

APPENDIX 3: CUMULATIVE, SYNERGISTIC & SECONDARY EFFECTS

Policy	Policy area	1.1 Land	1.2 Energy	1.3 Water	2.1 Designated sites	2.2 Habitats / species	2.3 Access to sites	3.1 Heritage assets	3.2 Character	3.3 Good spaces	4.1 Emissions	4.2 Waste & recycling	4.3 Climate change	5.1 Human health	5.2 Crime	5.3 Open space	6.1 Services / facilities	6.2 Inequalities	6.3 Affordable housing	6.4 Involvement	7.1 Access to work	7.2 Infrastructure	7.3 Economy
Key: +/++ positive (synergistic) impact -/-- negative (cumulative) impact +/- mixed impacts ? - impact uncertain blank – no impact																							
NS1	The vision	-	-	-					+	+		-	--										
NS2	Development principles	-	-	-					++	++	++	--	+	+		+	+/-		+		+	+	+
NS3	The site	+	--	--							--		+/-				+						
NS4	Extended Green Belt	+					+		+	?			+/-										
NS5	Landscaping the setting	-				+	+	+	++	++	+			+		+							
NS6	Green separation					?	+	+	+	?			+			+							
NS7	Structure of Northstowe	-						+	++	++	++		++	+		+	++				+	++	+
NS8	The town centre		?	-				?	+	+	+	-					+				+	+	++
NS9	Local centres		?	-						+	+	-		++			++		+		+	+	+
NS10	Northstowe housing	?	--	--					-	?		--	?			?	+		+		+		
NS11	Northstowe employment	?	-	--					?	?	+	--				?	+				++		++
NS12	Community services, etc.		-	?					+	++		-		+		?	++				+	++	+
NS13	Road infrastructure	-	-							?	--										-	+	
NS14	Alternative modes		+							?	++			++			++				+	+	
NS15	Landscape principles			+		+			+	+													
NS16	Edge treatment								+	+			++			+							
NS17	Landscaping in N'stowe					?		?	++				++										
NS18	Links to surroundings					?			+														
NS19	Existing biodiversity					++	?																
NS20	New biodiversity					++	+						+	+		++	+						
NS21	Use of existing buildings		+					++	?			?											

Policy	Policy area	1.1 Land	1.2 Energy	1.3 Water	2.1 Designated sites	2.2 Habitats / species	2.3 Access to sites	3.1 Heritage assets	3.2 Character	3.3 Good spaces	4.1 Emissions	4.2 Waste & recycling	4.3 Climate change	5.1 Human health	5.2 Crime	5.3 Open space	6.1 Services / facilities	6.2 Inequalities	6.3 Affordable housing	6.4 Involvement	7.1 Access to work	7.2 Infrastructure	7.3 Economy
Key: +/++ positive (synergistic) impact -/-- negative (cumulative) impact +/- mixed impacts ? - impact uncertain blank – no impact																							
NS22	Public open space					?			+	+			+	++		++	++					++	
NS23	Countryside recreation					?				+	?			++		+	+						
NS24	Land drainage, etc.			++		+						?	++									++	
NS25	Telecom. infrastructure																					+	
NS26	Sustainability exemplars		+	++									++									+	
NS27	Construction strategy		?	?		-					--		?	?									
NS28	Strategic landscaping								+	?													
NS29	Using existing materials		+					?				+											
NS30	Management of facilities																						
NS31	Achieving the build rate																						
NS32	Timing / order of services								?	?							+				+	+	?

