Colchester Borough Council, Braintree District Council, Tendring District Council and Essex County Council

North Essex Garden Communities Employment & Demographic Studies

SQW

cambridge econometrics
clarity from complexity

Final Report

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Cambridge Econometrics
Cambridge, UK

sp@camecon.com
www.camecon.com

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1.0	28/04/17	Mike May-Gillings (Associate Director)	Final Report

Contents

Executive Summary

- The shared vision of the three North Essex Districts (Braintree, Colchester and Tendring) sets out a need for three new Garden Communities (West of Braintree, Colchester Braintree Borders, Tendring Colchester Borders) as part of the area's response to its growth needs.
- The intention is that the North Essex Garden Communities (NEGC) are developed according to 'Garden City Principles' as set out by the Town and Country Planning Association (TCPA)[1], which have been adapted into the North Essex Garden Communities Charter to reflect the local ambitions.
- Consistent with the TCPA principle that there should be a variety of employment opportunities within easy commuting distance of homes, the local authorities have set a target of creating one new job for each new home.
- Combined, the NEGCs have the capacity for up to 42,000 homes, with the potential for the delivery of up to 7,500 dwellings in the current Plan period to 2033.
- Cambridge Econometrics (CE) and SQW have been commissioned to determine the likely demographic profile of each Garden Community to inform future service provision planning, and to develop quantified scenarios for future employment growth, to inform job creation targets.
- This study has not sought to develop an economic growth plan for North Essex – although the findings from it ought to be helpful in seeking to inform one.
- Cambridge Econometrics has used its Chelmer Population and Housing Model (Chelmer) to develop a number of demographic scenarios, to provide a 'most likely' demographic profile for each of the Garden Communities.
- The demographic scenarios show the impact of alternative assumptions (the key ones being timing of the build-out of the settlements, and the gender/age profile of in- and out-migration for each settlement) on the demographic profile of each settlement.
- The 'most likely' scenario for each settlement assumes the current planned (by North Essex Districts) build-out, to reach 2,500 dwellings by the end of the plan period (2033), and continuing to rise at similar annual rates thereafter until completion of each settlement. The assumptions for in- and out-migration in this scenario are based on those for similar new settlements.
- Under the 'most likely' demographic scenario for each settlement, population is estimated to peak at: just over 32,000 inhabitants by 2056 in

[1] North Essex Authorities Strategic Part 1 for Local Plans (2016), s.1.6: Key issues – Opportunities and Challenges

'West of Braintree'; just over 43,000 by 2071 in Colchester Braintree Borders, and; just over 20,000 by 2051 in Tendring Colchester Borders.

- Total population in each settlement is then expected to decline, due to ageing of the population (as older people form smaller households), and under the assumption of no new houses being built.
- A faster, more ambitious, build-out rate would lead to a slightly higher peak population (which would be reached sooner), due to the larger numbers of young population and children moving into the settlements.
- In order to answer the question: 'how will future employment be created, in order to achieve the one job per dwelling aspiration?', a framework was developed for considering future employment growth, and a series of alternative economic scenarios were then identified and quantified (using CE's Local Economy Forecasting Model, LEFM)
- The economic scenarios were modelled at the level of proxy economic areas, defined as 'West of North Essex' (for the West of Braintree Garden Community) and 'Central East of North Essex' (for the Colchester Braintree Borders and Tendring Colchester Borders Garden Communities), to reflect the travel to work patterns and proximity to existing economic centres.
- A number of comparator locations were also identified, with similar characteristics to the economic areas, and these were then used to help quantify the potential faster economic growth for particular sectors impacted in each of the scenarios.
- The economic scenarios were then quantified, and the implications for the NEGCs were identified. The NEGCs are likely to account for a significant component of the additional employment growth linked to the scenarios, associated with up to about 95% of the increment linked to the 'West of North Essex' scenario and up to about 40% of the increment linked to the 'Central East of North Essex' scenario.
- All three NEGCs are likely to be associated with significant jobs growth, where jobs linked to exogenous growth processes are presumed to be physically on site, those linked to homeworking will be physically associated with the homes of residents and therefore also on site, and those related to the consumption of local services may or may not be on site, but all will be reasonably "local".
- All three NEGCs appear to be "within range" of the TCPA aspiration of "one job per house".
- The scenarios are very ambitious and their achievability depends on many different factors, some of which are very difficult to influence, but the likelihood of achieving them will increase if there is a proactive economic growth plan in place across North Essex and the NEGCs are delivered in a manner which itself is proactive, visionary, managed and appropriately resourced.
- By way of conclusion, this report offers some observations on the NEGC venture and – from an economic growth perspective – the issues that local partners, particularly the local authorities, will need to consider. We then comment briefly on the consequences for planning policy.

1 Introduction

In the context of the 'duty to cooperate' placed on local authorities in the preparation of Local Plans, the three North Essex Districts are working together to address strategic planning matters across their areas, in collaboration with Essex County Council. As part of this, the shared vision for North Essex sets out a need for new Garden Communities as part of the area's response to its growth needs. The intention is that these are developed according to the 'Garden City Principles' set out by the Town and Country Planning Association (TCPA)[2], which have been adapted into the Garden City Charter to reflect the local ambitions.

Specifically, the local authorities have identified the scope for three **North Essex Garden Communities (NEGCs)**. These are

- **West of Braintree** – about four miles west of central Braintree, just north of the A120 around Blake End. The proposed Community is located in Braintree District.
- **Colchester Braintree Borders –** at the junction of the A12 and the A120 and the junction of the Great Eastern Mainline and the Gainsborough Line. The proposed Community is entirely within Colchester Borough.
- **Tendring Colchester Borders** – an urban extension to Colchester located alongside the University of Essex campus between the A120 and the A133. The proposed Community spans the border between Colchester Borough and Tendring District.

Combined, the NEGCs have the capacity for up to 42,000 homes, with the potential for the delivery of up to 7,500 dwellings in the current Plan period to 2033, as outlined in Table 1.1 below.

Table 1.1 North Essex Garden Communities: Planned growth

Community	Plan period		Total	
	Homes	Population	Homes	Population
Tendring Colchester Borders	2,500	5,750	7,000-9,000	16,100-20,700
Colchester Braintree Borders	2,500	5,750	15,000-20,000	34,500-46,000
West of Braintree	2,500	5,750	10,000-13,000	23,000-29,900
Total	7,500	17,250	32,000-42,000	73,600-96,600

Source: AECOM (2016) and SQW.

Underpinning this, and consistent with the TCPA principle that there should be a variety of employment opportunities within easy commuting distance of homes, the local authorities have set a target of creating one new job for each new home. While it is not anticipated that these will all be located on site, it is intended that they will be reasonably accessible, including by public transport.

[2] North Essex Authorities Strategic Part 1 for Local Plans (2016), s.1.6: Key issues – Opportunities and Challenges

Substantial work is underway to establish the feasibility of the NEGCs. A multi-volume Concept Feasibility Study was developed by AECOM in spring 2016. Currently, Concept Frameworks are being developed for Tendring Colchester Borders and Colchester Braintree Borders by David Lock Associates, and for West of Braintree by AECOM.

In parallel, Cambridge Econometrics (CE) and SQW were commissioned to determine the likely demographic profile of each Garden Community to inform future service provision planning, and to develop quantified scenarios for future employment growth. This document sets out both our approach to the technical aspects of this study and the findings that have been generated.

Our report is divided into five further chapters:

- Chapter 2 reports on the outcomes from the demographic modelling
- Chapter 3 describes the approach we have developed in explaining economic futures
- Chapter 4 reports on the outcomes in terms of alternative growth scenarios for different areas within North Essex
- Chapter 5 works through the employment implications for the NEGCs
- Chapter 6 sets out some conclusions.

2 Demographic modelling

2.1 Introduction

This chapter presents the demographic projections developed for each of the three new Garden Communities[3]. The aim of the demographic modelling was to prepare a likely demographic profile for each Garden Community using CE's Chelmer model, based on assumptions for construction rates, migration rates, birth rates and death rates. Section 2.2 and 2.3 briefly discusses the modelling framework and key assumptions underlying the demographic projections, while the remaining sections describe the projections themselves.

For each new settlement, three scenarios were modelled[4], varying the migration assumptions and the build-out rates. This Chapter focuses on two of the scenarios, but the full description of all the scenario assumptions and results can be found in the accompanying individual Demographic Analysis Reports for each new garden community.

2.2 The Chelmer Population and Housing Model

The Chelmer Population and Housing Model[5] is a well-established demographic model, which models the interaction between population and housing in an area over time and provides detailed demographic and housing projections for areas of interest.

For this study, a Chelmer model was set up for each of the new Garden Communities for the period 2011-2101, to cover the relevant study period required (Chelmer works in 5-year periods from 2011). The model was used to calculate the likely demographic profile of the population that would result from a particular time profile (or build-out rate) of dwellings construction, based on the trajectories and delivery of the garden communities to 2034 provided by Colchester Borough Council[6]. For periods after 2034, the build-out rate was held constant for the rest of the forecast period, until the midpoint of the overall total dwellings target for each garden community was reached (as set out in Table 2.1).

The results of the model were used to generate a demographic profile for each Garden Community, and are described in sections 2.4, 2.5 and 2.6.

2.3 Assumptions

As mentioned above, three scenarios were developed for each new settlement. Scenario 1 and 2 were based on the dwellings trajectory from the Local Plan, while Scenario 3 was based on an accelerated dwellings trajectory. The migration assumptions in Scenario 1 were based on migration

[3] For the full description of the methodology and assumptions developed for the demographic modelling, see the individual Demographic Analysis Reports for each new garden community.

[4] For the full description of the scenario assumptions and results, see the individual Demographic Analysis Reports for each new garden community.

[5] See Appendix C for full description of Chelmer.

[6] See Appendix C for more information on the model logic of dwelling-constrained Chelmer projections.

trends in the wider district(s) each settlement is based within. In scenario 2 and 3, however, the migration assumptions were tailored to reflect a younger population, as the initial population moving into a new settlement is likely to be quite young, often made up of young couples, perhaps with young children.

Dwellings

Colchester Borough Council provided new dwellings trajectories, which have been agreed and used by all the local authorities, for each of the garden communities on an annual basis to 2034. Thereafter, the build-out rate was held constant for the rest of the forecast period, until the midpoint of the overall total dwellings target for each garden community was reached. The assumptions for each scenario were aggregated to the five-year periods used in Chelmer and are outlined in Table 2.1 below.

Table 2.1: Cumulative new dwellings trajectory for new Garden Communities

	2021-26	2026-31	2031-36	2036-41	2041-46	2046-51	2051-56	2056-61	2061-66	2066-71
Scenario 2										
West of Braintree	450	1,900	3,700	5,700	7,700	9,700	11,700	11,700	11,700	11,700
Colchester Braintree Borders	200	1,800	3,700	5,700	7,700	9,700	11,700	13,700	15,700	17,700
Tendring Colchester Borders	750	2,000	3,400	4,900	6,400	7,900	8,200	8,200	8,200	8,200
Scenario 3										
West of Braintree	543	2,293	4,463	6,873	9,283	11,693	11,693	11,693	11,693	11,693
Colchester Braintree Borders	400	3,070	5,869	8,684	11,499	14,314	17,129	17,692	17,692	17,692
Tendring Colchester Borders	1013	2,763	4,648	6,623	8,203	8,203	8,203	8,203	8,203	8,203

Source: Colchester Borough Council.

Migration

The migration assumptions[7] in Scenario 2 and Scenario 3 were developed using Census data for 'young' settlements. The level of in-migration was reallocated towards younger age bands, based on the average profile of in-migration in 'young' settlements during a period when they were still being built. This included Cambourne in 2011, Bar Hill in 1981 and Great Notley in 2001. The 'young' settlements used to calculate the average migration profile were agreed with the client group and are also in the East of England, so are likely to face similar regional patterns. The rates of out-migrants as a percentage of the population of each age band in 'young' settlements on average (Cambourne in 2011 and Great Notley in 2001) were used for the out-migration assumptions. The same migration profile was applied throughout the forecast period for simplicity and easier comparison of scenario results, and are summarised in Table 2.2 below.

[7] This includes internal (within the UK) migration and international migration.

Table 2.2: Migration assumptions

	In-migration	Out-migration
	% of total in-migration	% of population of each age band
1-4	10.0	7.5
5-15	13.6	4.0
16-24	15.1	16.4
25-34	31.9	12.3
35-44	15.5	5.4
45-59	10.3	5.6
60-64	1.2	4.4
65+	2.4	4.3

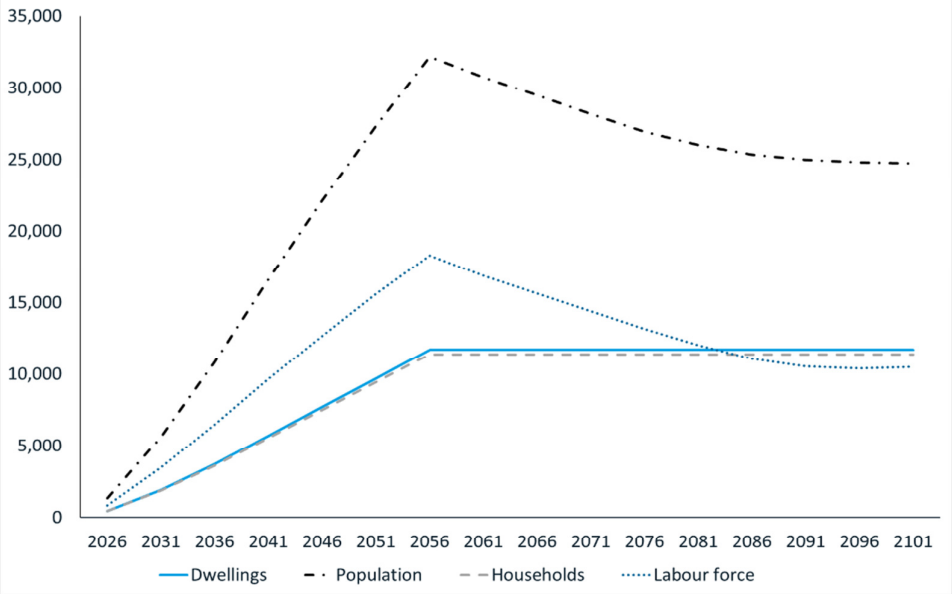
2.4 Demographic profile and implications for West of Braintree

Scenario 2

In Scenario 2, 2,500 houses are built by 2033 (the end of the Plan period), and the settlement is completed by 2056, with a total of 11,700 houses being built.

Houses are being built up to 2056, and so population, households and the labour force will steadily increase as more dwellings are completed each year (see Figure 2.1:). Thereafter, no new households are built, and population and labour force start to decline as people who moved in during the early years of development start to age.

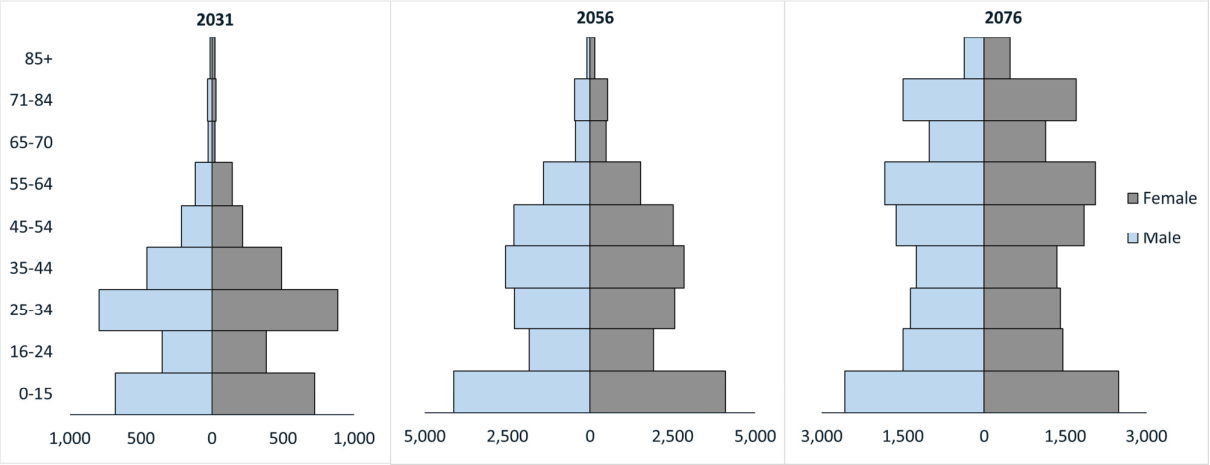
Figure 2.1: Dwellings, Population, Households and Labour force



Source: Cambridge Econometrics.

Over the development period, the population profile will become more balanced. After building is completed in 2056, the population will continue to age, increasing the number of people aged over 70 in the settlement and reducing the number of under 24 year olds (see Figure 2.2).

Figure 2.2: Population Pyramids in 2031, 2056 and 2076



Note: The second time period reflects when the settlement is completed, and the third period is 20 years after completion.

Source: Cambridge Econometrics.

In this scenario, as the population ages, the proportion of households without children tend to increase over time, while those with children decrease (see Table 2.3).

Table 2.3: Proportion of households by type

	2026	2031	2041	2051	2061	2071	2081
1 adult of pensionable age and no children	3%	3%	3%	5%	8%	13%	17%
1 adult of non-pensionable age and no children	17%	17%	18%	19%	18%	15%	12%
1 adult of non-pensionable age and 1 adult of pensionable age and no children or 2 adults of pensionable age and no children	3%	3%	4%	5%	9%	15%	21%
2 adults of non-pensionable age and no children	16%	15%	13%	12%	11%	10%	9%
3 or more adults and no children	6%	7%	8%	9%	10%	9%	8%
Households with 1 dependent child	24%	23%	22%	21%	18%	15%	13%
Households with 2 dependent children	20%	20%	20%	18%	15%	12%	9%
Households with 3 dependent children	8%	7%	7%	6%	5%	4%	3%
Other households	5%	5%	5%	5%	6%	6%	7%

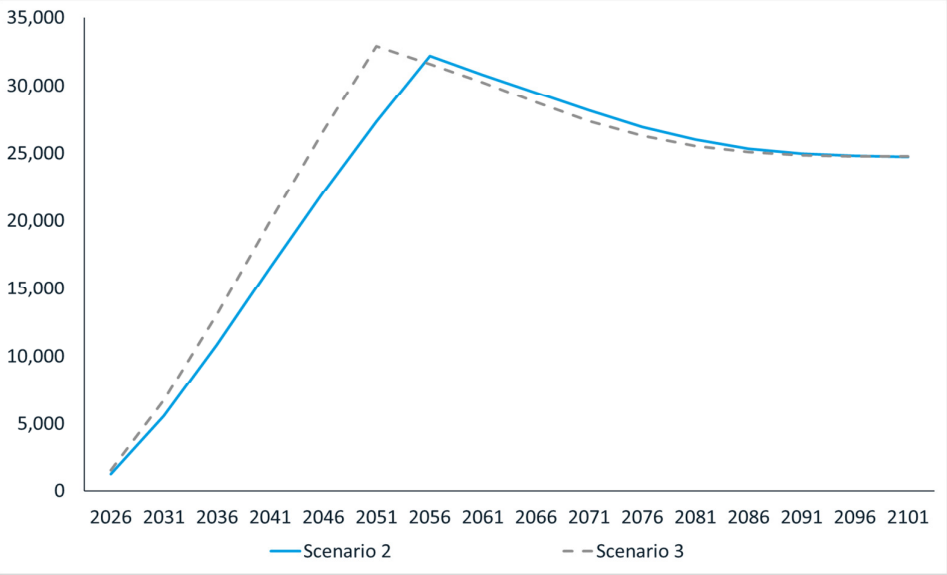
Source: Cambridge Econometrics.

Scenario 3

Scenario 3 was based on an accelerated dwellings trajectory, targeting 3,020 dwellings by 2033, using the same build-out profile as in Scenario 2. Under this scenario, the settlement is completed by 2051 (five years earlier than in Scenario 2) with a total of 11,700 houses being built. The advantage of using an accelerated rate is to see how different the demographic profile might look like if the settlement is completed earlier and the population starts to age sooner.

As more houses are completed at each stage of development in Scenario 3 than in Scenario 2, more people start moving into the new settlement earlier. Population growth reaches its peak by 2051, at a faster rate than in Scenario 2 (see Figure 2.3).

