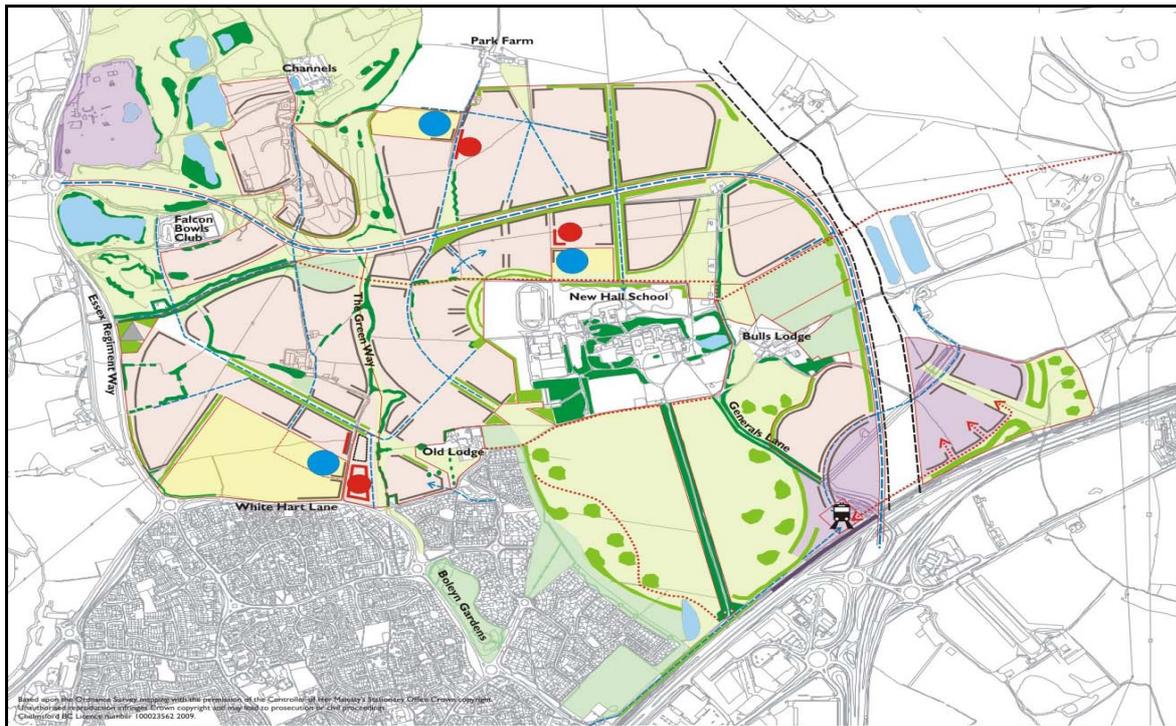


Chelmsford Borough Council NORTH CHELMSFORD AAP - INFRASTRUCTURE AND VIABILITY ASSESSMENT



ROGER TYM & PARTNERS
Planners and Development Economists

Final Report
April 2010

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EXECUTIVE SUMMARY

1. Roger Tym & Partners was commissioned in December 2009 by Chelmsford Borough Council to undertake an infrastructure and viability assessment to support the North Chelmsford Area Action Plan (NCAAP). The requirements at NW Chelmsford are less dependent on additional strategic infrastructure being provided than at NE Chelmsford. For NE Chelmsford, the assessment is based on 4,000 dwellings and 64,000m² of employment floorspace being delivered there.
2. The assessment considered the full list of infrastructure requirements and worked with stakeholders in order to properly understand the individual needs, costs, funding and implementation of the main items. The table below summarises this for NE Chelmsford:

Item	Needs	Cost	Funding	Delivery Timescale
Education	Primary education - 5 forms of entry	£12.6m (based on two-school scenario)	£12.6m developer	2013/14 - 2021+
	Early Years & Childcare	£6.6m	£6.6m developer	2013/14 - 2021+
	Secondary education - 900 places plus 6 th form	Not known	£15.4m developer	2014/15
Public transport	ChART	£5.7m	£5.7m developer	2012-2016
	Park & Ride	£6.0m	£6.0m funding already secured	2012
Road transport	Radial Distributor Road	£14.0m	£14.0m developer (phase 1 included in secondary budgets)	2014-2016
	Boreham Interchange and new bridge	£38.2m	£38.2m developer	2016
	Railway station	£65.0m	TBC	2020
Police	New office	£1.2m	£1.2m developer	2018
Sports facilities	Indoor (assumed part of secondary school)	TBC	developer	2018
	Outdoor - sports pitches	£0.51m	£0.51m developer	2016
Libraries	Community library	£0.7m	£0.7m developer	2021
Community	Community centre	£1.9m	£1.9m developer	2016
Electricity	Increase power supply	£10.0m	£10.0m developer (to be reimbursed by provider)	2013
	Undergrounding overhead power lines	£9.0m	£9.0m developer	2015
Potable water supply	Increase capacity	£1.6m	£1.6m provider	2012
Waste water	New sewer and pumping station	£13.0m	£1.0m developer (to be reimbursed by provider) £12.0m provider	2013
Health	GP practice	£5.0m	£5.0m developer	2016

3. Developer contributions would total £89.7m. There are further costs which are assumed to be covered by developers' secondary cost allowances.
4. The Local Delivery Mechanism - Chelmsford Tomorrow - is responsible for delivering the Integrated Development Plan, which sets out how Chelmsford proposes to deliver its major

economic and housing growth in the period to 2021. It is the role of Chelmsford Tomorrow to oversee the delivery of the requisite infrastructure.

5. Most development will proceed by agreed phases, usually linked to particular infrastructure provision. Table 6.1, which it is recommended is inserted into the NCAAP document, shows the likely phasing and relationship of each phase with the infrastructure required to support it.
6. One particular issue of note is the railway station. Unlike most of the other infrastructure items, this has no defined 'trigger'. As such a different approach has to be taken which links the need for the station to the development of the new commercial floorspace near the station and the Boreham Interchange, and also to the provision of a certain quantum of new dwellings, the latter reflecting the important role that the station would play in making a sustainable community..
7. The study considers the financial viability of residential development throughout the NCAAP area in the context of the likely scale of the planning requirements. The aim is to achieve physically and socially sustainable development on a scale commensurate with the aspirations of the NCAAP without compromising its other objectives. The test of viability in this context is not that every site within the NCAAP area should be viable for development now or at any other particular point in time. Rather, it aims to make it reasonably probable that the required number of homes will be built to the required standard over the period of the plan.
8. A simple, bespoke spreadsheet-based residual land value model was used to estimate the worth of a notional 10 hectare site which is characteristic of land in the NCAAP area. On this basis, it is calculated that total planning contributions of £22,000 per dwelling can be achieved without being likely to compromise viability. On a build of 4,000 dwellings, contributions would therefore total £88 million. With an infrastructure requirement expected to be addressed through contributions of approximately £89.7m, it is expected that contributions would broadly cover costs.
9. The £22,000 per dwelling figure assumes that 35% affordable housing is achieved, without grant, across all sites and throughout the lifetime of the development.
10. Table 6.1 shows the recommended phasing of development. It is assumed that for each phase, one-third of developer contributions would be collected upfront, one-third at the start of year 2 and one-third at the start of year 4. Over the first five years, there is a small surplus on cashflow when comparing contributions to the costs of providing the requisite infrastructure on time.
11. The report makes several recommendations on changes to the NCAAP Submission Document.

1 INTRODUCTION

The Brief

- 1.1 This report by Roger Tym & Partners (RTP) is intended to support the North Chelmsford Area Action Plan (NCAAP), as submitted to the Secretary of State for examination.
- 1.2 RTP was commissioned to provide support to Chelmsford Borough Council (CBC) in working towards the production of its final AAP. Specifically the requirement was twofold:
 - i) to address the range of infrastructure required to support the development, specifically focusing on needs, costs, funding, phasing and delivery; and
 - ii) to provide a strategic assessment of the financial viability of the AAP.
- 1.3 The wider consultant team consisted of a number of specialists drafted in to provide particular expertise. This team included:
 - Michael Beaman Ltd, working directly for RTP as a specialist in undertaking viability assessments; and
 - Colin Buchanan, sub-contracting to RTP in order to provide costings and design inputs on matters relating to the distributor road.
- 1.4 The report considers the whole NCAAP area, consisting of proposed growth at both NE Chelmsford (a minimum of 3,200 dwellings and 64,000m² of commercial floorspace) and NW Chelmsford (up to 800 dwellings). The requirements at NW Chelmsford are less dependent on additional strategic infrastructure being provided than at NE Chelmsford. As such, the majority of the focus of this report is on NE Chelmsford. However, the infrastructure requirements at NW Chelmsford are still considered, particularly given the fact that the provision of infrastructure could address impacts created in both development areas.
- 1.5 In order to fully reflect the fact that more than the 3,200 minimum number of dwellings will be delivered in NE Chelmsford, this assessment is based on a total of 4,000 dwellings in that location. The 800-dwelling requirement in NW Chelmsford is used to inform the needs in that part of the AAP area.

Need to Undertake the Assessment

Core Strategy

- 1.6 The requirement to properly assess infrastructure needs, and to plan for them accordingly, has its basis in Planning Policy Statement (PPS) 12: Local Spatial Planning. At paragraph 4.8, it states that:

“The core strategy should be supported by evidence of what physical, social and green infrastructure is needed to enable the amount of development proposed for the area, taking account of its type and distribution. This evidence should cover who will provide the infrastructure and when it will be provided. The core strategy should draw on and in parallel influence any strategies and investment plans of the local authority and other organisations.”

- 1.7 Paragraph 4.9 clarifies what is needed, stating that the infrastructure planning process should identify, as far as possible:
- infrastructure needs and costs;
 - phasing of development;
 - funding sources; and
 - responsibilities for delivery.
- 1.8 PPS12 goes on to say that the outcome of the infrastructure planning process should inform the core strategy and should be part of a robust evidence base. It considers that local authorities should undertake “timely, effective and conclusive discussion with key infrastructure providers” when preparing a core strategy.
- 1.9 CBC’s core strategy was adopted in February 2008. The key elements of its spatial strategy are:
- the focus of development on existing built-up areas including an urban renaissance within Chelmsford Town Centre;
 - the development of two new neighbourhoods to the North of Chelmsford with necessary infrastructure;
 - the safeguarding of the Metropolitan Green Belt and the protection and enhancement of valuable landscapes and the natural and historic environments;
 - promoting the economic and cultural role of Chelmsford as the ‘Capital of Essex’; and
 - the revitalisation of an economic gateway in North-East Chelmsford.
- 1.10 Given that PPS12 was also adopted in 2008, the Core Strategy was supported by the appropriate level of infrastructure planning evidence required at that point in time. The Core Strategy contained an assessment of infrastructure needs relating to the proposed strategic growth. The Inspector at the Core Strategy Examination in Public (EIP) requested that an updated infrastructure schedule - tabled to inform the EIP - was reproduced in the adopted Core Strategy.
- 1.11 The Core Strategy EIP also reviewed many of the major strategic infrastructure requirements that underpin the AAP and found the Council’s approach to be sound. He stated that he was “impressed with the comprehensive approach that had been taken to manage and minimise risks to the delivery of infrastructure” and he was “satisfied” that the component parts of the required infrastructure could be funded and delivered within the identified timetable¹.
- 1.12 Of particular note in respect of putting in place the necessary mechanisms for delivery of the Core Strategy is the formation of the Chelmsford Tomorrow Local Delivery Mechanism (LDM). The Inspector made the following statement at paragraph 4.58:

¹ Chelmsford Core Strategy Inspector’s Report, 11th February 2008, paragraph 4.99

“With the establishment of the Chelmsford Tomorrow Local Delivery Mechanism...I am satisfied that the infrastructure necessary to take the CS proposals forward will be in place to meet the targets and phasing identified in the housing trajectory.”

- 1.13 The LDM is responsible for delivering the Integrated Development Plan (IDP), which sets out how Chelmsford proposes to deliver its major economic and housing growth in the period to 2021. Within this is a spatial investment package for North Chelmsford which highlights many of the major infrastructure items that are required, such as new education and primary healthcare facilities and new public transport measures. It covers issues such as the funding and timescales for delivery of these items.
- 1.14 The IDP was published in January 2010 and it will be important that this is updated to reflect the emerging recommendations from this document and what is included in the final NCAAP document. This need is recognised in the AAP Submission Document which sees the IDP as a “live document” which “will be continually refreshed and reviewed” (paragraph 7.11).

Area Action Plans

- 1.15 PPS12 goes on to state at paragraph 5.4 that:

“Area action plans should be used when there is a need to provide the planning framework for areas where significant change or conservation is needed. Area action plans should:

- *deliver planned growth areas;*
- *stimulate regeneration;*
- *protect areas particularly sensitive to change;*
- *resolve conflicting objectives in areas subject to development pressures; or*
- *focus the delivery of area based regeneration initiatives.”*

- 1.16 It then says that AAPs should set out, amongst other things, the timetable for the implementation of the proposals. The Core Strategy first identified that an AAP would be the most appropriate vehicle for delivering growth in North Chelmsford. The NCAAP Submission Document is the response to this and necessarily seeks to provide clarity on the phasing plan for the delivery of the sites in NE and NW Chelmsford and the infrastructure to support that.

Council’s Approach to Planning Obligations

- 1.17 Policy CP4 of the Core Strategy provides the policy framework for securing infrastructure. In summary it states that:
- CBC will use planning contributions to meet necessary on-site and off-site infrastructure needs.
 - Standard charges and/or standard formulae will be used to ensure that development makes an appropriate and reasonable contribution to the costs of provision.
 - This might be modified where the infrastructure is provided on-site by the developer.
 - The provision of infrastructure will be linked directly to the phasing of development to ensure that enabling infrastructure is delivered in line with future growth.

- 1.18 Policy CP4 identifies a number of key infrastructure items which are also given priority on an infrastructure priority list within the Core Strategy. Ones that are relevant to NE Chelmsford are:
- New railway station in NE Chelmsford
 - North East Chelmsford Bypass and Boreham Interchange
 - Transport links between new neighbourhoods and Chelmsford Town Centre
 - A Neighbourhood Centre including a multi-use community centre, health centre, library and police station
 - Three new primary schools and one new secondary school to serve new and existing communities
 - Strategic open space/Country Park
 - North Chelmsford Park and Ride
 - Bus-based rapid transit system
- 1.19 In April 2009 the Council published and adopted a Planning Contributions Supplementary Planning Document (SPD) which identified these and all other items that it wished to seek contributions for. This also provided the calculation of the relevant charges and the justification for them. The Council is using the adopted Planning Contributions SPD as a framework for the completion of all planning obligations.
- 1.20 This forms an important basis for the assessment of costs in this document. However, in several cases, the recommended standard charges, in relation to infrastructure within the AAP, have not been used. The reasons are as follows:
- Schools - regionally adjusted cost per place multipliers used by Department for Children Schools & Families (DCSF) have been taken, as opposed to those in the SPD. The SPD used April 2008 figures. Whilst the revised figures in this document use the same DCSF figures, up-to-date regional adjustments and indexation (PUBSEC index) to April 2011 have been applied. This enables build costs to be projected forward to the 2011 start date of the scheme. This forms a more reasonable proxy because build costs have fallen since the data used to inform the SPD.
 - ChART and Park & Ride - More accurate costings information has been provided by ECC.
 - Boreham Interchange - The SPD reflects the position with a requirement for a NE Bypass, which is no longer programmed. As such, there have been changes to the design of the Boreham Interchange which has necessarily produced a different cost.
 - NE Chelmsford railway station - More accurate costings have been provided by ECC.
 - Local open space - The figures in the SPD include a contribution for land as these are designed to in lieu of actual provision.