Summary comments on synergistic and cumulative impacts

Objective	Overall rating	Commentary
1.1 Land	–	The various forms of development at Northstowe collectively result in net absolute negative impacts in terms of consumption of land (including that needed for new road links), although the impact is compensated by the use of moderately high housing densities, limiting the provision of employment land, and selecting a site that makes the best possible use of local brownfield land.
1.2 Energy and natural resources	– –	<p>Again, the principal cumulative impact is the demands for energy from the sustained increase in housing, employment, community facilities, retailing, recreational sites, etc., although these are offset by policies encouraging use of energy efficient technology and design, and recycling of materials. The principal mitigation measure would be to increase the level of provision of technology, or the efficiency improvements required, although the Council is not able to introduce measures that appear too draconian if this discourages developers.</p> <p>Note also that these impacts are also cumulative with those of other developments to the southwest of Longstanton, and which are proposed in Core Strategy policies SP/1m and SP/4. This applies also to objectives 1.1, 1.3, 4.1 and 4.2.</p>
1.3 Water resources	– –	<p>Once more the principal cumulative impact is the demand on water supply from sizeable growth in housing in particular, but also from employment sites (consumption may be high for particular forms of R&D), retailing, etc. These impacts will have a cumulative impact in an area already suffering water shortages, and where other substantial development (notably Cambridge East) is planned. The impact is offset by water conservation measures within the Core Strategy and this AAP, and by landscaping policy on water features which are designed to maintain groundwater recharge rates.</p> <p>Note also that it is assumed that the master plan will aim to intersperse green space and impermeable surfaces as much as possible to prevent localised secondary impacts on groundwater percolation, and the effect this may have on the local water table.</p>
2.1 Wildlife designations	(none)	None of the policies has an apparent impact on this issue due to the limited presence of designations in the surrounding area. Our mitigation proposals suggest undertaking a survey to detect protected habitats and species as early as possible and in parallel with the master planning phase and therefore this assessment might change if these are identified locally.
2.2 Habitats & species	?	Loss of existing open spaces in the barracks and golf course will be compensated by other forms of open space and landscaped areas. It is not possible to assess the net effect on local biodiversity – ie. whether the result is an improvement on what is there today - without further detailed inspection of the existing features, but the plan makes provision to protect trees, hedgerows and to supplement these with new features. However these benefits are offset by the long-term possibly cumulative effect of disturbance of quite large areas by construction activity, and the initial assessment is that any efforts to encourage wildlife to remain on the site during this period will have limited success for this reason.
2.3 Access to wildlife sites	(none)	No significant cumulative or synergistic impacts identified.

Objective	Overall rating	Commentary
3.1 Heritage assets	(none)	No significant cumulative or synergistic impacts identified, although various policies support the objective by proposing re-use of buildings sympathetically or landscaping to reduce visual impacts.
3.2 Maintain character	++	Various policies combined facets of local architecture, landscaping and settlement pattern into the new town so that it is consistent with nearby villages in these respects if not in age. This represents an obvious synergistic benefit in terms of the overall 'feel' of the settlement although it is not clear what impact this will have on rates of housing occupancy and employment provision. The only negative impact is the impact of the higher housing density – untypical of surrounding villages – on character, and this is a challenge that will have to be addressed in the design brief.
3.3 Spaces that work well	++	<p>Again, there is a synergistic impact from policy measures which provide for a high quality built environment with an appropriate level of provision of services, amenities, etc. that are readily accessible, although there are difficulties in determining whether this is a positive cumulative effect, or a set of overlapping significant impacts.</p> <p>However against this there is a long-term cumulative effect on residents of the surrounding villages of a sustained period of construction and the impacts this entails. These cannot be quantified without more information about the site design and the phasing of work. However site access and activities will need to be phased not only with the completion of housing and supporting infrastructure, but also to restrict the nuisance and impacts on residents of existing settlements, so that they do not persist throughout the main 10 year construction period.</p>
4.1 Emissions	?	<p>The broad nature of this objective makes it difficult to summarise the overall effect in a single mark. There is scope for positive cumulative impact from a design that encourages modal shift away from the private car, provided that co-locating housing, employment, shops, etc. encourages this, and that public transport services including the guided busway result in more sustainable commuting patterns. Such policies will also mitigate the potential cumulative impact of the development on traffic levels on the strategic road network locally, since access to Northstowe will be primarily from the congested A14, and new traffic will begin to grow several years before widening of the main road begins.</p> <p>However, as noted above, the construction phase of the development will give rise to sustained impacts arising from site traffic, dust and other emissions generated by development work, noise from site activities, etc., which will require careful scheduling of the location and extent of the work to limit the effects on residents in the neighbouring settlements and the housing completed early in Northstowe. Effective green separation should provide a physical, visual and sound barrier insulating residents at the edges of Longstanton and Oakington from the impacts of the nearby new town. However, the detailed design should avoid locating land uses likely to generate substantial levels of noise or light along the green separation areas to limit potential impacts on residents in Longstanton and Oakington. Nevertheless the settlement will introduce sources of noise and light into open land this is not or barely lit at night, and the design guide will need to ensure these impacts are mitigated appropriately through the layout of the street scene and use of street furniture.</p>