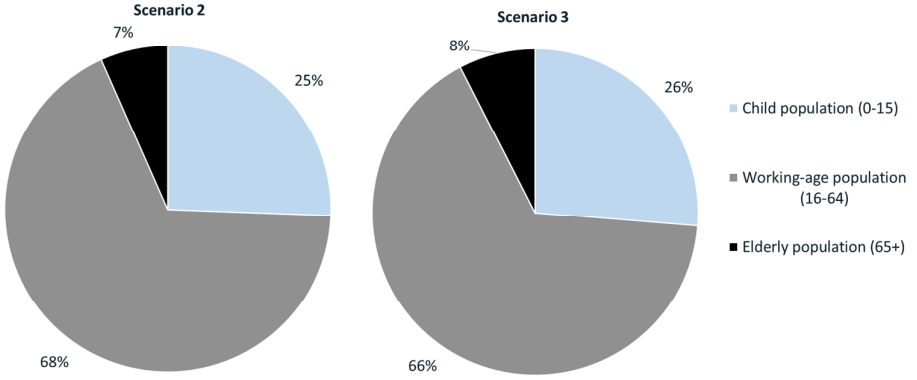
Figure 2.3: Total population in Scenario 2 and 3



Source: Cambridge Econometrics.

There is a marginal bias towards older age bands in Scenario 3 (which finished being built five years earlier), as the population of the settlement starts to age sooner in this scenario. By 2056, when the settlement has finished being built in Scenario 2, working-age population accounts for a slightly smaller proportion of the total population in Scenario 3 than in

Figure 2.4: Population in Scenario 2 and Scenario 3 at the end of 2056



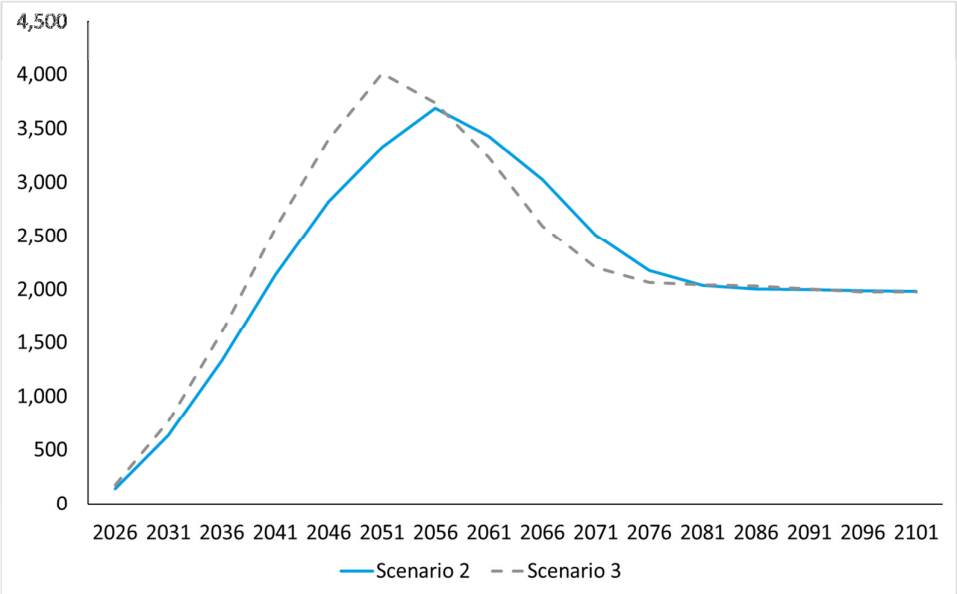
Source: Cambridge Econometrics.

Scenario 2 (see Figure 2.4).

Child population

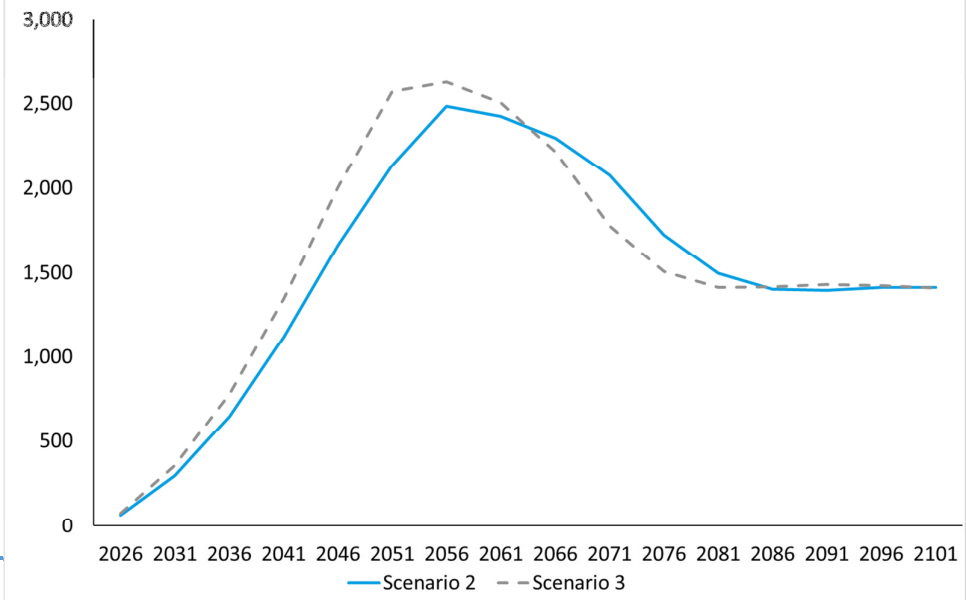
One major impact of the accelerated build-out rate is on child population growth and its implication for school requirements. During the earlier phases of the development, there is likely to be faster growth in children of primary and secondary school age in Scenario 3 than in Scenario 2, as younger adults moving in are more likely to bring children with them or form families shortly after moving in (see Figure 2.5 and Figure 2.6). By the time the settlement is completed in each scenario, the child population in primary and secondary education is considerably larger in Scenario 3 than in Scenario 2. Thereafter, as the population starts to age, the number of children of primary and secondary school age declines more steeply in Scenario 3, resulting in a much lower requirement for local schools.

Figure 2.5: Child population of primary school age (4-10)



Source: Cambridge Econometrics.

Figure 2.6: Child population of secondary school age (11-15)

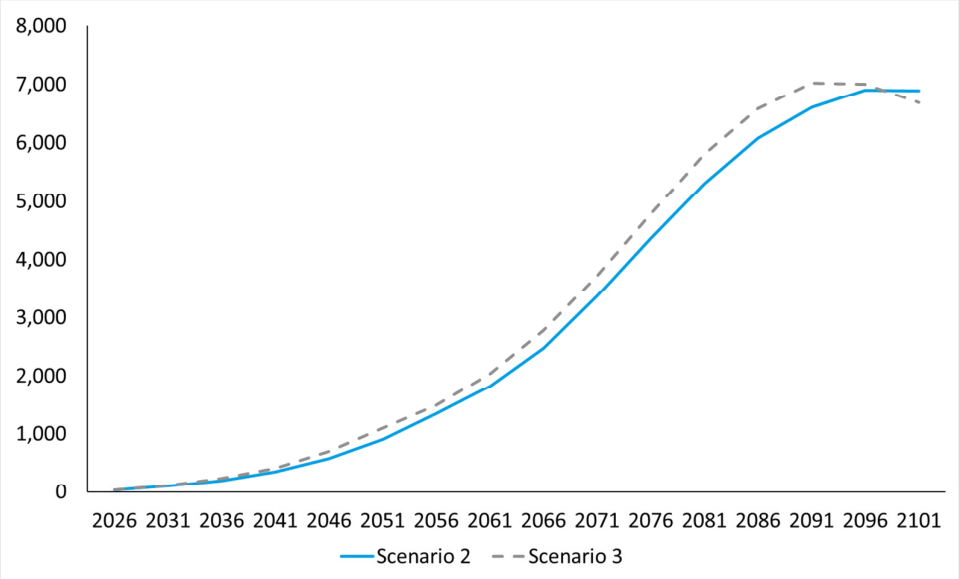


Source: Cambridge Econometrics.

Elderly population

The number of people aged 70 and over would grow at a faster rate in Scenario 3 than in Scenario 2, as more people move in during the early phases of the development and the existing population starts to age (see Figure 2.7). As a result, at its peak (around 40 years after building is completed in each scenario), the elderly population is slightly larger in Scenario 3, resulting in a higher requirement for public service provision for the elderly.

Figure 2.7: Elderly (70+) population in Scenario 2 and Scenario 3



Source: Cambridge Econometrics.

Households

As the population starts ageing sooner in Scenario 3, there is a slightly smaller proportion of households with children by 2056 (see Table 2.4). In the longer term, the household composition in Scenario 3 becomes very similar to that in Scenario 2.

During the initial development period of the settlement, household size is between 2.8-3.0 people. This is higher than the district average (2.4 people), as the community is assumed to be settled largely by young families. After construction is completed, household size starts to fall as the population starts to age.

Table 2.4: Proportion of households by type in Scenario 2 and 3

	2056		2101	
	Scenario 2	Scenario 3	Scenario 2	Scenario 3
1 adult of pensionable age and no children	6%	6%	23%	23%
1 adult of non-pensionable age and no children	18%	19%	10%	11%
1 adult of non-pensionable age and 1 adult of pensionable age and no children or 2 adults of pensionable age and no children	7%	7%	22%	21%
2 adults of non-pensionable age and no children	12%	11%	7%	7%
3 or more adults and no children	9%	10%	6%	6%
Households with 1 dependent child	20%	19%	12%	12%
Households with 2 dependent children	17%	17%	9%	9%
Households with 3 dependent children	6%	5%	3%	3%
Other households	6%	6%	7%	7%

Source: Cambridge Econometrics.

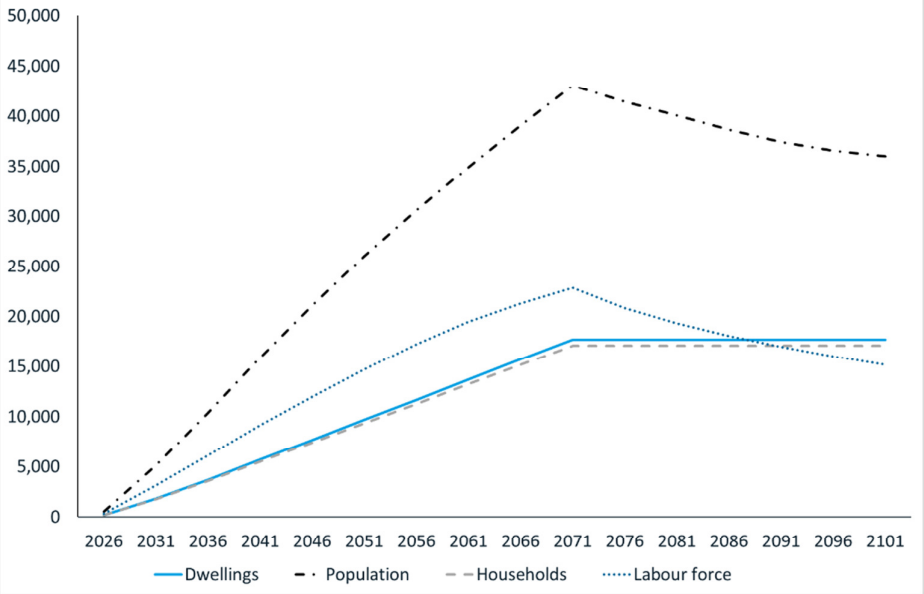
2.5 Demographic profile and implications for Colchester Braintree Borders

Scenario 2

In Scenario 2, 2,500 houses are built by 2033 (the end of the Plan period), and the settlement is completed by 2071, with a total of 17,700 houses being built.

Houses are being built up to 2071, and so population, households and the labour force will steadily increase as more dwellings are completed each year (see Figure 2.8). Thereafter, no new households are built, and population and labour force start to decline as people who moved in during the early years of development start to age.

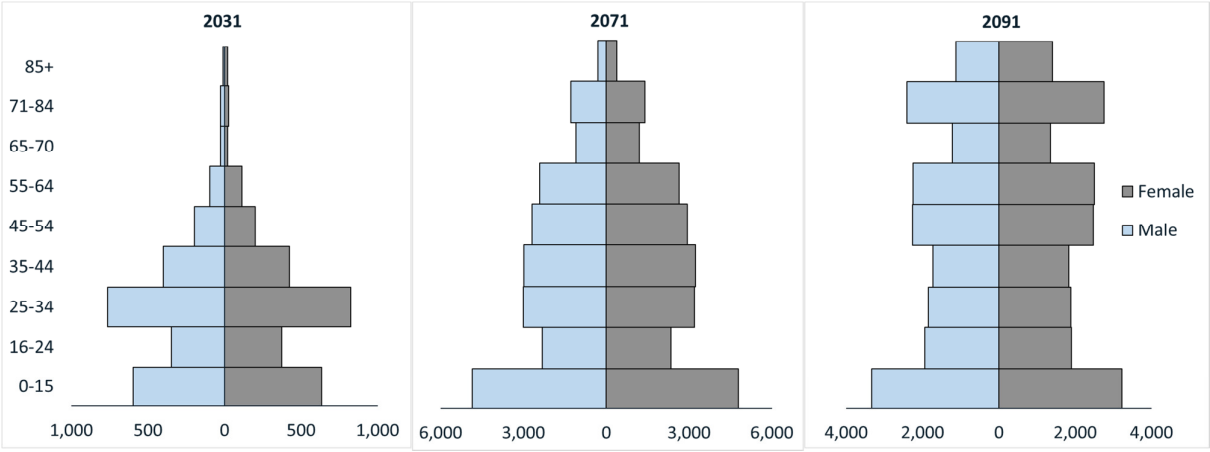
Figure 2.8: Dwellings, Population, Households and Labour force



Source: Cambridge Econometrics.

Over the development period, the population profile will become more balanced. After building is completed in 2071, the population will continue to age, increasing the number of people aged over 70 in the settlement and reducing the number of under 24 year olds (see Figure 2.9).

Figure 2.9: Population Pyramids in 2031, 2056 and 2076



Note: The second time period reflects when the settlement is completed, and the third period is 20 years after completion.

Source: Cambridge Econometrics.

Households In this scenario, as the population ages, the proportion of households without children tend to increase over time, while those with children decrease (see Table 2.5).

Table 2.5: Proportion of households by type

	2026	2031	2041	2051	2061	2071	2081
1 adult of pensionable age and no children	3%	3%	3%	5%	7%	10%	14%
1 adult of non-pensionable age and no children	20%	20%	21%	21%	20%	18%	15%
1 adult of non-pensionable age and 1 adult of pensionable age and no children or 2 adults of pensionable age and no children	3%	2%	3%	5%	7%	11%	16%
2 adults of non-pensionable age and no children	16%	15%	13%	11%	11%	11%	9%
3 or more adults and no children	5%	5%	6%	7%	8%	8%	7%
Households with 1 dependent child	24%	25%	24%	22%	20%	18%	16%
Households with 2 dependent children	19%	18%	18%	18%	15%	14%	12%
Households with 3 dependent children	7%	6%	5%	5%	4%	4%	3%
Other households	6%	6%	6%	6%	7%	7%	8%

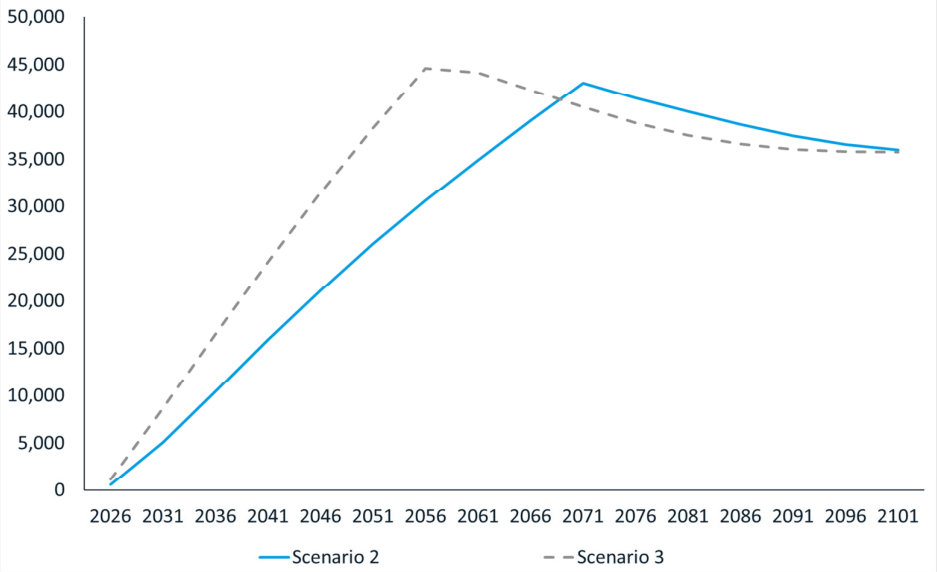
Source: Cambridge Econometrics.

Scenario 3

Scenario 3 was based on an accelerated dwellings trajectory, targeting 4,180 dwellings by 2033, using the same build-out profile as in Scenario 2. Under this scenario, the settlement is completed by 2057 (14 years earlier than in Scenario 2) with a total of 17,700 houses being built. The advantage of using an accelerated rate is to see how different the demographic profile might look like if the settlement is completed earlier.

As more houses are completed at each stage of development in Scenario 3 than in Scenario 2, more people start moving into the new settlement earlier. Population growth reaches its peak by 2057 at a faster rate than in Scenario 2 (see Figure 2.10).

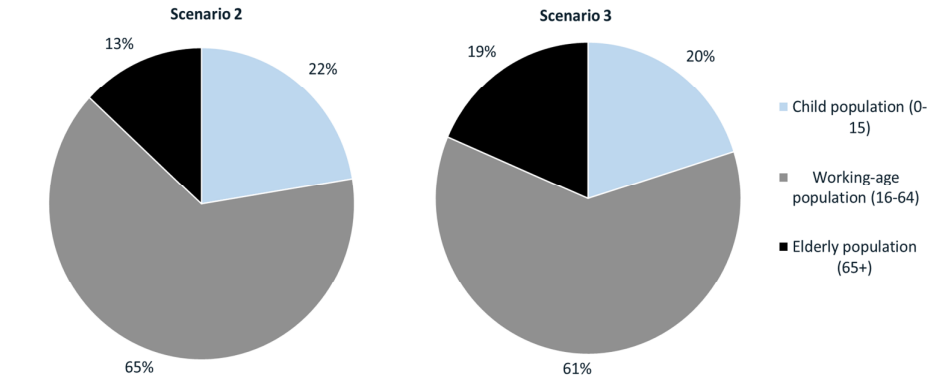
Figure 2.10: Total population in Scenario 2 and 3



Source: Cambridge Econometrics.

There is a marginal bias towards older age bands in Scenario 3 (which finished being built 14 years earlier than in Scenario 2), as the population of the settlement starts to age sooner in this scenario. By 2071, when the settlement has finished being built in Scenario 2, working-age population accounts for a smaller proportion of the total population in Scenario 3 than in Scenario 2, while the share of the elderly population has increased (see Figure 2.11).

Figure 2.11: Population in Scenario 2 and Scenario 3 at the end of 2071

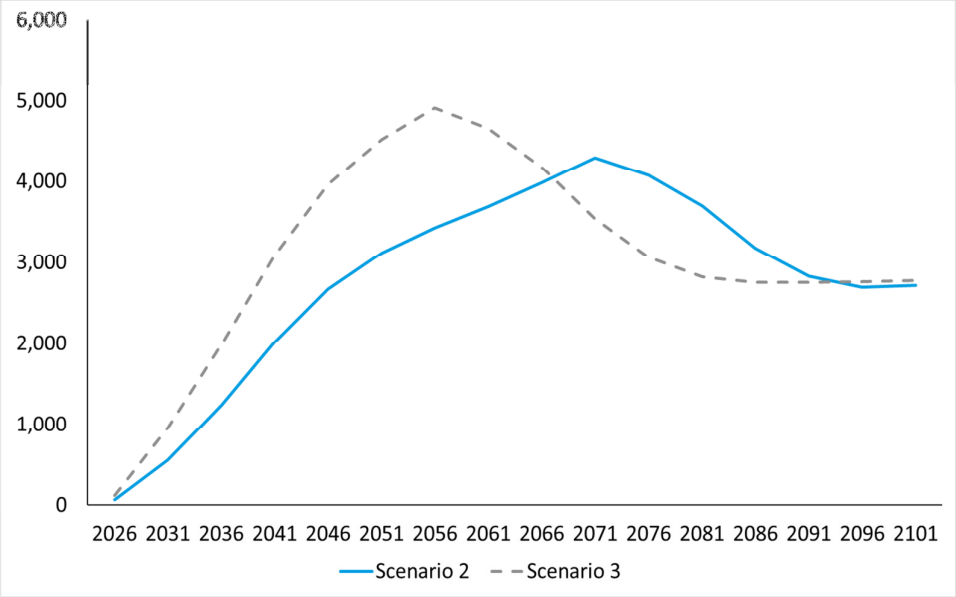


Source: Cambridge Econometrics.