1.21 Furthermore, as will be explained in Section 4, many of these items will be provided ‘in kind’ by the developer². As such, the cost of their provision, within the context of the overall viability of the scheme, is not relevant because they will already have been allowed for in a developer’s secondary infrastructure budgets.

Community Infrastructure Levy Regulations and Circular 05/05

1.22 On 6th April 2010 the Government formally adopted regulations that bring into effect a Community Infrastructure Levy (CIL). The intention of this new charge is to allow local authorities to be able to collect pooled charges that can contribute towards strategic infrastructure across a whole district. It also will be represented by a single charge for an area (although there may be variation across a district) per square metre of residential and, if appropriate, commercial development. Once this charge is adopted it will not be negotiable and can only be varied in exceptional circumstances.

1.23 CIL is clear, amongst other things, on three matters:

- CIL cannot be charged to alleviate historic deficits, only to provide for new growth
- CIL can only be charged to pay for capital items, not revenue
- CIL will not be chargeable on affordable housing in most instances.

1.24 The Regulations also seek to limit the use of planning contributions through the existing negotiation of Section 106 agreements. Items listed in a CIL schedule will not be permitted to be included in a S106 agreement and after 6th April 2014, funding for any individual infrastructure project or type of infrastructure cannot be taken through Section 106 if five or more Section 106 agreements have been made beforehand to fund the same infrastructure project or type of infrastructure. In other words, pooling of funds will only be possible as part of a CIL charge.

1.25 This point on pooling represents a change from the guidance provided by Circular 05/05 on planning obligations. However, much of this guidance still holds. In particular, it reiterates that obligations can only be used for the maintenance of new infrastructure, i.e. its physical upkeep. It does not state that contributions can be used to support the revenue needs accruing from new infrastructure provision.

Structure of the Report

1.26 The second section reviews the infrastructure needs. Section 3 then considers the costs and Section 4, the funding and implementation. Section 5 outlines the phasing of development.

1.27 Section 6 then considers viability. This will try to understand, based on the development of a greenfield area of this type, what the likely developer contributions could be. This will help to demonstrate, at a necessarily strategic scale, that the AAP is deliverable. Lastly,

² As will be explained in Section 4, it is assumed that part of the strategic open space provision will also be included in the developer’s secondary infrastructure budget.

Section 7 will summarise the key points and consider how to monitor progress of the delivery of the AAP.

- 1.28 Appendix A provides a summary of the needs, funding and phasing of each of the items.
- 1.29 Appendix B provides a glossary of terms.
- 1.30 Appendix C shows the viability model with accompanying notes.

2 INFRASTRUCTURE NEEDS

- 2.1 The purpose of this assessment is to review the infrastructure requirements needed to support the expected outputs of the AAP, specifically the residential and commercial development. The later sections will determine the costs, funding and implementation of these needs, which in turn will be used to understand whether development can afford the required contributions.
- 2.2 This addresses all of the infrastructure needs identified in the AAP. It also identifies particular 'one off' costs of development that will need to be factored into the assessment of what the overall development can afford.

Education

- 2.3 All new housing must have reasonable access to education provision. For primary education, all schools must be located on or close to a development. It is not reasonable to expect the education authority (Essex County Council) to fund and operate the bussing of significant numbers of children to primary school sites elsewhere in the borough. At present, ECC is liable to pay for school transport where there is no safe walking route of less than two mile for children up to the age of 8 and less than three miles for older children. As identified in the AAP, ECC considers that there is limited or no spare capacity in the most proximate primary schools to the proposed development area, so all primary school provision must be on site.
- 2.4 For secondary school provision there is already an identified shortage of available secondary school places in this part of the borough. Currently some pupils have to travel significant distances in order to access secondary school places. Therefore there is a clear need for new secondary education facilities to be provided as part of the new neighbourhood, and this is identified in the AAP.
- 2.5 At this stage it is not possible to be definitive as to the number of school places that will be required. This will depend on the overall type and mix of housing that is delivered across the neighbourhood. For the purpose of this assessment, ECC has adopted a precautionary approach and has based its assessment on a housing mix which creates numbers of school children at the upper end of the reasonable range.

Primary education

- 2.6 Based on 4,000 dwellings, the estimated need identified by ECC at NE Chelmsford is for primary school provision for 5 forms of entry. Each form of entry equates to 210 pupils. Clearly a higher or lower number of dwellings or a significantly different unit mix from the one modelled would alter this figure and, since the actual dwelling mix of the final development will not be know until planning permission has been granted, a degree of flexibility must be built into new schools to allow expansion. For each new 2 form entry school that is provided, a minimum of 2 hectares of land will be needed.
- 2.7 At NW Chelmsford the AAP considers the need for either a new primary school or the relocation and expansion of the existing primary school in Broomfield. It is understood

from ECC that the latter is the most likely option. Schools on the NW urban edge of Chelmsford may also require expansion.

Early Years and Childcare

- 2.8 Within each of the new school buildings, ECC will co-locate Early Years and Childcare (EY&C) facilities (0-4 years of age). The number of children within this age range will be significantly greater than the 'in-school' provision that is planned. Private providers, including childminders, must be facilitated to provide a full range of settings. The total demand for EY&C in the area is dependent not only on housing but also on employment space due to a degree of parental preference to 'board' young children close to where they work if remote from where they live.
- 2.9 This assessment is based on ECC's Childcare Sufficiency Assessment and CBC's Planning Obligations SPD.

Secondary and 6th Form education

- 2.10 As stated in paragraph 2.4, there is a need for additional secondary places, including 6th form provision, to serve the new population at NE Chelmsford. ECC's policy is to provide a minimum of 900 school places (plus 6th form) at new secondary schools. On this basis a new school in NE Chelmsford would have some scope to serve a wider area and reduce existing pupil travel distances. Development at NE Chelmsford would only contribute financially towards the demand that it creates.
- 2.11 For a school site of the required size, a total of 9-10 hectares of land will be needed. This will include playing fields and some other facilities that may be used for joint community use. It will also provide for some limited expansion of the school in the future.
- 2.12 At NW Chelmsford, a contribution will be needed to provide expanded provision at the existing secondary schools serving the locality.

Public transport

- 2.13 There is a clear need for modes of transport serving new development to be as sustainable as possible. The AAP, at paragraph 3.24, states that major new facilities being provided at NE Chelmsford "...must be accessible to both new and existing communities alike by travel modes other than the private car." It specifically identifies Chelmsford Rapid Bus Transit (ChART) and the Park & Ride as services that are integral to that.

North East Chelmsford Railway Station

- 2.14 The AAP states at paragraph 3.27 that a new railway station is needed to the north east of Chelmsford to:

"...provide train services for residents and workers, support future business activity around the station and existing business activity in Colchester Road, and relieve pressure on the central Chelmsford station."

- 2.15 A new station would assist in achieving the aims and objectives of the AAP in two ways:

- By helping to contribute to the public transport infrastructure network and therefore sustainability more generally.
- By helping to balance the provision of employment and housing by attracting more high value jobs into the Borough.

ChART

- 2.16 Chelmsford Rapid Bus Transit (ChART) will serve the development and will share off-site bus priority measures with the Park & Ride facility.

Park and Ride

- 2.17 The Park & Ride site at Essex Regiment Way is currently under construction and bus priority measures along Chelmer Valley Road are due for completion in April 2010.

Road transport

- 2.18 Whilst sustainable transport through public transport and other measures are fundamental, it is accepted that there will be a degree of car-borne traffic that will be served by the development. Nevertheless, the AAP identifies that the need must be to reduce traffic where possible.

Radial Distributor Road

- 2.19 The rationale for a radial distributor road to serve the development is clear. As is stated at paragraph 3.33 of the AAP:

“The pressing need to manage peak time congestion on White Hart Lane and secure a net improvement will be achieved by a new principal access road for new development. This will...enable traffic to travel north avoiding White Hart Lane, by means of a link between Boreham Interchange and Essex Regiment Way. The road is proposed to act as a main distributor providing primary access to developed areas.”

- 2.20 Although the general route of the road is clear there are two possible options for the connection onto Essex Regiment Way. The AAP retains a preferred connection onto the existing roundabout on Essex Regiment Way at Belsteads Farm Roundabout. However, to ensure flexibility in the overall delivery of the new neighbourhood there are two phasing options to achieve the connection onto Essex Regiment Way. It is recommended that the remainder of paragraph 3.31 in the AAP reflects this. These are outlined below.

Option 1

- 2.21 The AAP currently identifies the option of a single road which accesses Essex Regiment Way via the existing Belsteads Farm roundabout. This remains the preferred option.

Option 2

- 2.22 The alternative option, if it is required, is for a development in three phases that are delivered to reflect the traffic need as new dwellings are completed. It must also be taken into consideration that the development must enable the early provision of bus services that directly serve the residential areas of the development.

2.23 The three phases would be as follows:

- Phase 1: a new roundabout junction at Essex Regiment Way and an internal estate road serving the first phases of residential development.
- Phase 2: a section of the distributor road from a new roundabout in the north-eastern section of the AAP area through to the Boreham Interchange.
- Phase 3: the remainder of the distributor road to connect Phases 1 and 2 to the existing Belsteads Farm roundabout on Essex Regiment Way. This final phase would facilitate the AAP requirement of traffic travelling north avoiding White Hart Lane.

2.24 The AAP should have built-in flexibility to enable the delivery of this alternative option if it is required.

2.25 As will be shown in the costings section, this is potentially more expensive scheme than Option 1; adopting the precautionary principle, these costs are used in the assessment.

Boreham Interchange improvements (including Generals Lane bridge)

2.26 One of the fundamental improvements required to enable development to access the NE Chelmsford AAP area is to the Boreham Interchange. The AAP also envisages the future delivery of the NE Chelmsford Bypass through a safeguarded corridor which would link up with the A130 and provide better strategic access to the Braintree A120 Corridor. Since the AAP Submission Document was published, the prospect of funding being secured through the mechanism envisaged (the Regional Funding Allocation) within the AAP Plan period is unlikely, hence the need to safeguard the corridor. This is in the expectation that funding can be secured at a later date and the bypass can subsequently be delivered.

2.27 As a result of this, the necessary improvements to the Boreham Interchange have had to be revised. They now are solely focused on providing the necessary access to and from the AAP area. Part of this work (which was reflected in the AAP Submission Document) includes the replacement of the Generals Lane bridge over the railway track. This is currently a single lane road providing access into the site. The AAP considers that this route into the site is the most appropriate but clearly must be expanded in order to accommodate the necessary levels of traffic. In reality, this involves demolition of the existing bridge and construction of a new, larger road bridge.

Utilities

2.28 All new residential and commercial development must have the necessary access to gas, electrical and water (both drinking water and waste water) services. Indeed, it is a requirement of the respective providers' remit to provide the necessary connections and ensure that there is sufficient strategic capacity to be able to accommodate the additional loads that new development places upon the utilities network.

Electricity

Additional capacity

- 2.29 Assuming that the large majority of the new housing has gas fired heating, EDF Energy considers that the existing network capacity would be able to meet the demand of 4,000 dwellings. It will be necessary to extend the 11kV network from the Chelmsford North substation to the development at an early stage within the build programme, as there is little capacity available locally at 11kV to the development. However, such extensions are site-specific items, so are excluded from this assessment
- 2.30 A reasonable assumption has been made that the domestic development has an aggregated demand of approximately 10MW. This will leave 8MW remaining at Chelmsford North to meet the commercial development plus any further residential growth within the northern part of Chelmsford that may occur in the future. It is considered that there is a reasonable prospect of this being sufficient to meet the likely needs of the commercial development.
- 2.31 If this is not the case and demand exceeds the available supply, then there will be a need to carry out major reinforcement to the electricity infrastructure. The current strategy is to extend the substation at Chelmsford North to include 132/33kV transformation. The new 33kV equipment would then supply a new primary substation in the general area of the development. A site had been provisionally agreed near the A130, but this is subject to possible changes.

Undergrounding of overhead power lines

- 2.32 The AAP identifies that this is a requirement of development. The rationale is that it will provide general environmental improvements and also compensatory heritage measures for New Hall, a Grade I listed building. The Core Strategy Inspector recognised the importance of this and required an addition to Policy CP2 (the Borough-wide Spatial Strategy) which reflects the need for compensatory measures to specifically protect the setting of New Hall.
- 2.33 In theory, development could be designed in such a way that it would not be located adjacent to the existing electricity pylons. However, this could result in lower dwelling numbers being constructed and would also potentially push development away from one of the main areas identified for it in the south western part of the site. One of the reasons that this area has been identified for early growth is because of its ease of access onto the existing road network and general proximity to other services in the existing neighbourhood of Springfield. An added complication of placing greater levels of development further east on the site is that it has a greater chance of having a detrimental impact on the setting of New Hall.
- 2.34 The undergrounding is a site specific item so is not included in the assessment of infrastructure costs and funding. However, it will be a significant 'one off' cost to the developer which will impact on viability, so needs to be taken into consideration.

Gas

- 2.35 National Grid considers that there are no strategic improvements required to the gas network in order to service the new development.

Potable water supply

- 2.36 Essex and Suffolk Water has assessed that there is sufficient capacity available to supply 700 further dwellings in North Chelmsford. As such, there is a need for network reinforcement. They are already addressing this by putting in a reinforcement main to the south of the A12.

Waste water

- 2.37 Anglian Water has stated that the existing Broomfield sewer currently has capacity to serve an additional 400 dwellings. However, this is likely to be taken up by other developments already in the planning pipeline. Therefore expansion of capacity is needed and Anglian Water is of the view that for such a major development, a strategic sewer solution is needed, i.e. it is not acceptable just to increase the size of the existing pipe and so a new pipe should be created.
- 2.38 In addition, there needs to be further capacity created at the wastewater treatment works (WwTW). Chelmsford WwTW, located at Brook End, Chelmer Village, is close to the limit of its treatment capacity so the WwTW will need to be expanded. This will factor in the need to accommodate growth across its full catchment area, which is much wider than just North Chelmsford. The need for increased capacity and its funding has been identified in Anglian Water's Asset Management Plan (AMP5)
- 2.39 These issues are being addressed through an ongoing Water Cycle Study, being produced by Halcrow Group in partnership with the Environment Agency, Anglian Water and Essex and Suffolk Water. An updated Stage One report has recently been provided to Chelmsford Borough Council and it does not raise any particular issues of concern.

Health

- 2.40 All new residential development must have reasonable access in particular to primary healthcare provision³. The generally accepted criteria for 'reasonable' access are similar to that of primary education, in that patients must live within an acceptable distance of a general practitioner (GP) practice, such that they can get there ideally on foot or by short bus journey. Clearly people have the choice of where they register with their GP, but they should have the opportunity to register with a GP that is within this acceptable distance.
- 2.41 Increasingly, what comes under the ambit of primary care is widening. The emerging model is of new 'multi functional health centres' that are designed to make sure that people can access an increased range of NHS services and facilities devolved from

³ It is also expected that people should have reasonable access to secondary and tertiary healthcare but the definition of 'reasonable' is necessarily broader.

general hospitals closer to their homes, while bringing new opportunities to integrate GP and other community provision under one roof. So a surgery will now include a wider range of healthcare professionals.