Objective	Overall rating	Commentary
4.2 Waste & recycling	--	There is an absolute negative impact from the creation of a new town which will grow as it expands. Core Strategy policy DP/3 will apply and provides for screened storage of waste and recycling facilities, and para. D15.4 proposes a possible location for a household waste recycling centre, nevertheless development entails an increase in arisings, especially alongside that arising from other developments proposed in the LDF. Also, encouraging R&D, biotech. and other sectors that are already well represented in the sub-region is likely to increase arisings of special and hazardous wastes, and will place demands on disposal capacity.
4.3 Climate change	+	It is not clear that there is a strong positive, synergistic impact. The need to prevent the development contributing to local flood risk is addressed in several policies, and supported by relatively high housing densities that enables open space to be incorporated into the settlement, which will assist with groundwater percolation. Nevertheless the town will cover land this is large open at present and this will have a cumulative effect on runoff rates as the settlement expands, which must be handled by the SUDS. The AAP focuses on flooding as the principal climate change impact, nevertheless the introduction of energy efficient technology and design will make an incremental and slow cumulative benefit, which will be complemented by the corresponding policy in the Core Strategy. Their aggregate benefit would be increased if the policies required an increased level of provision, a greater level of efficiency, or if they were complemented by a policy to encourage greater use of technology in existing dwellings.
5.1 Human health	+	Another objective where it is difficult to be conclusive about whether the benefits are cumulative. Several policies provide for recreational infrastructure whether this is its primary function (play areas, sports fields) or secondary (use of green corridors for recreation). Sustainable transport policies, promotion of alternative modes, and an urban design locating housing near to shops, employment, etc. to encourage people to walk or cycle will also contribute. However in all cases generating a cumulative benefit depends on residents' willingness to use these facilities and to walk rather than drive.
5.2 Crime	(none)	No obvious cumulative or synergistic impacts identified.
5.3 Public open space	+	A further case where there is no clear cumulative impact, but where the objective is supported by several policies designed to address an issue where the District is known to be under-performing. Notwithstanding the nature of the impact depends on how much these spaces are used. One uncertainty at this stage is the extent to which a range of land uses can be accommodated within the footprint of the settlement while still delivering adequate open spaces and good design / layout. It is not possible to assess this without at least a master plan for the settlement.
6.1 Access to services, etc.	++	The AAP clearly aims to create synergies anticipated by PPS1 in co-locating (as far as possible) or providing easy access over short distances between housing, transport access, shops, amenities and leisure facilities in and beyond Northstowe through the medium of the settlement design. Cumulative benefits derive from the effect of this design on journey patterns – multi-purpose trips reduce the overall number of trips; local services reduce trip length, etc. – and on transport mode. The benefits of increased sustainable travelling will cumulate over time as the settlement grows, and could be furthered with frequent bus routes to adjacent villages (eg. Over and Rampton) who may be the most likely out-of-town visitors to Northstowe's facilities.