Child population

One major impact of the accelerated build-out rate is on child population growth and its implication for school requirements. During the earlier phases of the development, there is likely to be faster growth in children of primary and secondary school age in Scenario 3 than in Scenario 2, as younger adults moving in are more likely to bring children with them or form families shortly after moving in (see Figure 2.12 and Figure 2.13). By the time the settlement is completed in each scenario, the child population in primary and secondary education is considerably larger in Scenario 3 than in Scenario 2. Thereafter, as the population starts to age, the number of children of primary and secondary school age declines more steeply in Scenario 3, resulting in a much lower requirement for local schools.

Figure 2.12: Child population of primary school age (4-10)

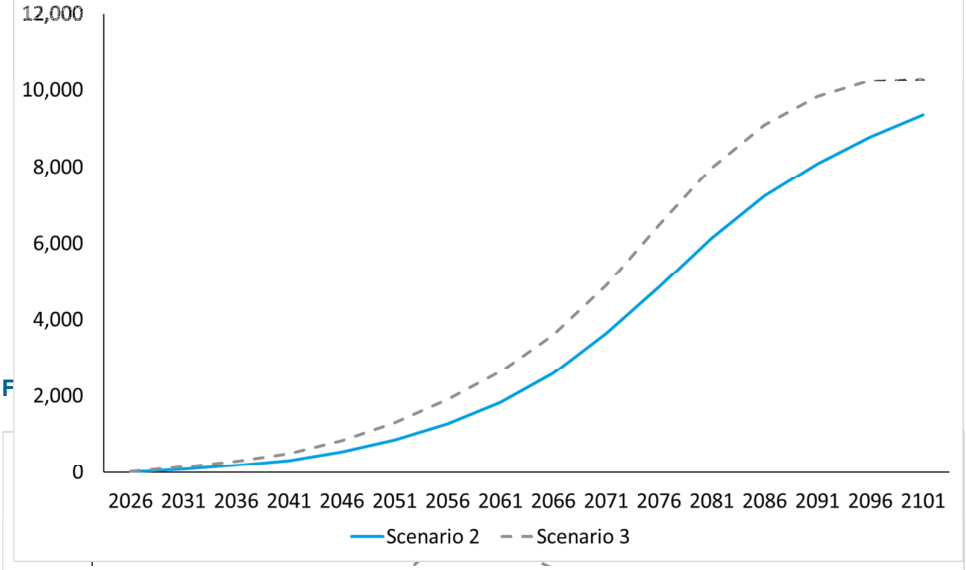


Source: Cambridge Econometrics.

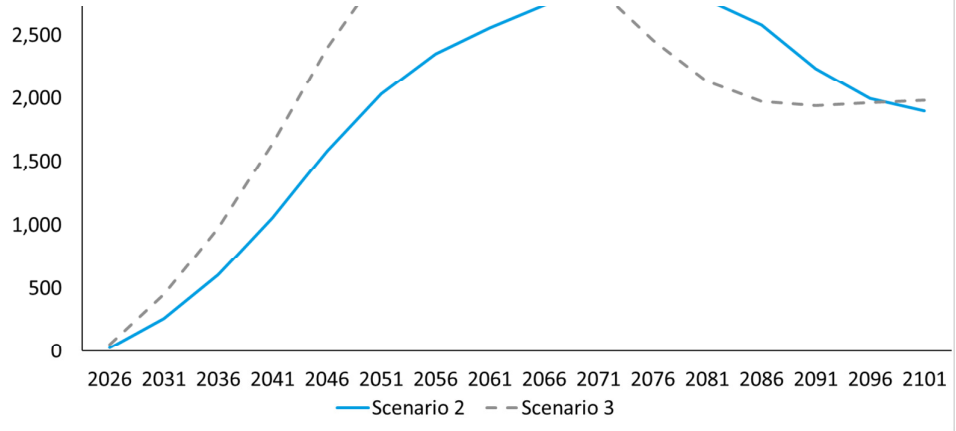
Elderly population

The number of people aged 70 and over would grow at a faster rate in Scenario 3 than in Scenario 2, as more people move in during the early phases of the development and the existing population starts to age (see Figure 2.14). As a result, the elderly population is larger in Scenario 3 by the end of the forecast period, at which point it appears to have steadied in Scenario 3 but is still growing in Scenario 2, resulting in a higher requirement for public service provision for the elderly.

Figure 2.14: Elderly (70+) population in Scenario 2 and Scenario 3



Source: Cambridge Econometrics.



Source: Cambridge Econometrics.

Households

As the population starts ageing sooner in Scenario 3, there is a smaller proportion of households with children by 2071 (see Table 2.6). In the longer term, the household composition in Scenario 3 becomes very similar to that in Scenario 2.

During the initial development period of the settlement, average household size is between 2.7-2.9 people. This is higher than the Colchester and Braintree district average (2.4 people), as the community is assumed to be

settled largely by young families. As the population starts to age, household size starts to fall.

Table 2.6: Proportion of households by type in Scenario 2 and 3

	2071		2101	
	Scenario 2	Scenario 3	Scenario 2	Scenario 3
1 adult of pensionable age and no children	10%	13%	22%	23%
1 adult of non-pensionable age and no children	18%	16%	12%	11%
1 adult of non-pensionable age and 1 adult of pensionable age and no children or 2 adults of pensionable age and no children	11%	15%	21%	21%
2 adults of non-pensionable age and no children	11%	10%	8%	7%
3 or more adults and no children	8%	8%	6%	5%
Households with 1 dependent child	18%	16%	12%	12%
Households with 2 dependent children	14%	12%	9%	9%
Households with 3 dependent children	4%	3%	2%	3%
Other households	7%	7%	8%	8%

Source: Cambridge Econometrics.

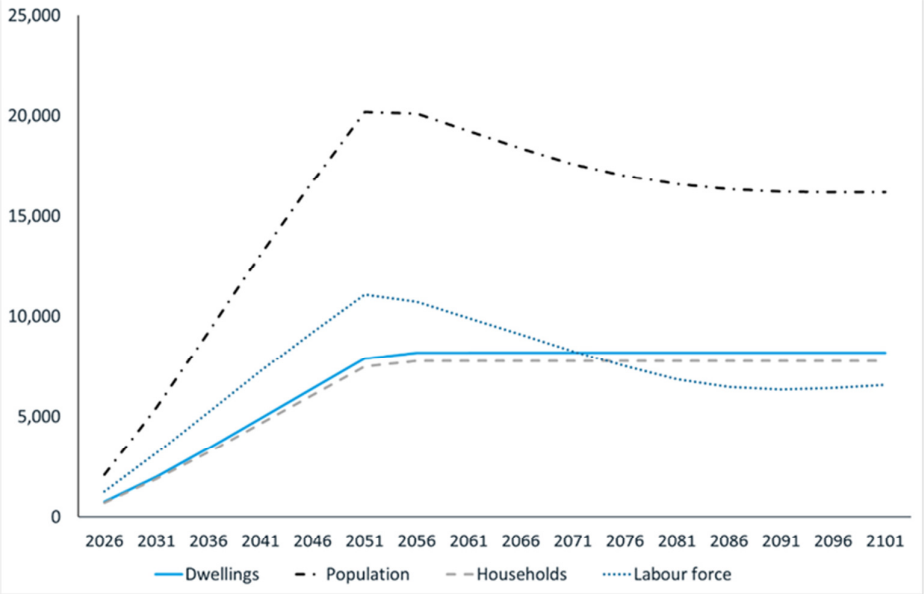
2.6 Demographic profile and implications for Tendring Colchester Borders

Scenario 2

In Scenario 2, 2,500 houses are built by 2033 (the end of the Plan period), and the settlement is completed by 2052, with a total of 8,200 houses being built.

Houses are being built up to 2052, and so population, households and the labour force will steadily increase as more dwellings are completed each year (see Figure 2.15). Thereafter, no new households are built, and population and labour force start to decline as people who moved in during the early years of development start to age.

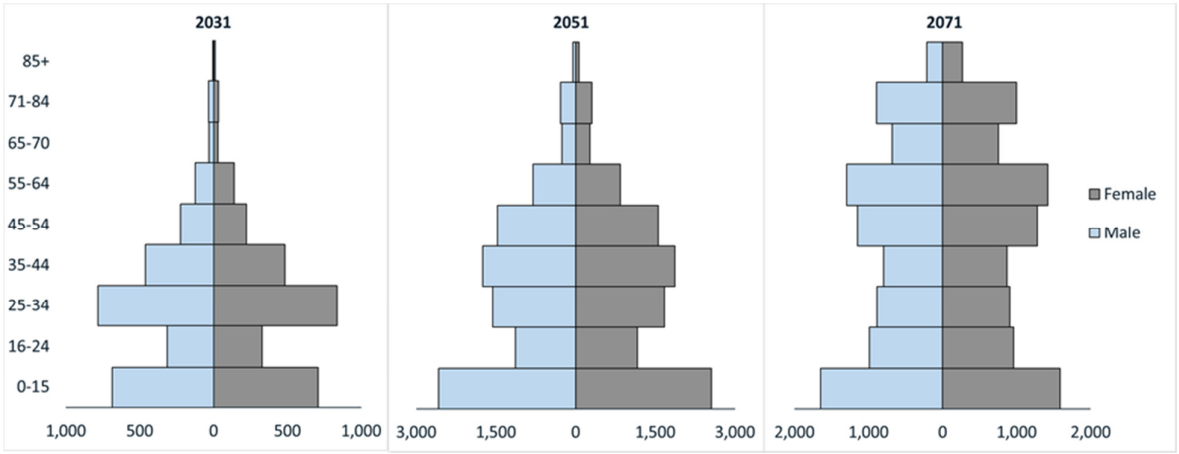
Figure 2.15: Dwellings, Population, Households and Labour force



Source: Cambridge Econometrics.

Over the development period, the population profile will become more balanced. After building is completed in 2052, the population will continue to age, increasing the number of people aged over 70 in the settlement and

Figure 2.16: Population Pyramids in 2031, 2056 and 2076



Note: The second time period reflects when the settlement is completed, and the third period is 20 years after completion.

Source: Cambridge Econometrics.

reducing the number of under 24 year olds (see Figure 2.16).

Households In this scenario, as the population ages, the proportion of households without children tend to increase over time, while those with children decrease (see Table 2.7).

Table 2.7: Proportion of households by type

	2026	2031	2041	2051	2061	2071	2081
1 adult of pensionable age and no children	2%	3%	4%	5%	9%	15%	19%
1 adult of non-pensionable age and no children	21%	21%	22%	22%	20%	16%	13%
1 adult of non-pensionable age and 1 adult of pensionable age and no children or 2 adults of pensionable age and no children	2%	2%	4%	5%	9%	15%	20%
2 adults of non-pensionable age and no children	14%	13%	11%	11%	10%	10%	8%
3 or more adults and no children	5%	5%	6%	7%	8%	8%	7%
Households with 1 dependent child	25%	25%	25%	23%	19%	15%	13%
Households with 2 dependent children	18%	18%	17%	16%	14%	10%	8%
Households with 3 dependent children	8%	7%	6%	5%	4%	3%	3%
Other households	5%	5%	5%	6%	6%	7%	8%

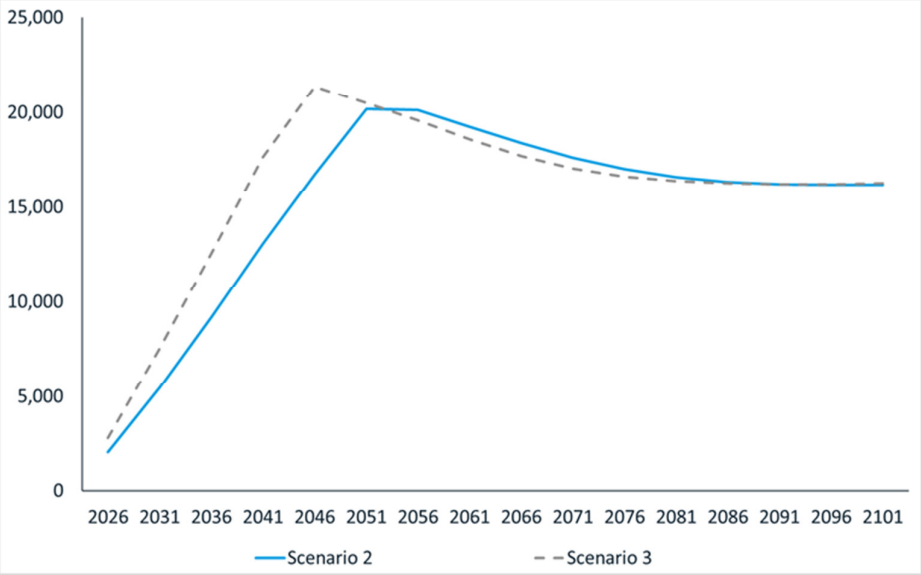
Source: Cambridge Econometrics.

Scenario 3

Scenario 3 was based on an accelerated dwellings trajectory, targeting 3,460 dwellings by 2033, using the same build-out profile as in Scenario 2. Under this scenario, the settlement is completed by 2045 (seven years earlier than in Scenario 2) with a total of 8,200 houses being built. The advantage of using an accelerated rate is to see how different the demographic profile might look like if the settlement is completed earlier.

As more houses are completed at each stage of development in Scenario 3 than in Scenario 2, more people start moving into the new settlement earlier. Population growth reaches its peak by 2045 at a faster rate than in Scenario 2 (see Figure 2.17).

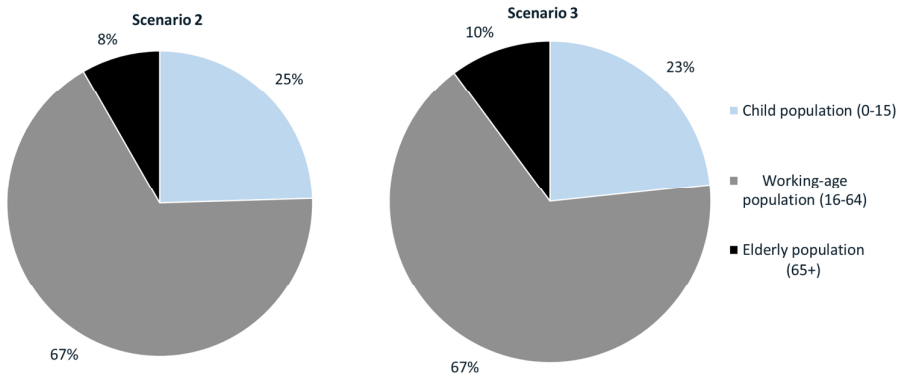
Figure 2.17: Total population in Scenario 2 and 3



Source: Cambridge Econometrics.

There is a marginal bias towards older age bands in Scenario 3 (which finished being built seven years earlier than in Scenario 2), as the population of the settlement starts to age sooner in this scenario. By 2056, when the settlement has finished being built in Scenario 2, there is a larger proportion of elderly population and a smaller proportion of child population in Scenario 3 than in Scenario 2 (see Figure 2.18).

Figure 2.18: Population in Scenario 2 and Scenario 3 at the end of 2056

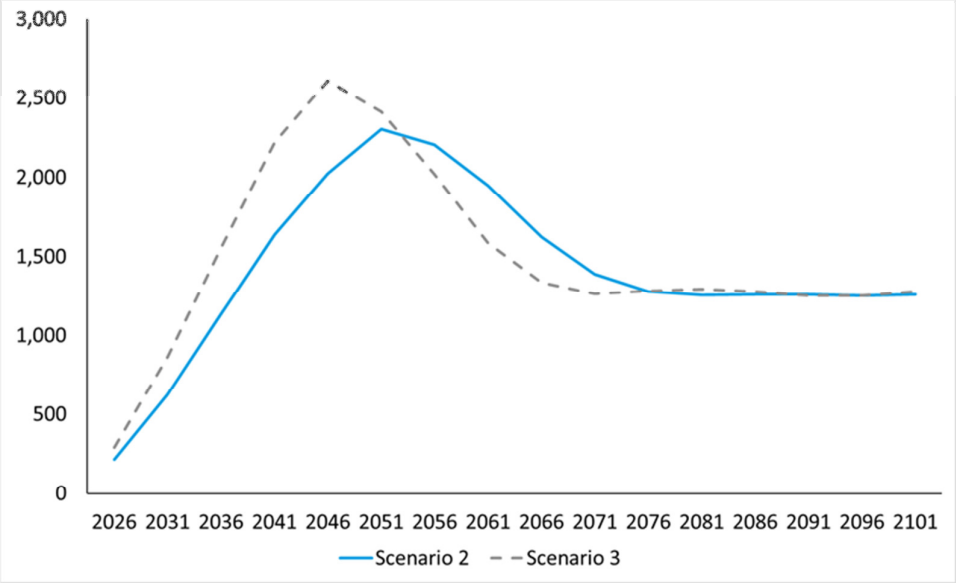


Source: Cambridge Econometrics.

Child population

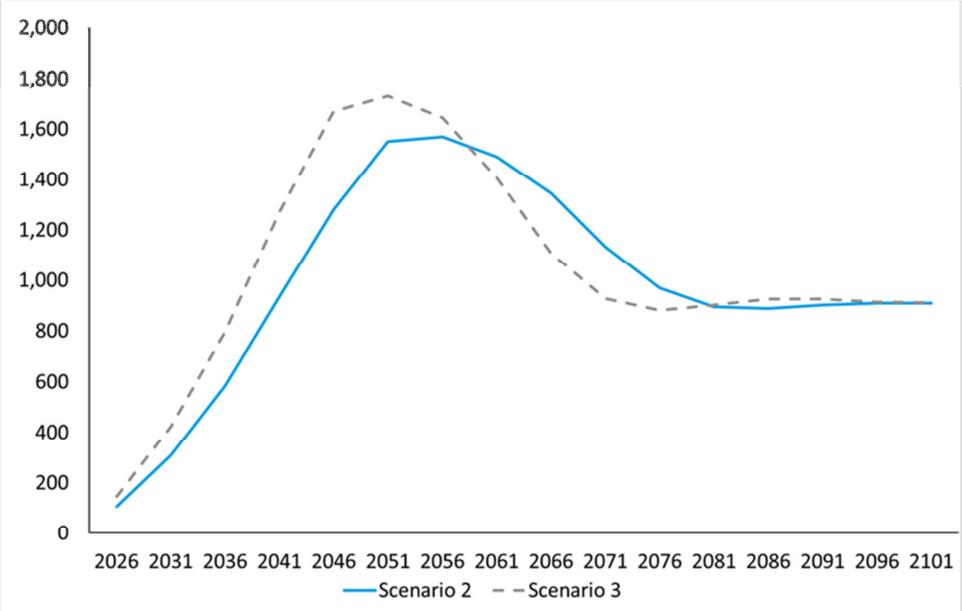
One major impact of the accelerated build-out rate is on child population growth and its implication for school requirements. During the earlier phases of the development, there is likely to be faster growth in children of primary and secondary school age in Scenario 3 than in Scenario 2, as younger adults moving in are more likely to bring children with them or form families shortly after moving in (see Figure 2.19 and Figure 2.20). By the time the settlement is completed in each scenario, the child population in primary and secondary education is considerably larger in Scenario 3 than in Scenario 2. Thereafter, as the population starts to age, the number of children of primary and secondary school age declines more steeply in Scenario 3, resulting in a much lower requirement for local schools.

Figure 2.19: Child population of primary school age (4-10)



Source: Cambridge Econometrics.

Figure 2.20: Child population of secondary school age (11-15)

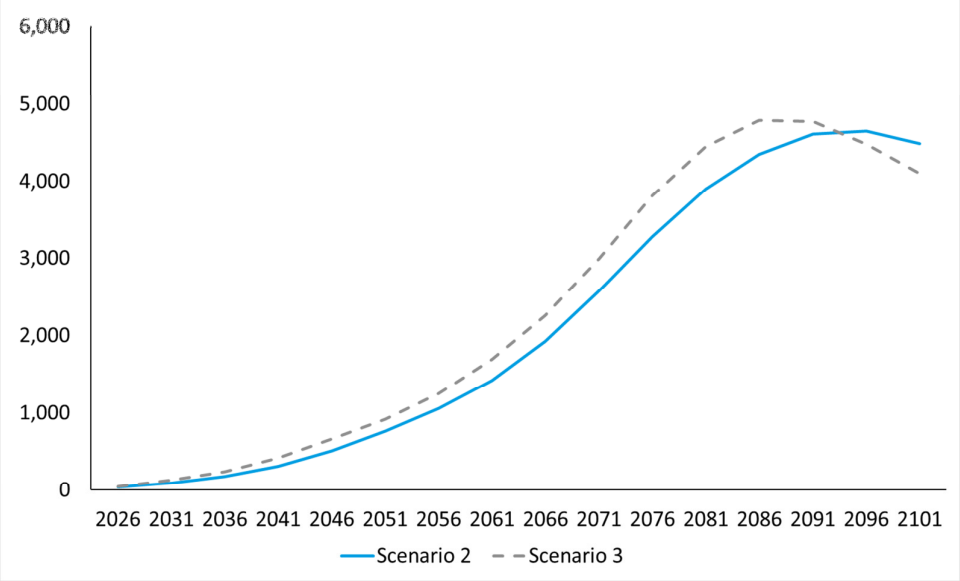


Source: Cambridge Econometrics.