2.42 The provision of premises is broadly determined by:

- Changes in demand - population changes and growth, and expanded patient choice and public expectations.
- Changes in services as explained above - the size of primary healthcare facilities will need to expand significantly and the provision of GPs surgeries from converted private housing stock is no longer seen as adequate.

2.43 The PCT has confirmed that there is minimal capacity within the existing GP practices in Chelmsford Urban Area.

2.44 Accordingly, the Mid Essex Primary Healthcare Trust (MEPCT) has determined that a 1,000m² medical centre is needed to support the new development at NE Chelmsford. This would include accommodating four GPs.

2.45 At NW Chelmsford, the MEPCT has stated that a 350m² facility is needed, supporting two GPs.

Emergency Services

2.46 The provision of the necessary infrastructure to enable the emergency services to serve new development is an important requirement of any proposal.

Police

2.47 Essex Police considers that at NE Chelmsford it has a requirement for a Neighbourhood Policing Office with secure parking for police and staff vehicles.

Fire

2.48 Essex County Fire & Rescue Service does not consider that it has any capital requirements arising from the proposed developments at North Chelmsford.

Other Needs

Facilities with potential for co-location

2.49 There are a number of facilities that could be co-located within the development. The AAP identifies within its place-making principles the intention that the secondary and first primary school buildings should be co-located within the local centre. It also states that the local centre should provide 'public services' as well as commercial uses.

2.50 This deliberately keeps open the consideration of exactly which facilities could be co-located. It is considered that the facilities with some potential for co-location are:

- Indoor sports facilities, as part of the secondary education provision
- Outdoor sports pitches, as part of the secondary education provision
- Library

- Community centre
 - Health centre
 - Police facilities
- 2.51 Some of these could have shared access points, such as the library, health centre and community centre. Some would clearly have to have a dedicated entrance, particularly the police facilities. There would also need to be care taken when providing public access to facilities located within an education facility. Although these would only be used outside of school hours, it would be necessary to ensure that users of the facilities could not reasonably gain access to other parts of the school building.
- 2.52 An Education Land Compliance Study is being undertaken by Essex County Council to inform the uses that could most appropriately co-locate.
- 2.53 Although co-location does not save money on the build costs, there is a small reduction in costs through the provision of communal car parking space. Also, the reduction in the amount of land take will potentially impact on the level of contributions that can be secured from the developer.

Indoor Sports

- 2.54 There is a need for a 'multi-purpose indoor sports facility' at NE Chelmsford. This is identified as an objective in the AAP under Strategic Objective QL1. This would typically be a large sports hall that could be sub-divided and potentially used for sports such as five-a-side football, badminton, volleyball and general exercise classes. There would also need to be changing facilities provided.
- 2.55 It is considered that that a cost-effective way of delivering these needs could be by providing facilities as part of the secondary school provision. This would include a gymnasium and changing facilities for school children which could be used by members of the general public outside of school hours.
- 2.56 In NW Chelmsford there is an existing indoor sports facility at Chelmsford Sports and Athletics Centre which provides both strategic and local sports and recreation facilities. Contributions from development in NW Chelmsford would enhance improvements to both facilities and accessibility to the centre.

Open space, sports and recreation

- 2.57 Similarly, Strategic Objective QL1 in the AAP identifies the objective of providing "multi-functional green space for recreation and growing purposes." The Council's open space standards are set out within the Core Strategy.
- 2.58 The Council's PPG17 Assessment of Open Space sets out a strategic open space standard of 1.25ha per 1,000 population. Based on a standard household size of 2.43 persons (source: 2001 Census), this creates a need for just over 12ha of space. The Planning Contributions SPD states that the CBC Parks Department has assessed that a 5.5ha site will provide for five winter sports pitches (4 adult and one junior), car park for 100 vehicles and pavilion with changing facilities. There is therefore a need for approximately 10 sports pitches (8 adult and 2 junior) within NE Chelmsford.

2.59 It is assumed that 5 of these pitches will be provided at the secondary school, along with the associated changing facilities within the school building. The remainder will be provided elsewhere and will have dedicated changing facilities for multiple sports teams.

2.60 In terms of local open space, the Planning Contributions SPD breaks this down as:

- Amenity green space
- Young people and children
- Allotments
- Green corridors

2.61 The exact number and nature of these items is to be determined as part of any planning application.

New Hall heritage compensatory measures

2.62 In addition, and as part of the New Hall heritage compensatory measures, parkland will be provided on the estate. Other specific heritage provision will be necessary but the exact requirements will need to be determined by more detailed assessment.

Libraries

2.63 The need for a new community library has been assessed by Essex County Council. Provision is required where library access is limited over a given distance for a minimum threshold population. In this case, the proposed location at NE Chelmsford meets the library requirements for a new facility to serve a discreet population of approximately 7,000 at a distance of over 1.5 miles from the nearest other static point - the joint use facility at New Bowers Way.

2.64 The estimated size of a library to serve 7,000 population is 210m². The size of the library has been reduced by 10% (to approximately 189m²) to allow for a likely co-location with other uses. This standard is as recommended by the Museums and Library Archives (MLA) in their study 'A Standard Charge Approach 2008'⁴ (the MLA recommends a figure of 30m² per 1,000 population as a benchmark for local authorities).

2.65 This is contrary to the AAP Submission Document which recommends a standard of 23m² per 1,000 population (at paragraph 1.78). It is recommended that this standard is changed to the 30m² per 1,000 population adopted.

Community centre

2.66 The AAP identifies at paragraph 1.81 that new "leisure/community facilities" are needed. A community centre is required that will also provide space for faith groups to be able to congregate (but not directly worship). Because of the facilities being provided elsewhere, this would not be expected to be used for sporting activities. Such a facility could be co-located with the secondary school and the health centre.

⁴ www.mla.gov.uk/website/publications

Municipal waste

- 2.67 The Borough Council operates an extensive kerb-side recycling collection service and therefore operationally there is no present need for neighbourhood recycling points.

Social services

- 2.68 There is a general need for adequate social services to be provided for the new population. This covers a range of needs, including adult and children's social care. Many of these needs do not have physical infrastructure requirements, or can utilise proposed and existing facilities, such as community centres or education provision.
- 2.69 A specific need has been identified for extra care housing to be provided as part of the development. This would total between 40 and 60 units.

3 INFRASTRUCTURE COSTS

Introduction

- 3.1 It is important to bring together the costs of the required infrastructure with how it will be paid for, who will deliver it and when it will be delivered. Based on costings provided in the absence of a detailed scheme, then the funding, implementation and phasing must be clear. This will then inform the outputs of what is viable. We firstly consider the infrastructure costs.

Education

- 3.2 Essex County Council, the education authority, has stated that it is not possible to be definitive about the total cost of a built school facility until the actual demand for places is known and therefore the most appropriate number and scale of each facility is determined. For example, just under five forms of entry may be best served by two primary schools whereas five forms of entry could require three. The layout of development and provision of safe walking routes to schools may also be a determining factor in the number of schools provided.
- 3.3 The analysis used to support the Planning Contributions SPD is, however, clear about the level of developer contribution required. It is these figures that are important to be able to assess the overall viability of development at NCAAP. Therefore, for the education analysis, we present the levels of contribution expected to be provided by the NCAAP development.

Primary education

- 3.4 Based on the assessment of costs from ECC, using DCSF figures per pupil modified to reflect local costs of provision as forecast in Q2 2011, five forms of primary school entry at NE Chelmsford would require developer contributions of £12.6m.
- 3.5 This excludes the cost of the land which, in addition to the cost of the buildings, is expected to be provided by the developer.
- 3.6 Clearly should the number of dwellings exceed the 4,000 in NE Chelmsford, then more than 5 forms of entry of primary provision will be needed and a higher contribution required.
- 3.7 At NW Chelmsford the additional primary school provision will incur developer contributions of £2.4m.

Early Years and Childcare

- 3.8 For each of the schools at NE Chelmsford, ECC plans to co-locate an EY&C facility. This will not provide the full choice of provision required by the area and funding will also be required to assist the setting up of private provision.

- 3.9 Based on Sure Start example costs, adjusted by ECC for the locality, a contribution of £6.6m will be required to provide for 4,000 dwellings. This excludes the cost of the land which is expected to be provided by the developer.
- 3.10 Clearly should the number of dwellings exceed 4,000 in NE Chelmsford, this figure would rise.
- 3.11 At NW Chelmsford the additional EY&C provision, as part of the primary school provision, will incur contributions of around £0.16m.

Secondary and 6th Form education

- 3.12 Based on revised DCFS figures per pupil, the provision of the secondary and 6th form places attributable to 4,000 homes at NE Chelmsford would incur developer contributions of £15.4m. This excludes the cost of the land which is expected to be provided by the developer. Clearly should the number of dwellings exceed 4,000 in NE Chelmsford, this figure would rise.
- 3.13 At NW Chelmsford, the additional 800 dwellings will incur a contribution of £3.0m.

Public transport

North East Chelmsford Railway Station

- 3.14 A study of the potential cost of the railway station by Atkins, incorporating optimism bias as required by HM Treasury, gave a figure of approximately £65.0m. This was reflected in the Planning Contributions SPD.

ChART

- 3.15 The total cost of ChART, as assessed by Essex County Council, is £8.4m. However, as the bus lanes currently being provided for the Chelmer Valley Park & Ride will be shared by ChART, ECC considers that the costs of these should be split between the two schemes. This therefore reduces the cost to £5.7m and represents necessarily different figures to those provided in the Planning Contributions SPD.
- 3.16 The development is to be in three phases, with the split of costings as below:
- Phase 1: serving main estate roads, plus feasibility and design £2.82m
 - Phase 2: Waterside/Springfield Road £0.35m
 - Phase 3: NE railway station £2.55m

Park and Ride

- 3.17 The total cost of the Park & Ride site at Essex Regiment Way is £7.2m. However, factoring in the sharing of costs for providing the bus lanes with ChART, this reduces the cost to £6.0m. This figure was informed by ECC and is as presented in the Planning Contributions SPD.

Road transport

Radial Distributor Road

- 3.18 Whilst the final design and layout of the route of the distributor road is not fixed, it is not possible to be definitive about the overall cost. However, Option 2 as described at paragraphs 2.25-2.28, has an estimated total cost of £14.0m. This would be for a 40-mph road with suitable access roundabouts serving the development areas. The costs of the three phases described is assumed to be:
- Phase 1: £4.0m
 - Phase 2: £5.0m
 - Phase 3: £5.0m
- 3.19 Following completion of the radial distributor road, White Hart Lane will need to be downgraded. This will incur a cost but at present it is not possible to say what this cost is likely to be.

Boreham Interchange improvements (including Generals Lane bridge)

- 3.20 The highways authority, Essex County Council, has costed the improvements required to the Boreham Interchange and the replacement of the Generals Lane bridge at approximately £25.8m. This includes the demolition of the existing bridge, works to create a new bridge including allowance for rail possessions, highways works including removal of the redundant roads, new roundabout works including new traffic signals and a 2.5% allowance for traffic management. When preliminaries (20%) are added on, followed by overheads and profit (12%) and then allowing a 10% contingency on that, the total cost comes to £38.2m.

Utilities

Electricity

Additional capacity

- 3.21 If there is a need to supply a new primary substation in the general area of the development, then EDF Energy has estimated that the likely cost for the work is in the region of £10m to £15m. For the purposes of the AAP, a midpoint figure of £12m is assumed.

Undergrounding of overhead power lines

- 3.22 Although a site specific item so not included directly in the assessment, this is an important 'one off' cost that will be taken into consideration by any developer looking to deliver the AAP. EDF Energy considers that the cost for such works is between £8m and £10m - a midpoint figure of £9m is assumed for the purposes of the AAP. This is based on taking the most reasonable route (allowing sufficient access to the underground cabling throughout its length) which totals 3km.

Potable water supply

- 3.23 Essex and Suffolk Water has estimated that the total cost for the required reinforcement main to both NE and NW Chelmsford is £2.0m. If no link to NW Chelmsford is made, then the cost reduces to £1.6m.

Waste water

- 3.24 Anglian Water has commissioned a strategic waste water study to inform the costs of additional infrastructure to support growth. This study is ongoing so it is currently not possible to assign a definitive cost to the provision of the required new sewer solution. However, based on our experience of the costs of similar infrastructure to support growth elsewhere, we have assumed a cost figure of £1.0m.
- 3.25 In addition, Anglian Water has informed that the requirement for further capacity at Chelmsford WwTW will cost £12m. It is understood that Anglian Water have secured adequate funding for capacity improvements to accommodate the growth at North Chelmsford.

Health

- 3.26 The MEPCT considers that the cost of a 1,000m² facility is £5m, based on a figure of £5,000 per m². This will need to be explored in further detail with the MEPCT, informed by the net overall need for this quantum of space.
- 3.27 Part of this will be for the use of the GPs which, as will be explained later in this section, is not a cost to the PCT. However, the provision of the remaining space to other healthcare professionals, such as district nurses, chiropodists, etc, is an additional revenue cost.
- 3.28 Based on a stated standard capitation cost to MEPCT of providing healthcare services to each registered patient of £1,315 for the financial year 2009/2010, the total revenue cost per annum would be £13.2m (based on the new development creating 10,000 new people). Over the three year 'time lag' that this is needed before capitation funding is received, the total would be £39.5m. However, the PCT consider that a discount would be applied following the equivalent of one year's funding secured on the overall population increase.
- 3.29 The new facility is expected to be co-located with other community facilities, including the library and community centre. Whilst the build cost of the new building is unlikely to change, the overall cost may be reduced slightly if parking facilities are shared with the other developments. However, at this stage it is not known exactly how much this is likely to reduce the overall cost and, in reality, this is not likely to be particularly significant.

Emergency Services

Police

- 3.30 Essex Police has advised that the total cost of the Neighbourhood Policing Office and associated facilities is £1.1m. This excludes the cost of the provision of land (just over 0.1 hectares or £375,000) which is assumed would be provided by the developer.

Other Needs

Indoor Sports

- 3.31 The cost of a stand alone indoor sports facility, as assessed by Chelmsford Borough Council, would be £3.5m. However, if this has already been provided as part of the secondary school facility then the actual cost would be much lower. In reality, there is likely to be a contribution required to pay for lockers and possibly a separate public-only access. This would be dependent on the final scheme and, given the range in possible figures, it is not deemed appropriate to put a figure to it.

Open space, sports and recreation

- 3.32 The provision of grass sports pitches theoretically have no cost as provision is considered to be part of 'normal' site development works by a developer.
- 3.33 However, the provision of dedicated changing facilities is an additional cost. CBC Parks Department has assessed that a 5-pitch development, along with car parking and a pavilion with changing facilities will cost approximately £185,000 per hectare. This figure is referenced in the Planning Contributions SPD and includes the cost of the land. It is assumed that the land will be provided by the developer, so this cost per hectare is reduced by 50% to £92,500 per hectare.
- 3.34 In total, NE Chelmsford will require 5.5ha. As assessed in the previous section, two such facilities are needed although it is assumed that one of these will be provided at the secondary school. Therefore the cost of one additional facility of this type would be £0.59m. This is broadly in line with the typical cost information provided by Sport England for an equivalent facility.

Libraries

- 3.35 Essex County Council has assessed that the cost of providing a new community library of the required size is £700,000. This is broadly in line with the MLA standard cost for construction and fit-out which is recommended to be used to estimate costs (the recommended benchmark figure is £3,000 per m²).

