

8 Conclusions

Stage 1 of the Water Cycle Study has concluded the following:

8.1 Constraints

8.1.1 Flood Risk and Hydrology

- The delay of the SFRA and hence its lack of incorporation into this document means that Stage 1 will have a short-coming in terms of flood risk data and information;
- Although there are a number of fluvial flood risks identified from the floodplain maps, it is understood that the situation of the Potential Growth Areas have specifically considered flood risk, hence they have purposely been sited away from significant flood risk;
- There are some site-specific drainage issues through the Study Area which will need to be considered when undertaken final Possible Dwelling Scenarios
- All proposed development in Flood Zones 2 and 3 must be referred to the Environment Agency.
- An assessment of the capacity of the receiving watercourse has been identified as a data gap between the Water Cycle Study and the SFRA. This will need to be assessed in Stage 2.

8.1.2 Water Resources

- In general, water resources are not considered to be the major constraint on development within this area. Anglian Water Services have stated that there are sufficient water resources to meet the growth demands until 2031.
- It is recommended that any of the large-scale developments (>5,000 houses in NPA and >1,000 house in the RPA) are subject to further detailed water resource/supply investigations. This is seen as an essential part of Phase 2 of the Greater Norwich Water Cycle Study.

8.1.3 Wastewater

- It is assumed that the preferential option is to upgrade existing STWs as opposed to providing a new facility
- STWs within the Study Area range from having no spare capacity to considerable capacity, with Whitlingham STW having the most opportunity to receive additional flows;
- As the sewers through the city centre are currently at capacity, it is likely that a new sewer system to accommodate growth to the north of Norwich will be required. This is likely to carry flows to Whitlingham STW.

- It is likely that in order to ascertain what capacity the existing sewers have within the Study Area a comprehensive modelling assessment needs to be undertaken;
- A combination of upgrades of existing STWs and the construction of new STWs throughout the Study Area will provide the required capacity for the expected growth in the region;
- The capacity of the receiving watercourse will be crucial to determining where new discharge consents can be considered, or where existing ones will need to be upgraded.
- It is assumed that the water quality of any increase in discharge can be discounted through design engineering;

8.1.4 Environment

- Phosphate and nitrate loading into the river systems provides the biggest impact to environmental designated sites within the Study Area.
- The cumulative impacts of individual development should be considered in terms of their effects to the Study Area as a whole.

8.2 Summary of Possible Growth Numbers

It is concluded that the existing infrastructure has the capacity to accommodate 33,000 homes in the Norwich Policy Area and 2,300 homes in the Rural Policy Area. This totals 35,300, which represents approximately 88% of the require growth target (40,000).

Table 8-1: Percentage of Growth Targets achievable with existing infrastructure

Policy Area	Growth Target	Existing Infrastructure Capacity	Percentage Complete
Norwich Policy Area	44,500	33,000	74%
Rural Policy Area	6,500	2,300	35%
TOTAL	51,000	35,300	69%

Table 8-2 below summarises the growth numbers for each scenario. This has been based on the results from the constraints matrix undertaken in Section 5. The limiting number is based on the amount of dwellings which can be accommodated within the existing infrastructure in the Study Area, and as such represents the “Green” traffic light from the analysis.

It is recommended that these results are refined in Stage 2.

Table 8-2: Development Numbers (in thousands) per Potential Growth Area

			Number (000's)				
			Flood Risk	Water Resources	Wastewater	Environment	Limiting No.
Ref	Description						
NPA	NPA1 ¹³	North East Sector (inside the NNDR)	20	10	5	5	5
	NPA2 ¹³	North East Sector (outside the NNDR)	20	20	1	20	1
	NPA3 ¹³	East Sector (outside the NNDR)	20	15	5	5	5
	NPA4 ¹³	North East and East Combination	20	15	5	5	5
	NPA5	South East Sector (Vicinity of Poringland)	20	5	5	10	5
	NPA6	South Sector (A11-A140 outside A47)	20	5	0	20	0
	NPA7	South West Sector (A11-B1108)	20	5	5	5	5
	NPA8	West Sector (River Yare to River Wensum)	0	1	1	1	0
	NPA9	North West Sector (A1067 - NNDR)	20	5	1	1	1
	NPA10	North Sector (North of Airport)	20	5	1	20	1
	NPA11	Wymondham	20	4	4	20	4 ¹⁴
	CITY	Norwich	1	1	10	1	1
Total							33
RPA	RPA1	Reepham	1	1	0.1	0.1	0.1
	RPA2	Aylsham	2	2	0	2	0
	RPA3	Wroxham	0.5	0.5	2	0.5	0.5
	RPA4	Acle	0.1	2	0.1	0.1	0.1
	RPA5	Hingham	2	2	2	0.1	0.1
	RPA6	Diss	2	1	2 ¹⁵	2	1 ¹⁶
	RPA7	Harleston	2	0	1	2	0
	RPA8	Loddon	2	2	2	0.5	0.5
Total							2.3

¹³ Growth figures for NPA1-3 must not be combined together

¹⁴ Subject to further investigation of drainage related flooding

¹⁵ Indicates no information

¹⁶ Subject to wastewater information