Elderly population

The number of people aged 70 and over would grow at a faster rate in Scenario 3 than in Scenario 2, as more people move in during the early phases of the development and the existing population starts to age (see Figure 2.21). As a result, at its peak (around 40 years after building is completed in each scenario), the elderly population is slightly larger in Scenario 3, resulting in a higher requirement for public service provision for the elderly.

Figure 2.21: Elderly (70+) population in Scenario 2 and Scenario 3



Source: Cambridge Econometrics.

Households

As the population starts ageing sooner in Scenario 3, there is a smaller proportion of households with children by 2056 (see Table 2.8). In the longer term, the household composition in Scenario 3 becomes very similar to that in Scenario 2.

During the initial development period of the settlement, average household size is between 2.7-2.9 people. This is higher than the Tendring and Colchester district average (2.3 people), as the community is assumed to be settled largely by young families. As the population starts to age, household size starts to fall.

Table 2.8: Proportion of households by type in Scenario 2 and 3

	2056		2101	
	Scenario 2	Scenario 3	Scenario 2	Scenario 3
1 adult of pensionable age and no children	7%	8%	23%	24%
1 adult of non-pensionable age and no children	21%	21%	13%	13%
1 adult of non-pensionable age and 1 adult of pensionable age and no children or 2 adults of pensionable age and no children	7%	8%	19%	18%
2 adults of non-pensionable age and no children	11%	10%	7%	7%
3 or more adults and no children	8%	8%	6%	6%
Households with 1 dependent child	21%	20%	13%	13%
Households with 2 dependent children	15%	15%	9%	9%
Households with 3 dependent children	5%	4%	3%	3%
Other households	6%	6%	7%	7%

Source: Cambridge Econometrics.

3 Approach to analysing future employment

As well as considering the future demographic profile of the three Garden Communities, the central question for this study is: **how will future employment be created, in order to achieve the one job per dwelling aspiration**? As the Garden Communities are being planned for the long term, answering this question needs a 40-year view, albeit recognising that there will be early delivery within the current Plan period.

This chapter is structured in two parts. The first part sets out a broad framework for considering future employment. Based on this framework, the second introduces three employment scenarios, which are described further and quantified in Chapter 4.

3.1 A framework for considering future employment growth

Five main considerations underpin the approach adopted in this study to the analysis of future employment, summarised in Table 3.1 below and described further in the paragraphs that follow.

Table 3.1: Considerations in analysing future employment growth

Key considerations	Issues
1. How is employment generated?	New employment may be *population-driven* (i.e. responding to increased local demand) or it may support production or services oriented to wider markets
2. What is a realistic employment catchment area for each Garden Community?	Some new employment will be created within each Garden Community and some will be accessed by Garden Community residents. But given the Communities' proximity to existing centres, there is likely to be some travel to work in neighbouring towns
3. How is the nature of employment likely to change over time?	While employment forecasts are quantitative, there will also be qualitative change (for example in relation to home or remote working). This will have implications for future employment land provision
4. How can trend-based future growth be balanced with aspirational growth?	The Garden Communities reflect aspirations for higher-value employment and greater productivity. But achieving these aspirations will rely on 'other things happening' and may require a broader range of interventions
5. How does the development of the Garden Communities relate to the wider economic development of North Essex?	The Garden Communities could provide employment opportunities for existing North Essex residents and may build on the opportunities presented by existing local institutions. This may (for example) have implications for the development of local transport systems

Source: SQW.

Consideration 1: How is employment generated?

Employment may be 'housing-led' (i.e. driven by demand for increased public and consumer services created by population growth) or driven by the production of goods and services in response to external markets. At individual Garden Community level, there are potentially four ways in which employment may be created:

- *within organisations serving national, international or regional markets (i.e. through activities that are concerned with the production of goods or provision of services that are mostly sold outside the area and do not compete with each other locally)*[8]: generally, demand for employment within this category is not linked with demand from the development itself;
- *within commercial enterprises which respond to local demand (such as convenience retail)*;
- *within public services, primarily responding to local demand*;
- *within activities directly connected with the construction of the site*.

For each of these, employment may be located:

- on-site, at a fixed location (i.e. within fixed local public service centres, such as schools, care homes, etc.) or within commercial employment floorspace (warehouses, offices, production units, etc.)
- off-site, at a fixed location (i.e. in regionally-provided public services or other industry)
- on-site, through home working (or through peripatetic work with no fixed base, such as in parts of the care sector)

[8] This category might include non-commercial organisations (e.g. public services catering to national or regional markets), as well as commercial firms, since these would still not be reliant on local demand to sustain employment.

Table 3.2 summarises these categories within a broad typology of employment.

Table 3.2: Typology of employment

	Type of location		
Type of employment	**Fixed location (on site)**	**Fixed location (off site)**	**Home based or peripatetic**
Type 1: Goods/services sold in regional/ national/ international markets	Commercial/ office/ workshop/ production	Commercial/ office/ workshop/ production Comparison retail	Self-employed 'office-based' Employed home-workers
Type 2: Goods/services sold in local markets	During Plan period: Local retail Local commercial services (banks, etc.) + longer term: Comparison retail	Some local retail Comparison retail Most general commercial services	Self-employed personal services
Type 3: Public services	During Plan period: Pre-school facilities Adult care facilities GP surgery Schools (primary/ secondary) + longer term: FE Public administration	Acute health care Public administration (central/ local) Blue light services HE/FE Secondary education	Personal social services
Type 4: Construction	On-site construction	Off-site construction, related activities (e.g. electrical trades, etc.); construction support	-

Source: SQW.

Implications

Local demand-driven employment can be forecast on the basis of the demographic projections set out in Chapter 2. However, future prosperity largely depends on the extent to which employment can be generated in activities that serve wider markets, rather than rely on local consumption. The scenarios modelled in later chapters therefore focus more on exogenous employment growth. These largely depend on local competitive strengths, such as workforce skills, the local research base and proximity to other centres of economic activity.

Consideration 2: What is a realistic employment catchment area for each Garden Community?

The Garden City Principles defined by the Town and Country Planning Association include provision of "*a strong local jobs offer in the Garden City itself, with a variety of employment opportunities within easy commuting distance of homes*"[9]. More generally, the National Planning Policy Framework states that planning policies should aim for a balance of uses within an area, so that journey times to employment are minimised[10]. Reflecting this, the North Essex local planning authorities have adopted an overall target of one job per new dwelling.

Travel to work areas and commuting patterns

Current commuting patterns across North Essex are complex. The three Garden Communities fall within three 2011 census-based travel to work areas (TTWAs): Clacton (covering Tendring), Chelmsford (covering Braintree) and Colchester. For full-time workers, the 'alternative TTWA' centred on Colchester essentially maps onto the combined North Essex local authority area, reflecting the greater distances generally travelled by full-time employees.

However, employment opportunities available to Garden Community residents will extend beyond the standard or alternative TTWAs: the West of Braintree Garden Community is, for example, almost exactly on the border of the Colchester, Cambridge and Chelmsford/ South Essex alternative full-time TTWAs11. At present:

- From **Braintree**, the main commuter destinations are – at district level – Chelmsford, Uttlesford, Colchester and London, with further outflows to districts along the M11 Corridor, such as Harlow and East Herts
- **Tendring's** main outflow is to Colchester, with relatively small numbers travelling to other districts, and relatively low levels of London commuting
- **Colchester** is relatively self-contained, with the main commuter destinations being the neighbouring districts of Tendring, Braintree and Chelmsford, as well as some commuting to London. Tendring is the largest origin of in-bound commuters

In addition to *current* commuting patterns, expanded economic activity within a reasonable travel time of the Garden Communities could provide employment opportunities for Garden Community residents; conversely, new jobs directly associated with the new Communities will attract employees from a wider area. Within a 30-minute car journey, quite a wide range of employment destinations are available to the Garden Communities:

[9] TCPA (2012), *Creating Garden Cities and Suburbs Today*, p.7

[10] DCLG (2012), NPPF, para. 37

[11] ONS. See

http://ons.maps.arcgis.com/apps/MapSeries/index.html?appid=397ccae5d5c7472e87cf0ca766386cc2

Table 3.3 Driving times from North Essex Garden Communities

	West of Braintree	Colchester Braintree Borders	Tendring Colchester Borders
Under 30 minutes	Braintree, Chelmsford, Stansted, Bishop's Stortford, Colchester	Colchester, Chelmsford, Braintree	Colchester, Harwich
30-60 minutes	Harlow, Cambridge, Basildon, Romford	Ipswich, Harwich, Basildon, Romford, Southend, Stansted	Chelmsford, Braintree, Ipswich, Stansted

Source: SQW, AA. Based on approximate points of origin at Blake End (West of Braintree), Marks Tey and Crockleford Heath (Tendring Colchester Borders).

In addition, from the existing railway station at Marks Tey on the GEML, Shenfield (for Crossrail) is accessible in just over 30 minutes, Romford in 39 minutes, Stratford in 47 minutes and London Liverpool Street in 59 minutes. Much of the eastern side of London (including areas of significant planned employment growth around Stratford) is therefore reasonably accessible, at least from Colchester Braintree Borders, although the West of Braintree and Tendring Colchester Borders sites are more distant from stations offering London connections.

Implication for the employment scenarios

Given relatively short commuting distances, a number of other centres (including London) are likely to be of some importance to the NEGCs, even in the context of a general desire to limit out-commuting; conversely, new employment opportunities within the NEGCs may draw from a wider labour market catchment.

Given the TCPA principles, the employment scenarios set out in Chapter 4 take into account employment which could reasonably be located within a local bus journey or MRT ride from the Garden Communities, using the North Essex district boundaries as proxies for the limits of a short local public transport journey. This means that (for example) potential employment growth in central Colchester is local and relevant to the Tendring Colchester Borders and Colchester Braintree Borders sites. The employment scenarios also take account of employment that may be generated within the vicinity of the Garden Communities as a consequence of other developments further afield (for example, employment that may be located in Braintree as a result of the expansion of Stansted airport).

Consideration 3: How is the nature of employment likely to change over time?

The nature of economic activity in North Essex – as elsewhere in the UK – has changed significantly over recent decades; the local economy (other than the public sector) is strongly dominated by SMEs within the service sector, despite the maintenance of a somewhat higher level of industrial activity in Braintree. Looking to the future, there are three overarching factors linked with the changing nature of the economy that are relevant in considering future employment:

- the nature of the **economic output** that will be generated in the area and will require labour input. In other words, which economic sectors are likely to grow or contract, and what will be the drivers of growth

- the nature of the **labour activity** that will take place. Most simply, this relates to occupation, likely skill level (measured by qualification) and the extent to which this implies higher or lower value jobs. But it will also mean changes in the *nature* of work (for example, from production-related to service-related in the same sector, from employment to self-employment, or from fixed-based to flexibly located)
- the way in which **firms organise economic activity**. Firms increasingly outsource activity, including innovation and new product development. On the one hand, increasing decentralisation creates the opportunity for new business development in locations remote from major company facilities. On the other, there is increasing demand for opportunities for smaller firms to work together and collaborate.

Implication for the employment scenarios

As aspiration for employment associated with the Garden Communities is expressed in quantitative terms: one job per dwelling. However, jobs may be more or less labour-intensive, value adding or susceptible to technological innovation; at the same time, the existing labour stock (i.e. the skills of the workforce) will help to drive demand within specific sectors. Employment scenarios are therefore likely to be *qualitatively* as well as *quantitatively* different; the implications of this for each scenario are explained in Chapter 5.

Consideration 4: How can trend-based projections be balanced with aspirations for economic development?

The North Essex Garden Communities are intended to be an aspirational response to meeting housing need. Local partners stressed in consultation the association between the development of the Garden Communities and the need to redress the current imbalance between (higher) population growth and (lower) employment growth, as well as North Essex's relatively weak productivity. However, the most *likely* sources of market-driven employment growth may not yield the optimum outcome from the perspective of local stakeholders. This is especially likely to be the case for the Garden Communities, given that they will be built out over a long period and are – at least in their early stages of development – likely to offer comparatively lower cost housing. At the same time, the NPPF requires local plans to be 'aspirational but realistic'[12].

Implications for the employment scenarios

The scenarios set out in Chapter 4 therefore reflect both trend-based and 'aspirational but realistic' approaches, recognising that for the latter to be realised, a broader range of interventions to support local economic development will be needed.

Consideration 5: How do the Garden Communities relate to the wider economic development of North Essex?

The Garden Communities will make a significant contribution to North Essex's overall population base – potentially over 96,000 residents once the settlements are complete. Linked with partners' aspirations for economic growth, employment located within the Garden Communities could provide opportunities for existing residents, including those in areas with currently limited employment prospects (such as parts of coastal Tendring). This study

[12] DCLG (2012), NPPF, para. 154

does not provide an economic strategy for North Essex; however, the employment scenarios (and the aspirations and assumptions that are associated with them) could help to inform the development of a broader strategy.

3.2 Introducing the employment scenarios

Taking into account the five considerations above, three broad employment scenarios have been developed. These have been quantified to 2050 using Cambridge Econometrics' Local Economy Forecasting Model, which analyses employment growth through 45 economic sectors, taking into account demographic change and historic trends. The details of the three scenarios are set out in the next Chapter; in summary they are:

- **Scenario 1**: 'Business as Usual' (the baseline trend-based forecast)
- **Scenario 2**: 'Business as Usual + A120 improvements' (a scenario taking into account the additional employment that may be generated as a result of the dualling of the A120 between Braintree and Colchester)
- **Scenarios 3a and 3b**: 'Potential Unlocked' (an aspirational scenario taking into account the potential for further, higher value employment growth)

Defining economic areas for modelling purposes

As set out above, while the Garden Communities are expected to offer a balance between housing and employment, some employment meeting the 'one job per dwelling' target is expected to be met within a reasonable local journey time.

Taking into account current travel-to-work patterns and proximity to existing centres, two 'economic areas' have been defined for modelling purposes. With the agreement of our Steering Group, these are proxied through two local authority districts (and hence they do not "add up" to the whole of North Essex):

- The **West of North Essex** economic area includes the West of Braintree Garden Community and its hinterland. *Braintree local authority district has been used as the spatial proxy and the unit within which the scenarios have been quantified* (broadly reflecting the area accessible within a short public transport journey from the West of Braintree site). The **West of North Essex** economic area has good connections to Stansted, the M11 Corridor and Cambridge, as well as eastwards to Colchester and south to Chelmsford.
- The **Central East of North Essex** economic area includes both the Colchester Braintree Borders and Tendring Colchester Borders Garden Communities, recognising the close links between both Communities and Colchester itself. Although the Tendring Colchester Borders site extends substantially into Tendring (in fact, the majority of the site is in Tendring district), *simply for modelling purposes, Colchester local authority district (only) has been used as the spatial unit within which the scenarios have been quantified*. This reflects the strong economic association with Colchester and the relatively weak trend-based employment growth associated with Tendring. The **Central East of North Essex** economic area is primarily focused on Colchester as the primary regional centre, with

connectivity to Chelmsford and London (and northwards to East Anglia) via the A12 and GEML.

Identifying comparator locations

To develop the scenarios, we have reviewed the LEFM economic forecasts for a number of comparator areas. These areas have been selected using the 2011 census Area Classifications analysis, which clusters local authority districts into eight 'supergroups' with similar socio-economic characteristics, and include a combination of districts with strong *similarities* and districts with strengths in particular sectors which reflect the expressed aspirations of North Essex stakeholders[13]. The comparator areas have been used to help identify where there is stronger (or weaker) anticipated growth in key sectors in similar locations, to help inform inputs into alternative scenarios for North Essex.

For the **West of North Essex** economic area, the comparator locations are primarily smaller towns benefiting from proximity to airports or other transport infrastructure. For the **Central East of North Essex** they include cities with post-Robbins Report universities (such as Kent and Sussex) and with strengths in tourism-related and creative industries:

Table 3.4: North Essex comparator locations

West of North Essex Economic Area	Central East of North Essex Economic Area
Brentwood: Near neighbour, benefits from good transport connections and proximity to London	**Bath and North East Somerset:** University city, significant knowledge economy and tourism base
Chelmsford: Near neighbour, sharing growth opportunities and sector strengths	**Brighton and Hove:** University city, good access to London and Gatwick. Rapid expansion of creative sector and a significant regional centre.
Cherwell: Rapid growth, associated with expansion of Oxford and South Midlands	**Canterbury:** Rapid recent growth of universities; established tourism/ leisure market
Horsham: Higher value economy, linked with proximity to Gatwick and access to London	**Cheltenham:** Major sub-regional retail and leisure destination with significant knowledge economy (and military industrial sector)
Rugby: Strengths in logistics, linked with proximity to road and rail infrastructure and Birmingham airport	**Winchester:** Historic sub-regional centre with good rail access to London

Source: SQW.

[13] ONS, 2011 Area Classification for Local Authorities. Methodology and spreadsheet available at www.webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/guide-method/geography/products/area-classsifications/ns-area-classifications/ns-2011-area-classifications/about-the-area-classifications/index.html

4 Employment scenarios

This Chapter sets out in detail the three employment scenarios for **West of North Essex** and **Central East of North Essex**, the quantitative employment forecasts associated with them to 2050. It also identifies the implications of each scenario for economic development within the two economic areas and the risks and dependencies associated with them.

4.1 Scenario 1: 'Business as Usual'

Scenario 1 is the 'baseline' scenario. It assumes that economic growth continues to follow current trends, within the context of a growing (and ageing) population.

Table 4.1 "Business as Usual" scenario for West of North East and Central East of North Essex

	West of North Essex	Central East of North Essex
Total employment		
Total employment (2016)	67,600	99,200
Total employment (2033)	72,000	109,400
Total employment (2050)	77,700	118,400
Forecast employment growth		
CAGR 2016-33	0.4%	0.6%
CAGR 2016-50	0.4%	0.5%

Source: SQW and Cambridge Econometrics.

Scenario 1 in the West of North Essex

Overall employment

Within the **West of North Essex** economic area, overall employment according to the 'business as usual' forecast will increase by 20,900 over the 2011-50 period (36.8%), and 15,200 (26.8%) in the period from 2011 to 2033.

Sector growth

Generally, 'business as usual' indicates a contraction in employment in manufacturing, a sector which has sustained employment against the national trend in recent years, and which has a generally higher than average share of employment. Contraction or modest growth is forecast in the area's significant logistics-related sectors (such as land transport, warehousing and wholesale). Growth is largely focused on the service sectors, in activities mainly focused on local markets (such as food and beverage services and real estate), those geared to wider markets (such as head office functions) and those likely to incorporate elements of both (such as IT and architecture and engineering services). Construction is also forecast to expand rapidly, linked with high levels of housing and commercial development in the wider region. Table 4.2 illustrates forecast growth by major sector and by 'employment type' as set out in Chapter 3:

Table 4.2: Scenario 1 in the West of North Essex: Employment change in major sectors

	High growth	Modest growth	Contraction
Type 1: Goods/ services sold in regional/ national international markets	Head offices and management consultancies Architectural and engineering services	Warehousing and postal	Manufacturing Land transport
Type 2: Goods/ services sold in local markets	Motor vehicles trade Food and beverage services IT services Finance/ real estate	Retail Recreational services	Wholesale Legal and accounting
Type 3: Public services	Residential and social Public administration		Health Education
Type 4: Construction	Construction		

Source: SQW and Cambridge Econometrics.

Issues and risks

The 'business as usual' scenario is one of modest employment growth, from a starting-point in which there is already significant out-commuting, particularly to London and Chelmsford, and in which there is an imbalance between relatively higher-wage commuters and those working (generally for lower wages) locally. While the sectoral shift forecast in the baseline scenario may help to close this gap (for example, through the expansion in employment anticipated in professional services), the overall employment increase is relatively limited and unlikely to mean a major change in the area's economic profile.