Community centre

- 3.36 A reasonable standard, adopted in the assessment of needs and contributions standards in several other local authorities, is 0.4m² per dwelling. Similarly, a capital cost range of between £1,200 and £1,800 per m² has been adopted elsewhere, depending on the specification of the community centre in question. For the purposes of the AAP, a figure of £1,200 per m² has been adopted, largely because the proposed community centre will not include sports facilities.
- 3.37 This creates a total cost of the new community centre of £1.92m.
- 3.38 Seeking contributions for the maintenance and upkeep of a new community facility is also permitted. Based on experience, the maintenance of such buildings is typically around 30% of the construction cost, over the lifetime of the building. This comes to £640,000, which if the building lasts 20 years, equates to £32,000 per annum.

Social services

- 3.39 The total capital cost of providing extra care housing has not been assessed. However, Essex County Council considers that this is likely to be delivered by the relevant housing association, so there will be no cost to the developer.

Public realm

- 3.40 It is expected that the developers of NCAAP will make contributions towards public realm improvements at existing neighbourhood centres. It is not presently known exactly how much this will cost but the overall figure is not thought to be of significance.

4 INFRASTRUCTURE FUNDING AND IMPLEMENTATION

- 4.1 The funding and implementation of the infrastructure needs are, in many cases, directly linked because the funding of an item of infrastructure might be dependent on who delivers it, and vice versa.
- 4.2 One of the major examples is healthcare provision. There are several ways that the provision of capital healthcare facilities can be funded and delivered (assuming, as in NE Chelmsford, that the facilities are being provided on-site). A developer may:
- build a required healthcare facility themselves;
 - contract to a healthcare company to build the facility for them; or
 - provide the land and a contribution for the facility to be built by the PCT or a group of GPs that will then occupy the facility.
- 4.3 At the level of the AAP it is not appropriate to definitively say how this will be done. This will be part of negotiations undertaken within the framework of a planning application. Rather, the most reasonable assumption is made and explicitly stated. The implications of any alternative approaches are then also then considered.

Funding

- 4.4 Chelmsford BC has a strategy for securing developer contributions in its Planning Contributions SPD. This explicitly divides infrastructure needs into three categories:
- Site-related infrastructure
 - Off-site community infrastructure
 - Pooled standard charges
- 4.5 It then identifies the types of infrastructure provision that may come under each category. As explained above, in a lot of cases there are a range of options available for the delivery of some types of infrastructure. As such, a particular need may come into more than one category. As explained, where necessary we have made an assumption about the most likely way that an item of infrastructure is to be delivered and have placed it in that category. In particular, all of the off-site community items either have no requirement or are to be provided on-site. The latter set of items is therefore included under site-related items. This is shown in Table 4.1 below.
- 4.6 Table 4.1 shows an additional 'method' of funding of some of the infrastructure items. Many of the long list of items identified will be paid for by the developer but are considered as 'standard' so are factored into their secondary development allowances. As such, they are still a cost to the developer but, for the purposes of the viability assessment, are expenses that are already assumed to have been covered. Therefore they are not expected to be funded by direct developer contributions.

Table 4.1 Funding of infrastructure required at NE Chelmsford

Item	Funding of infrastructure items			
	Site-related items	Pooled standard charge items/ developer contributions	Items covered by developer secondary infrastructure	No specific infrastructure requirement
Archaeology				
Biodiversity and ecology				
Boreham Interchange / bridge replacement				
Chelmsford Rapid Bus Transit (ChART)				
Community centre				
Early Years & Childcare				
Electricity supply				
Estate/link roads, footways and cycleways				
Fire				
Gas supply				
Health				
Libraries				
Local open space				
Municipal waste				
Park & Ride / bus priority*				
Police				
Potable water supply				
Primary education				
Radial distributor road	Phases 2 & 3		Phase 1	
Secondary education/indoor sports centre				
Sports changing facilities				
Strategic open space (sports pitches)**				
Strategic landscaping				
Undergrounding of electricity pylons				
Waste water supply				

* At present, the Planning Contributions SPD seeks charges from commercial developments in Chelmsford Urban Area for the provision of the Park & Ride.

** See discussion at paragraphs 4.47 to 4.50.

- 4.7 The one item excluded from the list in the table above is the North East Chelmsford railway station. The reason for this is because, as is stated in the NCAAP Submission Document, a funding mechanism is currently being explored which is outside of the standard charges regime. As such, the funding does not fit into one of the appropriate boxes.
- 4.8 The radial distributor road is split between site related items and items that are covered by a developer's secondary infrastructure. This is because Phase One is effectively just the development of internal estate roads which would be required anyway to access the new development areas. These are therefore assumed to be costs that the developer would

normally expect to cover. By contrast, Phases 2 and 3 are considered to be more abnormal because they provide strategic access. They are therefore considered to be specific site-related pieces of infrastructure requiring contributions or to be developed directly.

Education

- 4.9 In the case of all the education provision the potential to use public sector funding is extremely limited. Essex County Council finance officers have indicated that further borrowing on this scale is not going to be possible, given the current level of liabilities and the likely reduction in future capital funding budgets. Basic Need Safety Valve funding is unlikely to be available to ECC at any point in the future due to surplus places in other parts of the County.
- 4.10 It is vital that ECC continue to fully explore all of the possible options for providing some funding towards the considerable level of provision at North Chelmsford if education facilities are to exceed the minimum standards that must be met.

Primary education

- 4.11 The Planning Contributions SPD assumes that the ultimate cost of the facilities to be provided on the NCAAP site will almost entirely be borne by the developers of NCAAP. The SPD 'credits' NCAAP with relevant surplus places, thus reducing the cost per dwelling.
- 4.12 The developers must provide the land, fully serviced and remediated, and ECC will then be responsible for delivery of the projects. The construction of the facilities must, under EU law, be open to a competitive tender process. The running of new schools is also subject to open competition.

Early Years and Childcare

- 4.13 The Planning Contributions SPD assumes that 100% of the cost of the additional EY&C provision will be borne by the developer of the North Chelmsford sites. In setting the standard charge any surplus capacity was taken into account.

Secondary and 6th Form education

- 4.14 The Planning Contributions SPD assumes that both NCAAP and Urban Chelmsford will contribute towards the cost of new schools. Each AAP area gains credit for appropriate untaken places at other schools and developer contributions already received or anticipated. A proportion of standard contributions have already been collected from other developments and the scale of contributions sought from the NCAAP developments have been laid out in Section 3.
- 4.15 The developers must provide the land, fully serviced and remediated, and ECC will then be responsible for delivery of the project. The construction of the facility must, under EU law, be open to a competitive tender process. The running of a new school would be subject to open competition. Working with an existing school provides an alternative

model which has a number of advantages when critical mass for a new school may not be reached for a number of years.

Public transport

North East Chelmsford Railway Station

- 4.16 As described earlier in this section, the AAP Submission Document states in Table 7.3 that:

“The rail industry, Essex County Council, Chelmsford Borough Council and the developer of the new north east neighbourhood are working in partnership on the delivery of this project. A funding mechanism is being developed which is outside of the planning contributions (standard charges) regime.”

- 4.17 Further work will be needed by these partners to agree how the station can be funded. A planning application has been submitted by Countryside Zest for the new railway station and the Council have requested further clarification on the detail of the funding mechanisms.

ChART

- 4.18 ECC considers that ChART should be 100% funded from developer contributions. ChART itself will be a developer delivered scheme.

Park and Ride

- 4.19 The Park & Ride site at Essex Regiment Way is currently under construction. This has been entirely funded through public sector funding sources, although the Council has the ability to seek contributions in accordance with the Planning Contributions SPD.

Road transport

Radial Distributor Road

- 4.20 Because this is an access road to specifically enable development of the NE Chelmsford site to occur, it is expected that this will be 100% developer funded and constructed by the developer. However, the Phase 1 development on its own would only act as an internal estate road, so this is assumed to be included within the allowance for the developer's secondary infrastructure costs. Phases 2 and 3 would be covered specifically under site-related infrastructure costs.

Boreham Interchange improvements (including Generals Lane bridge)

- 4.21 The Planning Contributions SPD states that 15% of this is to be developer funded. However, this reflected the inclusion of the NE Bypass within the overall cost of this requirement and specifically the recognition that the majority of this strategic scheme would have to be funded through mainstream sources. However, the Boreham Interchange improvements are required solely to enable reasonable access to the NE Chelmsford development. As such, the expectation is that this will be 100% developer funded. It could be constructed by the developer or through Essex County Council.

Utilities

Waste water

- 4.22 The AAP Submission Document states that funding will include developer contributions, along with funding that Anglian Water can secure through its bidding process. However, a recent Supreme Court judgement means that sewerage undertakers cannot now refuse a connection request, even if there is insufficient capacity.
- 4.23 In the case of *Barratt Homes Ltd v Dwr Cymru Cyfyngedig (Welsh Water) [2009] UKSC 13; [2009] 50 EG 67 (CS)*, the Supreme Court held that a lack of capacity was not a valid reason for a sewerage undertaker to refuse a connection request under section 106 of the Water Industry Act 1991. It further concluded that the risk of flooding or pollution from sewers was irrelevant to a decision on connection. The only exceptions would be for very limited technical reasons. This means that undertakers now have to agree to connections even where flooding or pollution may result. The Supreme Court suggested that such issues and their consequences can and should be resolved earlier, during the planning process.
- 4.24 The Supreme Court recognised that a reliance on the planning system causes difficulties. It imposes a responsibility on planning authorities to decide: whether it is reasonable to expect undertakers to upgrade their systems to accommodate the proposed development regardless of cost the reasonableness of undertakers' timetables for improvement works and whether it is proper to delay such works in the hope that the developer will offer to fund them. This suggests that the planning authority should exercise a wider role, rather than merely considering material planning considerations.

Strategic sewer

- 4.25 Anglian Water had expected that the total cost of the new sewer solution would be charged back to the developer. This was thought to be in the region of £1m. However, now this must be borne solely by Anglian Water. Given the considerable sum of money involved and the short timescale for providing such work (see the next section), it is questionable as to whether Anglian Water will be able to fund these work. It therefore may be necessary for the developer to pay for the upfront works and then recoup the costs from Anglian Water as connections are made to new dwellings. However, Anglian Water cannot argue that they were not aware of this need, as it is clearly stated in the AAP Submission Document, on which they were consulted.

Expansion of capacity at Chelmsford WwTW

- 4.26 Funding through Anglian Water's Asset Management Plan (AMP5) has been secured to deliver expansion of the capacity of Chelmsford WwTW. Whilst this funding is not sufficient to pay for the full expansion requested by Anglian Water, it is understood to be sufficient to accommodate the growth at North Chelmsford.

Electricity

Additional capacity

- 4.27 Adopting the precautionary principle for the purposes of this assessment, it is assumed that there will be a need for a new primary substation and that the North Chelmsford developments represent a significant proportion of this need. EDF Energy has stated that it would seek to recoup a proportion of the costs from development at NE Chelmsford (but has been unable to say what that proportion would be).
- 4.28 Given the ruling discussed above in respect of waste water, it is likely that the same principles must apply to electricity provision. Indeed, like Anglian Water, EDF Energy cannot argue that they were unaware of the need because they have been party to discussions of requirements with potential developers of NE Chelmsford.
- 4.29 It has been assessed that the required substation will cost between £10m and £15m - a figure of £12m is taken as a broad midpoint. On the basis that such a substation will serve needs over a wider area, it is assumed that development at NE Chelmsford will account for 50% of the increased capacity.
- 4.30 As will be shown in the next section, this expansion of capacity in the network is not required until the later phases of the development. As such, it is assumed that the funding of such needs could be built into EDF Energy's investment plan, which will seek to secure funding for new infrastructure. It is understood that the next opportunity for this is in 2015. Furthermore, with this not being required until later in the development period, the new connections will have created significant additional revenue for EDF Energy that can be used to fund these requirements, if such funding cannot be secured through the investment plan.
- 4.31 Therefore, it is assumed that development at NE Chelmsford will not have to provide any funding towards the development costs.

Undergrounding of overhead power lines

- 4.32 Because this is a site specific item, it is assumed that this will be 100% developer funded. However, it is noted that such a project would require a minimum of 12 months notice to EDF Energy in order to allow for design, procurement and legal necessities to take place before any work commences on site. A further 12 months would be required to complete the installation and commissioning of underground cables and removal of the old towers.

Potable water supply

- 4.33 Given the ruling discussed above in respect of waste water, it is likely that the same principles must apply to electricity provision. Indeed, like Anglian Water, Essex and Suffolk Water cannot argue that they were unaware of the need because they have made representations on the AAP in respect of the level of charge that they would be seeking.
- 4.34 It has been assessed that the cost of the proportionate cost of the reinforcement main applicable to NE Chelmsford is £1.6m. However, given that its construction is already underway, it will be extremely difficult for Essex and Suffolk Water to recoup any of these costs unless they can directly agree to do so with the developer. Therefore, for the

purpose of the AAP, it is assumed that the cost of provision of the reinforcement main is zero.

Health

- 4.35 Primary health care services in Chelmsford are commissioned by Mid Essex Primary Care Trust (MEPCT). The new capital facility, whilst considered to be off-site community infrastructure, will be provided on-site and is expected to solely address the needs of the NE and NW Chelmsford developments.
- 4.36 Funding for health services is provided to PCTs on a capitation basis. However, PCTs do not receive a specific budget for new premises *developments* as such. Funding for new facilities has to be within the confines of this capitation budget.
- 4.37 In practice, this mechanism creates a problem for the PCT, whose budgets are extremely tight. Firstly, facilities will need to be built in advance of the full realisation of the population increase, and secondly there will be a subsequent time lag before Health Service revenue funding catches up with the population growth.
- 4.38 However, irrespective of the issue of time lags, it is still unreasonable to expect a developer to pay for the entirety of a new health centre when the PCT receives funding for its construction.
- 4.39 This problem is not new and has meant that other mechanisms for funding capital development have been devised and can be considered. It is not apparent at this stage which approach would be used, but there are two principal options.
- One option is for the developer to build the facility and seek to lease it back to the PCT or directly to the GPs who will occupy the facility. In the latter case, the PCT would then reimburse the GPs for these costs.
 - The alternative option is provided by private companies which are in the business of funding of new health centres. These are then leased to GP practices with the rent met from the PCT's revenue funding within the PCTs budgetary restraints (e.g. development companies such as Primary Health Properties and Carecapital together with a number of specialist investment funds).
- 4.40 In both cases, the funding burden expected of the PCT would not be placed upon them until they receive their funding.
- 4.41 It is recommended that, whichever approach is adopted, the requirement for a new health centre is secured by way of planning condition. Circular 05/05 states that, where possible, it is preferable to use a condition rather than a planning obligation.
- 4.42 A further consideration is that the capital cost of provision (and associated capitation funding provided to the MEPCT) reflects the requirement to provide GP services out of a medical centre. What it does not reflect are the other revenue costs of providing wider healthcare services into the new community. These include district nurses, specialist services for children and older people and possibly a mental health nurse. These needs are created by a new development but there is no mainstream funding to account for them.

- 4.43 Again however, charging for such items falls foul of the requirements of Circular 05/05. This clearly states that revenue contributions can only be sought to cover maintenance costs, i.e. physical upkeep, not for staffing costs. Therefore, unless agreed with the developer, such revenue costs have to be borne by the PCT's capitation budget. This budget should expand sufficiently to be able to fund such requirements, although there are still issues for the PCT with the time lag in when this funding is received.
- 4.44 The costs of maintenance of the building are assumed to be covered by the developer, on the basis that they will own the building so will be directly responsible for its upkeep.

