Existing Facilities (1GP and 1 Dentist)	“	0.55	“		2021
Expand Existing Facilities (1GP and 1 Dentist)	“	0.55	“		2021-2026
Expand Existing Facilities (1GP and 1 Dentist)	“	0.55	“		2021
Expand Existing Facilities (8GP and 7 Dentist)	“	4.1	“	South Norfolk elsewhere	2028-2026

Emergency Services requirements for the period 2008-2026

Refer to table 9-16 in Report

Emergency Services					
<p><i>"The tables are an initial high-level overview of the infrastructure required. All figures are indicative and are likely to vary in the light of future economic, market and policy changes. They will be subject to periodic review."</i></p>					
<p>Fire Service – There are six fire stations located within the GNDP area all of which are well placed to serve the proposed housing growth. <i>Note: The Study suggests the six existing fire stations could be expanded</i></p>					
Scheme	Promoter/ Delivery Body	Estimated Cost (£m)	Funding Sources	Critical to:	Estimated delivery dates by
Fire Service Extended Service to meet housing growth and population change	Norfolk County Council	TBA	Norfolk Fire Service	Norfolk County Council	TBA
<p>Ambulance Service – The single ambulance service is located at Broadland, however there are a number of hospitals located close to the growth locations that may provide facilities for ambulance staff <i>Note: The Study suggests the existing service may be able to be expanded</i></p>					
Ambulance Service: Extended Service to meet housing growth and population change	Norfolk Ambulance Services	TBA	Norfolk Ambulance Services	Across all growth locations	TBA
<p>Police: There are four police stations located across the GNDP area , in the centre of Norwich, Rackheath/Sprowsrton area, Wymondham and Long Stratton</p>					
Safer Neighbourhood Teams (including police officers) Broadland (53 officers) Norwich (53 officers) South Norfolk (88 officers)	Norfolk Constabulary	10.5	Norfolk Constabulary	Across the three Districts	Provision will be phased between 2016-2026 in line with development

Community Facilities requirements for the period 2008-2026

Refer to table 10-21 in Report

Community Facilities: For the purposes of the study community facilities covers public leisure centres (court space and swimming pool lanes, libraries, communal community space e.g. Halls and cultural facilities)

The Study suggests there will be options to share community facilities

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Scheme	Promoter/ Delivery Body	Estimated Cost (£m)	Funding Sources	Critical to:	Estimated delivery dates by
Broadland 2 x 300sqm community space 1 x 600sqm community space and library 4 x Indoor Sports Courts	District Councils	4.5	Private companies/dev elopers/Local Authorities	Old Catton, Sprowston, Rackheath, and Thorpe St Andrew growth triangle and Broadland elsewhere	Facilities to be phased between 2016-2026 in line with development
Norwich 1 x 4 lane Swimming Pool 3 x 300sqm community centres 4 x Indoor Sports Courts 1 x 600sqm community centre and library	District Councils	7.1	Private companies/dev elopers/Local Authorities	Norwich	Facilities to be phased between 2016-2026 in line with development
South Norfolk 1 x 400sqm combined community centre and library	District Councils	1.0	“	Wymondham	By 2026
1 x 300sqm combined centre and library	“	0.7	“	Long Stratton	By 2026

Scheme	Promoter/ Delivery Body	Estimated Cost (£m)	Funding Sources	Critical to:	Estimated delivery dates by
8 x Indoor sports courts 1 x 4 lane swimming pool 1 x Community Centre 300sq m 1 x 600sqm combined community centre and library	“	8.5	“	South Norfolk in general	Facilities to be phased between 2016-2026 in line with development

Green infrastructure and open space requirements for the period 2008-2026

Refer to table 11-10 in Report

For the purposes of the study it was assumed that open space would be delivered alongside development coming forward. The report states that there may be cost saving efficiencies in delivering green infrastructure and open space whilst delivering other infrastructure interventions, such as transport improvements.