Scenario 1 in Central East of North Essex

Overall employment

In the **Central East of North Essex**, employment is forecast to increase by 32,000 in 2011-50 (an increase of 37%), and by 23,000 in 2011-33 (an increase of 26.6%).

Sector growth

Employment growth is forecast to be strong in professional services and IT, and the tourism, retail, leisure and culture-related sectors, reflecting the current growth of the University and Colchester's expansion as a regional centre. Public service (education, health, social care and administration) and construction also expands, the latter underpinned by wider regional development demand, as in the **West of North Essex**. Logistics-related activity grows modestly, while the area's relatively small manufacturing sector continues to contract in employment terms. Table 4.3 illustrates growth by major sector and broad employment type:

Table 4.3: Scenario 1 in Central East of North Essex: Employment change in major sectors

	High growth	Modest growth	Contraction
Type 1: Goods/ services sold in regional/ national international markets	Head offices & mgt consultancies Architectural and engineering services Other prof services Arts Agriculture etc	Warehousing & postal	Land transport Media Manufacturing
Type 2: Goods/ services sold in local markets	Food and beverage services IT services Real estate Business support services	Motor vehicles trade Wholesale Retail Legal and accounting	Finance and insurance
Type 3: Public services	Health	Public admin & defence Education Residential & social Recreational services	
Type 4: Construction	Construction		

Source: SQW and Cambridge Econometrics.

Issues and risks

In general, the direction of the 'business as usual' forecast reflects the broad economic development strategy for Colchester, particularly the focus on growing the creative economy, growing the town's regional role and investing in the digital infrastructure likely to underpin growth in the media and IT sectors[14]. However, within Colchester itself, there is an imbalance between population growth and employment growth: relatively modest job growth rates mean that this is unlikely to be bridged on the 'business as usual' scenario. It is also worth noting that while the **Central East of North Essex** forecasts are those for Colchester borough, reflecting the likely economic orientation of the Colchester Braintree Borders and Tendring Colchester Borders towards Colchester, there is already a significant labour inflow to Colchester from Tendring, but relatively low employment growth in Tendring itself. So business as usual is likely to lead to expansion of some of the area's priority sectors – a move in the right direction, and in line with strategy – but is unlikely to be sufficient to overcome the current employment shortfall or the high number of relatively low-wage retail and other service sector jobs as a proportion of overall employment.

4.2 Scenario 2: 'Business as Usual + A120 improvements

Scenario overview

Scenario 2 takes into account the delivery of the dualling of the A120 between Braintree and the A12. This stretch of the A120 – which provides the strategic link between the three proposed Garden Communities - operates at above capacity and suffers from severe congestion. A feasibility study is currently

[14] Colchester Borough Council (2015), *Colchester Economic Growth Strategy 2015-21*

underway to consider potential solutions, so that recommendations can be made to Government for the inclusion of an improvements scheme within the 2020-25 Roads Investment Strategy[15].

There is evidence that congestion on the A120 acts as a constraint on development, and therefore on new employment creation. In particular, the *Braintree District Employment Land Needs Assessment* found that the dualling of the A120 offers an opportunity to increase Braintree's job density in all sectors, with the most significant opportunities likely to be in:[16]

- **Warehousing and distribution**, linked with access to the Haven Gateway ports. This could be driven both by the Ports' expansion plans (including increased container handling capacity) and by relocation as a result of the improved road (currently, the condition of the A120 appears to limit freight volumes, which are more likely to use the A14 instead)
- **Manufacturing,** based on the potential for Braintree to capture some of the supply chain linkages associated with Port expansion, such as renewable energy

In addition, improvements to local connectivity are likely to yield employment benefits. In particular, improved access from Braintree (including the West of Braintree Garden Community) to Colchester is likely to lead to some increase in employment through agglomeration effects. Access from Colchester to Stansted Airport will also be improved: currently, Stansted appears to be of relatively limited economic importance in firms' decisions to invest in Colchester and Tendring, although more reliable access, coupled with the airport's expansion, could change this. Improvements in public transport will also play a role.

Quantifying the employment impacts

Impact assumptions

To estimate the employment impacts of improvements to the A120, we have assumed that the earliest that a new route east of Braintree will open is 2025. We have then assumed new investment in logistics-related activities (the land transport and warehousing and postal sectors), such that:

- Around 2,800 direct jobs are created in logistics (split between the relevant sectors). This is equivalent to two additional developments the size of Eastlink (based on developer estimates of job creation), although actual employment may be dispersed between new developments on the new A120 route itself and elsewhere in North Essex.
- From 2025, the annual rate of growth in the land transport and warehousing and postal sectors increases to 1% in both the **West of North Essex** and **Central East of North Essex** economic areas, reflecting the changed competitiveness of the area as a location for logistics activity relative to other locations on the A14. This higher growth rate is equivalent to LEFM forecast sector growth in Rugby and Horsham, comparator areas to **West of North Essex** with similarly large transport and logistics sectors but without equivalent constraints to the A120.

[15] Essex County Council, www.a120essex.co.uk

[16] AECOM/ Braintree District Council (August 2015), *Braintree District Employment Land Needs Assessment: Final Report*

We have not however directly assumed a change in sector growth rates to account for any additional manufacturing employment (which is likely to be small, and insufficient to offset the general forecast diminution of manufacturing jobs).

Employment impacts

Taking this additional sector growth into account, employment is forecast to rise in Scenario 2 by around 18,000 over the period to 2050, as follows:

Table 4.4: Employment impact of Scenario 2

	West of North Essex			Central East of North Essex		
	2011	2033	2050	2011	2033	2050
Scenario 1 (Baseline)	56,800	72,000	77,700	86,400	109,400	118,400
Scenario 2 (+A120)	56,800	74,700	83,500	86,400	114,000	130,700
Difference	0	2,700	5,800	0	4,600	12,300

Source: SQW and Cambridge Econometrics.

Issues and risks

An increase in logistics employment is plausible, given the strength of the sector locally (especially in Braintree) and generally high growth rates. Regardless of the uncertainties following Brexit, the Haven Gateway ports are major points of entry to the UK and will remain so, there are likely to be time advantages to some operators in using the A120, and there may also be further benefits (not modelled in this scenario) from developments at the Haven ports themselves. The impact of improving the A120 is significant, and will support additional employment.

However, three issues should be noted. First, the impact of the A120 improvements alone essentially amounts to a scale increase on the 'business as usual' scenario, rather than a qualitative change in the nature of employment: on its own, the A120 is unlikely to lead to a transformation in the local economy. Second, *current* operations in logistics are fairly labour intensive, although new technology (driverless vehicles, etc.) could lead to a substantial productivity-driven fall in labour requirements (potentially at the same time as an increase in skills demand). Third, while the A120 will improve ease of access to jobs by Garden Community residents (especially, but not only, from West of Braintree to opportunities in Colchester), this is likely to be car-borne and therefore outside the TCPA employment principles, unless additional investment is made in some form of North Essex transit system.

4.3 Scenario 3: 'Potential Unlocked'

The third scenario that we have modelled takes into account the delivery of a number of other economic development aspirations, in addition to the completion of the A120 improvements. The third scenario comprises substantially different elements in the **West of North Essex** and **Central East of North Essex** economic areas, so we describe below:

- Scenario 3a: Potential Unlocked in the **West of North Essex**
- Scenario 3b: Potential Unlocked in the **Central East of North Essex**

Scenario 3a: 'Potential Unlocked' in the West of North Essex

Scenario overview

Scenario 3a takes into account three major opportunities, which could have significant implications for growth in and around Braintree. All of these are focused to the west, towards developments in the M11 Corridor.

Opportunity 1: Expansion of London Stansted airport

Currently, London Stansted employs around 10,800 people on site in around 190 separate employers. The airport's *Sustainable Development Plan* (2015) estimates that the expansion of the airport to 45 million passengers per year could create a further 10,000 jobs on-site by 2030[17]. The airport is already a significant commuter destination from Braintree: two-thirds of employees on site live in Uttlesford, Braintree or East Herts, and expansion would obviously create further commuting opportunities for Braintree residents.

With regard to employment in the vicinity of the West of Braintree Garden Community itself, the Braintree Employment Land Needs Assessment anticipates that the main driver of economic links between Braintree and Stansted as a result of the airport's expansion is through logistics operations. The airport is already the UK's third largest freight airport, and expansion of freight volumes could further increase logistics demand in the district. This would augment the benefits to the logistics industry from the improvements to the A120 set out in Scenario 2 (for example, there is already a distribution centre for the aviation industry at Coggeshall Industrial Estate, between Braintree and the A12)[18].

More broadly, analysis by Oxford Economics in 2013 highlighted the importance of the financial and business services and manufacturing sectors to Stansted's supply chain, and noted the likelihood of high value sectors potentially choosing to locate in the vicinity of the airport[19]. At present, there is little evidence of businesses choosing to locate in the Braintree area to take advantage of the international connectivity that the airport provides, although this may be linked with the airport's current focus on the low cost and leisure markets. Since acquisition by Manchester Airports Group, the airport has become more ambitious for growth (as set out in the *Sustainable Development Plan*); potentially, realisation of its aspirations for longer-haul and more business-oriented services could increase the West of Braintree area's attractiveness as a business location.

Opportunity 2: Expansion of activities associates with Cambridge

Cambridge is around 40 miles from the West of Braintree site (so over an hour in normal commuting times), and while road access via the A120 and M11 is good, there is no direct rail connection. However, growth is strong, driven by the city's concentration of research and innovation-intensive businesses and education strengths. Cambridge is substantially constrained in housing supply,

[17] MAG (2015), *Sustainable Development Plan 2015*

[18] Activities directly related to the airport (such as catering and maintenance) tend to locate on-site or in very close proximity, and are unlikely to be attracted to the West of Braintree vicinity, which is 13 miles away (see Braintree ELNA, and comparisons with direct airport-related employment in Horsham, a similar distance from Gatwick).

[19] Oxford Economics/ London-Stansted-Cambridge Consortium (2013), *Economic Impacts of Stansted Scenarios*, p.5

and – although growth is planned – there are likely to face continuing constraints into the future.

There is some evidence of demand for business space linked with Cambridge extending south into Essex, particularly at Great Chesterford Research Park, north of Saffron Walden. This has capacity for expansion (c.15ha), with demand for R&D facilities strongly associated with the Cambridge science and research market[20]. To date, there has been little similar development south of Great Chesterford, although Cambridge's continued growth, plus the opportunities associated with the expansion of the airport, could make the **West of North Essex** area a more attractive proposition.

Opportunity 3: Wider opportunities in the M11 Corridor and beyond

More generally, the expansion of opportunities in the M11 Corridor offers potential for growth around Braintree, for example linked with the expansion of the medtech sector, which has a growing presence at Harlow (as well as at Chelmsford). However, the M11 Corridor is potentially a source of competition as well as demand: just outside Harlow (and functionally linked with it, although administratively within East Herts), a new garden town was announced at Gilston in January 2017, which could appeal to similar employment demand as West of Braintree.

Quantifying the employment impacts

Impact assumptions

As well as the additional employment assumed within Scenario 2, we have assumed:

- Higher growth in the **IT sector**, following Stansted expansion and the completion of the A120, and linked with Cambridge demand. Specifically, we have assumed an increase in the annual growth rate to 0.6% from 2025, the equivalent to Brentwood (the nearest neighbour to Braintree in terms of the size of its IT sector)
- Additional growth in **other professional services**, which includes R&D-related employment. Specifically, we have assumed the gradual development of a notional facility equivalent in size to the Great Chesterford Research Park, to be built out at around 200 jobs per year over ten years, and associated with the delivery of Stansted Airport's expansion plans.

[20] AECOM/ Uttlesford District Council (July 2016), *Uttlesford District Employment Land Review Update 2016*, p.53

Employment impacts

Taking this additional sector growth into account, employment is forecast to rise in Scenario 3a by around 8,300 over 'Business as Usual' over the period to 2050, as follows:

Table 4.5: Employment under different scenarios in West of North Essex

	2011	2033	2050
Scenario 1 (Baseline)	56,800	72,000	77,700
Scenario 2 (+A120)	56,800	74,700	83,500
Scenario 3a (Potential Unlocked)	56,800	77,400	86,000
Difference over Scenario 1	0	5,400	8,300
Difference over Scenario 2	0	2,700	2,500

Source: SQW and Cambridge Econometrics.

Issues and risks

The assumptions made in quantifying Scenario 3a are conservative, reflecting the high level of uncertainty that is contained within them. In particular, the gains in the aspirational scenario for the **West of North Essex** economic area are largely consequential on developments elsewhere: were Stansted airport located in the immediate vicinity of West of Braintree, rather than 13 miles away, the direct airport service jobs that might be created by its expansion would be easier to predict. Of course, West of Braintree residents commuting the relatively short distance to Stansted could fill some of these jobs. But the scenario for employment located within the **West of North Essex** economic area relies on business decisions which may take place as an indirect result of Stansted's expansion decisions.

However, while the additional employment over Scenario 2 is small (and minimal over the long term to 2050, assuming the gains from Stansted come forward in the 2020s and 2030s), Scenario 3a does offer the potential for a greater *qualitative* change in employment. In particular, it is likely that employment created as a result of demand generated from Cambridge's expansion will be relatively high value.

Scenario 3b: 'Potential Unlocked' in Central East of North Essex

Scenario overview

This aspirational scenario for the economic area including Tendring Colchester Borders and Colchester Braintree Borders is primarily based on an increase in Colchester's scale as an urban centre, driven by three main opportunities:

Opportunity 1: Expansion of the University of Essex

The University of Essex is already a major employer and a significant driver of the local knowledge economy. Currently, the Colchester campus accommodates around 13,000 students, with the main campus adjacent to the Tendring Colchester Borders site. The University is growing rapidly, driven by the recent removal of the cap on domestic student numbers and by international demand. The University's *Strategic Plan 2013-19* set out an

aspiration to increase student numbers over the Plan period by 50%[21], and the next strategic plan period is likely to see a further expansion of student numbers[22].

The expansion of the University is closely linked with the development of further business facilities on University land. Located immediately to the southwest of the Tendring Colchester Borders site, the University of Essex Research Park/ Knowledge Gateway is an 11.8ha site on the University campus with the potential to provide 37,160 sq m. commercial accommodation, intended to support the University's links with businesses. According to Colchester's Employment Land Needs Assessment, the Research Park/ Knowledge Gateway scheme as 'having taken some time to gather momentum', with outline consent first granted in 1989[23]. However, recently, public funding has helped the Parkside Office Village facility to come forward and work commenced on a new innovation centre in January 2017. Ultimately, the University state that the Research Park/ Knowledge Gateway could create up to 2,000 jobs[24]. The University also report take-up of workspace on the campus from businesses developed by university alumni and academics, particularly building on the University's research expertise in data science, suggesting potential for locally-based growth.

Opportunity 2: Colchester 's growth as a regional centre

Linked to some extent with the University's expansion, Colchester offers scope for expansion as a retail and service centre, linked with a growing tourism and accommodation offer. In particular, the Borough Council has promoted Colchester as a centre for the creative and media industries, linked with public investment in ultra-fast broadband and building on the University connections[25].

However, the service industry outlook is somewhat mixed. There is evidence of growth in the media and IT sectors, and there has been some office-based employment generated through relocations from London, in addition to local population-derived employment. Some of this has expanded beyond Colchester itself, with (for example) the recent development of smaller-scale (but exogenous) investment to the east of Colchester at Lanswood Park in Elmstead Market. However, within the 'business as usual' scenario, recent office employment gains are forecast to be counteracted by the general loss of employment within the relevant sectors, and much recent service-sector employment (such as in the retail and leisure sectors) has tended to be relatively low-wage. Beyond population demand driven provision, there are also few current proposals for major public sector investment which could yield significant higher value employment, such as regional hospital facilities. So while there is potential for the town's development as a regional centre with a

[21] University of Essex, *Strategic Plan 2013-19*, p.6

[22] These expansion plans are not reported within the "Business as Usual" scenario except insofar as they are reflected in historic patterns of employment growth. For this reason they are principally a characteristic of Scenario 3b

[23] Nathaniel Lichfield/ Colchester Borough Council (January 2015), *Colchester Employment Land Needs Assessment Final Report*

[24] University of Essex, http://www.essex.ac.uk/business/knowledge-gateway/

[25] Colchester Borough Council (2015), *Creative Colchester*

significant creative industries base, this is likely to require a coordinated approach.

Opportunity 3: Growth in the wider Central East of North Essex' hinterland

East of Colchester, the major long-term growth opportunity in Tendring is the expansion of the Port at Harwich, one of the country's major freight ports, with scope for significant expansion through the development of the Bathside Bay container terminal scheme. According to Hutchison Ports, this could lead to the creation of over 700 direct jobs, although the timing of this is uncertain[26]. Around 45ha is currently available in the vicinity of the Port to accommodate logistics activity.

Quantifying the employment impacts

Impact assumptions

As well as the additional employment assumed in Scenario 2, we have assumed additional growth in:

- **Education**, driven by the very ambitious growth of the University, as well as the expansion of regional facilities such as Colchester Institute. We have assumed a high growth rate equivalent to that of Canterbury, which has experienced similarly ambitious growth plans.
- **Media and IT services.** Although media is a priority sector for local partners, employment has actually declined over the past 15 years, in sharp contrast to sector growth in Colchester's comparator towns. We assume that the growth of the university, measures to support the nascent sector and proximity to London help to reverse the recent decline. Linked with media growth, we assume expansion in the broader IT sector, at a level comparable with the comparators.
- **Tourism and leisure-related activities**, as the growth of the university, expansion as a regional centre and the growth of the creative sector drives business, tourism and 'visiting friends and relatives' demand. Specifically, we have assumed:
  - Increased annual growth in the *accommodation* sector, reflecting Colchester's low starting point relative to the identified comparator towns
  - A slight increase in the forecast annual growth in the *food and beverage* sector, again reflecting the relatively small size of the sector in Colchester relative to the comparators
- **Finance and insurance**, a sector which has experienced a considerable employment loss in recent years, despite some London relocations (such as Hiscox and Linklaters). We assume that Colchester's general growth as a regional centre helps to claw back some of these losses and enables employment to remain stable.
- **Professional services**, including professional activities linked with the University. Growth is likely to be incremental, but potentially strongly supported by the growth of the Knowledge Gateway/ Research Park and related facilities.
- **Arts-related activities**. Growth in this sector has been strong in recent years, again associated with the growth of the University and Colchester's regional centre function. However, the arts and cultural sector remains

[26] Tendring District Council, http://www.tendringdc.gov.uk/business/regeneration/bathside-bay

small relative to the comparator areas, and there is likely to be scope for expansion.

However, we have not assumed any increase in ports and logistics-related employment, given the uncertainty regarding the timing of the Port's expansion plans and the risk of double-counting logistics employment with that already accounted for in Scenario 2.

Employment impacts

Taking this additional sector growth into account, employment is forecast to rise in Scenario 3b by around 23,700 over 'Business as Usual' over the period to 2050, as follows:

Table 4.6: Employment impact of Scenario 3b

	2011	2033	2050
Scenario 1 (Baseline)	86,400	109,400	118,400
Scenario 2 (+A120)	86,400	114,000	130,700
Scenario 3b (Potential Unlocked)	86,400	119,800	142,100
Difference over Scenario 1	0	10,400	23,700
Difference over Scenario 2	0	5,800	11,400

Source: SQW and Cambridge Econometrics.

Issues and risks

As in Scenario 3a, the assumptions of additional growth are conservative. While we can be reasonably confident that the University will continue to expand in the medium term, there is greater uncertainty regarding the growth potential of some of the other sectors, not least given the contraction of employment in areas such as media-related activities in recent years. However, a review of the comparator locations suggests that the **Central East of North Essex** focused on Colchester has considerable scope for growth.