Emergency Services

Police

- 4.45 Essex Police is seeking to cover the costs of infrastructure through a standard developer contributions charge. To date, they have not stated what this charge is per dwelling, so it is assumed that it will be equivalent to the scale of their needs. It is expected that these needs will be paid for in full through developer contributions. Alternatively, the developer may wish to construct the building themselves.

Other Needs

Facilities with potential for co-location

- 4.46 As stated earlier, there are a number of facilities that could be co-located within the development. An Education Land Compliance Study is being undertaken by Essex County Council to inform the uses that could most appropriately co-locate and it will be important to be clear on how these differing land uses would interact within a single development.

Indoor Sports

- 4.47 The indoor sports facility will be provided as part of the secondary school in NE Chelmsford and through enhancements to the existing facilities at NW Chelmsford. Any costs for making the facility capable of being used by the general public would be incurred by the developer.

Open space, sports and recreation

- 4.48 Some of the grass sports pitches will be provided as part of the secondary school. The remainder will be provided by the developer as part of the normal site development works included in secondary infrastructure budgets. However, this assumption is predicated on there being an appropriate parcel of land available for use as sports pitches, i.e. one that has no realistic prospect of being used for physical development, particularly housing. Moreover, if there are any exceptional costs incurred to bring an appropriate site into use, then these will not have been allowed for.
- 4.49 It is assumed that the provision of dedicated changing facilities would also be provided by the developer.

- 4.50 This approach is predicated on the basis that the likely areas where the pitches are developed are not part of larger holdings that could fragment if there is disagreement. Under such circumstances it may be appropriate for a standard charge to be sought, rather than direct developer provision. The charge would provide 100% of the costs of provision.
- 4.51 All local open space facilities (amenity green space, young people and children, allotments and green corridors) are assumed to be included within the developer's allowance for secondary infrastructure.

Libraries

- 4.52 It is assumed that the library will be funded by 100% developer contributions. It will either be delivered directly by the developer or by Essex County Council. Much of the consideration about this will stem from what land uses are co-located.

Community centre

- 4.53 It is assumed that the community centre will be funded by 100% developer contributions. It will either be delivered directly by the developer or by Chelmsford Borough Council. Much of the consideration about this will stem from what land uses are co-located.
- 4.54 Based on the fact the new community centre is to be delivered on-site, solely to provide for the new population, then the developer must pay for all of the maintenance costs.

Social services

- 4.55 It is assumed that the extra care housing will be funded and provided by the relevant housing association, with developer contributions providing some supporting capital funding.

Implementation

- 4.56 As stated in section 1, the LDM - Chelmsford Tomorrow - is responsible for delivering the IDP, which sets out how Chelmsford proposes to deliver its major economic and housing growth in the period to 2021. Whilst Appendix A outlines the lead delivery body for each infrastructure item, it is the role of Chelmsford Tomorrow to oversee the delivery of the requisite infrastructure. Most of the items that are not expected to be delivered by the developer in lieu of contributions are the responsibility of either CBC or ECC. In addition, the MEPCT and Highways Agency are also part of the LDM. Therefore, it is expected that implementation across the range of infrastructure needs should be coordinated in an effective manner. This highlights the importance of the LDM as a coordinating mechanism.
- 4.57 Section 1 also stated the importance of keeping the IDP document up to date, such that it properly reflects the latest position on implementation.
- 4.58 Most development will proceed by agreed phases, usually linked to particular infrastructure provision. Table 6.1, which it is recommended is inserted into the NCAAP

document, shows the likely phasing and relationship of each phase with the infrastructure required to support it.

- 4.59 One particular issue of note is the railway station. Unlike most of the other infrastructure items, this has no defined 'trigger'. As such a different approach has to be taken which links the need for the station to the development of a proportion of the new commercial floorspace near the station and the Boreham Interchange, and also to the provision of a certain level of housing. The mechanism for monitoring this is expected to be provided by an overarching NCAAP Travel Plan. More detail is provided at paragraphs 6.9-6.13.

5 VIABILITY

Context

- 5.1 The study considers the financial viability of residential development throughout the NCAAP area in the context of the likely scale of the planning requirements. The aim is to achieve physically and socially sustainable development on a scale commensurate with the aspirations of the NCAAP without compromising its other objectives. From the developer's point of view, there are two fundamental requirements for development to happen:
- they must expect to be able to achieve a satisfactory return on their commitment of time and money; and
 - if they don't own the land they need, they must be able to pay the land owners a price that sufficiently encourages them to release land for development.

Approach

- 5.2 The test of viability in this context is not that every site within the NCAAP area should be viable for development now or at any other particular point in time. Rather, it aims to make it reasonably probable that the required number of homes will be built to the required standard over the period of the plan, taking into account arrangements for periodic reviews of the charging arrangements. In this case it is expected that the viability analysis will be reviewed within the first five years of development commencing.
- 5.3 Timing issues are important because the single biggest influence on viability is usually house prices. Nationally housing values have declined sharply over the last few years but are expected to rise again in the future. Although the housing market in Chelmsford has slowed it has not mirrored these national trends. A Planning Inspectorate report entitled 'Local Development Frameworks. Examining Development Plan Documents - Learning from Experience', published in September 2009, said that:
- "DPDs, particularly core strategies, are intended to guide development over the long term. Exceptional economic conditions should not be used as an excuse for delay and plans should be based on what may be regarded as normal conditions"*
- 5.4 This clearly begs the question as to what represents 'normal' economic conditions. The Planning Inspectorate document embeds a potential planning response to this ambiguity in the monitoring process, saying that:
- "if exceptional economic conditions persist the monitoring arrangements should identify the implications of this and point to what changes may need to be made to the plan. The LDF system is deliberately designed to allow effective review of all or parts of a DPD as circumstances dictate"*
- 5.5 Any requirement that increases the cost of development without increasing its value commensurately will deter the development of sites at the margin of viability. But not all potential sites have to be delivered in order to meet wider planning objectives. This reality is reflected in the CLG document from 2009 entitled, 'Detailed proposals and draft

regulations for the introduction of the Community Infrastructure Levy: Consultation' which states:

"the focus (is) on the economic viability of the development of the area, rather than the effect on the economic viability of individual sites, because even if some development sites are choked off, they may be replaced by substitutes or redesigned to be viable".

- 5.6 It is recognised that there is a requirement to demonstrate a five year supply of housing. But recent appeal decisions suggest that this will be interpreted in the context of guidance as a whole and not interpreted so restrictively that development must be permitted on an unsustainable basis simply to achieve the targets.
- 5.7 The conclusions from this guidance with relevance to this viability assessment are:
- The test of viability is not that all of the sites earmarked for development need to be financially viable at the present time.
 - It is quite reasonable to anticipate some recovery in house prices and in market conditions generally if there is some evidence that this might occur and within the context of a scheme of planning contributions based on demonstrable needs.

Methodology

- 5.8 A simple, bespoke spreadsheet-based residual land value model was used to estimate the worth of a notional 10 hectare site which is characteristic of land in the NCAAP area, i.e. predominantly greenfield but with elements of made and unstable load bearing ground requiring careful landscaping in places.
- 5.9 Following consideration, this approach was considered to be the most appropriate for the following reasons:
- It allows for a level of generalisation that is appropriate in a widely based assessment such as an AAP.
 - It provides a level of analytical simplicity and transparency that is not obtainable using 'off the shelf' models where the actual calculation is hidden or obscured by detail.
 - It recognises that no two sites are the same and that developers have different approaches so a high level of generalisation is necessary.
 - It reflects the fact that while current ownership and control of land within the NCAAP area is relatively concentrated, there are multiple ownerships and further fragmentation is possible during the period of the plan.
- 5.10 It is recognised that this broadly based assessment of viability fails to individually acknowledge some of the costs involved in developing specific sites. The costs are subsumed within broadly based allowances. On the other hand it does not seek to anticipate the various ways in which a skilled developer can improve returns above those predicted in the model and also ignores the possibility of further improvements in house prices in the later part of the sales period. It takes a necessarily cautious approach. It is assumed that the first review of infrastructure needs and viability will update the figures to reflect changes in both house prices and costs, with the latter reflecting the requirement to achieve CSH5 standards or higher.

- 5.11 The model starts with an estimate of the receipts and costs from development but also assumptions about the following:
- The price landowners will need to receive if they are to release their property onto the market for development.
 - The profit that developers will require as a return on their effort and their capital resources invested at risk.
- 5.12 The model then deduces what level of tariff might be affordable on that basis. A copy of the model is included at Appendix C.

Assumptions

Notional Development

- 5.13 The model assumes that within the 10 hectares of the notional development plot, 6 hectares can be used for housing development and the remainder will be required for distribution infrastructure, social infrastructure and public and amenity open space. Each of the 6 net hectares will be developed to provide approximately 4,000m² of floorspace, which will mostly comprise houses⁵. The affordable housing will comprise 24% social rented housing and 11% shared ownership homes units.

Sales Values

- 5.14 In Chelmsford the anticipated sales receipts are usually the single most significant influence on the residual worth of development land. Based on discussions with local estate agents in Q4 2009, the assumption is that both houses and flats will sell for £3,000 per m². This is regarded as either at the top end or marginally in excess of what might be obtainable across a range of housing types in current market conditions. Regard was also had to research by Savills in particular who anticipate significant increases in house prices after 2010 and beyond, i.e. the point at which development is likely to commence (source: Savills - Residential Property Focus, February 2010).
- 5.15 The price of affordable housing follows estimates made by the Chelmsford Borough Council following consultation with RSL's during the preparation of the SHLAA and does not assume receipt of grant funding from the Homes and Communities Agency.

Construction Costs

- 5.16 The basic build cost assumption is:
- Houses: £1,050 per m²
 - Flats: £1,400 per m²
- 5.17 This includes allowances for:
- 'On plot' external works such as immediate access, gardens and utility connections.

⁵ It is expected that the proportion of flats will rise in later years by which time this study will have been reviewed.

- Achieving CSH Level 4. The premium allowed was loosely based on the CLG report 'Code for Sustainable Homes: Cost Review' published in March 2010. (It is assumed that the cost of achieving CSH5 will be taken into account when the study is first reviewed).
 - Modest investment in additional substructure costs on the basis that in places, sites will include made ground or otherwise unstable ground. (These problems are not widespread so this estimate errs on the side of caution).
- 5.18 In each case this is based on saleable area, i.e. the assumed build cost for the flats measured on the basis of the gross internal area of the block would be around £1,200 per m².
- 5.19 This estimate is based on information on house building costs from a variety of sources and takes into account both falls in tender prices on recent years and the expectation that costs will start to rise again, possibly in 2011 (source: Davis Langdon & Seah 'Construction Market Forecast', January 2010).
- 5.20 The developers of sites within the NCAAP area will incur substantial costs in preparing and servicing the land for development, and creating open spaces and landscaping. This has been budgeted at £400,000 per gross hectare (equivalent to £666,000 per net developable hectare). This estimate is based on experience of schemes elsewhere and is expected to cover the following:
- Site preparation and groundworks.
 - All of the costs involved in providing distribution infrastructure up to the site boundary.
 - Structural landscaping including meeting any ecological requirements.
 - All on-site and off-site land drainage and utilities requirements arising from the development.
 - The provision of public open space including equipped playgrounds and sports fields but excluding buildings such as sports halls and pavilions.

Land Values and Developer's Profits

- 5.21 A key factor is the amount it is assumed that landowners and developers will need in order to bring development forward. In planning terms it is not necessary to have regard to the price paid for the land when determining viability, the benchmark is effectively that it must be worth more for development than it is in its current use; which in the NCAAP area is predominantly agricultural. But there are practical reasons to allow higher sums.
- The residual sum left for landowners in this viability calculation does not represent their net receipt. There will often be additional costs that are not covered elsewhere in our figures. Two good examples are the costs of assembling the smaller property interests that are needed to achieve a satisfactory scheme and remediation in severe cases.
 - If the residual land value is very low, development will tend to slow or stop every time house prices show signs of weakness.

- There is practical need to provide an adequate incentive to landowners to bring land forward for development.
- 5.22 In this case the viability study assumes a residual land value of £500,000 per gross hectare should be achieved after all planning requirements have been met. (The gross area so defined includes all of the land used for development or needed to directly support it by providing local open space and infrastructure. It does not include wider swathes of land that have are and will not be considered for development).
- 5.23 The return that it is assumed that developers will require is **both** a 17.5% margin on cost and an internal rate of return (IRR) at project level (i.e. gross of interest payments) of 18% per annum. These are blended rates which take into account that lower margins are accepted on the sale of affordable housing to RSLs. They are below the rates currently required in the market and effectively assume a return to more normal competitive conditions over the next few years.

Other Costs and Assumptions

Post completion management

- 5.24 It is assumed that the management of the infrastructure and external areas of the new schemes will be passed to Chelmsford Borough Council once a phase is effectively completed and sold. An allowance of £25,000 per hectare has been allowed for site management costs for the period between the dates on which the first houses are occupied and the handover to CBC.

Minor off-site works

- 5.25 A further allowance has been made of £25,000 per hectare to cover necessary but minor offsite works which are not paid for through planning contributions. Examples might include off-site infrastructure reinforcement, junctions with adjacent roads and works to neighbouring property.

Fees

- 5.26 An allowance of 12% of both construction costs and infrastructure costs has been allowed to cover statutory and professional fees and, where management is in house, the necessary contribution to the housebuilders' overheads.

Purchase and marketing costs

- 5.27 Conventional allowances have been made in respect of purchase and marketing costs.

Sales rates

- 5.28 The study only covers a notional 10 hectare site. It is assumed that within a development on this scale, the sales rate would be around 65 private and 35 affordable units per year. Clearly the expectation is that the actual scale of development across NCAAP would be greater at any particular time with homes on several sites being marketed simultaneously.

Cash flow

- 5.29 Both development costs and sales receipts are evenly distributed with the former lagging the latter by six months. It is assumed that one-third of the necessary planning contributions are made at the outset of the project, with another third at the beginning of year 2 and the last third at the end of year 3/start of year 4.

Finance costs

- 5.30 In order to calculate the margin on cost, interest costs of 7% on negative balances of project expenditure have been assumed. No assumption has been made in relation to interest earned on positive balances.

Core Scenario and Sensitivities

- 5.31 On the basis of the assumptions set out above and detailed in Appendix C, it is calculated that total planning contributions of £22,000 per dwelling can be achieved without being likely to compromise viability. This assumes that no additional costs are imposed on the developer over and above those recognised in the viability model.
- 5.32 At £22,000 per dwelling and a build of 4,000 dwellings, contributions from residential development would total £88 million. As shown in Appendix A, the total infrastructure requirement expected to be addressed through contributions is approximately £92.7 million. It is understood that approximately £3 million has been collected from contributions outside of the NCAAP area which will be put towards strategic infrastructure, including secondary school facilities. This reduces the requirement to approximately £89.7 million and as such, expected contributions would broadly cover costs.
- 5.33 In addition, it is expected that further contributions will be secured from the employment development. This should be based on the level of additional commercial traffic created by the development of the commercial space. Such an assessment will need to be undertaken.
- 5.34 This represents an analysis of costs against developer contributions which is considered the appropriate level of detail to support an AAP.
- 5.35 A sensitivity analysis was undertaken using a range of plausible but different budgets and scenarios. The conclusion was that £22,000 lay at the middle of the range of possible outcomes.
- 5.36 Whilst it is shown that in total, infrastructure contributions are expected to cover costs, this is unlikely to be the case for all phases of development. Certain phases may have substantially higher costs which, with contributions continuing to be collected at a similar pace, could create cashflow problems. As will be shown in the next section, the cashflow to cover infrastructure costs in the first five years (Phase 1) is likely to be more than sufficient. However, there are significant infrastructure costs incurred in Phase 2, so it may be appropriate to apply flexible approaches where this doesn't compromise the overall deliverability of the scheme. This would need to be considered in more detailed as part of the phasing plan within a planning application.