Objective	Overall rating	Commentary
6.1 cont'd		The quality and range of facilities should be satisfactory, and policy specifically aims for a good mix of convenience and comparison shopping as well as preventing a small number of outlets to dominate the local retail scene. Nevertheless there is a concern that Northstowe might be too successful and affect the viability of existing facilities in the surrounding villages. Core Strategy SF/1 protects village services and facilities but offers little help if loss of customer makes such amenities uneconomic. It is not clear that a retail impact assessment has been proposed for the facilities proposed at Northstowe (possibly because the type and range of potential retail outlets cannot be established at this time) and this is clearly a priority to prevent such secondary impacts.
6.2 Reduce inequalities	(none)	No significant cumulative or synergistic impacts identified.
6.3 Access to housing	?	In Northstowe alone there are no significant synergistic impacts although clearly the settlement will contribute significantly to realigning the District's housing supply by type, size and cost with demand, and to meeting further needs over the coming decade.
6.4 Active involvement	(none)	No significant cumulative or synergistic impacts identified.
7.1 Work, skills, potential	+	<p>As with 6.1, there are synergies in co-locating work and housing as far as this is feasible which affect sustainable commuting patterns. Nevertheless land supply means there is limited scope to provide extensive local employment even if retailing and community services provide additional opportunities, and this means a substantial proportion of the local economically active population will have to commute to work, probably in central or northern Cambridge.</p> <p>The AAP also seeks to ensure that employment opportunities within Northstowe are not focused on a limited range of sector, which would be socially divisive, and this will have beneficial secondary impacts on social inclusivity.</p> <p>Note also that one of the criteria for this objective concerns the health of the rural economy, and the concerns about the impact of Northstowe on surrounding villages which are discussed under objective 6.1 above apply to this objective also.</p>
7.2 Investing in people, etc.	+	Collectively a range of policies provide for an extensive range of social and utility infrastructure appropriate to a development of this scale, although this is not strictly a synergistic impact.
7.3 Economic vitality	++	The development adds to business development by facilitating a growth in local employment whether in core services, general business, or more specialised activities for which the sub-region is famed. The main concern is that employment and housing growth meets current pent-up demand for growth in the sub-region but that this merely fuels further demand for housing and employment land, creating an impact that is both cumulative and cyclical.

APPENDIX 4: SIGNIFICANT IMPACTS MATRIX

The symbols below are used to indicate the nature of relative significance of impacts:

√	Policy has a significant medium / long-term benefit on the objective
√	Policy may have a potentially significant benefit in the longer term
	Policy has minor impacts which are not significant, or has a neutral effect
x	Policy may have a potentially significant adverse impact in the longer term
X	Policy has a significant medium / long-term adverse impact on the objective

Your attention is drawn to the discussion in section 3.1 of this report which defines the nature of 'significant impacts' in the context of this assessment.

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NS1	The vision		X	X																			
NS2	Development principles	√							√								√				√		√
NS3	The site	√	X	X								X											
NS4	Extended Green Belt								√		√												
NS5	Landscaping the setting					√	√		√														
NS6	Green separation	√				√	√		√	√				√			√						
NS7	Structure of Northstowe										√			√			√				√		
NS8	The town centre		X	X								X					√						√
NS9	Local centres									√							√						
NS10	Northstowe housing	√	X	X						√		X					√	√	√				
NS11	Northstowe employment		X	X							√	X					√	√			√		√
NS12	Community services, etc.		√	X						√	√	X					√			√	√	√	√
NS13	Road infrastructure										X												
NS14	Alternative modes		√							√	√			√			√	√			√		
NS15	Landscape principles		√			√	√			√		√		√		√	√						
NS16	Edge treatment								√	√			√			√							
NS17	Landscaping in N'stowe					√	√		√	√			√	√		√							
NS18	Links to surroundings						√		√					√		√							
NS19	Existing biodiversity				√	√																	
NS20	New biodiversity					√	√		√	√						√	√						
NS21	Use of existing buildings							√															
NS22	Public open space									√				√		√	√			√			
NS23	Countryside recreation						√				√			√		√	√						

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NS24	Land drainage, etc.			✓								✓	✓										
NS25	Telecom. infrastructure																✓	✓		✓		✓	✓
NS26	Sustainability exemplars		✓	✓							✓	✓								✓		✓	
NS27	Construction strategy										✓												
NS28	Strategic landscaping																						
NS29	Using existing materials											✓											
NS30	Management of facilities																					✓	
NS31	Achieving the build rate																						
NS32	Timing / order of services																					✓	