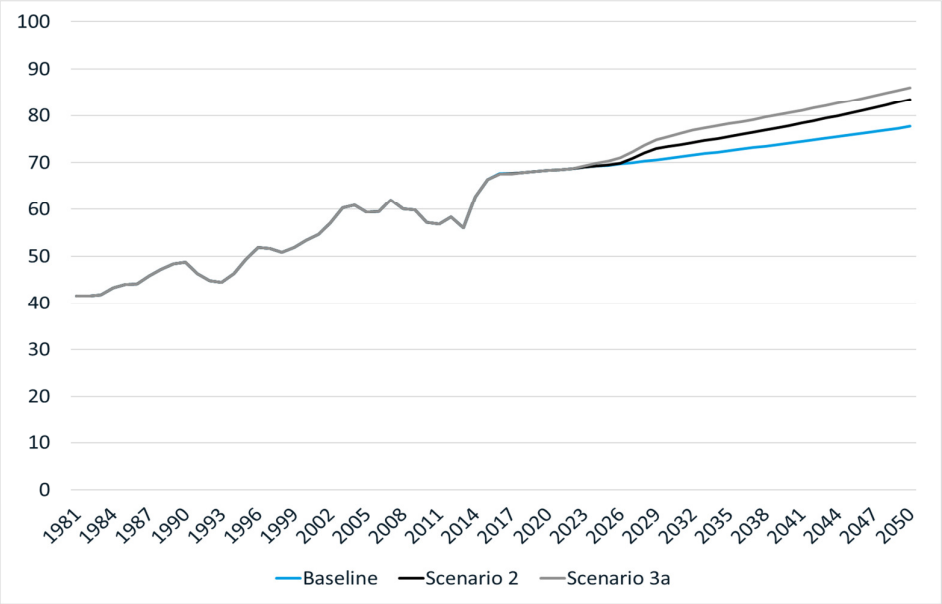
It is likely that the 'Potential Unlocked' scenario will yield a range of occupation types. Direct employment generated by the University and by those businesses locating in places such as Knowledge Gateway are likely to demand higher skills and represent generally higher value. However, the further expansion of the accommodation, food service and related sectors is likely to generate employment requiring a range of skill levels.

It should also be noted that the main opportunities for employment growth over and above 'business as usual' are focused on Colchester itself. The Tendring Colchester Borders site is in close proximity to these, with the site essentially an urban extension to Colchester. However, the Colchester Braintree Borders Garden Community is more distant and, by road and rail, easily accessible to Chelmsford (and London) via the A12 and GEML. Assuming that much of the 'local' employment potential in Colchester itself, establishing an effective MRT or similar system is likely to be important if Colchester Braintree Borders is not to become a largely car-borne settlement on the A12 linked with employment opportunities across the wider East and Mid Essex area.

4.4 Comparing the scenarios

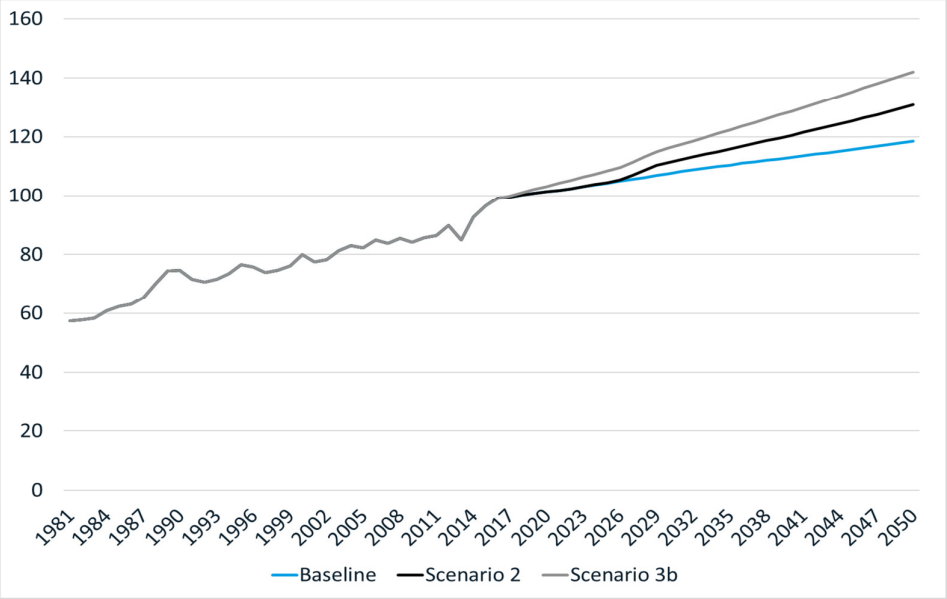
The charts below illustrate the employment effects of the three scenarios:

Figure 4.1: Employment scenarios in the West of North Essex (000s)



Source: Cambridge Econometrics.

Figure 4.2: Employment scenarios in the Central East of North Essex (000s)



Source: Cambridge Econometrics.

In both scenarios, the 'business as usual' rate of growth falls behind growth rates experienced in recent years. Delivery of the A120 improvements in Braintree and Colchester improve growth in both economic areas, although the direct benefits are largely limited to the transport and logistics sectors. The aspirational 'Potential Unlocked' scenario delivers a greater jobs increment in the **Central East of North Essex** than the **West of North Essex**, reflecting

the greater diversity of potential sources of growth, linked with the expansion of the university and associated activities.

5 Employment implications for NEGCs

The different scenarios outlined in Chapter 4 portray plausible, but not inevitable, future outcomes for the **West of North Essex** and **Central East of North Essex** economic areas.

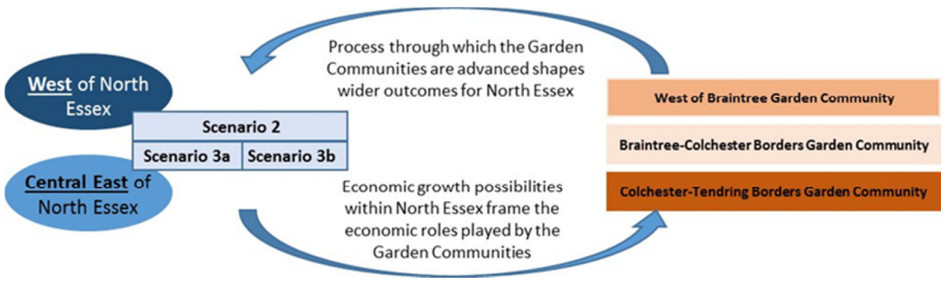
5.1 The relationship between the scenarios and the NEGCs

For the three Garden Communities, the relationship with the scenarios is complicated but important. It needs to be understood from two quite different perspectives.

- **First, the various scenarios effectively frame the range of possibilities in terms of employment roles and functions that could be accommodated within the three Garden Communities.** The opportunities under Scenario 3a or Scenario 3b are potentially transformational, whereas Scenario 2 signals little more than "business as usual" within different parts of North Essex. Within this second context, it is difficult to envisage the three new Garden Communities in terms that are ultimately very different from other parts of the area on current trajectories.
- **Second, however, the manner in which the Garden Communities are designed and developed will itself have a material bearing on the shape of North Essex – and, in our terms, on which of the different scenarios is the closest approximation to the area's future economic narrative.** A cautious and incremental implementation process will tend to align most closely with Scenario 2, and make it more likely to happen. On the other hand, a bolder, more managed (and better resourced) approach to developing the new Communities would increase the prospects of something like Scenario 3a and/or Scenario 3b becoming the outcome across parts of North Essex.

In short, the Garden Communities – and the strategy for delivering them – need to be seen *potentially* (but not inevitably) as catalysts in their own right. The way in which they are delivered will influence the pattern and process of economic development across North Essex over the next few decades (see Figure 5.1).

Figure 5.1: Strategies and scenarios



Source: SQW.

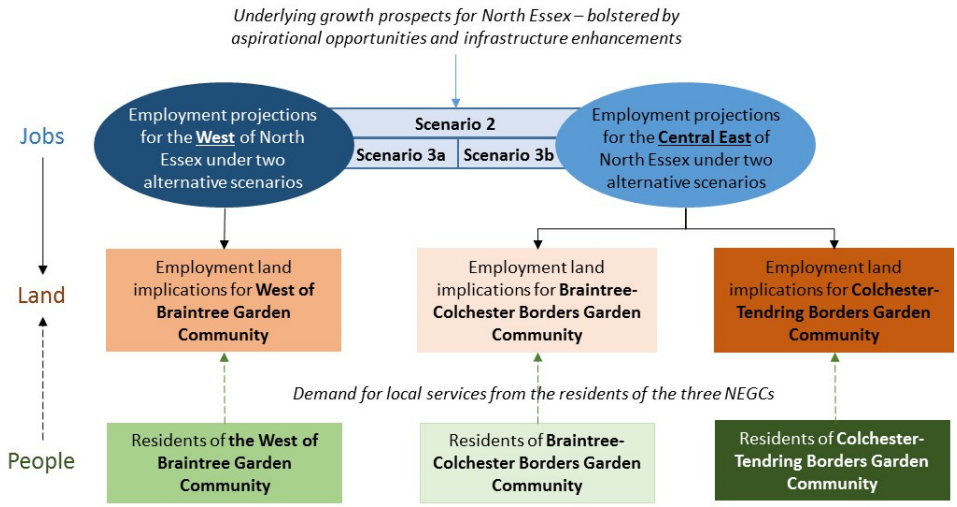
5.2 Employment land possibilities and implications

Within this context, the crucial question that we need to consider is **what employment provision should be made in each of the three Garden Communities to be consistent with (a) the different scenario-defined outcomes and (b) the earlier findings from the demographic modelling?**

In responding to this, it is important to be clear that our comments are informed by two considerations only – the demographic context (as summarised in Chapter 2) and the strategic economic development possibilities (Chapter 4).

In due course, our observations will need to be triangulated with other factors, particularly those relating to site-related issues (e.g. viability and infrastructure). As noted at the start of this report, this second group of issues is the subject of parallel studies which are being undertaken currently by David Lock Associates (in relation to Colchester Braintree Borders and Tendring Colchester Borders) and by Aecom (West of Braintree). Our vantage point therefore needs to be seen as partial – and in itself, it does not provide a sufficient basis for the setting of targets. However, it is an input into that process. It is also an important perspective, particularly in starting to tease out

Figure 5.2: From jobs and people to land and floorspace



Source: SQW

the possible differences between incremental and strongly managed/proactive implementation strategies.

In the paragraphs below, we work through the logic set out in Figure 5.2 above – summarising the employment projections for each part of North Essex and considering the implications for employment provision in each of the three Garden Communities; and then factoring in also some headline findings from the demographic modelling. The context for all this is provided by the commitment within the North Essex Garden Communities Charter. Specifically:

The Garden Communities will seek to provide access to one job per household within the new community or within a short distance by public

transport. The employment function will be a key component of creating character and identity and sustainable communities[27].

5.3 West of North Essex – and West of Braintree Garden Community

The table below summarises the employment projections for **West of North Essex** under the three different scenarios described above (i.e. baseline, Scenario 2 and Scenario 3a).

Table 5.1: Total employment under different scenarios – for West of North Essex

Total Employment (000s)							
	1990	2000	2010	2020	2030	2040	2050
Baseline	48.8	53.4	57.2	68.4	71.0	74.1	77.7
Scenario 2	48.8	53.4	57.2	68.3	73.4	77.9	83.5
Scenario 3a	48.8	53.4	57.2	68.3	75.5	80.6	86.0
Total Employment Compound Annual Growth Rate (CAGR)							
	2010-10	2010-20	2020-30	2030-40	2040-50		
Baseline	0.69%	1.80%	0.37%	0.43%	0.48%		
Scenario 2	0.69%	1.79%	0.72%	0.60%	0.70%		
Scenario 3a	0.69%	1.79%	1.01%	0.66%	0.65%		
Incremental in Total Employment (000s) compared to Baseline by:							
	2020	2030	2040	2050			
Baseline	0.0	0.0	0.0	0.0			
Scenario 2	-0.1	2.4	3.8	5.8			
Scenario 3a	-0.1	4.5	6.5	8.3			

It shows that between 2010 and 2050, total employment in the **West of North Essex** is expected to rise by just over 20,500 jobs on "business as usual" assumptions to a total of 77,700. Under Scenario 2, this increment is greater and by 2050, the total jobs number is 83,500. Under Scenario 3a – the transformational scenario – the figure is projected to be 86,000 jobs, just over 8,000 higher than the baseline projection.

In relation to these numbers, one further point must be made. Although the projected annual growth rate under both of the alternative scenarios is higher than under the baseline, the baseline projection is for notably slower employment growth in the future than has been achieved in the past.

In part this is a statistical quirk – i.e. employment levels fluctuate year-on-year and the growth rate calculated between two estimates "smooths" much

[27] North Essex Garden Communities – North Essex Charter, June 2016

volatility (so the figures "look different" if the "window" is from 1991-2001, rather than 1990-2000). However, it is also consistent with cautious national growth projections (which anticipate, *inter alia*, the consequences of Brexit, the implications of a new presidential term in the USA and uncertainties surrounding the future of the euro). *Even under the most ambitious transformational scenario (Scenario 3a in **West of North Essex**), projected future growth rates are lower than those that have been achieved over the recent past*.

West of Braintree

One of the three new Garden Communities – **West of Braintree** – will be built out within the context provided by these different scenarios.

In the Draft Local Plan for Braintree (June 2016), Policy SP10 is concerned with the West of Braintree New Garden Community. Within it, provision is made for "*B1, B2 and B8 businesses in the southern part of the community close to the A120 to provide for a wide range of local employment opportunities*". In addition, Policy SP10 states that

- *neighbourhood centres* of an appropriate scale will be provided to serve the proposed new community
- a *health facility and community meeting places* will be provided within the district and local centres
- a *secondary school, primary schools and early-years facilities* will be provided to serve the new development
- a network of green infrastructure will be provided within the garden community including a community park, allotments, a new country park provided at the east side of the community, the provision of sports areas with associated facilities and play facilities; *provision of or contribution to indoor leisure facilities*.

Strategically, provision in this Garden Community must complement rather than displace the economic and employment growth ambitions associated with nearby Braintree (town). Over the Plan period (2016-33), it must also be understood alongside the other planned employment provision, notably an extension to the Springwood Drive industrial area (15ha) in Braintree; and Eastlink 120, a planned Innovation and Enterprise Business Park (18.5 ha) near Great Notley.

Using the overall typology summarised in Table 3.2 (see Chapter 3), Table 5.2 considers in narrative terms the possible opportunities for, and drivers of, employment growth within the West of Braintree Garden Community. The four "types" of employment and employment growth refer to a range of endogenous (population-driven) and exogenous (wider growth) processes, but all of them ought to contribute to the overall employment mix.

Table 5.2: Potential implications of different types of employment and processes of employment growth for West of Braintree Garden Community

Type of employment (and employment growth)	Potential implications for West of Braintree Garden Community – including in relation to employment land
Type 1: Goods/services sold in regional/ national/ international markets	
Under all future scenarios:	

• Enabled by outstanding broadband connectivity and by the design of dwellings (which include a "live-work" elements), future residents of the West of Braintree Garden Community will increasingly work from home for employers all over the UK (and beyond)	• As set out in Chapter 2, the new Garden Community is likely to be particularly attractive to younger working age adults and young families. Particularly amongst this group, the incidence of home working is likely to be relatively high. Whilst the associated jobs are not technically "created" by the NEGC, they are associated with it and they are located within it
	• These jobs are overwhelmingly accommodated within people's homes. However, there are some implications for employment provision.
	  ○ first, large numbers of home workers may make good use informal meeting spaces/coffee shops, etc.
	  ○ second, a proportion (particularly those who are self-employed and home-based) may in time favour more formal provision in the form of managed workspace and the like.

*From **West of North Essex** Scenario 2:*	
• A120 improvements – coupled with the immediate effects of a growing Stansted Airport – drive an increase in logistics activity. Employment in related sectors grows substantially faster in the **West** of North Essex than under BAU assumptions	• In practice, it is unlikely that the West of Braintree Garden Community would be an appropriate location for large distribution sheds – although appropriate sites will need to be found elsewhere in North Essex • However, it is entirely possible that the Garden Community could be home to elements of the wider logistics supply chain which – in Use Class terms – might mean both B1 (office) and (B2) industrial provision. There is evidence of demand (for example at Skyline 120 near Great Notley and the potential adjacent Eastlink development) for mixed B1, B2 and B8 uses. • Overall, Scenario 2 points to 1,400 more jobs in directly related sectors in the **West of North Essex** by 2050 as compared to the baseline for 2050. A proportion of these might be located within the Garden Community
*From **West of North Essex** Scenario 3a – as Scenario 2, but with additional elements:*	
• Growth in the Cambridge area and development along the M11 Corridor lead to some knowledge-based activities (particularly in IT/bioscience-related sectors) choosing to expand within the **West of North Essex** as the Cambridge sub-region becomes very expensive	• The "natural" location for employment growth priced out of the Cambridge sub-region would probably be closer to the M11 Corridor than West of Braintree Garden Community, for the travel time to Cambridge is approaching an hour • Nevertheless, particularly with the expansion of Stansted Airport, it is not inconceivable that some related jobs could be supported in the Garden Community, probably mainly in B1 (office) accommodation (including premises for research and development)
• The expansion of Stansted Airport – and the	• Linking with the comments above, the expansion of

growth in scheduled flight destinations – means that the airport itself increasingly acts as a hub which attracts to the **West of North Essex** a range of HQ activities (particularly in knowledge-based sectors)	Stansted Airport (allowing better international connectivity, particularly with elsewhere in Europe but also potentially with North America) should increase the attractiveness of the **West of North Essex** for HQ activities, particularly in sectors which have some resonance with the nearby Cambridge sub-region • Under business as usual assumptions, employment in "Other professional services" is expected to grow by 900 jobs between 2010 and 2050. Under Scenario 3, the corresponding figure is 3,600 jobs. Some of these are likely to be accommodated close to the airport itself, but a proportion – say a third? – could potentially be accommodated in the West of Braintree Garden Community
Type 2: Goods/services sold in local markets	
• As the population of West of Braintree Garden Community starts to grow, demand is generated for shops, leisure activities and other local services provided by the private sector.	• The baseline (BAU) projections point to employment growth in key local service sectors across the **West of North Essex**: the number of retail jobs is projected to rise by about 200 between 2010 and 2050. Under both alternative scenarios, the change in retail jobs is greater • There will be local demand for local services which is generated simply as the resident population of West of Braintree Garden Community starts to grow. Hence it will be important that appropriate provision is made for retail and leisure-related jobs and this should be consistent with the settlement's demography
Type 3: Public services	
• As the population of West of Braintree Garden Community starts to grow, demand is generated for healthcare, education (pre-school, primary, secondary) and other local services provided by the public sector.	• In relation to activities which are significantly delivered by the public sector, the baseline projection for **West of North Essex** points to employment decline between 2010 and 2050 in both education and health, but this is more than offset by growth in residential and social activities • In practice, the picture that is observed in the West of Braintree Garden Community is likely to be really quite different. The balance of demand – certainly initially – will be for younger people's public services, rather than those that tend to be directed to older people's needs
Type 4: Construction	
• As the West of Braintree Garden Community is "built out", construction jobs are generated.	• Construction jobs will be generated both in building the houses within the Garden Community, and in constructing buildings for employment uses. While partners are likely to have a local employment goal, it is likely that there will be some requirement for temporary accommodation on site

Source: SQW.

Working broadly from Table 5.2, it is possible to provide some very broad-brush estimates in relation to jobs[28] and – through the application of standard

[28] It is important to note however that the typologies are different – Table 5.2 is essentially a statement of the economy whereas the analysis that follows (Table 5.3) links this more to the different functions of the NEGCs. For example, "public services" in Table 5.2 are absorbed into "local service jobs serving the residents of the NEGC" in the later analysis. This relationship holds throughout this chapter and in relation to the analyses of all three NEGCs

floorspace densities[29] – their conversion to land requirements. Note that following conventional practice, construction jobs[30] associated with the development itself (which are, by definition, temporary) should be considered as separate and additional to the 'permanent' jobs created on site. That said, it is important to acknowledge that the scale of the settlements and the time they will take to build out are both such that construction jobs will have an impact over the medium term.