- 5.37 Our assessment is deliberately pessimistic in the assumptions it makes about costs, contributions and likely levels of grant. In reality, there is likely to be a greater degree of flexibility in the viability of NCAAP, given the variability of the factors discussed in this section.

6 PHASING

Introduction

- 6.1 The phasing of the development at NE Chelmsford will be critical, both to its deliverability and to how successfully it functions in the early phases.
- 6.2 It is understood that the first phase of the development at NE Chelmsford will be the development of the western end of the AAP area, closest to the existing community in Springfield. The second phase will then commence development of the Boreham Interchange area in the east. The third phase will then bring the two earlier phases together by developing the remainder of the central AAP area. This appears logical in that the earlier phases are closest to existing communities so will enable the use of existing infrastructure whilst the new infrastructure is being provided. It also will ensure that the sustainability principles of the development are observed, with development closest to existing transport corridors.
- 6.3 It will be important to understand the phasing of the infrastructure needs and we now address these items in turn.

Education

Primary education

- 6.4 Based on the indicative housing delivery given in Table 6.1 the first phase of the first primary school would need to be open for September 2013. The school would be expanded in subsequent years reaching its final capacity of 420 places in September 2016. The first phase of the second primary school would, on this basis, need to be open for September 2017 with expansion to its final capacity by September 2020. The first phase of a third school, if needed, or expansion of other provision could be needed in September 2021. The construction of new schools takes a minimum of one year with design costs being incurred during the proceeding year. Land is also required up to a year before construction commences as playing pitches need to over-winter for two seasons before being playable.

Early Years and Childcare

- 6.5 The main facilities will be tied to the provision of the primary and secondary schools but, as previously stated, to meet ECC's obligations to provide a diverse choice of provision, start-up funding to private providers may be required earlier.

Secondary and 6th Form education

- 6.6 The AAP places the delivery of the secondary school at 2014/15, recognising it as an important component of infrastructure in the early phases of development. It is expected that the secondary school buildings will be co-located with one of the new primary schools which the AAP places as being delivered in 2013/14. Although not ideal to provide these facilities in this 'staggered' manner, it has been reported that this does not cause any undue problems with the operation of the primary school whilst the secondary school is

being constructed. There may be synergies in a joint phased delivery plan which could also include community uses of the site.

- 6.7 The timescale for the secondary school is also currently uncertain because of the potential impact on scheme viability. In order for it to be delivered by 2014/15 there is a need for either sufficient contributions from Borough-wide standard charges to address any shortfall, or other forward funding mechanisms to be in place. Otherwise the delivery of the school is likely to be 2017/18.
- 6.8 This potential delay in the provision of the secondary school was not reflected in the NCAAP Submission Document and reflects the further work undertaken by Essex County Council.

Public transport

North East Chelmsford Railway Station

- 6.9 As stated in the earlier section on infrastructure needs, the requirement for a new railway station is to support both the commercial and residential development and to deliver a sustainable development.
- 6.10 In respect of the eastern commercial allocation, it is most important that the railway station is provided at the appropriate point. This needs to balance its role as underpinning investment in a high quality business park versus the point at which it is needed to avoid unacceptable levels of stress on the road network.
- 6.11 In the absence of clear evidence as to when this latter point is likely to be reached, it is recommended that the railway station is required before at least 25% (approximately 10,000m²) of the proposed employment floorspace on the eastern site is provided (i.e. after the earliest phase(s) of the development). This would be around 2016/17 and could be secured by an appropriate legal agreement. This timescale would fit with Network Rail's wish to undertake construction work at the same time as the Generals Lane bridge is rebuilt (see following discussion under 'Road Transport'). Given that planning permission is likely to have been granted and the land secured, then it is assumed that the station will take two years to build and start serving passengers.
- 6.12 In respect of the railway station's contribution to the residential development, it is considered that its provision affects the overall sustainability of the general location for development. Therefore, as the amount of new dwellings increases on the site, then the station's importance in terms of underpinning the sustainability of the location increases as well. Therefore, once a certain quantum of residential properties are in place, the need for the station will be triggered.
- 6.13 In order to achieve a sustainable development and to ensure that the railway station is implemented at the optimum time, it is suggested that all occupiable developments within NCAAP are governed by individual travel plans that are themselves subject to an overarching NCAAP Travel Plan, with modal split targets. This TP regime needs to allow for regular monitoring and - in justifiable cases - for a moratorium on further development

until the station is operational. Otherwise there is no mechanism for delivery of this important piece of infrastructure.

ChART

- 6.14 Phase 1 of ChART is required to be operational by 2012. This is as per the NCAAP Submission Document. However, phases 2 and 3 aren't required until 2014 and 2016 respectively. Moreover, phase 3 is predicated on the delivery of the railway station. If this is delayed or does not happen, then this phased will be pushed back or significantly scaled back to only serve the other developments along this section of the route.
- 6.15 This represents additional information than was in the NCAAP Submission Document and is based on further information being provided by Essex County Council.

Park and Ride

- 6.16 It is expected that the Park & Ride facility will be completed by 2011, as per the NCAAP Submission Document.

Road transport

Radial Distributor Road

- 6.17 The distributor road is expected to be operational by 2016. This is a slight change from the NCAAP Submission Document and is based on further assessment work having been undertaken. The document also states that this timescale is in respect of the section from Essex Regiment Way to the Bulls Lodge Quarry entrance. However, it would be expected that the full route from Essex Regiment Way to the Boreham Interchange would be completed by 2016. This is based on the assumption that at least 1,000 dwellings will have been occupied by this date and the levels of traffic created by this number of properties would require the full route to be operational.

Boreham Interchange improvements (including Generals Lane bridge)

- 6.18 These improvements are expected to be delivered by 2016. This is the same timescale as the distributor road although the access from the distributor road onto the Boreham Interchange will not be operational until all the improvements to the Boreham Interchange have been completed. This timetable is again a slight revision from the NCAAP Submission Document and is based on further assessment by Essex County Council.
- 6.19 Network Rail have stated that the replacement of Generals Lane bridge and the construction of the new railway station needs to be undertaken as a single engineering operation after the commencement of the Paralympics in November 2012. However, there could be scope to reassess phasing of the operations with the rail industry.
- 6.20 The radial distributor road, Boreham Interchange improvements and the Generals Lane bridge replacement are all items that depend on one another so need to be delivered together.

Utilities

Electricity

Additional capacity

- 6.21 Such extensions to the network would not be needed until the latter part of the development period. As such, it does not impact on the delivery schedule. However, it will be important, if additional network capacity has to be provided, to ensure that this is planned in sufficient time to be able to provide the necessary physical upgrades.

Undergrounding of overhead power lines

- 6.22 Such work would require a minimum of 12 months notice to allow for design, procurement and legal necessities to take place before any work commences on site. A further 12 months would be required to complete the installation and commissioning of underground cables and removal of the old towers. The point at which such work needs to be undertaken will depend on the design and phasing of development. However, it is likely that only the earliest phases of development will be able to go ahead before the undergrounding is required. Moreover, the undergrounding needs to be undertaken as a single operation, rather than in phases. It also needs to be accessible, most commonly being aligned under roads, which will make it more difficult to plan.
- 6.23 It is therefore considered that this work will be completed by 2015, around the time that the first 1,000 dwellings have been completed. No timescale was given for this in the NCAAP Submission Document and, given the uncertainties over exactly when it is needed, we recommend that no specific date is provided in the final document. The timescale here is for guidance only to inform the assessment of viability.

Potable water supply

- 6.24 It is expected that the reinforcement work will be completed by 2012. This therefore has no adverse effect on the delivery timescales. It is also therefore not necessary to reflect a specific date in the NCAAP document.

Waste water

- 6.25 The development of the strategic sewer solution and the expansion of the WwTW are needed immediately. In respect of the sewer, Anglian Water inform us that it is not an efficient solution to connect the first phase of the development up to the existing sewer network and then switch to the new strategic development - rather it is preferable to connect all phases up to a new strategic sewer as part of the first phase of development. It is assumed that the design and build of this sewer will take 2 years, but up-front funding of this has yet to be secured (as stated in the previous section, the developer would have to provide this funding and then be reimbursed by Anglian Water).
- 6.26 Also, there is no spare capacity at the WwTW so expansion will have to have been completed in order to accommodate the first phases of development. The funding for this has already been secured so the lead-in time needs to reflect just the design and construction. This is assumed to take 2 years.

- 6.27 **It is imperative that these projects are taken forward as a matter of urgency to avoid delays to the delivery programme.** This should be reflected in the final NCAAP Document.

Health

- 6.28 This development is expected to be delivered by 2016 (after completion of the first 1,000 dwellings). This timescale is not reflected in the NCAAP Submission Document. It is recommended that this is provided as a date by which this facility should be in place.

Emergency Services

Police

- 6.29 The development of the Neighbourhood Policing Office is not expected to be needed until 2018. This timescale is not reflected in the NCAAP Submission Document. Given that it is uncertain exactly when it would be needed, it may be prudent to reflect that any review of the AAP will need to be more definitive on the timescale for these facilities. This is particularly the case if the Neighbourhood Policing Office is part of the joint use facilities.

Other Needs

Facilities with potential for co-location

- 6.30 The NCAAP Submission Document does make reference to a possible 'joint use facility' but does not provide a view as to the uses that could possibly be located within such a facility. We consider that the final NCAAP Document should be more explicit about which uses could possibly share space. These should include:
- Secondary school, with specific reference to the public use of the indoor sports facilities, outdoor sports pitches and changing facilities, outside of school hours
 - Library
 - Community centre
 - Health centre
 - Police facilities
- 6.31 It should also reflect the potential to use the space created to serve wider needs, such as adult learning.
- 6.32 This position should be reviewed on completion of the Education Land Compliance Study.

Indoor Sports

- 6.33 The indoor sports facilities will be provided as part of the secondary school, i.e. will be completed by 2018. Whilst this is not definitive and the secondary school may be delivered earlier, it is the most likely option and this fact should be reflected in the final NCAAP Document.

Open space, sports and recreation

- 6.34 The sports pitches to be provided as part of the secondary school will be completed by 2018. Like the indoor sports facilities this is not definitive but is the most likely option, so this fact should be reflected in the final NCAAP Document.
- 6.35 The other sports pitches and associated facilities can also be delivered over the same time period. This distinction from the pitches provided at the secondary school should be made clear in the final NCAAP Document.
- 6.36 Local open space needs should be provided to coincide with the completion of particular phases of development. This fact should be reflected in the final NCAAP document although assumptions about the exact timescales should not be made.

Libraries

- 6.37 The new library should be delivered by 2021. This timescale is not reflected in the NCAAP Submission Document. It is recommended that this is provided as a date by which this facility should be in place. It should also make clear that in the period prior to the physical facility being in place, an allowance should be made be either a mobile library facility or for space in the community centre or other units in the local centre to be used to provide these services.

Community centre

- 6.38 The new community centre will be delivered by 2016. This timescale is not reflected in the NCAAP Submission Document. It is recommended that this is provided as a date by which this facility should be in place.

Social services

- 6.39 The extra care housing is assumed to be delivered as part of the affordable housing.

Phasing Summary and Cashflow

- 6.40 Table 6.1 overleaf shows a summary of the proposed infrastructure delivery. Each timeline represents the period over which an infrastructure item is delivered, starting with the planning and design, and then through its construction to the point at which it is available to serve the development. It is recommended that an equivalent table is included in the final NCAAP Document in order to better illustrate the timeline.
- 6.41 In particular, it is important that the infrastructure needs in the first five years of the development are secured. From the developer's point of view, the greatest concern is that the first five years of a development is viable, otherwise it is not worth proceeding. Given the greater level of uncertainty about what is likely to happen after the first five years, developers are typically less concerned with the detail of how these phases will be brought forward.

Table 6.1 Indicative phasing of NCAAP requirements

Financial Year	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	Post-2021	
Dwelling completions (no, cumulative)	0	100	375	675	1,000	1,375	1,750	2,125	2,500	2,850	3,200	4,000	
Employment space - west site (m ² , cum.)	0	6,000	12,000	18,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	
Employment space - east site (m ² , cum.)	0	0	0	0	0	5,000	13,750	18,250	22,750	27,250	31,750	40,000	
<i>New strategic sewer</i>													
<i>ChART - Phase 1</i>													
<i>ChART - Phase 2</i>													
<i>Primary school and EY&C 1</i>													
<i>Radial Distributor Road</i>													
<i>Boreham Interchange, incl. new bridge</i>													
<i>ChART - Phase 3</i>													
<i>Community centre</i>													
<i>Health centre</i>													
<i>Undergrounding of overhead power lines</i>													
<i>Sports pitches, change facilities, parking</i>													
<i>Secondary school, indoor sports/pitches</i>													
<i>Neighbourhood Policing Office</i>													
<i>Increased capacity in electricity supply</i>													
<i>Primary school and EY&C 2</i>													
<i>Railway station¹</i>													
<i>Community library</i>													
<i>Primary school and EY&C 3</i>													
Phasing	< P H A S E 1 >				< P H A S E 2 >				< P H A S E 3 >				< P H A S E 4 →

¹ Timing based on agreed level of trips being observed on local highway network - may therefore be subject to change

² Timing of secondary school depends on availability of additional funding, which would need to be available in order to achieve the 2014/15 completion date

6.42 For NE Chelmsford, Table 6.2 compares the proposed timetable for collection of developer contributions with the requirement to pay for the identified infrastructure. This provides an understanding of the 'infrastructure cashflow' and demonstrates that, over the first five years, there are available funds to deliver the infrastructure requirements. It is important to note that Table 6.2 reflects dwelling *sales* whereas Table 6.1 is based on dwelling *completions*. There is a difference in the annual figures for each.

Table 6.2 Simple infrastructure cashflow for the first five years of development at NE Chelmsford

	2010/11	2011/12	2012/13	2013/14	2014/15
	Phase 1			Phase 2	
	Q1-4	Q5-8	Q9-12	Q1-4	Q5-8
Dwellings sold (cumulative)	0	300	600	900	1,200
Contributions from developer (£000s)	6,600	6,600	6,600	6,783	6,783
Infrastructure payments towards costs (£000s)	0	3,820	3,332	7,502	18,414
Basic infrastructure cashflow (£000s)	6,600	9,380	12,649	11,930	299

6.43 As described in the previous section, this is based on the assumption that for each phase, one-third of developer contributions would be collected upfront (Q1), one-third at the start of year 2 (Q5) and one-third at the end of year 3 (Q12). It also assumes that a contribution of £22,000 per dwelling is achieved. Table 6.2 shows that contributions are received for phase 1 in early 2011 (Q1), early 2012 (Q5) and late 2013 (Q12). Phase 2 starts immediately after this, so contributions are received in early 2014 (Q1), and early 2015 (Q5).

6.44 The table shows that the cashflow is positive for the whole first phase. Indeed there is a small surplus of approximately £299,000 in year 5. Moreover, there are considerable surpluses over the first four years of the phase, which may mean that contributions could be staggered to be able to reduce any burden on the developer.

6.45 This does assume delivery of units slightly ahead of the dwelling completion rates in NCAAP. However, it is considered to be a reasonable assumption that, on a site of this size, 300 dwellings per annum could be completed. Moreover, completion of 1,200 units during the first five years would not cause any of the assessed timescales for new infrastructure requirements to be brought forward.