APPENDIX 6: MITIGATION PROPOSALS

Policy / policies	Proposed mitigation	Delivery mechanism (proposed or known)
NS/1	None, but see below.	
NS/2	This is an extensive policy, following the Vision statement in NS/1 which is very broad and high-level. It might be helpful to review the balance of the two policies and either to incorporate more of NS/2 into NS/1 or to eliminate NS/1 and incorporate it into NS/2.	Revision of policy text if appropriate.
NS/3	None.	
NS/4	None.	
NS/5 and NS/6	None.	
NS/7	Consider removing the policy since its content appears to be repeated in more detail by subsequent policies.	Editorial changes.
NS/8	The objective of preventing local retailing being dominated by a single large multi-purpose outlet (or perhaps a very small number of such outlets) could be given greater prominence in the policy text.	Revision of policy text if appropriate.
NS/9	At least one basic amenity – ideally a convenience store – to be available at the time the first properties in the area around each local centre are occupied. This will encourage use of the facility from the outset, but with new residents also able to use the bus service to reach a wider range of services in the town centre.	Define requirement in development brief, or require provision in the local masterplans for each part of the development.
NS/10 and NS/11	None	
NS/12	None	
NS/13	None	
NS/14	Amend the wording of clause e) of the policy to make it clear that employers will be expected to prepare green travel plans consistent with sustainable transport policy in this AAP and in the Core Strategy.	Minor adjustment of policy text.
NS/15	Ensure provision is made for access by the disabled or less mobile.	Address in design brief / guide.
NS/16	None.	
NS/17	Need to identify components of existing vegetation that will be retained. Need to ensure green corridors are a safe area, balancing the need for discrete lighting while limiting light pollution in open areas.	Define in brief for master plan. Address in design brief / guide.

Policy / policies	Proposed mitigation	Delivery mechanism (proposed or known)
	Consider additional green corridors at the north and south ends of the settlement which could be connected to the adjacent green separation.	Review / adjust concept diagram if necessary.
NS/18	Consider designating areas such as parts of the network of green corridors and their extensions into the surrounding countryside as Countryside Enhancement Areas, identifying them as locations where character and tranquillity are to be preserved as far as possible (and consistent with policy NE/5 in the Core Strategy)	Define in strategic master plan and possibly define in a separate SPD.
NS/19	An ecological survey should occur as soon as is feasible to establish whether there protected or locally important wildlife is present anywhere on the site. If this is the case, it will be necessary for the developer to incorporate appropriate mitigation or conservation measures into the master plan, and to ensure English Nature and other bodies have ample, early opportunity to comment on the proposals so that they can be integrated into the development schedule from the outset.	Require developers to collectively commission a survey as soon as possible. Identify mitigation / conservation needs and incorporate them into the master plan and design guides as appropriate.
NS/20	None.	
NS/21	Make clearer the Council's requirement for development to respect the setting of landmarks in adjacent settlements, notably St Michael's church at Longstanton – this is consistent with Core Strategy policy CH/1 and also with CH/5 which protects the character of conservation areas.	Adjust policy text.
NS/22 and NS/23	None.	
NS/24	Design of the water feature and SUDS will need to pay particular attention to the existence of an area of high flood risk along Cottenham Lode to the east and southeast of the site, and should avoid increasing the risk of flooding of Reynolds Ditch, which drains the north-east of the site and lies close to one end of the SUDS / water park.	Address in Master Plan, ideally informed by a revised flood risk assessment which takes account of the effect of Northstowe.
NS/25	None.	

Policy / policies	Proposed mitigation	Delivery mechanism (proposed or known)
NS/26	As noted in the Core Strategy there is scope to be more prescriptive in setting more ambitious targets for deploying energy efficient and water-saving technology. However the Council considers that it has specified a target this is achievable and which will not penalise developers, encouraging them to deploy these facilities and establish a local 'market' for this technology.	
NS/27	Make clear reference to Core Strategy policy DP/6 which makes more specific statements about sustainable construction methods, particularly the need to prevent water and dust contamination. Integrate the strategies for Northstowe with those for other development planned to the west of Longstanton (Core Strategy policies SP/1m and SP/4) to avoid cumulative impact of construction traffic. Ensure a survey of contaminated land is carried out prior to any initial redevelopment activity, as required by Core Strategy policy NE/23.	Adjust policy text and define in design brief. Coordination of master plan for Northstowe with development briefs for other facilities. Contaminated land survey during preparation of master plan.
NS/28 to NS/30	None.	
NS/31	None. The policy raises an issue about coordinating the delivery of housing and services, but this is addressed by policy NS/32.	
NS/32	None.	