Source of jobs	Assumptions	Number of jobs – by 2033	Number of jobs – by 2050	Land implications within the new Garden Community
A: Home-based working	Assume 25% of employed residents are home workers But then deflate by 25% to avoid double counting either (B) or (C)	c. 775 jobs by the end of the Plan Period (2033)	c. 2,665 jobs once the Garden Community is fully built	No direct implications (although the design of housing will be important and there will be indirect implications in terms of demand for local services)
B: Local service jobs serving the residents of the new Garden Community	Assume 150 jobs per 1,000 population (consistent with HCA benchmarks)	c. 1,098 jobs by the end of the Plan Period (2033) – of which 32% are part time	c. 3,942 jobs once the Garden Community is fully built out – of which 32% are part time	The implications for employment land will in practice depend on the mix between public and private sector jobs
C: Exogenous jobs only – driven by the opportunities linked to Scenarios 2 and 3a	A quarter of jobs created under Scenario 2 (as compared to baseline) are accommodated at West of Braintree	c. 353 jobs related to Scenario 2 - of which 10-20% are part time	c. 347 jobs related to Scenario 2 - of which 10-20% are part time	Assuming under Scenario 2 there is an equal mix of office, industrial and warehousing jobs (and applying HCA densities) • Office jobs: 1,069 sq m (NIA) by 2033 (and 1,053 by 2050) • Industrial jobs: 3,207 sq m (NIA) by 2033 (and 3,159 by 2050) • Warehousing jobs: 7,483 sq m (GEA) by 2033 (and 7,372 by 2050)
	A third of jobs created under Scenario 3a (as compared to baseline) are accommodated at West of Braintree	688 jobs related to Scenario 3a - of which 11-13% are part time	798 jobs related to Scenario 3a - of which 11-13% are part time	Assuming under Scenario 3a, these are mainly office jobs, with 10m^2 per FTE • 6,431 sq m (NIA) by 2033 • 7,468 sq m (NIA) by 2050

[29] These are based on *Homes and Communities Agency (2015) – Employment Density Guide* (3rd Edition)

[30] Note that the methodology used for estimating construction jobs is informed by HCA guidance. A similar methodology has been used elsewhere, notably in a study entitled "*NW Bicester Economic Development Strategy*". This formed part of the planning application for the NW Bicester site, which was granted planning permission in 2014. The economic development strategy was a crucial part of the application because NW Bicester was a designated Eco Town, one of the requirements of which was to demonstrate how it was going to generate one job per home. The figure of 0.7 jobs per home was based on HCA guidelines but this figure also coincided with the experience of a major house builder

D: Construction jobs	Assume 0.7 'person years' per home (consistent with HCA/ Offpat guidance) Note that there will also be construction jobs involved in non-residential buildings, etc.	1,750 FTE temporary construction jobs	4,760 FTE temporary constructio n jobs	Some construction employment will require on-site accommodation
TOTAL		c. 2,551 jobs plus 1,750 FTE temporary construction jobs	c. 6,508 jobs plus 4,760 FTE temporary constructio n jobs	

Table 5.3: West of Braintree Garden Community (assuming 2,500 homes by 2033 and 9,300 by 2050)

Source: SQW and Cambridge Econometrics.

5.4 Central East of North Essex – and the two NEGCs in the east of the area

The table below summarises the employment projections for **Central East of North Essex** under the three different scenarios described above (i.e. baseline, Scenario 2 and Scenario 3b).

Table 5.4: Total employment under different scenarios – for *Central East* of North Essex

Total Employment (000s)							
	1990	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**
Baseline	74.7	79.9	85.7	101.4	107.5	113.0	118.4
Scenario 2	74.7	79.9	85.7	101.4	111.2	120.5	130.7
Scenario 3b	74.7	79.9	85.7	103.2	116.1	128.6	142.1
Total Employment CAGR							
	2010-10	**2010-20**	**2020-30**	**2030-40**	**2040-50**		
Baseline	0.70%	1.70%	0.59%	0.50%	0.47%		
Scenario 2	0.70%	1.70%	0.93%	0.81%	0.82%		
Scenario 3b	0.70%	1.88%	1.18%	1.03%	1.00%		
Incremental in Total Employment (000s) compared to Baseline by:							
	2020	**2030**	**2040**	**2050**			
Baseline	0.0	0.0	0.0	0.0			
Scenario 2	0.0	3.7	7.5	12.3			
Scenario 3b	1.8	8.6	15.6	23.7			

Source: Cambridge Econometrics.

It shows that between 2010 and 2050, total employment in the **Central East of North Essex** is expected to rise by just under 33,000 jobs on "business as

usual" assumptions to a total of 118,400. Under Scenario 2, this increment is greater and by 2050, the total jobs number is 130,700. Under Scenario 3b – the transformational scenario – the figure is projected to be 142,100 jobs, nearly 24,000 higher than the baseline projection.

Colchester Braintree Borders Garden Community

The Colchester Braintree Borders Garden Community is one of two that will be developed within the context provided by Table 5.4.

In the Draft Local Plan for Braintree (June 2016), Policy SP9 is concerned with the Colchester Braintree Borders Garden Community (although within Policy SP9, it is labelled "West of Colchester/East of Braintree"). Specifically, provision is made for "*B1 and/or non-B class employment generating uses around the rail station as part of mixed use urban development to provide for a wide range of local employment opportunities where appropriate".*

In addition, Policy SP9 makes provision for various elements of Community Infrastructure, some of which will generate employment. These include:

- a *new district centre and neighbourhood centres* of an appropriate scale to serve the proposed development
- a *health facility and community meeting places* will be provided within the district and local centres
- at least *one secondary school, primary schools and early-years facilities*
- provision of or contribution to *indoor leisure facilities*.

The Colchester Braintree Borders Garden Community is distinctive insofar as it is an urban extension and – certainly as compared to West of Braintree – it is well located relative to the rail infrastructure. This means that in- and out-commuting are both an opportunity and a threat, given the aims of the project overall.

Using the overall typology summarised in Table 3.2 (see Chapter 3), Table 5.5 below considers the possible opportunities for, and drivers of, employment growth within Colchester Braintree Borders Garden Community. Some elements of this are similar to West of Braintree, but other elements are really quite distinctive.

Table 5.5: Potential implications of different types of employment and processes of employment growth for Colchester Braintree Borders Garden Community

Type of employment (and employment growth)	Potential implications for Colchester Braintree Borders Garden Community – including in relation to employment land
Type 1: Goods/services sold in regional/ national/ international markets	
Under all future scenarios:	
• Enabled by outstanding broadband connectivity and by the design of dwellings (which include a "live-work" elements), future residents of the Colchester Braintree Borders Garden Community will increasingly work from home for employers all over the UK (and beyond)	• As set out in Chapter 2, the new Garden Community is likely to be particularly attractive to younger working age adults and young families. Particularly amongst this group, the incidence of home working is likely to be relatively high. Whilst the associated jobs are not technically "created" by the NEGC, they are associated with it and they are located within it • These jobs are overwhelmingly accommodated within people's homes. However, there are some implications for employment provision. o first, large numbers of home workers may make good use informal meeting spaces/coffee shops, etc. o second, a proportion (particularly those who are self-employed and home-based) may in time favour more formal provision in the form of managed workspace and the like.
*From **Central East** **of North Essex** Scenario 2:*	
• A120 improvements – coupled with the immediate effects of a growing Stansted Airport (which have some, but less, impact compared to **West** **of North Essex**) – drive an increase in logistics activity. Employment in related sectors grows substantially faster in than under BAU assumptions	• In practice, we suspect it is unlikely that the Colchester Braintree Borders Garden Community would be an appropriate location for large distribution sheds – although appropriate sites will need to be found elsewhere in North Essex • However, it is entirely possible that the Garden Community could be home to elements of the wider logistics supply chain which – in Use Class terms – might mean both B1 (office) and (B2) industrial provision • Overall, Scenario 2 points to 1,500 more jobs in directly related sectors in the **Central East** of North Essex by 2050 as compared to the baseline for 2050. A small proportion of these (perhaps 10%?) might be located within the Colchester Braintree Borders Garden Community
*From **Central East** **of North Essex** Scenario 3b – as Scenario 2, but with additional elements:*	
• One key element of the transformational scenario relates to the growth of the University of Essex, both directly and in relation to activities linked more-or-less directly to it (e.g. creative sector growth)	• The role of the University of Essex is central to the alternative growth scenario for the **Central East** of North Essex • The immediate impact is likely to be less apparent within Colchester Braintree Borders Garden Community, given its geography, than within the NEGC to the east (i.e. Tendring Colchester Borders). This is especially true of activities that really depend on adjacency to the university campus, although improved transport links could enable better integration with Tendring Colchester Borders and Colchester itself • However, the Colchester Braintree Borders Garden Community is better placed in relation to the wider

	growth of the creative sector and in this context, its connectivity on the north-south axis (with access to London) could be important. Whilst it is still likely to be the minor partner, there may well be some jobs linked to this sector, particularly if good connections across Colchester are in place

• The second major component of the transformational scenario relates to the growth of Colchester and its development as a major sub-national centre	• Colchester is already well established as the major urban area in North Essex (and, arguably, more broadly) and as the population grows, its agglomeration advantages are likely to increase. The expectation would be twofold.
	  ○ first that Colchester will attract more, higher order, professional and service functions
	  ○ second, that Colchester will grow as a hub for leisure and tourism.
	• Within this context, Colchester Braintree Borders Garden Community – with its location close to the A12 – ought to be a major contributor and beneficiary, building on the success of recent commercial developments adjacent to the A12, such as Stanway and the North Colchester Strategic Employment Zone. In relation to this aspect of the growth dynamic, Colchester Braintree Borders is, arguably, the better located Garden Community

Type 2: Goods/services sold in local markets	
• As the population of Colchester Braintree Borders Garden Community starts to grow, demand is generated for shops, leisure activities and other local services provided by the private sector.	• Retail and leisure activities grow substantially under the growth scenarios within Central East of North Essex. Some of this could reasonably be regarded as exogenous growth – as tourists and other visitors are attracted in. However, some will also be the consequence of local population growth • The development of Colchester Braintree Borders Garden Community will contribute to this process (i.e. hotels and leisure activities which complement the offer in Colchester itself) and its own residents will generate local demand
Type 3: Public services	
• As the population of Colchester Braintree Borders Garden Community starts to grow, demand is generated for healthcare, education (pre-school, primary, secondary) and other local services provided by the public sector.	• Jobs in health and education sectors are expected to grow substantially across Central East of North Essex in both alternative scenarios compared to the baseline. One key causal factor is the assumptions made in relation to the University of Essex. However, the associated jobs may not technically be in the public sector. Another key issue in this area is the changing requirements of an ageing population • The growth of the Colchester Braintree Borders Garden Community will generate demand for public services, but mainly those associated with younger people (and children) initially
Type 4: Construction	
• As the Colchester Braintree Borders Garden Community is “built out”, construction jobs are generated.	• Construction jobs will be generated both in building the houses within the Garden Community, and in constructing buildings for employment uses. While partners are likely to have a local employment goal, it is likely that there will be some requirement for temporary accommodation on site

Source: SQW.

From this narrative, it is possible to provide some very broad-brush estimates in relation to jobs and – through the application of standard floorspace densities[31] – their conversion to land requirements. Note that following conventional practice, construction jobs associated with the development itself (which are by definition temporary) should be considered as separate and additional to the 'permanent' jobs created on site.

Table 5.6: Colchester Braintree Borders Garden Community (assuming 2,500 homes by 2033 and 9,300 by 2050)

Source of jobs	Assumptions	Number of jobs – by 2033	Number of jobs – by 2050	Land implications within the new Garden Community
A: Home-based working	Assume 25% of employed residents are home workers But then deflate by 25% to avoid double counting either (B) or (C)	734 jobs by the end of the Plan Period (2033)	2,508 jobs once the Garden Community is fully built	No direct implications (although the design of housing will be important and there will be indirect implications in terms of demand for local services)
B: Local service jobs serving the residents of the new Garden Community	Assume 150 jobs per 1,000 population (consistent with HCA benchmarks)	1,051 jobs by the end of the Plan Period (2033) – of which 32% are part time	3,755 jobs once the Garden Community is fully built out – of which 32% are part time	The implications for employment land will in practice depend on the mix between public and private sector jobs
C: Exogenous jobs only – driven by the opportunities linked to Scenarios 2 and 3b	Some 10% of jobs created under Scenario 2 (as compared to baseline) are accommodated at Colchester Braintree Borders	145 jobs related to Scenario 2 - of which 10% are part time	153 jobs related to Scenario 2 - of which 10% are part time	Assuming these is an equal mix of office, industrial and warehousing jobs (and applying HCA densities) • Office jobs: 452 sq m (NIA) by 2033 (and 479 sq m by 2050) • Industrial jobs: 1,355 sq m (NIA) by 2033 (and 1,436 sq m by 2050) • Storage/distribution: 3,162 sq m (GEA) by 2033 (and 3,351 by 2050)
	Scenario 3b is complicated as it is multi-sectoral and it frames the growth of two NEGCs. It is assumed that between 5% and 33% of growth in nine sectors in Scenario 3b (as compared to baseline) are accommodated at Colchester Braintree Borders	984 jobs related to Scenario 3b - of which the proportion that are part time varies by sector	2,383 jobs related to Scenario 3b - of which the proportion that are part time varies by sector	Among B Use classes, most of the jobs created are office jobs. Applying an average density of 10m^2 per FTE, this translates into: • 6,858 sq m (NIA) by 2033 • 16,525 sq m (NIA) by 2050 Note however that Scenario 3b also generates significant demand for floorspace that is outside the B Use classes – principally that from the education sector, accommodation and beverages, and arts-related

[31] These are based on *Homes and Communities Agency/Offpat (2010) – Employment Densities Guide*

				activities
D: Construction jobs	Assume 0.7 'person years' per home (consistent with HCA/ Offpat guidance) Note that there will also be construction jobs involved in non-residential buildings, etc.	1,750 FTE temporary construction jobs	4,760 FTE temporary construction jobs	Some construction employment will require on-site accommodation.
TOTAL		c. 2,572 jobs plus 1,750 FTE temporary construction jobs	c. 7,629 jobs plus 4,760 FTE temporary construction jobs	

Source: SQW and Cambridge Econometrics.

Tendring Colchester Borders Garden Community

To the east of Colchester, the Tendring Colchester Borders Garden Community will be the second NEGC to be developed broadly within the context provided by Table 5.4.

Within the North Essex Authorities' Strategic Part 1 for Local Plans, is a policy devoted to "East Colchester/West Tendring New Garden Community". It makes provision for "*B1 and/or non-B class employment generating uses towards the south of the site in proximity to the existing University of Essex and Knowledge Gateway, to provide for a wide range of local employment opportunities where appropriate*"; and "*for B1, B2 and B8 businesses to the north of the site close to the A120*". In addition, there is provision for a range of community infrastructure including schools (nursery, primary secondary), healthcare facilities and leisure amenities.

Again using the overall typology summarised in Table 3.2, Table 5.7 below considers the possible opportunities for, and drivers of, employment growth within this third NEGC. Again, some elements of are similar to the other NEGCs but others are not. Note that following conventional practice, construction jobs associated with the development itself (which are by definition temporary) should be considered as separate and additional to the 'permanent' jobs created on site.

Table 5.7: Potential implications of different types of employment and processes of employment growth for Tendring Colchester Borders Garden Community

Type of employment (and employment growth)	Potential implications for Tendring Colchester Borders Garden Community – including in relation to employment land
Type 1: Goods/services sold in regional/ national/ international markets	
Under all future scenarios:	
• Enabled by outstanding broadband connectivity and by the design of dwellings (which include a "live-work" elements), future residents of the Tendring Colchester Borders Garden Community will increasingly work from home for employers all over the UK (and beyond)	• As set out in Chapter 2, the new Garden Community is likely to be particularly attractive to younger working age adults and young families. Particularly amongst this group, the incidence of home working is likely to be relatively high. Whilst the associated jobs are not technically "created" by the NEGC, they are associated with it and they are located within it • These jobs are overwhelmingly accommodated within people's homes. However, there are some implications for employment provision. o first, large numbers of home workers may make good use informal meeting spaces/coffee shops, etc. o second, a proportion (particularly those who are self-employed and home-based) may in time favour more formal provision in the form of managed workspace and the like.
*From **Central East** of North Essex Scenario 2:*	
• A120 improvements – coupled with the immediate effects of a growing Stansted Airport (which have some, but less, impact compared to **West of North Essex**) and in the wider context too of the East coast ports – drive an increase in logistics activity. Employment in related sectors grows substantially faster than under BAU assumptions	• In practice, we suspect it is unlikely that the Tendring Colchester Borders Garden Community would be an appropriate location for large distribution sheds – although appropriate sites will need to be found elsewhere in North Essex • However, it is possible that the Garden Community could be home to elements of the wider logistics supply chain which – in Use Class terms – might mean both B1 (office) and (B2) industrial provision • Overall, Scenario 2 points to 1,500 more jobs in directly related sectors in the **Central East of North Essex** by 2050 as compared to the baseline for 2050. A small proportion of these (perhaps 5%?) might be located within the Tendring Colchester Borders Garden Community
*From **Central East** of North Essex Scenario 3b – as Scenario 2, but with additional elements:*	
• One key element of the transformational scenario relates to the growth of the University of Essex, both directly and in relation to activities linked more-or-less directly to it (e.g. creative sector growth)	• The role of the University of Essex is central to the alternative growth scenario for the **Central East of North Essex** • The immediate impact is likely to be especially important for Tendring Colchester Borders Garden Community. This is especially true of activities that really depend on adjacency to the university campus. In principle, there are opportunities for significant growth in allied activities, many of which perform strongly on productivity metrics, and there is strong recent evidence that development on the University campus itself (i.e. the Knowledge Gateway located on the southern edge of Tendring Colchester Borders) is coming forward.

• The second major component of the transformational scenario relates to the growth of Colchester and its development as a major sub-national centre	• Colchester is already well established as the major urban area in North Essex (and, arguably, more broadly) and as the population grows, its agglomeration advantages are likely to increase. The expectation would be twofold. o first that Colchester will attract more, higher order, professional and service functions o second, that Colchester will grow as a hub for leisure and tourism. • Within this context, Tendring Colchester Borders Garden Community – with its location close to the University of Essex and central Colchester – ought to be a major contributor and beneficiary
Type 2: Goods/services sold in local markets	
• As the population of Tendring Colchester Borders Garden Community starts to grow, demand is generated for shops, leisure activities and other local services provided by the private sector.	• Retail and leisure activities grow substantially under the growth scenarios within **Central East of North Essex**. Some of this could reasonably be regarded as exogenous growth – as tourists and other visitors are attracted in. However, some will also be the consequence of local population growth • The development of Tendring Colchester Borders Garden Community will contribute to this process and its own residents will generate local demand
Type 3: Public services	
• As the population of Tendring Colchester Borders Garden Community starts to grow, demand is generated for healthcare, education (pre-school, primary, secondary) and other local services provided by the public sector.	• Jobs in health and education sectors are expected to grow substantially across **Central East of North Essex** in both alternative scenarios compared to the baseline. One key causal factor is the assumptions made in relation to the University of Essex. However, the associated jobs may not technically be in the public sector. Another key issue in this area is the changing requirements of an ageing population • The growth of the Tendring Colchester Borders Garden Community will generate demand for public services, but mainly those associated with younger people (and children) initially
Type 4: Construction	
• As the Colchester Braintree Borders Garden Community is "built out", construction jobs are generated.	• Construction jobs will be generated both in building the houses within the Garden Community, and in constructing buildings for employment uses. While partners are likely to have a local employment goal, it is likely that there will be some requirement for temporary accommodation on site

Source: SQW.

From this narrative, it is possible to provide broad-brush estimates in relation to jobs and – through the application of standard floorspace densities[32] – their conversion to land requirements.

[32] These are based on *Homes and Communities Agency (2015) – Employment Density Guide* (3rd Edition)

Table 5.8: Tendring Colchester Borders Garden Community (assuming 2,500 homes by 2033 and 7,600 by 2050)

Source of jobs	Assumptions	Number of jobs – by 2033	Number of jobs – by 2050	Land implications within the new Garden Community
A: Home-based working	Assume 25% of employed residents are home workers But then deflate by 25% to avoid double counting either (B) or (C)	660 jobs by the end of the Plan Period (2033)	1,847 jobs by 2050	No direct implications (although the design of housing will be important and there will be indirect implications in terms of demand for local services)
B: Local service jobs serving the residents of the new Garden Community	Assume 150 jobs per 1,000 population (consistent with HCA benchmarks)	1,014 jobs by the end of the Plan Period (2033) – of which 32% are part time	2,924 jobs once the Garden Community is fully built out – of which 32% are part time	The implications for employment land will in practice depend on the mix between public and private sector jobs [nbsqw]
C: Exogenous jobs only – driven by the opportunities linked to Scenarios 2 and 3b	Some 5% of jobs created under Scenario 2 (as compared to baseline) are accommodated at Tendring Colchester Garden Community	72 jobs related to Scenario 2 - of which 5% are part time	76 jobs related to Scenario 2 - of which 5% are part time	Assuming these is an equal mix of office, industrial and warehousing jobs (and applying HCA densities) • Office jobs: 226 (NIA) by 2033 (and 239 by 2050) • Industrial jobs: 678 sq m (NIA) by 2033 (and 718 by 2050) • Storage/distribution jobs: 1,581 sq m (GEA) by 2033 (and 1,676 by 2050)
	A variable (from 5% to 50%) but overall, a relatively high, proportion of jobs created under Scenario 3b (as compared to baseline) are accommodated at Tendring Colchester	2,133 jobs related to Scenario 3b - of which the proportion that are part time varies by sector	4,899 jobs related to Scenario 3b - of which the proportion that are part time varies by sector	Assuming these are mainly office jobs with $10m^2$ per FTE • 11,276 sq m (NIA) by 2033 • 26,231 sq m (NIA) by 2050 In practice, some of these jobs might be accommodated at a slightly lower density in B1(b) R&D space Note however that in Tendring Colchester Borders, Scenario 3b also generates significant demand for floorspace that is outside the B Use classes – principally that from the education sector, accommodation and beverages, and arts-related activities.
D: Construction jobs	Assume 0.7 'person years' per home (consistent with HCA/ Offpat guidance) Note that there will also be construction jobs involved in non-residential buildings, etc.	1,750 FTE temporary construction jobs	3,570 FTE temporary construction jobs	Some construction employment will require on-site accommodation
TOTAL		c. 3,572 jobs plus 1,750 FTE	c. 8,885 jobs plus 3,570 FTE	

	temporary construction jobs	temporary construction jobs

Source: SQW and Cambridge Econometrics.