6.46 It should also be noted that Table 6.2 assumes that the delivery of the secondary education facilities (and the associated costs incurred) is after the first five-year period.

6.47 It is noticeable that in Phase 2, many of the major cost items are expected to be delivered. In Section 5 it was noted that more flexible approaches may be needed in the second phase in order to deliver all of the infrastructure. Also by 2014 however, it is likely that the Borough Council could have a CIL in place. This would create, in effect, a pot of guaranteed receipts moving forward, enabling the Borough Council to possibly undertake prudential borrowing against those future receipts in order to fill any short term gaps in infrastructure funding streams.

7 RECOMMENDATIONS

Summary of Recommendations

- 7.1 Table 7.1 summarises the recommended list of nine changes and additions to the NCAAP Submission Document.

Monitoring

- 7.2 The Borough Council will monitor the implementation of the Area Action Plan and assess the extent to which the strategy, vision and spatial objectives are being achieved through its Annual Monitoring Report (AMR). Where this is failing, an explanation will be set out, in addition to the steps that will be taken to address this.
- 7.3 Monitoring will proceed by reference to the framework of key LDF indicators and development control policies set out in the Core Strategy. In addition, a North Chelmsford AAP monitoring framework should be created, which is specific to the AAP area. This framework must identify the key indicators and targets to be monitored in order to ensure the delivery of two high quality, sustainable, mixed use neighbourhoods in North Chelmsford.
- 7.4 The framework could build on the strategic objectives shown in Chapter 1 of the NCAAP Submission Document. To these tables could be added further columns that specifically identify, in each case, the relevant indicator and the targets. The targets would need to be in accordance with an approved phasing plan.
- 7.5 One specific item that should be used as a monitoring mechanism is the recommended NCAAP Travel Plan. Under this, all occupiable developments within NCAAP will have to have their own individual travel plans with modal split targets.
- 7.6 This framework will also be included within and monitored through the AMR of the Council.

Table 7.1 Summary of Recommended Changes/Additions to NCAAP Submission Document

Change no.	Recommendation	Change in AAP text / figures	Addition to AAP text
1	Radial Distributor Road - reflect that there is an alternative option which could satisfactorily deliver the road scheme.	Figure 10, diagram reference 4: " <u>Possible route corridor for residential access road</u> "	
2	Radial Distributor Road - reflect that there is an alternative option which could satisfactorily deliver the road scheme.		At the end of para 3.33 add: " <u>There are two possible options that are under review. The alignment shown in Figure 10 represents only one of these two possible options.</u> "
3	Radial Distributor Road - reflect that there is an alternative option which could satisfactorily deliver the road scheme.	Table 7.3, 3 rd item: "A radial distributor route serving the neighbourhood will run from Boreham Interchange to the Essex Regiment Way (Belsteads Farm Roundabout)."	
4	Waste water - reflect that the developer is not obliged to pay for the new strategic sewer solution.	Table 7.3, 7 th item, final sentence: "Funding will be <u>through a combination of developer contributions and Anglian Water's bidding process. If necessary, developers may provide forward funding to deliver items required in the short term.</u> "	
5	Library standards - reflect the Museum & Library Archives (MLA) standards of provision	Para 1.78, 2 nd sentence: "The size of a library is determined by the formula of 23 <u>30</u> sq m per 1,000 population."	

Change no.	Recommendation	Change in AAP text / figures	Addition to AAP text
6	Electricity - reflect that there is likely to be a need for a new primary substation to serve the North Chelmsford developments.		<p>Table 7.3, insert new row after 5th item: In 'Infrastructure' column add: "<u>Electricity</u>". In 'Implementation mechanism/agency/funding' column add: "<u>It is likely that there will be a need for a new primary substation to serve the North Chelmsford developments. If further assessment determines that there is a need, then funding will be through EDF Energy's bidding process. If necessary, developers may provide forward funding to deliver items required in the short term.</u>"</p>
7	NE Chelmsford railway station - reflect that the timing of the station must be based upon an agreed level of vehicle trips on the road network being reached.		<p>Site Allocation no 20, 'Development Principles for the operational station', add new bullet point: "<u>Construction not to commence until a certain proportion of commercial and residential development has been completed.</u>"</p> <p>After para 7.7 insert new para: "<u>The NE Chelmsford railway station cannot be delivered until an agreed level of car trips have been observed on the local highway network. It is expected that this will be once approximately 25% of the floorspace at Site Allocation 18 (land north east of Boreham Interchange) has been delivered.</u>"</p>

Change no.	Recommendation	Change in AAP text / figures	Addition to AAP text
8	Phasing of employment floorspace - reflect likely longer period for delivering floorspace on Site Allocation 18	<p>Table 7.2:</p> <p>2017-2018 8,750 4,500</p> <p>2018-2019 8,750 4,500</p> <p>2019-2020 8,750 4,500</p> <p>2020-2021 - 4,500</p> <p>2011-2024 2011-2023 64,000</p>	<p>Table 7.2, insert new penultimate column:</p> <p>2021-2023 8,250</p>
9	Phasing - reflect improved understanding of phasing	Delete Table 7.4 and replace with Figure 6.1 from this report	

APPENDIX A

Needs, Funding and Phasing of NE Chelmsford Infrastructure Requirements

Items covered by contributions/tariff

Lead delivery body	Infrastructure Service	Item	Cost	Mainstream funding and funding from providers	Developer funding	Required by	Notes/sources	Rationale for inclusion
ECC	Primary education	5 forms of primary school entry (210 places each) organised between up to 3 schools, with commensurate Early Years & Childcare provision.	Minimum based on two school scenario = £12.6m	£0	£12,585,358	Funding required in phases through plan period. 1 st phase of each school required by 2013/14, 2017/18 and 2021 (at the earliest)	<ul style="list-style-type: none"> - First primary school to be co-located with secondary school in phase one of development. - Second primary school likely to be located north or east of New Hall. - Third primary school to be determined by final size/mix of development. Land requirement for each primary school = 2ha.	<ul style="list-style-type: none"> - Need identified in AAP. - All new residential development must have reasonable access to education provision. For primary education, all schools must be located on or close to a development. It is not reasonable to expect the education authority (Essex County Council) to bus significant numbers of children to primary school sites elsewhere in the borough. As identified in the AAP, ECC considers that there is limited or no spare capacity in the most proximate primary schools to the proposed development area, so all primary school provision must be on site.
ECC	Early Years and Childcare	Early Years and Childcare settings including full day care and sessional provision and Children's Centre outreach facilities. Private providers may also be facilitated to provide required range of settings and level of provision.	£6.6m	£0	£6,573,181	Funding required in phases through plan period. 1 st phase of each school containing EY&C required by 2013/14, 2017/18 and 2021 (at the earliest)	Up to four settings to be provided at primary and secondary schools. Each 56 place facility requires 0.15ha.	

Lead delivery body	Infrastructure Service	Item	Cost	Mainstream funding and funding from providers	Developer funding	Required by	Notes/sources	Rationale for inclusion
ECC	Secondary education (including 6th Form)	Minimum of 900 secondary school places plus commensurate sized sixth form. On site Early Years & Childcare and community use facilities also to be included in project.	Not known (see para 3.2)	£0	£15,353,794	<p>Places required by Sept 2015. Funding for design needed 2013/14.</p> <p>(NB. In order for it to be delivered by 2014/15 there is a need for either sufficient contributions from Borough-wide standard charges to address any shortfall, or other forward funding mechanisms to be in place. Otherwise the delivery of the school is likely to be 2017/18).</p>	<ul style="list-style-type: none"> - Land to be provided by developer (9-10ha). - Potential to work with existing school to facilitate provision required before critical mass for stand alone new school reached. - Final size of school could be 1,200 places plus sixth form to serve wider area as envisaged by Core Strategy/ Planning Obligations SPD. - To be co-located with primary school and EY&C facilities. - Shared space could potentially include sports hall and performance space for community use. Playing fields could be made available to local sports clubs to generate potential income. Costs not included in £15.4m figure. - Co-located on pedestrian square with community centre and other community uses, such as Children's Centre. - Potential joint/shared uses to be informed by the 'Education Land Compliance Study'. 	<ul style="list-style-type: none"> -Need identified in AAP. - All new residential development must have reasonable access to education provision. The format and type of this provision will depend on the final numbers and types of dwellings to be provided.

Lead delivery body	Infrastructure Service	Item	Cost	Mainstream funding and funding from providers	Developer funding	Required by	Notes/sources	Rationale for inclusion
							- Work to inform Planning Contributions SPD shows that 20% of costs of school already collected through developer contributions (circa £3.1m). This figure will therefore effectively come off the total figure for developer contributions.	
Developer/ECC	Public transport	Chelmsford Rapid Bus Transit (ChART) - Phase 1	£2,820,000	£0	£2,820,000	2012	- Shares off-site bus priority measures with Park and Ride, so ECC says costs of bus priority measures will be shared with P&R (total cost £2.4m, so each pays £1.2m; therefore £1.2m taken off total cost).	- There is a clear need for modes of transport serving new development to be as sustainable as possible. The AAP, at paragraph 3.24, states that major new facilities being provided at NE Chelmsford "...must be accessible to both new and existing communities alike by travel modes other than the private car." It specifically identifies Chelmsford Rapid Bus Transit (ChART) and the Park & Ride as services that are integral to that.
Developer/ECC	Public transport	Chelmsford Rapid Bus Transit (ChART) - Phase 2	£350,000	£0	£350,000	2014		
Developer/ECC	Public transport	Chelmsford Rapid Bus Transit (ChART) - Phase 3	£2,550,000	£0	£2,550,000	2016	- Based on link to proposed railway station. Phasing could be pushed back if station delayed.	
ECC	Public transport	Park and Ride site (Essex Regiment Way) and bus priority measures	£6,000,000	£6,000,000	£0	2012	- Funding already provided and scheme under construction. - ECC says costs of bus priority measures will be shared with ChART (total cost £2.4m, so each pays £1.2m; therefore £1.2m	

Lead delivery body	Infrastructure Service	Item	Cost	Mainstream funding and funding from providers	Developer funding	Required by	Notes/sources	Rationale for inclusion
							taken off total cost).	
Developer/ECC	Road transport	Radial Distributor Road - Phases 2 & 3	£10,000,000	£0	£10,000,000	2016	<ul style="list-style-type: none"> - Figure includes preliminaries (@20%), overheads and profit (@12%) and contingency (@10%). - To be completed by the 1,000th dwelling completion. - Alternative is scheme proposed by Countryside would be in two phases. Phase 1 would be from new roundabout on Essex Regiment Way into the development. Phase 2 would be from a new roundabout in the NE section to the Boreham Interchange. Phase 3 would connect Phases 1 and 2 to Belsteads Farm roundabout. - Phase 1 (£4m) assumed to be covered by developer's secondary infrastructure budget, as effectively just internal estate roads. So Phases 2 and 3 (£10m) covered by contributions. 	<ul style="list-style-type: none"> - Whilst sustainable transport through public transport and other measures are fundamental, it is accepted that there will be a degree of car-borne traffic that will be served by the development. Nevertheless, the AAP identifies that the need must be to reduce traffic where possible. - The rationale for a radial distributor road to serve the development is clear. As is stated at paragraph 3.33 of the AAP: "The pressing need to manage peak time congestion on White Hart Lane and secure a net improvement will be achieved by a new principal access road for new development. This will...enable traffic to travel north avoiding White Hart Lane, by means of a link between Boreham Interchange and Essex Regiment Way. The road is proposed to act as a main

Lead delivery body	Infrastructure Service	Item	Cost	Mainstream funding and funding from providers	Developer funding	Required by	Notes/sources	Rationale for inclusion
								distributor providing primary access to developed areas.”
ECC	Road transport	Boreham Interchange Improvements, including Generals Lane bridge replacement.	£38,200,000	£0	£38,200,000	2016	- Figure includes preliminaries (@20%), overheads and profit (@12%) and contingency (@10%).	- One of the fundamental improvements required to enable development to access the NE Chelmsford AAP area is to the Boreham Interchange. The AAP envisages the future delivery of the NE Chelmsford Bypass through a safeguarded corridor which would link up with the A130 and provide better strategic access to Braintree.
Developer	Police	Neighbourhood Policing Office with secure parking for police and staff vehicles.	£1,180,000	£0	£1,180,000	2018	- Essex Police approach is to seek standard contributions towards needs. - Costs exclude land, estimated to be £375,000.	- The provision of the necessary infrastructure to enable the emergency services to serve new development is an important requirement of any proposal.
N/A	Fire	No requirement	£0	£0	£0	N/A	No capital requirement	

Lead delivery body	Infrastructure Service	Item	Cost	Mainstream funding and funding from providers	Developer funding	Required by	Notes/sources	Rationale for inclusion
RTP	Indoor sports facilities	Multi-use sports centre	Not known	£0	Not known	2018	<ul style="list-style-type: none"> - To be developed as part of the Secondary school. - Cost of making accessible to the general public would need to be determined as part of a detailed scheme. - Source: CBC. 	- There is a need for a 'multi-purpose indoor sports facility' at NE Chelmsford. This is identified as an objective in the AAP under Strategic Objective QL1.
Developer	Open space, sport and recreation	Strategic open space: 10 winter sports pitches, changing facilities (4-team) and car parking	£508,750	£0	£508,750	2016	<ul style="list-style-type: none"> - Source: Planning Contributions SPD. Figure of £185K per ha includes pitches. But zero cost per pitch as provision considered to be part of developers secondary costs. Assume 50% for cost of other items. - Assume changing facilities at secondary school can be used for those sports pitches. - Assume 5 grass pitches, with 5 provided as part of secondary school development. 	- Strategic Objective QL1 in the AAP identifies the objective of providing "multi-functional green space for recreation and growing purposes."
ECC/ developer	Libraries	1x community library	£700,000	£0	£700,000	2021	<ul style="list-style-type: none"> - Possible co-location of library with second primary school (north of New Hall). - The proposed location meets the library requirements for a new facility to serve a discreet population of approximately 7,000 at a distance of over 1.5 miles from the nearest other static point – the joint 	- The need for a new community library has been assessed by Essex County Council. Provision is required where library access is limited over a given distance for a minimum threshold population. In this case, the proposed location at NE Chelmsford meets the library requirements for a new

Lead delivery body	Infrastructure Service	Item	Cost	Mainstream funding and funding from providers	Developer funding	Required by	Notes/sources	Rationale for inclusion
							use facility at New Bowers Way. - The estimated size of a library to serve 7,000 population is 210sq m. The size of the library has been reduced by 10% to allow for a joint/shared location (approx 189 sq m).	facility to serve a discreet population of approximately 7,000 at a distance of over 1.5 miles from the nearest other static point – the joint use facility at New Bowers Way.
CBC/ developer	Community facilities	1x community centre	£1,920,000	£0	£1,920,000	2016	- Co-located with secondary school and health centre. - 0.4sqm/dwg (source: Ready Reckoner) - £1,200-£1,800/sqm capital cost (source: Ready Reckoner) - assume £1,200/sqm because typical community centre sports facilities not to be included (as being provided elsewhere). - Cost of maintenance 30% of construction cost over perpetuity of development (based on experience) = £640K or approx. £32K p.a.	- The AAP identifies at paragraph 1.81 that new “leisure/community facilities” are needed.
CBC	Municipal waste		£0	£0	£0	N/A	- No current need assessed for neighbourhood recycling point	
TOTAL			Not known	£6,000,000	£92,741,081			