Green Infrastructure					
<i>"The tables are an initial high-level overview of the infrastructure required. All figures are indicative and are likely to vary in the light of future economic, market and policy changes. They will be subject to periodic review."</i>					
Scheme	Promoter/ Delivery Body	Estimated Cost (£m)	Funding Sources	Critical to:	Estimated delivery dates by
Green Infrastructure projects will be assessed on completion of the North East and South West Eco-net projects Open Space will be planned in relation to each growth location and planned in line with development		Cost-based on total provision £225m Cost-based on stand-alone only £143m	Local Authorities/ Developers/ Other Funding sources to be identified	Across all growth locations	Pro-rata estimates for the period 2008-2026

Waste requirements for the period 2008-2026

Refer to table 12-5 in the report

Waste – The study suggests there is a demand for one additional Household Waste Recycling Centres by 2026					
<i>"The tables are an initial high-level overview of the infrastructure required. All figures are indicative and are likely to vary in the light of future economic, market and policy changes. They will be subject to periodic review."</i>					
Scheme	Promoter/ Delivery Body	Estimated Cost (£m)	Funding Sources	Critical to:	Estimated delivery dates by
Household Waste Recycling Centre	Norfolk County Council	0.45	Norfolk County Council	Old Catton, Sprowston, Rackheath, and Thorpe St Andrew growth triangle	By 2026

Utilities infrastructure requirements for the period 2008-2026

Refer to table 13-1 in the report

Electricity					
<i>"The tables are an initial high-level overview of the infrastructure required. All figures are indicative and are likely to vary in the light of future economic, market and policy changes. They will be subject to periodic review."</i>					
Scheme	Promoter/ Delivery Body	Estimated Cost (£m)	Funding Sources	Critical to:	Estimated delivery dates by
New primary substation on existing site (Hurricane Way)	EDF Energy	5.5	AMP / Developer	Expansion of Employment Area – Airport Business Park	2016
New primary substation on new site (Norwich Airport north)	EDF Energy	6.3	AMP / Developer	Expansion of Airport Employment Area	2021
New grid substation on existing site (Norwich East)	EDF Energy	17	AMP / Developer	Old Catton, Sprowston, Rackheath, and Thorpe St Andrew growth triangle	2021
New primary substation on new site (Sprowston/Rackheath)	EDF Energy	4.3	AMP / Developer	Old Catton, Sprowston, Rackheath, and Thorpe St Andrew growth triangle	2026
Replacement of transformers and switchgear in existing site (Hapton)	EDF Energy	2.53	AMP / Developer	South Norfolk Growth location	2026
Replacement of transformers and switchgear in existing site (Wymondham)	EDF Energy	2.53	AMP / Developer	SW Growth location	2026

Utilities infrastructure requirements for the period 2008-2026

Refer to table 13-2 in the report

Gas					
<p>Funding: The Study assumes Electricity and Power Supply will be 70% funded by the service providers. Utilities will be 100% funded by the service providers</p> <p><i>“The tables are an initial high-level overview of the infrastructure required. All figures are indicative and are likely to vary in the light of future economic, market and policy changes. They will be subject to periodic review.”</i></p>					
Scheme	Promoter/ Delivery Body	Estimated Cost (£m)	Funding Sources	Critical to:	Estimated delivery dates by
Intermediate Pressure Connection	National Grid Gas	TBA	AMP / Developer	Old Catton, Sprowston, Rackheath, and Thorpe St Andrew growth triangle	2016 - 2021
Medium Pressure connection	National Grid Gas	TBA	AMP/ Developer	Wymondham, Hethersett and Cringleford combined	2016
Intermediate Pressure Connection	National Grid Gas	TBA	AMP / Developer	Long Stratton	2016
Low Pressure Connection	National Grid Gas	TBA	AMP / Developer	Costessey (Longwater)	2016
Intermediate Pressure Connection	National Grid Gas	TBA	AMP / Developer	Norwich	2021
Low Pressure Connection	National Grid Gas	TBA	AMP / Developer	Easton	2021

Utilities infrastructure requirements for the period 2008-2026

Refer to tables 13-3 and 13-4 in the Report

Water

"The tables are an initial high-level overview of the infrastructure required. All figures are indicative and are likely to vary in the light of future economic, market and policy changes. They will be subject to periodic review."

Potable water summary

The study is based on the Water Cycle Study Stage 2a it assumes that all of the development sites would be supplied from the existing Heigham Water Treatment Works, which has sufficient capacity to receive additional water to supply the Greater Norwich area.