6 Conclusion

6.1 Summarising the key demographic findings

Under the 'most likely' demographic scenario for each settlement (2,500 dwellings by the end of the plan period (2033), with construction continuing at similar annual rates thereafter until completion of each settlement; and assumptions for in- and out-migration based on those for similar new settlements), population is estimated to peak at: just over 32,000 inhabitants by 2056 in 'West of Braintree'; just over 43,000 by 2071 in Colchester Braintree Borders, and; just over 20,000 by 2051 in Tendring Colchester Borders.

Total population in each settlement is then expected to decline, due to ageing of the population (as older people form smaller households), and under the assumption of no new houses being built.

Once the settlements are completed, the age profile of the population in each of the settlements is expected to be skewed towards a younger population when compared to the existing (2015) population profiles of the wider district(s) as a whole. The settlements are expected to have a larger proportion of their population aged under 45 years old compared to the existing population in the wider district(s) at the moment. In particular, there is expected to be a larger proportion of children aged under 15 years old in the settlements than is currently in the wider district(s), highlighting the importance of the provision of schools.

In the longer term, by 2101, the age profile of the population in each of the settlements is expected to be similar to that of England as a whole[33], with a larger proportion of the population aged over 85 years old (10-15%) and a fairly even proportion of people across most other 5-year age bands (4-6%). A faster, more ambitious, build-out rate would lead to a slightly higher peak population (which would be reached sooner), due to the larger numbers of young population and children moving into the settlements. During the earlier phases of the development, there is likely to be faster growth in children of primary and secondary school age under an accelerated build-out rate, as younger adults moving in are more likely to bring children with them or form families shortly after moving in, increasing demand for schools. Once the settlement is completed and the population starts to age, the number of children of primary and secondary school age will decline more steeply in an accelerated build-out rate scenario, resulting in a much lower requirement for local schools.

The number of people aged 70 and over would grow at a faster rate under an accelerated build-out rate, as more people move in during the early phases of the development and the existing population starts to age. As a result, at its peak (around 40 years after building is completed in each scenario), the elderly population is slightly larger in an accelerated build-out rate scenario, increasing the need for elderly care services.

[33] Based on the 2014-based ONS national population projections.

6.2 Summarising the key employment-related findings

In relation to jobs

Table 6.1 provides a summary of the analysis from preceding chapters insofar as it relates to employment growth within different parts of North Essex and to the potential employment "footprint" of the three new NEGCs.

Table 6.1: Summary Table

	By 2033	By 2050
West of North Essex – jobs created under transformational scenario (Scenario 3a) in excess of BAU baseline	5,400	8,300
NEGC 1:		
• West of Braintree – jobs created (excl construction jobs)	2,913	7,752
NEGC jobs (excl construction jobs) as % of total increment	*54%*	*94%*
• West of Braintree – jobs (excl construction jobs) per house	1.17	0.83
Central East of North Essex - jobs created under transformational scenario (Scenario 3b) in excess of BAU baseline	10,400	23,700
NEGC 2:		
• Colchester Braintree Borders – jobs created (excl construction jobs)	2,914	8,799
NEGC jobs (excl construction jobs) as % of total increment	*28%*	*37%*
• Colchester Braintree Borders – jobs (excl construction jobs) per house	1.17	0.95
NEGC 3:		
• Tendring Colchester Borders – jobs created (excl construction jobs)	3,880	9,747
NEGC jobs (excl construction jobs) as % of total increment	*37%*	*41%*
• Tendring Colchester Borders – jobs created (excl construction jobs) per house	1.55	1.28

It shows that:

- On the basis of a series of assumptions, the NEGCs could account for a significant component of the additional employment growth which is linked to the alternative scenarios (albeit through different processes).
- All three NEGCs are likely to be associated with significant jobs growth, albeit of varying forms. The presumption is that jobs linked to exogenous growth processes may be physically on site (and appropriate provision will need to be made for them). Those linked to homeworking will be physically associated with the homes of residents and therefore also on site; in relation to these jobs, the design of housing will be crucially important. Those related to the consumption of local services may or may not be on site, but all will be reasonably "local"; provision in relation to this

component will need to be planned so as to complement, rather than displace, existing local service provision (e.g. in the town of Braintree).

- In terms of the TCPA aspiration of "one job per house", all three NEGCs appear to be "within range". Broadly, Tendring Colchester Borders does best – which is plausible, given its proximity to a growing and ambitious university, and the role universities can play in driving high value economic growth. For West of Braintree, the aspiration is more challenging. This reflects the wider economic dynamics of the sub-area of which it is a part, and its specific locational attributes.

In principle, then, the data in Table 6.1 imply that all three NEGCs could potentially contribute to the delivery of aspirational growth scenarios across North Essex. In this context, two further observations are important:

- The table above does not include temporary jobs linked to the construction process. In practice, these are likely to be substantial in number and of some longevity, given the scale and duration of the construction process. As we consider below, the relationship of the NEGCs and the construction process ought, in itself, to be a strategic consideration for partners across North Essex
- The analysis of the wider scenarios makes assumptions about multipliers through LEFM and insofar as this growth is effectively apportioned to the NEGCs, the presumption is that multiplier effects are included. It could be that more localised effects are greater – but at this stage, this is impossible to determine.

In relation to land

The analysis in Table 6.1 is focused on jobs, not on land allocations *per se*. There is a relationship between the two, although not an uncomplicated one. Particularly for Tendring/Colchester borders, it may be the case that a proportion of jobs are accommodated on land to the south – so not strictly on the site of the NEGC, although very close to it. If this is the case, on-site provision would be proportionately less.

Across all three NEGCs, the availability of serviced employment land will be a key consideration in seeking to attract businesses, along with the flexibility of employment uses. In addition, there may well be an early opportunity in relation to the provision of "grow-on" space. This is in short supply across Essex[34] and it could be a relatively quick win for one or more of the NEGCs in relation to their employment strategies. Hence the allocation of employment land is not the only issue; when, how and the terms under which this is released to the market will also be equally significant. More generally, there will need to be a positive – rather than passive and simply permissive – approach to employment growth.

6.3 The role of NEGCs in relation to wider growth ambitions for North Essex

In practice, the nature and certainty of the NEGC's "contribution" needs some reflection. The NEGCs are not simply beneficiaries of – and destinations for –

[34] Grow On Space Feasibility Study – Report to Essex County Council by SQW, October 2016

wider growth processes. Instead – as illustrated in Figure 5.1 – they are a determinant of those growth processes. The growth processes themselves are not inevitable and the manner in which the NEGC "project" is delivered from here will have a material bearing on which of the different scenarios is, in practice, most likely to be realised.

The aspirational scenarios – Scenario 3a in the West of North Essex and Scenario 3b in the Central East of North Essex – are very ambitious. Their achievability depends on many different factors, some of which are very difficult to influence (e.g. global economic conditions). However, the likelihood of achieving them will increase if:

- across North Essex, a proactive economic growth plan is put in place
- the NEGCs are delivered in a manner which itself is proactive, visionary, managed and appropriately resourced.

This study has not sought to develop an economic growth plan for North Essex – although the findings from it ought to be helpful in seeking to inform one.

Instead, by way of conclusion, we offer some observations on the NEGC venture and – from an economic growth perspective – the issues that local partners, particularly the local authorities, will need to consider. We then comment briefly on the consequences for planning policy.

6.4 Advancing the NEGC project

The NEGCs must be advanced proactively, if they are to make a strong, positive, contribution to the economic future of North Essex. In broad terms, this leads to four overarching imperatives.

The need for a clear and ambitious Vision for the NEGCs

It will be important that there is a real commitment to the NEGCs politically, not just as a solution to the challenge of housing provision in North Essex but as the centre-piece of the area's wider growth ambition. Creating housing estates in the greater south east should not be too difficult (given the underlying scale of demand, and galvanised by the provisions of the new Housing White Paper). Building vibrant communities quickly is very much more challenging – and without clear and sustained political leadership, it will be impossible. This vision should include the relationship between the Garden Communities and their neighbouring existing settlements: for example, even with the achievement of the one job per dwelling aspiration, Colchester will remain an important employment and service centre for the Tendring Colchester Borders and Colchester Braintree Borders Communities, and both Communities should support and enhance the sustainability of Colchester as a major regional centre.

Across the NEGCs, there is the additional challenge that three district councils (and Essex County Council) will need to work together. Through the shared planning statement (Part 1 of each individual Local Authority Preferred Options Local Plan 2017-2033), a good foundation has been put in place, but this will need to be consolidated and built upon. It will be important that the NEGCs do not start to compete with each other – and in this context too, strong political leadership across North Essex will be vital.

The need for the NEGCs to be functional and aspirational places from the outset

Looking ahead – and consistent with the Vision – the NEGCs must be aspirational places from the outset, not simply locations in North Essex where housing is slightly less expensive.

This means that they will need to function as communities – including in respect of employment – from the outset. It also means that they need to be designed to anticipate mid-21st century lifestyles to the full. This level of foresighting is not easy but it ought to include, *inter alia:*

- provision for "the best" digital connectivity
- a response to patterns of living and working that appear to be changing very quickly
- a recognition that the 20-year olds of today are likely to need to work well beyond current state pension age…
- … and that an increasingly ageing population is likely to lead to demand for a greater variety of housing types over the course of a lifetime
- a response to changing aspirations – already the "millennials" are concerned more with "experience" than "owning things" (e.g. cars) and the NEGCs need to be places where the aspirations of the "millennials" (and the generations that follow) are realised
- acknowledgement that forms of local service delivery are likely to change substantially, in part as a result of an on-going digital revolution: the NEGCs need to be exemplary in these terms.

The need for appropriate resourcing and governance

A third comment is that the delivery of the NEGCs needs to be properly resourced and with appropriate arrangements in relation to governance. Too often, infrastructure (particularly community infrastructure) tends to follow house building, rather than the other way around, and the consequence is that new communities – which are anyway challenging projects – get off to a very bad start, generating social challenges and problems in the process. These issues have certainly been seen elsewhere, and lessons need to be learnt. It will be crucial that the design and delivery of the NEGCs is properly thought through with the wider aspirations firmly in mind. This will have implications in terms of resourcing and wider governance.

Governance itself is likely to have different meanings at different stages in the process. Looking back – albeit on a larger scale – the role of the New Town Development Corporations was very important and, in some cases, very effective – although Development Corporations were not without their critics. Would the North Essex local authorities consider adopting at least *elements* of these models? It is worth reflecting in this context on the scale of the three NEGCs, particularly if taken together. These are big, long term, projects and they need a governance structure that can cope and can take decisions that may well be locally unpopular, at least initially: short term incrementalism is very unlikely to result in three aspirational NEGCs, or in the delivery of the aspirational scenarios set out earlier in this report.

The need to "shorten the odds" – by preparing North Essex for the NEGCs

Finally, although we have not sought to develop an economic plan for North Essex, the wider area must itself be prepared for the NEGCs. Hence the NEGC project is itself posing some challenges for North Essex. These ought to be considered and addressed. Specifically:

- Developing three new NEGCs simultaneously will require significant capacity within the construction sector. While the main contractors will be national players, there is likely to be demand for a supply of local labour to fill construction jobs for some decades. The implications need to be worked through with training providers and construction-related opportunities ought to be communicated to the current (and future) workforce. In addition, local firms ought to be equipped to take advantage of wider supply chain opportunities which are likely to emerge
- The aspirational growth scenarios represent a step change in the economy across North Essex. Consideration ought to be given to whether workforce skills are "good enough" to realise this potential. Locally, work is underway in the domain of workforce skills, but it will be important that this – and any future work – takes into account fully the challenges and opportunities posed by the aspirational growth scenarios
- In realising the aspirational growth scenarios, the role of key organisations – perhaps most especially the University of Essex but also major businesses – will be critical. It will be important that future investment plans are appropriately aligned. In this context, it may be appropriate to form (something like) an "economic futures steering group" for the NEGCs that can take a long term and strategic view, and help to bring the aspirational growth scenarios about
- Finally, the ambitions for the NEGCs will be achievable only if there is sufficient appetite for real economic transformation locally. It will be important that civic, political and business leaders align consistently and enthusiastically behind a shared and aspirational Vision. In advancing the NEGCs, there will need to be an abundance of both leadership and Vision.

6.5 Implications for planning policy

The North Essex Authorities' Strategic Part 1 for Local Plans sets out a framework for the NEGCs. The observations and comments below are informed by the findings from this study.

Policy SP5 – Place Shaping Principles	Various principles are identified, but three could be added in order to anticipate the NEGCs more fully: • a clear economic purpose and vision as a defining principle of place-based development processes, and within that, a clear line of sight in relation to ambitions for North Essex more broadly • a commitment to "designing in" digital connectivity • a commitment to developing places are quickly

	recognised as vibrant communities and "great places to live"
Policy SP6 – Spatial Strategy for North Essex	It might be helpful to strengthen the commitment to the NEGCs in this context – i.e. to present them more centrally within the overall spatial strategy In addition, the Spatial Strategy ought to make a clearer reference to the imperatives linked to achieving transformational economic growth
Policy SP7 – Development and delivery of new garden communities	Currently, the policy refers to "*providing opportunities for employment*", but it is not cast in aspirational terms (unlike the commitment to the "*highest quality of planning, design and management of built and public realm*"). The policy ought to be aspirational and ambitious in relation to the NEGCs' economic roles, whilst also acknowledging that these roles are nested within overall ambitions for North Essex
Policy SP8 – East Colchester West Tendring / New Garden Community	The employment strand could be expressed in more positive and visionary terms, not simply in terms of local employment provision. It may be helpful to refer to some of the themes implicit within Scenario 3b
Policy SP9 – West of Colchester / East of Braintree New Garden Community	The employment strand could be expressed in more positive and visionary terms, not simply in terms of local employment provision. It may be helpful to refer to some of the themes implicit within Scenario 3b
Policy SP10 – West of Braintree New Garden Community	The employment strand could be expressed in more positive and visionary terms, not simply in terms of employment provision. It may be helpful to refer to some of the themes implicit within Scenario 3a

Appendices

Appendix A List of Consultees

Organisation	Name
Braintree District Council	Emma Gooding Anita Thornberry
Colchester Borough Council	Laura Chase Jim Leask
Essex Chambers of Commerce	David Burch
Essex County Council	Helen Code Kevin Fraser
MAG Stansted Airport	Chris Wiggan
NHS Community Health Partnerships	Ian Greggor
South East Local Enterprise Partnership	Adam Bryan
Tendring District Council	Tom Gardiner Hilary Rowland
University of Essex	Jamie Burns
Uttlesford District Council	Gordon Glenday

Appendix B Key strategies and reports

AECOM (2016), North Essex Garden Communities: Garden Communities Charter

AECOM (2016), North Essex Garden Communities: Concept Feasibility Study – Volume 1: Opportunities and Constraints

Town and Country Planning Association (2012), Creating Garden Cities and Suburbs Today

Appendix C The Chelmer Population and Housing Model

Background to Chelmer

The Chelmer Population and Housing Model (Chelmer Model) was originally developed and applied over a long period of time by the Population and Housing Research Group at Anglia Ruskin University, under the direction of Professor Dave King. It has developed a well-founded reputation among local authorities, planning bodies, property developers and others for providing robust and well-founded analysis for many planning enquiries.

Cambridge Econometrics took over the ongoing development and maintenance of Chelmer when the Population and Housing Research Group disbanded in 2008.

An overview of the model

Chelmer models the interaction between population and housing in an area over time. It considers the pattern of change over a series of five-year periods to provide results for specified years, starting from 2011 (the base year of the model). In projecting change, some factors are assumed, (taken as given), and others are determined by the model. The logic underpinning the model (the model equations) determines the link between the assumptions and the results.

Chelmer can work using a series of different modes (logic chains), which differ in which factors are taken as 'given' and which factors are calculated to achieve consistency. The alternative two logic flows can be broadly described as:

- 'Unconstrained'
  - where the primary drivers of change are assumed demographic trends, and the implications of these, such as demand for housing, are assumed to be accommodated - ie there is no impact from the planning system on demographic trends.
- 'Constrained'
  - For example, when the future level of housing provision is 'given' and the future structure of the population is modelled to be consistent (given assumptions for rates of natural change). In these cases, migration responds to the constraint to ensure balance. In Chelmer, a constrained scenario can be developed in relation to dwellings, population, labour force or the number of households (see below for more details).

The 'Constrained' approach, which was relevant for this study, is described in more detail below.

Dwelling-constrained projections

The starkest contrast to the unconstrained projections is when the future number of houses in a locality is known and thereby acts as a constraint on the size of the future population. Figure C.1 shows the model logic when the future number of dwellings is assumed. Broadly, it is the reverse logic to that used for an 'unconstrained' projection.

The total number of households is set by the assumed number of dwellings given assumptions of empty properties, the number of shared dwellings and the average number of households in each shared dwelling.

The profile of households (in terms of type) will be determined from the projected population given the assumptions made for representative household rates by age and gender. In projecting the population profile, adjustments are made (see below for more details) such that the total number of households calculated from the population and representative household rates is the same as the total number of households consistent with the dwellings assumption.

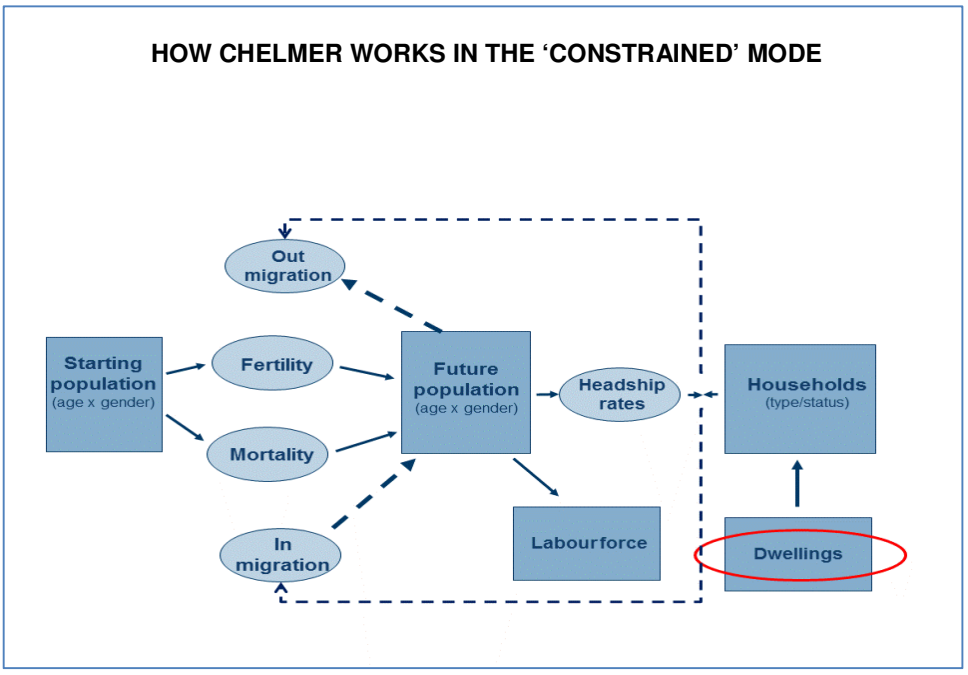
Population

Given the current profile of the population and assumptions for fertility and mortality rates, levels of migration (by age and gender) to/from the area are calculated to produce an estimate of the population that, when the assumed representative household rates are applied, results in the same number of households as arising directly from the dwellings assumption.

Other variables

Estimates of the labour force in an area are calculated by applying age/gender-specific activity rates to the estimated population. Although outside the scope of Chelmer, the available labour force will influence the level of employment an area can sustain (however, the link between the labour force and employment in a local area is a complex one, given commuting).

Figure C.1 How Chelmer works in the 'Constrained' mode



Source: Cambridge Econometrics.