Items covered by developer's secondary cost allowances

Lead delivery body	Infrastructure Service	Item	Cost	Mainstream funding and funding from providers	Developer funding upfront (to be reimbursed by providers)	Required by	Notes/sources	Rationale
ECC	Public transport	Estate/link roads, footways and cycleways.	N/A	£0	£0	N/A	- These are site-specific items so can be excluded from the assessment.	
ECC/ developer	Road transport	Radial Distributor Road - Phase 1	£4,000,000	£0	£4,000,000	2014	- Phase 1 (£4m) assumed to be covered by developer's secondary infrastructure budget, as effectively just internal estate roads. Phases 2 and 3 (£10m) are covered by developer contributions.	
EDF Energy	Utilities – electricity	Increased capacity in power supply	£15,000,000	£0	£10,000,000	2013	<p>- EDF Energy state that housing has no additional electrical capacity requirement.</p> <p>- There is spare capacity for commercial of 8MW at the main Chelmsford North sub station. This may be sufficient. If it is not sufficient, then there will need to be major reinforcement of the Chelmsford North sub station.</p> <p>- A new primary sub station (fed off the Chelmsford North sub station) is needed, partly to serve the new development. This will cost £10m-£15m, with this apportioned based on need. It is not possible to accurately determine the</p>	<p>- All new residential and commercial development must have the necessary access to gas, electrical and water (both drinking water and waste water) services. Indeed, it is a requirement of the respective providers' remit to provide the necessary connections and ensure that there is sufficient strategic capacity to be able to accommodate the additional loads that new development places upon the utilities network.</p>

Lead delivery body	Infrastructure Service	Item	Cost	Mainstream funding and funding from providers	Developer funding upfront (to be reimbursed by providers)	Required by	Notes/sources	Rationale
							<p>apportionment. For this assessment, assume cost to NCAAP of £10m out of a total cost of £15m. To be funded by EDF Energy, but early upfront provision needed, so developer to forward fund and EDF to reimburse costs.</p> <p>- Direct network extensions to connect the new development to the network are a site specific charge borne by the developer (so not included here).</p>	
EDF Energy	Utilities – electricity	Undergrounding of overhead power lines	£9,000,000	£0	£9,000,000	2015	<p>- Cost of undergrounding electricity cables is £8m-£10m (assume £9m) and requires a minimum 2 years notice (1 year for design and procurement and 1 year for installation and removal of towers). There would also need to be an initial up-front payment to progress legals and design.</p> <p>- A site specific item.</p>	<p>- The AAP identifies that this is a requirement of development. The rationale is that it will provide general environmental improvements and also compensatory heritage measures for New Hall, a Grade 1 listed building.</p>

Lead delivery body	Infrastructure Service	Item	Cost	Mainstream funding and funding from providers	Developer funding upfront (to be reimbursed by providers)	Required by	Notes/sources	Rationale
National Grid	Utilities – gas	Increased capacity in gas network	£0	£0	£0	N/A	<ul style="list-style-type: none"> - National Grid (Paul Cudby - 01455 231611) - No strategic requirements needed to the gas network 	- All new residential and commercial development must have the necessary access to gas, electrical and water (both drinking water and waste water) services. Indeed, it is a requirement of the respective providers' remit to provide the necessary connections and ensure that there is sufficient strategic capacity to be able to accommodate the additional loads that new development places upon the utilities network.
Essex & Suffolk Water	Utilities – potable water supply	Increased capacity in water supply	£1,570,000	£1,570,000	£0	2012	<ul style="list-style-type: none"> - Essex & Suffolk Water - Peter Jamison (01268 664017) - Current spare capacity before strategic infrastructure improvements are required is 700 dwellings combined for both NE and NW Chelmsford. - £1.57m reflects costs just for NE Chelmsford. NW Chelmsford is an additional £0.45m. Expansion of reinforcement main is underway so no potential for E&SW to claw back costs from developers. 	- All new residential and commercial development must have the necessary access to gas, electrical and water (both drinking water and waste water) services. Indeed, it is a requirement of the respective providers' remit to provide the necessary connections and ensure that there is sufficient strategic capacity to be able to accommodate the additional loads that new development places upon the utilities network.

Lead delivery body	Infrastructure Service	Item	Cost	Mainstream funding and funding from providers	Developer funding upfront (to be reimbursed by providers)	Required by	Notes/sources	Rationale
Anglian Water	Utilities – waste water	New strategic sewer and pumping station	£13,000,000	£12,000,000	£1,000,000	2013	<ul style="list-style-type: none"> - Anglian Water - Existing Broomfield sewer has capacity for 400 dwellings but this will be taken up by other development. A strategic solution is needed. Assume £1m cost apportioned to NE Chelmsford. To be funded by Anglian Water, but early upfront provision needed, so developer to forward fund and AW to reimburse costs. - Expansion of WwTW needed. Partly included in AMP5. <p>Expansion must be commenced immediately, as work will take at least 2 years to complete and is needed in short term.</p>	- All new residential and commercial development must have the necessary access to gas, electrical and water (both drinking water and waste water) services. Indeed, it is a requirement of the respective providers' remit to provide the necessary connections and ensure that there is sufficient strategic capacity to be able to accommodate the additional loads that new development places upon the utilities network.
CBC	Open space, sport and recreation	Local open space: young people and children, amenity green spaces, allotments, green corridors.	To be assessed against standards	£0	To be assessed against standards	N/A		- Strategic Objective QL1 in the AAP identifies the objective of providing “multi-functional green space for recreation and growing purposes.”
TOTAL			£38,570,000	£13,570,000	£20,000,000			

Other items

Lead delivery body	Infrastructure Service	Item	Cost	Mainstream funding and funding from providers	Developer funding	Required by	Notes/sources	Rationale for inclusion
Mid Essex PCT	Health	4-GP practice	£5,000,000	£0	£5,000,000	2016	<ul style="list-style-type: none"> - New medical centre would either be provided directly by developer or by a private company in the business of providing new medical facilities. They would gain a revenue stream from it. This facility should be required by way of planning condition. - Revenue requirements cannot be asked for because they are not capital items. However, MEPCT have asked for revenue contributions of between £20m and £40m (potentially discounted), depending on whether the net additional population is 5,000 or 10,000. - No maintenance payments are assumed because the building will be owned by the developer and it is assumed that they will maintain the building to the necessary standard. 	<ul style="list-style-type: none"> - All new residential development must have reasonable access to primary healthcare provision. The generally accepted criteria for 'reasonable' access are similar to that of primary education, in that patients must live within an acceptable distance of a GP practice, such that they can get there ideally on foot or by short bus journey. Clearly people have the choice of where they register with their GP, but they should have the opportunity to register with a GP that is within this acceptable distance. - The PCT has confirmed that there is minimal capacity within the existing GP practices in Chelmsford Urban Area.

Lead delivery body	Infrastructure Service	Item	Cost	Mainstream funding and funding from providers	Developer funding	Required by	Notes/sources	Rationale for inclusion
ECC	Public transport	NE Chelmsford Railway Station	£65,000,000	TBC	TBC	2019	<p>- Timing would be dependent on the level of car trips created on the network. Once a certain point is reached, then it triggers the need for the station. For commercial development, this is expected to be once 25% (10,000m²) of floorspace on the eastern site has been completed. For residential uses, this will be once a certain number of dwellings have been completed.</p>	<p>The AAP states at paragraph 3.27 that a new railway station is needed to the north east of Chelmsford to "...provide train services for residents and workers, support future business activity around the station and existing business activity in Colchester Road, and relieve pressure on the central Chelmsford station."</p>

APPENDIX B

Glossary of Terms

AAP	Area Action Plan
CBC	Chelmsford Borough Council
ChART	Chelmsford Rapid Bus Transit
CIL	Community Infrastructure Levy
CLG	Communities and Local Government
CSH	Code for Sustainable Homes
DCSF	Department for Children, Schools and Families
ECC	Essex County Council
EY&C	Early Years & Childcare
GP	General Practitioner
HCA	Homes and Communities Agency
IDP	Integrated Development Programme
IRR	Internal Rate of Return
LDM	Local Delivery Mechanism
MEPCT	Mid Essex Primary Care Trust
MLA	Museum & Library Archives
NCAAP	North Chelmsford Area Action Plan
RSL	Registered Social Landlord
SHLAA	Strategic Housing Land Availability Assessment
SPD	Supplementary Planning Document
WwTW	Waste water Treatment Works

APPENDIX C

Viability Model

HOUSING APPRAISAL : VIABILITY MODEL
Chelmsford NECAAP

Date 08/03/2010

Site Assumptions

Gross Area	10	hectares
Area developable for housing	6	hectares
Dwellings per ha	45	of which
% of Houses	90%	
% of flats	10%	
% Market homes	65%	
% Shared ownership Homes	11%	
% Social Rented Homes	24%	

Summary	
Land Price	5,000,000
Section 106 per dwelling	22,000
Margin on Cost	17.5%
NPV	2,580,957

NOTES

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Construction costs & sale proceeds

	Nom, Units	Average Size	Net Sellable Area	Cost Sq M	Value Sq M	Total Cost	Total Value	
Market Houses	158	90	14216	1050	3000	14,926,275	42,646,500	5
Shared Ownership Houses	27	90	2406	1050	1620	2,525,985	3,897,234	6
Social Rented Houses	58	90	5249	1050	1050	5,511,240	5,511,240	6
Market Flats	18	60	1053	1400	3000	1,474,200	3,159,000	7
Shared Ownership Flats	3	60	178	1400	1400	249,480	249,480	6
Social Rented Flats	6	60	389	1400	1050	544,320	408,240	6
TOTAL	270		23490			25,231,500	55,871,694	

Land Cost

Purchase Price	5,000,000		
Purchase – Agents	50,000	1.00%	On land cost
Purchase – Legals	50,000	1.00%	On land cost
Stamp Duty	200,000	4.00%	On land cost
TOTAL	5,300,000		

Basis of Calculation

On land cost
On land cost
On land cost

Development Costs

Construction Cost	25,231,500		As Above	8
Off site works	250,000		Provision Only	9
S106 Costs	5,940,000	22,000	Notional contribution per unit	
On site external works	4,000,000	£400,000	per ha	10
Fees & Other	3,537,780	12.00%	% of construction & on site site works	11
Cost of Sales	1,374,165	3.0%	% cost per unit of agents, marketing, legal	12
Post Completion Management	250,000		Provision	13
TOTAL	40,583,445			

Finance & Cash Flow

Interest payable	1,662,841		7.00%	Interest p.a as per cash flow below.	14
Sales per quarter	25	dwellings			15
Total Sales Period (Quarters)	10.8				
Discount rate per quarter	4.5%				

Total Cost

47,546,286

	Receipts	Land	Cost	Section 106	Cash Flow	Balance at Start	Interest	Balance at End
Q1		5,300,000		1,980,000	-7,280,000	-7,280,000	-127,400	-7,407,400
Q2			3,207,726		-3,207,726	-10,615,126	-185,765	-10,800,891
Q3			3,207,726		-3,207,726	-14,008,617	-245,151	-14,253,768
Q4	5,173,305		3,207,726		1,965,579	-12,288,190	-215,043	-12,503,233
Q5	5,173,305		3,207,726	1,980,000	-14,421	-12,517,654	-219,059	-12,736,713
Q6	5,173,305		3,207,726		1,965,579	-10,771,135	-188,495	-10,959,630
Q7	5,173,305		3,207,726		1,965,579	-8,994,051	-157,396	-9,151,447
Q8	5,173,305		3,207,726		1,965,579	-7,185,868	-125,753	-7,311,621
Q9	5,173,305		3,207,726		1,965,579	-5,346,042	-93,556	-5,439,598
Q10	5,173,305		3,207,726		1,965,579	-3,474,019	-60,795	-3,534,815
Q11	5,173,305		3,207,726		1,965,579	-1,569,236	-27,462	-1,596,698
Q12	5,173,305		2,566,181	1,980,000	627,124	-969,574	-16,968	-986,541
Q13	5,173,305				5,173,305			
Q14	4,138,644				4,138,644			
Q15								
Q16								
Total	55,871,694	5,300,000	34,643,445	5,940,000			-1,662,841	
Error Check (OK=0)	0	0	0	0				

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Notes on the Model

The following notes elaborate on the method and key assumptions made in the viability model and the numbers cross refer to the numbering of the notes in the model itself.

- i. The land price assumed here effectively equates to the amount that could be paid for land for development after taking into account all of the other costs that would be incurred.
- ii. The Section 106 figure is calculated on a rate per dwelling basis and is the tariff contribution alone. A small provision has been made separately for any off-site works that are required and which are not covered by the tariff such as dedicated utility and road connections. The cost of any on-site works required under Section 106 agreements and which are not paid for through the tariff are covered under the budget for 'on-site external works'.
- iii. First gauge of viability: A scheme is deemed to be viable if the calculated margin on cost exceeds 17.5%. This is a blended rate. The underlying assumption is that a 20% margin on cost will be required in respect of market housing and a substantially lower figure on affordable housing.
- iv. Second gauge of viability: The large greenfield schemes will be delivered over a number of years and developers will also seek an adequate annual return on the capital they invest. A Net Present Value calculation based on a simplified cash flow has been used to judge the adequacy of this, using a discount rate of 18% per annum applied to project receipts and costs gross of finance costs. Because payment of the land has already been factored in, for a scheme to be viable the NPV figure here must simply exceed zero.
- v. The main driver of value is the number of square metres of housing per hectare. The actual number of houses and flats is only relevant insofar as the Section 106 charge and the sales rates are on a 'per dwelling' basis. Estimates of house prices are based on a survey of units on the market in November 2009 reinforced by information from estate agents.
- vi. The basis for the affordable housing sales is set out in the report. No difference is made in the cost assumptions primarily because the costs for typical market housing exclude higher specification homes.
- vii. Note that for presentational clarity the budgets for flats are based on the saleable area of each flat rather than the gross internal area of the entire block of flats.
- viii. This includes the CSH premium, external works within the development plot, substructure costs, prelims and builders contingencies.
- ix. The small allowance for off site works covers minor utility upgrades, works to neighbouring property and a direct connection to the off site road network.
- x. The budget for on-site external works (secondary infrastructure) effectively covers site preparation and drainage, distribution infrastructure, landscaping and recreational open space etc. It is a broadly based estimated based on experience elsewhere and should be adequate to cover usual requirements for local parks and playgrounds as well as sports pitches; but not any accompanying buildings such as pavilions.

- xi. The global allowance for fees covers consultants and other fees and, in instances in which house builders carry out a lot of the work in-house, a contribution to their overheads.
- xii. The cost of sales does not include incentives. The projected sale value is deemed to be the net receipt.
- xiii. The allowance for post completion management is a provision for short term costs only. It does not include any commuted sums for longer term maintenance which it is assumed will be paid for through the Tariff.
- xiv. The finance costs are calculated through the cash flow. This is a simple calculation aimed at (a) calculating notional interest costs and (b) indicating whether the development has a positive net present value at the given land price and tariff contribution levels. This is done by discounting the costs and receipts from the project gross of finance costs at the discount level indicated. The effective assumption is that developers will require an internal rate of return on their investment, gross of finance costs, similar to the discount rate. No allowance is made for credit interest.
- xv. The sales figure here represents the total number of dwellings divided by the total sales period. A working assumption is that the greenfield schemes on a ten hectare scale can achieve sales of around two units a week including the affordable units.
- xvi. The 'audit' row is an automatic check on the veracity of the cash flow calculation. All cells should be blank.