Figures show best and worst case scenario for critical infrastructure

Scheme	Promoter/ Delivery Body	Estimated Cost (£m)	Funding Sources	Critical to:	Estimated delivery dates by
Norwich	Water Authority	18 - 44	Asset Management Plan (AMP)	Norwich city	2009 - 2021
Broadland	Water Authority	26 - 29	AMP	Rackheath	2009 - 2021
Broadland	Water Authority	27 - 35	AMP	Sprowston Fringe	2009 - 2021
Broadland	Water Authority	16 - 21	AMP	Broadland Business Park	2009 - 2021
Broadland	Water Authority	51	AMP	Smaller sites	2009 - 2021
Broadland Total		121-136			
South Norfolk	Water Authority	27 - 31	AMP	Wymondham	2009 - 2021
South Norfolk	Water Authority	31 - 35	AMP	Long Stratton	2009 - 2021
South Norfolk	Water Authority	15 - 21	AMP	Hethersett, Cringleford and Colney	2009 - 2021
South Norfolk	Water Authority	12 - 19	AMP	Easton and Costessey	2009 - 2021
South Norfolk	Water Authority	72	AMP	Smaller sites	2009 - 2021
South Norfolk Total		158-177			

Waste Water

Summary

The study is based on the Water Cycle Study Stage 2a it assumes the treatment of wastewater for larger sites can be managed in 3 ways:

Option 1 - upgrading Whitlingham Wastewater Treatment Works (WwTW)

Option 2 – upgrade existing local WwTW. Many of the developments have a local WwTW that could be utilised and upgraded where necessary to accommodate the proposed development

Option 3- New WwTW close to the development area. Cost includes the provision of a new local WwTW to receive all of the flow from the proposed development

The interim Water Cycle Study Stage 2b suggests the treatment will be managed by a combination of Option 1 and Option 2

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Scheme	Promoter/ Delivery Body	Estimated Cost (£m)	Funding Sources	Critical to:	Estimated delivery dates by
Option 1					
Whitlingham upgrade	Water Authority	42.9	Asset Management Plan (AMP)	whole GNDP area	2009-2016
Whitlingham upgrade	“	14.4	“	“	2017-2021
Whitlingham upgrade	“	4.3	“	“	2022-2026
Total		61.6			
Option 2					
Whitlingham	Water Authority	5.0	AMP	Norwich only	2009-2016
“	“	0.8	“	“	2017-2021
“	“	0.4	“	“	2022-2026
Wymondham	“	13.8	“		2009-2016
“	“	22.4	“		2009-2016
“	“	0.5	“		2009-2016
Rackheath	“	48			
Total		90.9			

Transport infrastructure requirements for the period 2008-2026

Refer to table 14-1 in the Report

Transportation

"The tables are an initial high-level overview of the infrastructure required. All figures are indicative and are likely to vary in the light of future economic, market and policy changes. They will be subject to periodic review."

Scheme	Promoter/ Delivery Body	Estimated Cost (£m)	Funding Sources	Critical to:	Estimated delivery dates by
Northern Distributor Road	Norfolk County Council	110	NCC/ DfT/ Growth Point/ Developer Contributions	Overall scale of growth in particular Old Catton, Sprowston, Rackheath, and Thorpe St Andrew growth triangle / NATS / Airport employment allocation	2011-2016
Postwick Hub	Norfolk County Council/ Highways Agency	25	As above	Overall scale of growth Old Catton, Sprowston, Rackheath, and Thorpe St Andrew growth triangle Broadland Business Park Expansion NATS Airport employment allocation	2011
Long Stratton Bypass A140	Norfolk County Council	35	As above	Long Stratton Growth Location	2011-2016
Thickthorn Junction improvement including bus priority	Norfolk County Council/ Highways Agency	40	As above	Wymondham Hethersett Cringleford Growth Locations	2016

Scheme	Promoter/ Delivery Body	Estimated Cost (£m)	Funding Sources	Critical to:	Estimated delivery dates by
Longwater junction improvement	Norfolk County Council/ Highways Agency	20	As above	West Growth Location	2011-2016
Norwich Research Park transport infrastructure	Norfolk County Council/ Highways Agency	7	As above	Norwich Research Park	2016
City centre bus enhancements	Norfolk County Council	13.6	As above	Overall Growth City Centre	2011-2021
Bus Rapid Transit route via Fakenham Road - A1067	Norfolk County Council	10	As above	Broadland Fringe Growth	2011-2026
Bus Rapid Transit route to the City Centre via Dereham Road	Norfolk County Council	6.5	As above	West Growth Location	2009-2021
Bus Rapid Transit route via Yarmouth Road	Norfolk County Council	10	As above	Broadland Business Park Expansion	2021-2026
Bus Rapid Transit route via Salhouse Road and Gurney Road	Norfolk County Council	5	As above	Old Catton, Sprowston, Rackheath, and Thorpe St Andrew growth triangle	2011-2016
Bus Rapid Transit route via Norwich airport A140 to City Centre	Norfolk County Council	10	As above	Old Catton, Sprowston, Rackheath, and Thorpe St Andrew growth triangle	2011-2026
Bus Priority route via Hethersett Lane/Hospital/Norwich Research Park/University of East Anglia/City Centre <i>Note: detailed route to be established</i>	Norfolk County Council	3	As above	Wymondham Hethersett Cringleford Growth Locations NRP	2011-2016

Scheme	Promoter/ Delivery Body	Estimated Cost (£m)	Funding Sources	Critical to:	Estimated delivery dates by
Bus Priority route via B1172	Norfolk County Council	2	As above	Wymondham Hetherset Growth Locations	2011-2016
City centre public realm enhancements	Norfolk County Council	11	As above	Overall Growth City Centre	2011-2026
Development Link Broadland Business Park to Salhouse Road	Developer Led	5	As above	Old Catton, Sprowston, Rackheath, and Thorpe St Andrew growth triangle	2011-2026
Bus priority - approach to Harford Junction	Norfolk County Council/ Highways Agency	2	As above	Long Stratton Growth Location	2011-2016
Expanded Thickthorn Park and Ride and A11 off slip	Norfolk County Council/ Highways Agency	5	As above	Wymondham Hetherset Cringleford Growth Locations	2016
Pedestrian/cycle link to Longwater	Norfolk County Council	1.5	As above	West Growth Location	2016
Relocated rail station at Rackheath	Norfolk County Council/ Network Rail	25	As above	Old Catton, Sprowston, Rackheath, and Thorpe St Andrew growth triangle	TBA
Wymondham rail station improvements	Norfolk County Council/ Network Rail	3	As above	Wymondham Growth Location	2011
Widening of existing rail bridge at station Wymondham	Norfolk County Council/ Network Rail	7	As above	Wymondham Growth Location	2011-2016

8. Preparation of an Integrated Delivery Programme

The Study will be used by the GNDP to prepare an Integrated Delivery Programme (IDP) setting out the wide range of infrastructure, community requirements and facilities needed to deliver and support the planned growth in the area. Workshops to prepare the IDP are planned to start in October 2009.

The infrastructure identified and the associated costs of provision set out in the Study will be reviewed as decisions are made locally and nationally on policy, prioritisation and funding of infrastructure. This will happen via the IDP process which will be under regular review.

9. Actions identified by the Client Group

The following actions were agreed by the Client Group that was responsible for management of the study:

- The GNDP will use the findings of the study and work with service providers to identify innovative ways of further reducing the costs of infrastructure including more co-location, changes in service provision so that dependence on actual facilities is reduced and expansion or intensification of existing facilities.
- Particular attention should be given to Education, Potable Water & Open Space as these infrastructure themes offer the greatest potential for cost saving. Intensive work should undertaken in the short term to develop delivery solutions that are closer to the 'best case' cost scenarios set out in the report.
- As part of managing the growth agenda the infrastructure costs should be monitored and updated when new information becomes available or as external factors change.
- It is important that planned growth is identified as early as possible and utilities providers notified so that it can be taken into account when preparing their AMPs.
- The IDP needs to be developed so that all the projects are costed and detailed – including looking at phasing of projects so infrastructure is delivered alongside development
- The GNDP will need to develop a funding strategy to explore and understand what opportunities, apart from CIL, are available to address the funding gap
- The GNDP will look at the role of LSPs and how they contribute to the delivery planning. EDAWAECOM believe that the LSPs should play a role in coordinating the delivery of infrastructure.
- The GNDP will need to review the current Open Space requirements, as the methodology used for the Study gives a very large result and appears to be out of proportion to other costs.

10. Conclusion

The results of the study give an indication of the infrastructure costs that would be required if the growth takes place as it has been predicted, it does not guarantee that the delivery will take place as modelled. Each table in the report is caveated with the following statement:

“The tables are an initial high-level overview of the infrastructure required. All figures are indicative and are likely to vary in the light of future economic, market and policy changes. They will be subject to periodic review.”

The report is based on a model that has been used to identify the infrastructure needs and associated funding required to deliver the high quality settlements set out in the Joint Core Strategy.

The GNDP will prepare an Integrated Delivery Programme setting out the wide range of infrastructure, community requirements and facilities needed to deliver and support the planned growth in the area.

Appendix 1

Norwich Growth Area – Infrastructure Need and Funding Study (2007)

1. In April 2007 EDAW were commissioned to undertake an Infrastructure Needs and Funding Study on behalf of the Greater Norwich Development Partnership (GNDP).
2. The objective of the study was to identify the infrastructure required as a result of development set out in the East of England Plan. To facilitate this the GNDP identified a series of hypothetical growth options which accepted the growth assumptions identified in the RSS and sought to allow the residential and employment growth targets to 2021 to be achieved. The modelling concentrated on growth requirements within the Norwich Policy Area
3. For the purposes of this study two Growth Scenarios were used. These growth scenarios were proposed alongside existing completions since 2001, sites with existing planning permissions, sites allocated in the adopted Local Plans, and other sites with potential for residential development. These sources of housing growth outside of the two growth scenarios made up the majority of the RSS housing target.
4. **Growth scenario one**
Growth scenario one suggested the following broad pattern of development to 2021:
 - b. A major development of around 7,500 dwellings in the form of an Urban Extension to the north east of Norwich in Broadland. For the purposes of this study, the development was assumed to be bounded to the east by the railway line to Wroxham and to the west by North Walsham Road; and,
 - c. An extension to Wymondham in South Norfolk, consisting of 3,500 dwellings.
 - d. The residential growth for Scenario 1 to 2021 was assumed to be:

District	Completions 2001-06	Existing Commitments 2007 - 2021	Urban Capacity 2007 - 2021	Growth Extensions 2007 - 2021	Total Units 2001 - 2021
Broadland NPA	1,093	1,725	344	7,500	11,362
Norwich	3,490	5,987	5,000	0	15,177
South Norfolk NPA	1,639	4,543	691	3,500	11,073
TOTAL	6,222	12,255	6,035	11,000	35,512

5. Growth scenario two

- Growth scenario two suggested the following broad pattern of development to 2021:
- a. A new village of 10,000 dwellings to the west of Stoke Holy Cross and north east of Mulbarton in the South Norfolk District.
 - b. For the purposes of this study, Growth Scenario 2 has been purposefully located in an area with negligible amounts of existing infrastructure. This allows a useful comparison to be made with growth scenario 1, which has existing infrastructure located in the local area.
 - c. The residential growth for Scenario 1 to 2021 was assumed to be:

District	Completions 2001-06	Existing Commitments 2007 - 2021	Urban Capacity 2007 - 2021	Growth Extensions 2007 - 2021	Total Units 2001 - 2021
Broadland NPA	1,093	1,725	344	0	3,862
Norwich	3,490	5,987	5,000	0	15,177
South Norfolk NPA	1,639	4,543	691	10,000	17,573
TOTAL	6,222	12,255	6,035	10,000	34,512

6. Growth beyond 2026

The study also took an outline view of infrastructure and delivery need looking beyond the EEP to 2031, based on anticipation of an early review of the EEP and in view of PPS3.

District	Completions 2001-06	Existing Commitments 2007 - 2021	Urban Capacity 2007 - 2021	Growth Extensions 2007 - 2021	Total Units 2001 - 2021
Broadland NPA	1,093	1,725	344	0	3,862
Norwich	3,490	5,987	5,000	0	15,177
South Norfolk NPA	1,639	4,543	691	10,000	17,573
TOTAL	6,222	12,255	6,035	10,000	34,512

7. Results of the 2007 Study

The study made an assessment of the hard and soft economic infrastructure requirements in the NPA and identified that a proactive approach would be needed to ensure that the required amount and quality of infrastructure was developed.

The full report is available on the GNDP website at www.GNDP.org.uk.

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Topic Paper: Infrastructure

Joint Core Strategy for Broadland, Norwich and South Norfolk
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